THE 1978 MIDYEAR REVIEW OF THE ECONOMY

HEARINGS

BEFORE THE

JOINT ECONOMIC COMMITTEE

CONGRESS OF THE UNITED STATES

NINETY-FIFTH CONGRESS

SECOND SESSION

PART 1

JUNE 28 AND 29, AND JULY 11, 1978

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CONTENTS

WITNESSES AND STATEMENTS

WEDNESDAY, JUNE 28, 1978

The Economic Outlook

THURSDAY, JUNE 29, 1978

Monetary Policy

TUESDAY, JULY 11, 1978

Investment in the Current Recovery

SUBMISSIONS FOR THE RECORD

WEDNESDAY, JUNE 28, 1978

THURSDAY, JUNE 29, 1978

TUESDAY, JULY 11, 1978

THE 1978 MIDYEAR REVIEW OF THE ECONOMY

WEDNESDAY, JUNE 28, 1978

THE ECONOMIC OUTLOOK

CONGRESS OF THE UNITED STATES,
JOINT ECONOMIC COMMITTEE,
Washington, D.C.

The committee met, pursuant to notice, at 10:20 a.m., in room 1202, Dirksen Senate Office Building, Hon. Lloyd Bentsen (vice chairman of the committee) presiding.

Present: Senators Bentsen, Proxmire, Javits, Roth, and McClure.

Also present: John R. Stark, executive director; Louis C. Krauthoff II, assistant director; Richard F. Kaufman, assistant director-general counsel; Lloyd C. Atkinson, Thomas F. Dernburg, Kent H. Hughes, L. Douglas Lee, Deborah Norelli Matz, and M. Catherine Miller, professional staff members; Mark Borchelt, administrative assistant; and Charles H. Bradford, Stephen J. Entin, and Mark R. Policinski, minority professional staff members.

OPENING STATEMENT OF SENATOR BENTSEN, VICE CHAIRMAN

Senator BENTSEN. The committee will come to order. Let me apologize for being late.

We have recently done a great service to ourselves. We have cut down on the number of committee hearings that meet at the same time. Today I had only three.

I was downstairs at the Finance Committee, where the Secretary of the Treasury was discussing some of these tax measures. The subject of our discussion here is exactly what we were discussing down below.

This morning we are convening to begin the JEC's midyear review of the American economy. Today's hearing will focus on the economic outlook.

Since this committee reviewed the state of our economy earlier this year, a number of events occurred which will have a substantial impact on the outlook for the remainder of 1978 and for 1979.

First: The first quarter GNP statistics were considerably below the expectations of many economists and forecasters. Even with the data revisions, we still had a very poor first quarter with zero growth. Despite the disappointing growth performance, the unemployment rate has fallen more quickly than most forecasters had anticipated.

Second: Interest rates have risen dramatically since the beginning of this year, and may continue to do so. I will ask you gentlemen for your

judgments on that subject and your assessment of the impact that the interest rate increases will have on our economic performance.

Third: It now appears that the tax cut, which many forecasters had assumed would become effective in late 1978, will not go into effect until 1979. In addition, the size of the tax cut, when it is finally approved by Congress, may be substantially less than the President requested and less than forecasters were assuming earlier this year.

Fourth: In January President Carter estimated that the budget deficit would exceed $60 billion. It now seems likely that the deficit will be roughly $50 billion for fiscal year 1978 and even smaller in 1979.

All of these factors will have an influence on our economic performance for the remainder of this year and for 1979. This makes it imperative that we reassess the state of our economy and the outlook for the future.

I trust that you gentlemen will identify other sources of change in our economy and direct our attention toward the economic policies best designed to address the problems that you foresee.

Our first witness this morning will be Prof. Gerard Adams, professor of economics and finance at the Wharton School of Finance, University of Pennsylvania. The second witness will be Prof. Walter Heller, professor of economics at the University of Minnesota and former Chairman of the President's Council of Economic Advisers. The next witness is Mr. Henry Kaufman, a partner in Salomon Bros. The final witness will be Mr. Jay Schmiedeskamp, research director, the Gallup Economic Service, and vice president of the Gallup Organization. All of these witnesses are old friends of the committee and need no further introduction. Mr. Adams, would you please proceed.

STATEMENT OF F. GERARD ADAMS, PROFESSOR OF ECONOMICS, UNIVERSITY OF PENNSYLVANIA AND WHARTON EFA, INC.

Mr. ADAMS. Thank you for the opportunity to express my views and those of my colleagues on the economic outlook for 1978 and 1979. I will try to make my remarks brief.

Senator BENTSEN. Mr. Adams, if you could move the microphone closer to you. There are those in the audience who want to hear you.

Mr. ADAMS. I will try to make my remarks brief and address them specifically to the question of moderate expansion versus the risk of recession.

The Wharton economic forecast for the U.S. economy continues to be cautiously optimistic, with moderate economic growth between 3 and 4 percent during the remainder of 1978 and during 1979. This represents a slowdown from the past 2 years but not a recession. Our forecast for the inflation rate signals some acceleration in the rate of price increase, to the neighborhood of 7 percent, but still short of the double digit level. Nevertheless, at this advanced stage of the business recovery, it is appropriate to keep a watchful eye on developments which could signal a turnaround.

We have compared a most probable forecast scenario, one which does not indicate a true recession in the next couple of years, to a more pessimistic alternative. The latter case, wihch we consider less likely, illustrates the circumstances under which a recession could occur in 1979.

In the prepared statement I have distributed there are two sets of tables.

Table 1 is our most recent Wharton control situation which is still a reasonable appraisal of our view of the most likely economic outlook.

Table 2 consists of two panels. Toward the end of the prepared statement is a recession alternative scenario. I will make a comparison between these two.

First, what we call the Wharton control forecast: The economic statistics for the second quarter show an economy advancing with considerable strength. As the chairman pointed out, this represents a rebound from the weakness during the winter so that the second quarter figures give a deceiving picture of the potentials from expansion during the remainder of the year. Indeed, from the point of view of excessive inflationary pressures, such rapid expansion would not be desirable. A more likely pattern of developments suggests relatively more modest expansion during the remainder of 1978, and some further slowing of the rate of expansion during 1979 and 1980.

We cannot expect that consumer spending and residential construction will continue to provide stimulus to the economy the way they have in the past 2 years. The consumer savings rate may move up moderately; consumer sentiment threatens to decline in the past few months as a consequence of fears of inflation and consumer installment credit and mortgage debt is at a high level. Housing starts, particularly for single family dwellings, have peaked and are likely to drop further as a consequence of tightening money and high prices. Between now and the middle of next year we see a decline of about 20 percent in the number of housing starts.

We had anticipated some expansion of State and local government spending, but the passage of Proposition 13 in California puts much growth in this sector into question.

On the positive side we see some further expansion of business fixed investment, particularly if tax incentives are provided. This is a matter of very high priority. While investment anticipations are reported up around 6 percent in real terms, construction contracts are at a high level.

Inventories are quite low relative to sales. There is no basis currently for an inventory swing, and indeed, some inventory rebuilding may occur. And some improvement in our foreign trade balance, in volume terms if not in dollars, will provide modest stimulus.

There will be only moderate further reduction in the unemployment rate to around 5.5 percent by the end of 1978 and unemployment will continue near that rate during 1979. We will not yet be at a point of generalized labor shortage, which might make for significant acceleration of wage increases, though there may well be spot shortages of skilled workers.

Inflation measured by the gross national product deflator and by the CPI has expanded sharply in recent months, reflecting the upsurge of agricultural prices, the impact of minimum wages and other Government regulations, and the effect of dollar devaluation. If agricultural prices do not go up still further and that depends on crops here and abroad, we are hopeful that the inflation rate will ease to the 6 or 7 percent level. An important consideration in this regard are the labor negotiations with post office workers, teamsters, and in the railroads.

Sharply increased wage settlements could trigger price increases throughout the economy. The labor maket situation, both in the unionized and the nonunionized sectors bears close watching.

We anticipate only moderate improvement in the U.S. trade balance. In nominal terms, that is in terms of current dollars, the commodity trade deficit is likely to be in the $30–$40 billion range. The devaluation of the dollar means that imports denominated in foreign prices become more costly. Even if we import smaller quantities, as we will, the total import bill in dollar terms remains large. We do expect some improvement in our import-export balance in volume terms.

With relatively soft economic expansion, and only moderate growth of corporate profits, tax revenues will only grow moderately. Even with a tight lid on spending, Federal deficits will remain betwen $40 and $50 billion.

Turning to the risk of recession: After 3 years of economic expansion, it is only realistic to ask how long the expansion can continue. The issue is not, however, the length of the expansion, which began from a low point and which has been quite slow, but rather whether the imbalances which signal a business recession are becoming apparent.

I want to summarize those imbalances in three ways: One, demand imbalances, two, price wage imbalances, and three, policy imbalances.

On the demand side, there is no evidence of excessive inventories, indeed inventories are at the lowest level relative to sales in many years. It is clearly premature to signal an inventory cycle at this point. There is no imbalance either from the point of the capital stock. There has not been an excessive expansion of plant capacity. We have not yet returned to the prerecession utilization levels.

With regard to foreign trade, the imbalance of our trade account is a serious problem but not one which will aggravate a cyclical downturn. The improvement in our trade balance as we cut back on the volume of expensive imports will strengthen economic activity.

On the negative side, however, I already mentioned housing, and the high level of consumer indebtedness. This does pose a risk of cutbacks in consumer purchasing particularly, if real purchasing power fails to grow and if consumer expectations turn sharply pessimistic. This is a real risk, one which must be factored into any economic forecast.

Price wage imbalances may affect both the consumer and the producer. From the consumer's point of view, the upsurge of food prices threatens to cut into real purchasing power. Continued rapid rises of farm prices which are not offset fully by wage increases could cut sharply into consumer demand for durables and automobiles. This remains a real threat. Price increases resulting from excessive pressure on industrial capacity are not yet in prospect. From the producer's point of view, wage price imbalances involve the upward movement of unit production costs relative to prices. Our present projection does forecast a moderate squeeze of producer margins-profits continue to grow, but slowly. If costs accelerate further, relative to prices, a reduction in profits rates could have significant impact on financial markets and on real investment.

In terms of policy imbalances, one may focus particularly on the relation between fiscal and monetary policy in limiting economic ex-

pansion. Both have a legitimate role to play, but in recent years, the burden of slowing the expansion has fallen largely on monetary policy. But tight money is not a neutral tool of economic control. Quite the contrary, tightening money sharply raises short-term rates relatively to long-term rates and twists flows of financing, with particular impact on residential construction. Moreover, monetary policy operates with significant lags, so that the impact is long after the policy has been enacted. So far, there is not yet serious evidence of financial strain, but short rates are at high levels, and at higher rates than we had anticipated. Significant financial imbalances can result from excessively tight money, even financial crises and business failures, and the use of monetary policy imposes risks on the economy.

In order to appraise the impact of the imbalances considered above, we have computed an alternative forecast with the Wharton model. That is shown in table 2 of the prepared statement. This forecast was designed to examine the circumstances under which a recession could occur during 1979. The particular assumptions which distinguish this forecast from our control solution discussed above are:

First, faster rate of inflation, principally through more rapid increase in agricultural prices. We get an inflation rate of 8.5 percent in their solution. We assume failure to enact the proposed tax relief either for consumers or investors. Considerably tighter monetary policy; we have assumed monetary actions leading to additional increase of short-term rates of another 100 basis points above our control forecast. Cutbacks in consumer spending as a result of high levels of indebtedness and less favorable sentiment.

The combination of these steps does indeed lead to a considerably lower rate of growth even to a real decline in GNP during the second half of 1979.

It is of interest to note that the recession forecast would mean a worsening of the unemployment situation, continued large Government deficits with relatively little gain in the inflation rate.

Our current appraisal of the economy suggests that growth will be slower in 1979 but a recession is not yet in prospect. Nevertheless, as the business expansion continues, the risk of a greater slowdown and recession increases. A recession in 1979 is possible, but it would require a combination of negative factors. The management of economic policy must recognize this possibility. Moderation in monetary policy and a tax cut with emphasis on investment incentives and efforts to limit inflation represent a first line of defense against the risk of recession.

[The prepared statement of Mr. Adams follows:]

PREPARED STATEMENT OF F. GERARD ADAMS

Economic Outlook for 1978 and 1979—Moderate Expansion Versus Recession

The Wharton economic forecast for the United States' economy continues to be cautiously optimistic, with moderate economic growth between 3 and 4 percent during the remainder of 1978 and during 1979. This represents a slowdown from the past two years but not a recession. Our forecast for the inflation rate signals some acceleration in the rate of price increase, to the neighborhood of 7 percent, but still short of the double digit level. Nevertheless, at this advanced stage of the business recovery, it is appropriate to keep a watchful eye on developments which would signal a turnaround. In this paper, we compare a most

probable forecast scenario, one which does not indicate a true recession in the next couple of years, to a more pessimistic alternative. The latter case, which we consider less likely, illustrates the circumstances under which a recession could occur in 1979.

THE WHARTON "CONTROL" FORECAST

The economic statistics for the second quarter show an economy advancing with considerable strength. In part, this represents a rebound from the weakness during the winter so that the second quarter figures give a deceiving picture of the potentials for expansion during the remainder of the year. Indeed, from the point of view of excessive inflationary pressures, such rapid expansion would not be desirable. A more likely pattern of development suggests, relatively more modest expansion during the remainder of 1978, and some further slowing of the rate of expansion during 1979. An essential feature of this scenario is enactment of a $20 billion tax cut, effective in 1979, with substantial incentives for capital formation.

The following are the principal features of our current forecast (Table 1) :

TABLE 1.—THE WHARTON QUARTERLY MODEL, MARK 5.1—POST-MEETING CONTROL SOLUTION: MAY 30, 1978: MSPO782 (CNTLPOS782)

TABLE 1.00—SELECTED MAJOR ECONOMIC INDICATORS

Line	Var. label		Item	1978.1	1978.2	1978.3	1978.4	1979.1	1979.2	1979.3	1979.4	1980.1	1977	1978	1979	1980
1	GNP$	I	Gross national product	1,993.4	2,082.9	2,138.3	2,208.8	2,263.5	2,319.6	2,376.7	2,441.7	2,495.5	1,889.6	2,105.8	2,350.4	2,591.0
2	GNP$	I	Percent chg gross national p	6.60	19.20	11.08	13.84	10.29	10.29	10.21	11.39	9.12	10.73	11.44	11.61	10.24
3																
4	GNP	I	Real gross national pro	1,358.8	1,388.9	1,404.5	1,422.7	1,435.1	1,447.0	1,459.4	1,473.5	1,482.7	1,337.3	1,393.7	1,453.7	1,502.3
5	GNP	I	*Percent chg real gross natl*	−0.41	9.15	4.57	5.29	3.52	3.37	3.46	3.94	2.52	4.92	4.22	4.31	3.34
6																
7	PDGNP	I	GNP price deflator (1978)	146.7	150.0	152.2	155.3	157.7	160.3	162.9	165.7	168.3	141.3	151.0	161.6	172.4
8	PDGNP	I	Percent chg GNP price deflat	7.06	9.18	6.22	8.12	6.54	6.69	6.52	7.18	6.44	5.53	6.92	7.02	6.68
9																
10	WRCPV$	I	Percent chg pvt compensation	14.78	10.61	10.29	10.22	11.88	9.74	9.80	9.83	10.56	8.61	10.35	10.49	10.01
11	PVTOUT		Percent chg pvt output per ma	−1.27	0.41	1.27	2.49	1.38	0.97	1.32	2.04	0.86	1.74	0.43	1.47	1.52
12																
13	NRUT	B	Unemployment rate (percent)	6.20	5.95	5.77	5.63	5.56	5.53	5.47	5.43	5.45	7.02	5.89	5.50	5.44
14																
15	YPD	I	Disp income per capita	959.9	973.2	988.3	1,003.8	1,018.4	1,027.3	1,041.6	1,054.4	1,059.9	930.8	981.3	1,035.4	1,075.0
16																
17	CUNIP	B	*Capacity utilization (percent)*	89.3	90.8	91.1	91.7	91.9	92.0	92.1	92.3	92.2	89.9	90.7	92.1	92.5
18	CPUBT$	I	Corporate profits before	172.2	189.3	176.0	185.7	184.7	184.5	178.7	182.4	182.6	171.7	180.8	182.6	183.0
19	CPUAT$	I	Corporate profits after	102.9	112.8	105.2	110.9	116.2	116.4	113.1	115.7	117.1	102.5	108.0	115.3	118.0
20																
21	GVSURPF$	I	Fed. Govt. surplus (+) def	−55.7	−35.8	−40.1	−36.7	−42.4	−38.5	−43.6	−45.6	−35.1	−49.5	−42.1	−42.5	−38.0
22																
23	FMI$	I	Money supply (curr + de)	339.5	347.4	352.8	357.4	361.1	366.8	372.9	381.7	388.4	326.0	349.3	370.6	402.3
24	FMI$	I	Percent chg money supply	5.10	9.59	6.38	5.30	4.24	6.44	6.82	9.75	7.25	7.14	7.13	6.11	8.54
25	FREN$*	E	Bank reserves (nonborro)	36.6	36.8	37.2	37.1	37.5	37.9	38.3	38.9	39.6	34.7	36.9	38.2	40.6
26	FRNDNY	F	Discount rate (percent per ye)	6.46	6.75	7.25	7.25	7.50	7.75	8.00	8.00	8.00	5.46	6.93	7.81	7.81
27	FRMCP4M	B	Commercial paper rate	6.80	7.02	7.26	7.44	7.72	7.91	8.18	8.24	8.25	5.61	7.13	8.01	8.21
28	FRMCS	B	Avg. Corp bond rate (percent)	8.77	8.96	8.99	9.04	9.06	9.14	9.16	9.25	9.35	8.43	8.94	9.15	9.50

TABLE 1.—THE WHARTON QUARTERLY MODEL, MARK 5.1—POST-MEETING CONTROL SOLUTION: MAY 30, 1978: MSPO782 (CNTLPOS782)—Continued

TABLE 2.00—GNP DEMAND COMPONENTS (BILLIONS OF CONSTANT DOLLARS)

Line	Var. label		Item	1978.1	1978.2	1978.3	1978.4	1979.1	1979.2	1979.3	1979.4	1980.1	1977	1978	1979	1980
1	CE	I	Personal consumption sp	877.5	892.9	904.3	915.9	927.1	936.2	946.2	957.0	964.2	861.2	897.7	941.6	976.4
2																
3	IBFN	I	Plus: Business fixed in	130.6	133.2	136.4	139.7	141.9	143.8	145.5	147.1	148.2	126.8	135.0	144.6	150.1
4	IBFR	B	Plus: Residential const	59.1	60.6	60.8	60.2	58.0	56.1	55.2	54.4	53.4	56.9	60.2	55.9	52.4
5	IBIT	I	Plus: Change in busn in	13.8	18.0	14.6	15.1	10.9	11.1	10.1	10.5	9.2	11.8	16.4	10.7	8.2
6																
7	GVPF	I	Plus: Federal Govt. purc	101.7	102.2	103.6	103.7	104.2	104.5	104.5	104.8	104.2	101.4	102.8	104.5	106.8
8			Plus: State and local													
9	GVPS	B	government purc	172.6	174.1	175.6	177.0	178.5	180.0	181.6	182.5	184.4	169.7	174.8	180.7	186.9
10																
11	NETEX		Plus: Net exports	3.4	7.8	9.2	11.1	14.5	15.3	16.1	17.2	19.0	9.5	7.9	15.8	21.5
12	TEB	I	Total exports	98.0	103.4	108.8	112.9	117.0	118.5	120.2	121.8	123.6	97.5	105.8	119.4	125.7
13	TMB	I	Minus: Total imports	94.6	95.6	99.6	101.8	102.6	103.2	104.0	104.6	104.6	88.0	97.9	103.6	104.2
14																
15	GNP	I	Equals: Gross national	1,358.8	1,388.9	1,404.5	1,422.7	1,435.1	1,447.8	1,459.4	1,473.5	1,482.7	1,337.3	1,393.7	1,453.7	1,502.5

TABLE 3.00—GNP INCOME COMPONENTS (BILLIONS OF CURRENT DOLLARS)

1 GNP $	I	Gross national product	1,993.4	2,082.9	2,138.3	2,208.8	2,263.5	2,319.6	2,376.7	2,441.7	2,495.5	1,889.6	2,105.8	2,350.4	2,591.0
2 CCAT $	B	Less: Capital consumption	210.8	218.4	225.4	232.3	239.5	246.9	254.4	261.8	269.9	197.0	221.7	250.7	282.2
3															
4 NNP $	I	Equals: NIt national pr	1,782.6	1,861.5	1,912.9	1,976.5	2,024.0	2,072.7	2,122.3	2,179.9	2,225.6	1,692.5	1,884.1	2,099.7	2,308.8
5 TXCB $	I	Less: Indirect business	173.3	176.2	177.8	181.7	188.3	191.9	195.7	199.7	203.3	165.2	178.0	193.9	208.9
6 MISC		Miscellaneous ITE	13.1	13.5	13.0	16.9	14.6	13.8	13.2	17.0	14.7	11.0	14.1	14.7	14.7
7 SD $	E	Statistical discr	−6.7	−4.0	−4.0	−4.0	−4.0	−4.0	−4.0	−4.0	−4.0	−0.2	−4.7	−4.0	−4.0
8															
9 YN $	I	Equals: National income	1,609.9	1,686.3	1,732.5	1,793.0	1,834.6	1,879.0	1,924.2	1,981.5	2,021.4	1,520.5	1,705.4	1,904.9	2,098.9
10		National income includes:													
11 WBC $	I	Compensation of empl	1,243.5	1,294.4	1,334.3	1,378.4	1,422.1	1,461.6	1,501.6	1,545.5	1,587.6	1,156.3	1,312.6	1,482.7	1,652.0
12 YENT $	I	Proprietors [2] income	103.1	107.8	109.7	115.0	115.0	117.2	119.5	124.8	125.9	98.1	108.9	119.1	130.1
13 YRENT $	B	Rental income of per	26.9	28.4	30.4	31.2	31.8	32.8	33.7	34.5	35.5	25.3	29.2	33.2	36.8
14 YINTB $	B	Net interest	109.6	114.3	119.3	124.3	129.1	134.0	139.0	144.0	148.9	100.8	116.9	136.5	156.4
15 CPABT $	I	Corporate profits	126.8	141.3	138.9	144.2	136.6	133.4	130.4	132.8	123.5	139.8	137.8	133.3	125.6
16															
17 TXCCT $	I	Less: Corp profits tax	69.2	76.5	70.8	74.7	68.5	68.1	65.6	66.7	65.4	69.2	72.8	67.2	65.0
18 PROFTVA $		Undist corp profits	34.3	40.2	43.5	44.7	43.2	40.4	40.0	41.3	33.5	46.8	40.7	41.2	34.5
19 TXCSTT $	I	Social security ins	154.9	160.1	164.1	168.4	183.5	187.7	192.0	196.5	205.8	139.0	161.8	189.9	212.7
20 TPIOP $	I	Plus: Transfer to pers	215.9	220.1	230.0	235.4	238.2	242.0	253.5	258.0	263.0	206.9	225.4	247.9	274.1
21 YINTGC $	I	Interest pd by Govt	50.9	52.1	54.8	57.3	59.8	62.0	64.1	65.9	67.4	46.9	53.8	62.9	68.5
22															
23 YP $	I	Equals: Personal income	1,638.8	1,702.5	1,761.0	1,821.2	1,861.9	1,912.8	1,971.7	2,030.0	2,077.9	1,536.7	1,730.9	1,944.1	2,162.9
24 TXCP $	I	Less: Personal income tax	236.7	256.9	272.5	285.5	78.7	288.5	298.5	310.0	319.7	227.5	262.9	293.9	335.2
25															
26 YPD $	I	Equals: Disposable pers	1,402.1	1,445.6	1,488.5	1,535.7	1,583.2	1,624.3	1,673.1	1,720.0	1,758.3	1,309.2	1,468.0	1,650.2	1,827.7
27 YPDOUT $	I	Less: Total personal ou	1,315.9	1,361.0	1,397.8	1,438.1	1,479.3	1,519.4	1,560.1	1,602.4	1,642.0	1,241.9	1,378.2	1,540.3	1,704.0
28															
29 YPDSAV $	I	Equals: Personal savings	86.2	84.6	90.7	97.7	103.9	105.0	113.1	117.5	116.3	67.3	89.8	109.9	123.7
30 YPDSAVR $	I	Personal savings	6.1	5.9	6.1	6.4	6.6	6.5	6.8	6.8	6.6	5.1	6.1	6.7	6.8

TABLE 1.—THE WHARTON QUARTERLY MODEL, MARK 5.1—POST-MEETING CONTROL SOLUTION: MAY 30, 1978: MSPO782 (CNTLPOS782)—Continued

TABLE 4.00—FEDERAL GOVERNMENT RECEIPTS AND EXPENDITURES

Line	Var. label	Item	1978.1	1978.2	1978.3	1978.4	1979.1	1979.2	1979.3	1979.4	1980.1	1977	1978	1979	1980
1	GVRF $	I Federal Government receipts	395.1	422.7	433.6	454.3	453.4	463.8	472.5	485.9	500.2	373.9	426.4	468.9	517.3
2															
3	TXCPF	B Federal personal income	176.1	192.8	205.7	215.5	206.2	213.3	220.6	229.0	236.0	170.7	197.5	217.2	247.3
4	TXCCF $	B Federal corporate profits	59.5	66.2	60.6	64.1	57.6	56.9	54.4	56.2	53.7	59.5	62.6	56.0	53.0
5	TSCBF $	I Fed. indirect busn taxes	26.0	25.7	26.0	29.6	29.9	30.2	30.5	30.9	31.1	24.8	26.8	30.4	31.6
6	TXCSFT $	I Federal social security	133.5	138.0	141.4	145.2	159.7	163.3	167.0	170.9	179.5	118.9	139.5	165.2	185.4
7															
8	BVEF $	I Federal Government expenses	460.9	458.5	473.8	491.0	495.8	502.3	516.1	531.6	535.3	423.4	464.5	511.4	555.2
9															
10	GVPF $	I Purchases of goods and svs	152.7	155.6	159.7	166.1	168.9	171.4	173.6	180.1	181.1	146.4	158.5	173.5	189.9
11	GVPFD $	E National defense	99.5	100.6	101.7	105.4	107.9	108.5	110.0	114.3	116.0	94.3	101.8	109.9	119.1
12	GVPFO $	E Other	53.2	55.0	58.1	60.7	61.9	62.9	65.6	65.8	65.1	31.1	56.7	65.5	70.8
13	TRGF $	I Transfer payments	180.1	183.2	192.1	196.6	198.4	201.2	211.8	215.2	219.2	173.0	188.0	206.7	228.4
14	GVGTA $	E Grants-in-aid to State	74.7	74.7	76.1	77.4	78.7	79.7	80.6	81.7	82.6	67.5	75.7	80.2	84.3
15	YINIGF $	B Net interest paid	33.9	35.3	36.6	37.9	39.0	39.9	40.7	41.3	41.6	29.6	35.9	40.2	41.6
16	GVSUBTF $	E Federal Govt. subsidies	9.5	9.7	9.2	13.1	10.8	10.0	9.4	13.2	10.9	7.8	10.4	10.8	10.9

The real Gross National Product will grow at annual rates near 4 percent during the remainder of 1978 and then there will be slower expansion in 1979 and into 1980. We cannot expect that consumer spending and residential construction will continue to provide stimulus to the economy the way they have in the past two years. The consumer savings rate may move up moderately; consumer sentiment has declined in the past few months as a consequence of fears of inflation and consumer installment credit and mortgage debt is at a high level. Housing starts, particularly for single family dwellings, have peaked and are likely to drop further as a consequence of tightening money and high prices. We had anticipated some expansion of state and local government spending, but the passage of Proposition 13 in California puts much growth in this sector into question. On the positive side we see some further expansion of business fixed investment, particularly if tax incentives are provided. While investment anticipations are reported up around 6 percent in real terms, construction contracts are at a high level. Inventories are quite low relative to sales. There is no basis currently for an inventory swing, and indeed, some inventory rebuilding may occur. And some improvement in our foreign trade balance—in volume terms if not in dollars—will provide modest stimulus.

There will be only moderate further reduction in the unemployment rate to around 5 and one half percent by the end of 1978 and unemployment will continue near that rate during 1979. We will not yet be at a point of generalized labor shortage, which might make for significant acceleration of wage increases, though there may well be spot shortages of skilled workers. It would be unrealistic to try to absorb the remaining unemployed with aggregate demand stimulus. Specific training and apprenticeship programs, will be needed to take up a large part of our unemployed work force.

Inflation measured by the gross national product deflator and by the CPI has expanded sharply in recent months, reflecting the upsurge of agricultural prices, the impact of minimum wages and other government regulations, and the effect of dollar devaluation. If agricultural prices do not go up still further—and that depends on crops here and abroad—we are hopeful that the inflation rate will ease to the 6 to 7 percent level. An important consideration in this regard are the labor negotiations with post office workers, teamsters, and in the railroads. Sharply increased wage settlements could trigger price increases throughout the economy. The labor market situation, both in the unionized and the non unionized sectors bears close watching.

We anticipate only moderate improvement in the U.S. trade balance. In nominal terms, that is in terms of current dollars, the commodity trade deficit is likely to be in the $30–40 billion range. The devaluation of the dollar means that imports denominated in foreign prices become more costly. Even if we import smaller quantities, as we will, the total import bill in dollar terms remains large. We do expect some improvement in our import-export balance in volume terms. A significant development in that direction is the increased production in the United States of goods previously imported from abroad, the Volkswagen plant in Pennsylvania is a good example. While the U.S. dollar may now stabilize for the moment, further gradual devaluation may be anticipated over the next year particularly against the yen.

Monetary policy is likely to remain restrictive. We expect further increases of short term rates of some 75–100 basis points between now and mid 1979 and some moderate upward movement of long term rates as well. As we will note below, further tightening of monetary policy is possible, but this represents only a very imperfect tool against the types of inflationary pressures which we have been observing in the economy.

With relatively soft economic expansion, and only moderate growth of corporate profits, tax revenues will only grow moderately. Even with a tight lid on spending, federal deficits will remain between $40 and $50 billion. These figures must however, be seen in perspective, that is in the context of a $2 trillion economy and one in which state and local government units are running substantial surpluses.

THE RISK OF RECESSION

After three years of economic expansion, it is only realistic to ask how long the expansion can continue. The issue is not, however, the length of the expansion, which began from a low point and which has been quite slow, but rather whether the imbalances which signal a business recession are becoming apparent. These imbalances which are all closely interrelated in the cyclical process can be seen from a number of perspectives:

1. Demand imbalances

On the demand side, there is no evidence of excessive inventories, indeed inventories are at the lowest level relative to sales in many years. It is clearly premature to signal an inventory cycle at this point. There is no imbalance either from the point of the capital stock. There has not been an excessive expansion of plant capacity. We have not yet returned to the pre-recession utilization levels. With regard to foreign trade, the imbalance of our trade account is a serious problem but not one which will aggravate a cyclical downturn. The improvement in our trade balance as we cut back on the volume of expensive imports will strengthen economic activity. On the negative side, however, is the high level of consumer indebtedness. This does pose a risk of cutbacks in consumer purchasing particularly, if real purchasing power fails to grow and if consumer expectations turn sharply pessimistic. This is a real risk, one which must be factored into any economic forecast.

2. Price wage imbalances

Price wage imbalances may affect both the consumer and the producer. From the consumer's point of view, the upsurge of food prices threatens to cut into real purchasing power. Continued rapid rises of farm prices which are not offset fully by wage increases could cut sharply into consumer demand for durables and automobiles. This remains a real threat. Price increases resulting from excessive pressure on industrial capacity are not yet in prospect. From the producer's point of view, wage price imbalances involve the upward movement of unit production costs relative to prices. Our present projection does forecast a moderate squeeze of producer margins—profits continue to grow, but slowly. If costs accelerate further relative to prices, a reduction in profits rates could have significant impact on financial markets and on real investment. This poses some difficult challenges to price stabilization policy which must emphasize the cost side though not to the neglect of prices.

3. Policy imbalances

In terms of policy imbalances, one may focus particularly on the relation between fiscal and monetary policy in limiting economic expansion. Both have a legitimate role to play, but in recent years, the burden of slowing the expansion has fallen largely on monetary policy. But tight money is not a neutral tool of economic control. Quite the contrary, tightening money sharply raises short term rates relative to long term rates and twists flows of financing, with particular impact on residential construction. Moreover, monetary policy operates with significant lags, so that the impact is long after the policy has been enacted. But so far, there is not yet serious evidence of financial strain, but short rates are at high levels, and beginning to catch up to long rates. Significant financial imbalances can result from excessively tight money, even financial crises and business failures, and the use of monetary policy imposes risks on the economy.

As we have noted, there are potential problems with respect to inflation, and its impact on consumers and businesses, with respect to a high level of consumer credit extensions, and with respect to monetary policy. These forces are not likely to lead to a cyclical turnaround during 1978, but as we turn toward 1979 and 1980, they must be watched closely.

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TABLE 2.—THE WHARTON QUARTERLY MODEL, MARK 5.1—RECESSION SCENARIO ALTERNATIVE—Continued

TABLE 1.00—SELECTED MAJOR ECONOMIC INDICATORS

Line	Var. label		Item	1978.1	1978.2	1978.3	1978.4	1979.1	1979.2	1979.3	1979.4	1980.1	1977	1978	1979	1980
1	GNP $	I	Gross national product	1,993.4	2,082.4	2,141.1	2,214.5	2,263.8	2,313.2	2,363.9	2,423.2	2,468.8	1,889.6	2,107.8	2,341.0	2,547.7
2	GNP $	I	Percent chg gross national p	6.60	19.09	11.76	14.44	9.21	9.01	9.07	10.42	7.73	10.73	11.55	11.06	8.83
3																
4	GNP	I	Real Gross national pro	1,358.8	1,388.5	1,401.2	1,415.6	1,418.2	1,420.2	1,423.0	1,427.5	1,426.1	1,337.3	1,391.0	1,422.5	1,428.6
5	GNP	I	Percent chg real gross natl	−0.41	9.03	3.70	4.19	0.74	0.55	0.80	1.25	−0.37	4.92	4.02	2.24	0.44
6																
7	PDGNP	I	GNP price deflator (1978)	146.7	150.0	152.8	156.4	159.6	162.9	166.1	169.8	173.1	141.3	151.5	164.6	178.3
8	PDGNP	I	Percent chg GNP price deflat	7.06	9.20	7.77	9.83	8.41	8.40	8.20	9.06	8.13	5.53	7.23	8.66	8.35
9																
10	WRCPV $	I	Percent chg pvt compensation	14.78	10.61	10.53	10.70	12.61	10.62	10.75	10.85	11.62	8.61	10.41	11.15	11.02
11	PVTOUT		Percent chg pvt output per ma	−1.27	0.30	0.57	1.76	−0.65	−0.65	0.15	1.02	−0.20	1.74	0.28	0.22	0.44
12																
13	NRUT	B	Unemployment rate (percent)	6.20	5.95	58.2	5.75	5.90	60.6	6.24	6.45	6.74	7.02	5.93	6.16	7.19
14																
15	GPD	I	Disp income per capita	959.9	973.3	986.0	998.9	998.7	1,002.3	1,010.8	1,017.3	1,016.2	930.8	979.5	1,007.3	1,020.1
16																
17	CUNIP	B	Capacity Utilization (percent)	89.3	90.8	90.9	91.3	90.8	90.4	98.8	89.4	88.7	89.9	90.6	90.1	87.9
18	CPUBT $	I	Corporate profits before	172.2	188.9	182.3	191.3	184.2	176.2	164.9	165.3	160.7	171.7	153.7	172.7	152.3
19	CPUAT $	I	Corporate profits after	102.9	112.6	108.8	114.2	110.3	106.0	99.3	99.7	97.3	102.5	109.6	103.8	9.28
20																
21	GVSURPF $	I	Fed. Govt. surplus (+) def	−55.7	−36.0	−37 2	−33.9	−19.5	−17.9	−24.8	−27.7	−18.5	−49.5	−40.7	−22.5	−26.1
22																
23	FMI $	I	Money supply (curr + de)	339.5	345.9	349.3	352.4	354.9	358.0	361.7	366.4	368.2	326.0	346.8	360.2	374.5
24	FM1 $	I	Percent chg money supply	5.10	7.76	3.92	3.59	2.91	3.49	4.28	51.9	2.38	7.14	6.36	3.88	3.96
25	RFEN $*	E	Bank reserves (nonborro)	36.6	36.4	36.4	36.2	36.5	36.6	36.5	36.5	36.7	34.7	36.4	36.5	36.9
26	FRMDNY	F	Discount rate (percent per ye)	6.46	7.00	7.50	7.50	8.00	8.00	8.00	7.75	7.50	5.46	7.11	7.88	7.00
27	FRMCP4M	B	Commercial paper rate	6.80	7.40	7.70	8.03	8.43	8.77	8.88	9.17	9.32	5.61	7.48	8.81	9.52
28	FRMCS	B	Avg. corp bond rate (percent)	8.77	8.99	9.11	9.25	9.38	8.55	9.65	9.82	10.00	8.43	9.03	9.60	10.28

TABLE 2.—THE WHARTON QUARTERLY MODEL, MARK 5.1—RECESSION SCENARIO ALTERNATIVE—Continued

TABLE 2.00—GNP DEMAND COMPONENTS (BILLIONS OF CONSTANT DOLLARS)

Line	Var. label		Item	1978.1	1978.2	1978.3	1978.4	1979.1	1979.2	1979.3	1979.4	1980.1	1977	1978	1979	1980
1	CE	I	Personal consumption sp	877.5	892.6	902.3	911.5	915.8	918.9	923.7	929.0	930.6	861.2	896.0	921.9	933.5
2																
3	IBFN	I	Plus: Business fixed in	130.6	136.0	136.0	149.6	139.6	139.8	139.3	138.4	137.1	126.8	134.6	139.3	135.1
4	IBFR	B	Plus: Residential const	59.1	60.6	50.6	59.7	56.9	54.3	52.5	50.9	49.3	56.9	60.0	53.6	47.5
5	IBIT	I	Plus: Change in busn in	13.8	18.0	14.4	14.5	9.4	8.0	6.3	6.8	5.2	11.8	15.2	7.6	3.6
6																
7	GVPF	I	Plus: Federal Govt. purc	101.7	102.2	103.5	103.5	103.9	104.0	103.9	104.0	103.3	101.4	102.7	103.9	105.6
8			Plus: State and local													
9	GVPS	B	Government purc	172.6	174.1	175.6	176 9	178.3	179.7	181.2	182.0	183.7	169.7	174.8	180.3	186.1
10																
11	NETEX		Plus: Net exports	3.4	7.8	8.8	10.8	14.5	15.6	16.2	16.3	17.0	9.5	7.7	15.6	17.2
12	TEB	I	Total exports	98.0	103.4	108.4	112.5	116.4	117.7	118.7	119.1	119.5	97.5	105.6	118.0	118.8
13	TMB	I	Minus: Total imports	94.6	95.6	99.6	101.7	102.0	102.1	102.6	102.8	102.5	88.0	97.9	102.4	101.7
14																
15	GNP	I	Equals: Gross national	1,358.8	1,388.5	1,401.2	1,415.6	1,418.2	1,420.2	1,423.0	1,427.5	1,426.1	1,337.3	1,391.0	1,422.2	1,428.6

TABLE 3.00—GNP INCOME COMPONENTS (BILLIONS OF CURRENT DOLLARS)

1	GNP$	I	Gross national product	1,993.4	2,082.4	2,141.1	2,214.5	2,263.8	2,313.2	2,363.9	2,423.2	2,468.8	1,889.6	2,107.8	2,341.0	2,547.7
2	CCAT$	B	Less: Capital consumption	210.8	218.4	225.7	233.2	240.9	249.0	256.9	264.9	273.4	197.0	222.0	252.9	285.9
3																
4	NNP$	I	Equals: Net national pr	1,782.6	1,864.0	1,915.4	1,981.3	2,022.9	2,064.2	2,107.0	2,158.4	2,195.4	1,692.5	1,885.8	2,088.1	2,261.8
5	IXCB$	I	Less: Indirect business	173.3	176.2	178.1	185.2	188.5	191.8	195.5	199.4	202.9	165.2	178.2	193.8	208.2
6	MISC		Miscellaneous ITE	13.1	13.5	13.0	16.9	14.6	13.8	13.2	17.0	14.7	11.0	14.1	14.7	14.7
7	SD$	E	Statistical discr	−6.7	−4.0	−4.0	−4.0	−4.0	−4.0	−4.0	−4.0	−4.0	−0.2	−4.7	−4.0	−4.0
8																
9	YN$	I	Equals: National income	1,609.9	1,685.7	1,734.7	1,797.4	1,833.4	1,870.6	1,909.1	1,960.3	1,991.6	1,520.5	1,706.9	1,893.3	2,052.7
10			National income includes:													
11	WBC$	I	Compensation of empl	1,243.5	1,294.3	1,334.1	1,378.1	1,420.7	1,458.2	1,495.5	1,536.1	1,574.2	1,156.3	1,312.5	1,477.6	1,630.2
12	YENT$	I	Proprietors' income	103.1	107.7	113.0	121.1	123.5	127.0	130.3	137.1	138.8	98.1	111.2	129.5	143.2
13	YRENT$	B	Rental income of per	26.9	28.4	30.4	31.0	32.1	33.1	34.0	35.0	36.2	25.3	29.2	33.6	37.9
14	YINTB$	B	Net interest	109.6	114.4	119.3	124.4	129.3	134.2	139.0	143.7	148.3	100.8	116.9	136.5	154.9
15	CPABT$	I	Corporate profits	126.8	140.9	137.9	142.8	127.8	118.1	110.2	108.4	94.1	139.8	137.1	116.1	86.4
16																
17	TXCCT$	I	Less: Corp profits tax	69.2	76.3	73.5	77.1	73.9	70.3	65.6	65.5	63.4	69.2	740.0	68.8	59.5
18	PROFIVA$		Undist corp profits	34.3	39.9	39.6	40.8	29.1	23.1	20.2	18.7	7.1	46.8	38.6	22.8	4.2
19	TXCSTT$	I	Social security tax	154.9	160.1	164.1	168.4	183.5	187.5	191.4	195.5	204.2	139.0	161.9	189.5	210.1
20	TRTOP$	I	Plus: Transfers to pers	215.9	220.1	230.2	235.9	239.2	243.7	255.9	261.2	267.0	206.9	225.5	250.0	279.7
21	YINTGC$	I	Interest pd by Govt	50.9	52.2	55.0	57.6	59.9	61.9	63.5	64.8	65.7	46.9	53.9	62.5	65.9
22																
23	YP$	I	Equals: Personal income	1,638.8	1,702.6	1,764.6	1,827.8	1,870.7	1,921.3	1,978.7	2,035.6	2,080.4	1,536.7	1,733.4	1,951.6	2,158.0
24	TXCP$	I	Less: Personal income tax	236.7	256.9	273.3	287.0	297.7	308.6	319.3	331.6	341.1	227.5	263.5	314.3	356.4
25																
26	YPD$	I	Equals: Disposable pers	1,402.1	1,445.7	1,491.3	1,540.8	1,573.0	1,612.7	1,659.4	1,704.0	1,739.3	1,309.2	1,470.0	1,637.3	1,801.6
27	YPDOUT$	I	Less: Total personal ou	1,315.9	1,360.6	1,400.4	1,442.9	1,480.3	1,517.5	1,556.4	1,597.2	1,634.6	1,241.9	1,379.9	1,537.8	1,691.6
28																
29	YPDSAV$	I	Equals: Personal saving	86.2	85.1	90.9	97.9	92.7	95.2	103.0	106.9	104.6	67.3	90.0	99.4	109.9
30	YPDSAVR$	I	Personal savings	6.1	5.9	6.1	6.4	5.9	5.9	6.2	6.3	6.0	5.1	6.1	6.1	6.1

TABLE 2.—THE WHARTON QUARTERLY MODEL, MARK 5.1—RECESSION SCENARIO ALTERNATIVE—Continued

TABLE 4.00—FEDERAL GOVERNMENT RECEIPTS AND EXPENDITURES

Line	Var. label	Item	1978.1	1978.2	1978.3	1978.4	1979.1	1979.2	1979.3	1979.4	1980.1	1977	1978	1979	1980
1	GVRF$	I Federal Government receipts	395.1	422.5	436.9	457.8	477.3	485.6	492.7	505.5	518.7	373.9	428.1	490.3	531.6
2															
3	TXCPF$	B Federal personal income	176.1	192.8	206.3	216.6	224.7	233.0	241.1	250.4	257.6	170.7	198.0	237.3	269.1
4	TXCCF$	B Federal corporate profits	59.5	66.0	63.1	66.3	63.0	59.4	54.7	54.4	52.2	59.4	63.7	57.9	48.3
5	TXCRF$	I Fed. indirect busn taxes	26.0	25.7	26.0	29.6	29.9	30.1	30.4	30.8	30.9	24.8	26.8	30.3	31.3
6	TXCSFT$	I Federal social security	133.5	138.0	141.5	145.2	159.7	163.1	166.4	169.9	178.0	118.9	139.6	164.8	182.9
7															
8	GVEF$	I Federal Government expenses	450.9	458.6	474.1	491.6	496.8	503.5	517.5	533.2	537.2	423.4	468.8	512.8	557.7
9															
10	GVPF$	I Purchases of goods and svc	152.7	155.6	159.7	166.1	168.9	171.4	173.6	180.1	181.1	145.4	158.5	173.5	189.9
11	GVPFD$	E National defense	99.5	100.6	101.7	105.4	107.0	108.5	110.0	114.3	116.0	94.3	101.8	109.9	119.1
12	GVPFO$	E Other	53.2	55.0	58.1	60.7	61.9	62.9	63.6	65.8	65.1	51.1	56.7	63.5	70.8
13	TRGF$	I Transfer payments	180.1	183.2	192.2	196.8	199.1	202.5	213.6	217.6	222.2	173.0	188.1	208.2	232.9
14	GVGTA$	E Grants-in-aid to State	74.7	74.7	76.1	77.4	78.7	79.7	80.6	81.7	82.6	67.5	75.0	80.2	84.4
15	YINTGF$	B Net interest paid	33.9	35.4	36.8	38.2	39.2	40.0	40.4	40.6	40.4	29.6	36.1	40.1	39.5
16	GVSUBIF$	E Federal Govt. subsidies	9.5	9.7	9.2	13.1	10.8	10.0	9.4	13.2	10.9	7.8	10.4	10.8	10.9

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AN ALTERNATIVE PESSIMISTIC FORECAST

In order to appraise the impact of the imbalances considered above, we have computed an alternative forecast with the Wharton model, (Table 2). This forecast was designed to examine the circumstances under which a recession could occur during 1979. The particular assumptions which distinguish this forecast from our control solution discussed above are:

1. Faster rate of inflation, principally through more rapid increase in agricultural prices.
2. Failure to enact the proposed tax relief either for consumers or investors.
3. Considerably tighter monetary policy.

We have assumed monetary actions leading to additional increase of short term rates of another 100 basis points above our control forecast.

4. Cutbacks in consumer spending as a result of high levels of indebtedness and less favorable sentiment.

The combination of these steps does indeed lead to a considerably lower rate of growth even to a real decline in GNP during the second half of 1979. Our computations suggest that recession would not be provoked by any one of these steps alone, though each one will contribute to a slower growth rate. The process which provokes this slowdown and recession has three main elements:

1. The cutback in consumer spending, particularly on durables.

An important contributing factor in this regard is the rapid increase in food prices which erodes consumer purchasng power and tends to depress consumer expectations.

2. The failure to enact the tax cut will affect consumer spending as well, but its longer term impact on business fixed investment is of more serious concern. The investment stimulus stretches out over a longer period. Its absence would hold down investment which is needed for expansion and modernization of our plant capacity.
3. Impact of tight money, particularly on housing, but also on business fixed investment. The impact of monetary policy is difficult to direct and is likely to impact on housing markets and business fixed investment for a long period.

It is of interest to note that the recession forecast would mean a worsening of the unemployment situation, continued large government deficits with relatively little gain in the inflation rate.

CONCLUSION

Our current appraisal of the economy suggests that growth will be slower in 1979 but a recession is not yet in prospect. Nevertheless, as the business expansion continues the risk of a greater slowdown and recession increase. A recession in 1979 is possible, but it would require a combination of negative factors. The management of economic policy must recognize this possibility. Moderation in monetary policy and a tax cut with emphasis on investment incentives and efforts to limit inflation represent a first line of defense against the risk of recession.

Senator BENTSEN. Thank you, Professor Adams. Your statement brings to mind a number of questions that I would like to ask but I think that we will proceed with all of the witnesses before we go to questioning.

Our second witness is Walter Heller, professor of economics at the University of Minnesota and former chairman of the President's Council of Economic Advisers.

We are pleased to have you back with us.

STATEMENT OF WALTER W. HELLER, REGENTS' PROFESSOR OF ECONOMICS, UNIVERSITY OF MINNESOTA

Mr. HELLER. Thank you, Senator Bentsen. Plowing new ground in an appearance before this sagacious and well-staffed committee is not always easy. But on tax reduction, one of the subjects on which your chairman solicited our views, the Kemp-Roth bill offers a target of opportunity.

Senator BENTSEN. That is very interesting and will be very helpful to us. I just came up from listening to a discourse on it by Senator Roth and Congressman Kemp.

Senator PROXMIRE. It is especially appreciated because there is no one that knows tax cuts better than Kemp and Roth than Walter Heller. You were right at the economic helm during the Kennedy tax cuts of 1963—proposed then and actually passed in 1964. It is often cited as the whole basis for it.

So you are probably the best person in the country to speak on the validity of their proposals now.

Mr. HELLER. I had dinner with Congressman Kemp last night. I understand that Senator Roth will be here today so I expect a one-two punch.

As you are well aware, their bill represents a bold Republican alternative to the now-muted Carter tax proposal. Instead of a single $15 to $20 billion tax cut, it proposes an $80 billion slash—in 1978 dollars—via successive 10 percent across-the-board income tax cuts in each of the next 3 years. Citing the 1964 Kennedy-Johnson tax cut, in which I have a certain paternal interest, as Senator Proxmire just mentioned, and a variety of other tax reductions as precedents, the Kemp-Roth supporters claim that their program could unleash such productive energies and generate so much GNP and revenue feedback that it would quickly pay for itself.

It is high time to examine their claims, the evidence cited to support them, and the assertions and estimates that underlie them. In this brief statement, I will plow no deep furrows, but I can at least scratch the surface and join a few issues.

I would like to comment first on the "verdict of history" on the 1964 tax cut. As a general observation, it is true that the 1964 tax cut, $12-billion-plus, or roughly equivalent to $35 to $40 billion today, succeeded. almost exactly as projected, in stimulating the economy. It is also true that the expansion associated with the tax cut and other sources of growth eventually raised income tax revenues above the pre-tax-cut level. But in citing the 1964–65 experience as support for their proposal to cut income taxes, the Kemp-Roth advocates are misreading the "verdict of history" in two important respects:

First, contrary to their assertion that the Kennedy-Johnson tax cut achieved its economic stimulus and consequent revenue flows "by increasing aggregate supply, by increasing the reward to work and investment," the record is crystal clear that the great bulk of the success of the "great tax cut" that was phased in during 1964–65 came, as expected, from its stimulus to demand, its release of some $10 billion of consumer purchasing power and another $3 billion or so of corporate funds.

Second, the economic setting for the Kennedy tax cut was sharply different from our setting today. The 1964 tax cut was injected into an economy characterized by plenty of slack in both labor and product markets. We have a good deal of slack today but in 1964, slack was coupled with virtual price stability, inflation averaging about 1.2 percent per year, and stable-to-falling unit labor costs.

In other words, the "aggregate supply" capacity already existed in the form of high unemployment and low industrial operating rates, and inflation was not a problem. So the tax cut was able to activate

idle physical and human resources without more than minimal impact on the price level.

Then, in my prepared statement, I address myself to two specific counts on which the Kemp-Roth view of the Kennedy tax-cut world is simply wrong. The first has to do with our alleged failure to recognize the stimulus to incentive and productivity that our 1962–64 tax cuts would provide. I cite chapter and verse to refute this and append the relevant excerpts from President Kennedy's January 1963 economic message. The second and more serious twisting of the facts relates to alleged Treasury mistakes in estimating the 1964 tax-cut's revenue effects. My prepared statement corrects the record on this score.

Let me return to the first two points. The core of the 1964 tax cut was a $12-billion-plus boost in after-tax income and profits injected into a slack, noninflationary economy. At the time, we calculated (*a*) that actual output was running about $30 to $35 billion below potential output, and (*b*) that the $12-billion-plus cut, as it was spent and respent and as it energized new investment, would boost consumer spending and business investment by a combined amount of $25 to $30 billion a year without significantly stepping up inflation.

The true verdict of history is that the tax cut, predominantly operating through the release of purchasing power, worked almost precisely as planned: The unemployment rate fell from 5.6 percent in January 1964 to 4.5 percent in July 1965, when escalation in Vietnam began.

Inflation, which had been running at 1.4 percent a year just before the tax cut, crept up to 1.6 percent by the summer of 1965, mainly because of food price increases. In other words, the purchasing power punch of the tax cut was converted into higher sales of goods and services, higher output, more jobs, more income, and more tax revenues, but not into higher prices.

As a careful quantitative appraisal by Arthur Okun showed, the multiplied impact of the tax cut did indeed raise aggregate demand and GNP by about $30 billion, at annual rates, above what they would have been without the tax cut.

But what about the alternative explanation offered by the Kemp-Roth forces that the 1964 tax cut accomplished all this by quickly expanding supply through its benign effect on incentives?

A great leap forward on the supply side would have to show up in a big jump in trend productivity increases and in the growth of GNP potential. The Kennedy tax program, including both the 1964 tax cuts and the 1962 investment tax stimulants in the form of the investment tax credit and liberalized depreciation guidelines, did in fact improve investment and work incentives and contribute to good, sustained growth in productivity. But no sudden bulge in productivity and potential has been found by any close student of the subject.

Yet it would take precisely such a bulge, many times as big a supply response as the 1964 tax cut produced, to get the kind of results that Senator Roth and Congressman Kemp claim on the basis of estimates by Norman B. Ture. There is no basis in either the 1964 tax cut or any other modern tax cut for Ture's prediction that a Kemp-Roth tax cut would, in a year or two, boost GNP by $150 to $170 billion, capital investment by over $100 billion and jobs by 2 to 4 million, thus boosting revenues above pre-tax-cut levels.

Such findings stretch both credulity and facts. As Rudolph Penner of the American Enterprise Institute puts it, "There can't be two or three or four times more bang in a Kemp-Roth tax cut than we've had with any other."

Given no validated evidence that huge tax cuts would generate huge increases in supply, that is, in productive potential, what would the 3-year $80 billion Kemp-Roth tax cut do to budget deficits and inflation? My answer won't surprise you: The huge surge in demand would overwhelm our supply capacity and soon generate soaring deficits and roaring inflation.

Let me turn to the Laffer curve. Increasingly, supporters of Kemp-Roth are drawing aid and comfort from the Laffer curve, a diagram purporting to show how tax changes can suppress or unleash incentives to work and invest and hence affect tax revenues. Some of my views on the subject are implicit in what I have already commented on. But let me add some thoughts that go beyond the 1964 tax experience:

The Andrew Mellon tax cuts of the 1920's are cited as evidence to support the Laffer thesis. As Jude Wanniski flatly put it, "As a result [of the Mellon cuts], the period 1921–29 was one of phenomenal economic expansion."

At a time when a relative handful of Americans paid income taxes and Federal spending was less than 5 percent of GNP, we are asked to believe that Federal income tax reduction powered the growth of GNP from $70 billion in 1921 to $103 billion in 1929. It just isn't possible.

Or take the 1948 tax cuts in West Germany, also advanced as "evidence" to support the Laffer thesis. As chief of internal finance in our military government in Germany in 1947 to 1948, and as tax adviser to General Clay, I can say, I was there. What actually touched off the great expansion? One, a tough and successful currency reform; two, removal of wage and price controls; three, the Marshall Plan; four, bountiful harvests; and five, tax reduction and reform. Yet the whole German "economic miracle" is attributed to tax cuts. Among other factors, the 2 million expellees and refugees from Eastern Europe, the major source of increased German labor supply in the post-1948 period, are conveniently ignored.

In short, the whole Laffer thesis and Kemp-Roth initiative rely excessively on post hoc, ergo propter hoc reasoning and on a one-dimensional view of the world. There is more to life than economics, and there is more to economics than taxes.

Apart from the weakness of such shaky evidence, the alleged miracle effect of tax cuts in generating great surges of work, savings, investment, and productive potential has to face such questions as the following:

Why, in the face of Laffer's assertions, has Denison's law held true through thick and thin for the past 100 years or so? Edward F. Denison of Brookings has found that U.S. gross private domestic savings at high employment has held at just about 16 percent of the gross national product through high taxes, low taxes, and periods of virtually no taxes. There are some studies that show some savings elasticity in response to changing rates of return, but the basic law has not been refuted.

Also, there is the question of whether we are in a high enough tax zone to produce these dire effects of higher rates and the delightful effects of lower rates than Laffer postulates.

Let me just quote a respected authority, William Fellner, of the American Enterprise Institute, on this. He says, "The United States is not yet at high enough tax rates to produce anything like the revenue explosion Laffer is predicting. Where the U.S. economy is along such a curve is completely undocumented, unexplored, and unknown."

And how is it that the Kemp-Roth tax cuts could, by increasing take-home pay sharply, lead to such an upsurge in the work ethic when a considerably larger average increase in real take-home pay in the decade of the 1960's, mostly as a result of sustained economic growth, produced no similar upsurge? People worked less in response to longer real pay per hour, they took longer vacations, more holidays, and worked shorter workweeks; that is, they took out part of the proceeds of growth in more leisure. Why wouldn't they do the same with the proceeds of big tax cuts, that is, respond as much or more to the increase in income, by working less hard to gain a given target income, as they would to the increase in incentives, by working harder as lower taxes made leisure more expensive. Or, to put it in an economic frame, all the explorations of labor supply, of workers reactions to changes in aftertax income that I know of, cannot even tell us for sure whether the net will to work is increased or decreased by a rise in aftertax income.

Having said a few things about excessive tax cuts in 1978–80, let me turn for a moment, lest I be misunderstood, to tax cuts in 1978. I do not want to tarnish my reputation as a tax-cut advocate.

Nothing I have said above about the dangers of gigantic tax cuts in 1978–80 applies to a moderate 1978 tax cut of $15 or $20 billion, or even $25 billion, if monetary policy tightens a lot. With unemployment still at 6.1 percent and operating rates in manufacturing still hovering arout 84 percent of capacity, there is still a sizable margin of unused supply potential to accommodate a $15 to $20 billion tax cut. Expecially in a year when payroll tax boosts and the inflation tax are increasing taxpayer liabilities by some $15 billion, it is economically safe and sound to enact a tax cut to neutralize this increase and provide some modest stimulus to an economy that would otherwise slow down to an annual growth rate below 4 percent. It would work to the benefit of output, jobs, and incomes, and pay a good dividend in tax revenues without shoving the economy into an excess-demand inflation. Just two supporting observations:

First, a careful comparison of key unemployment rates today with those of 1971, when we were clearly operating well below our potential, shows that they are just about identical. Rates of unemployment of adult males were 4.4 percent then and 4.3 percent now—I took the last 3 months' average—the rate for adult females was 5.7 then and 6.0 percent now; teenagers, 16.9 percent then and 16.9 percent now; all persons, 5.9 percent then and 6.1 percent now. And one should recall that it took a 6.2 percent real GNP growth rate from mid-1971 to the fourth quarter of 1972, to start stretching our supply capacity and falling prey to excess demand.

Second, apart from the need to overcome continued slack in the economy, we need added stimulus to private investment to serve our major economic goals. To forgo the boost to incentives and markets that a $15 billion to $20 billion tax cut could provide might shrink the deficit in fiscal 1979, but it would result in higher unemployment, lower investment, a less vigorous economy, and the risk of higher deficits in fiscal 1980. That would be a poor trade-off indeed.

The economic slowdown that will confront the Congress and the country at the end of 1978, will leave a lot of red faces around here if Congress simply scuttles the Carter tax cut and does nothing. But if instead Congress adopts the Roth-Kemp super cut, and thereby guarantees dizzying deficits and sizzling inflation, faces will be even redder.

It isn't always easy to make a distinction of this kind; that is, to oppose this kind of gigantic cut and yet to say that a moderate tax cut is good economic policy. That distinction is what I have tried to make in my statement today.

[The prepared statement of Mr. Heller follows:]

PREPARED STATEMENT OF WALTER W. HELLER[1]

Tax Cuts, the Kemp-Roth Bill, and the Laffer Curve

Ploughing new ground in an appearance before this sagacious and well-staffed Committee is not always easy. But on tax reduction, one of the subjects on which your chairman solicited our views, the Kemp-Roth Bill offers a target of opportunity.

As you are well aware, their bill represents a bold Republican alternative to the now-muted Carter tax proposal. Instead of a single $15 to $20 billion tax cut, it proposes a $98 billion slash via a 33 percent cut in individual income taxes plus a $15.5 billion cut in corporate taxes, both to be phased in over the next three years. Citing the 1964 Kennedy-Johnson tax cut (in which I have a certain paternal interest) and a variety of other tax reductions as precedents, the Kemp-Roth supporters claim that their program would unleash such productive energies and generate so much GNP and revenue feedback that it would quickly pay for itself.

It is high time to examine their claims, the evidence cited to support them, and the assertions and estimates that underlie them. In this brief statement, I will plough no deep furrows, but I can at least scratch the surface and join a few issues.

THE "VERDICT OF HISTORY" ON THE 1964 TAX CUT

As a general observation, it is true that the 1964 tax cut ($12 billion plus, or roughly equivalent to $35 to $40 billion today) succeeded, almost exactly as projected, in stimulating the economy. It is also true that the expansion associated with the tax cut and other sources of growth eventually raised income tax revenues above the pre-tax cut level. But in citing the 1964–1965 experience as support for their proposal to cut income taxes by a huge total of $113.5 billion, the Kemp-Roth advocates are misreading the "verdict of history" in two important respects:

Contrary to their assertion that the Kennedy-Johnson tax cut achieved its economic stimulus and consequent revenue flows "by increasing aggregate supply, by increasing the reward to work and investment," the record is crystal clear that the great bulk of the success of the "great tax cut" that was phased in during 1964–1965 came, as expected, from its stimulus to demand, its release of some $10 billion of consumer purchasing power and another $3 billion or so of corporate funds.

Second, the economic setting for the Kennedy tax cut was sharply different from our setting today. The 1964 cut was injected into an economy characterized by (a) plenty of slack in both labor and product markets, coupled with (b) virtual price

[1] This is a somewhat revised version of the original statement incorporating several editorial changes and corrections and adding five footnotes documenting or supplementing statements in the text.

stability—inflation averaging about 1.2 percent per year—and stable-to-falling unit labor costs. In other words, the "aggregate supply" capacity already existed in the form of high unemployment and low industrial operating rates, and inflation was not a problem. So the tax cut was able to activate idle physical and human resources without more than minimal impact on the price level.

As to misrepresentation, I regret to say that on two important counts, the retrospective Kemp-Roth view of the Kennedy-Johnson tax cut is simply wrong:

First, it is said that the Kennedy tax program succeeded for the wrong reasons, that is, virtually ignored the incentive and supply side of the tax equation. On the contrary. President Kennedy's 1963 economic program was a careful blend of measures designed to stimulate both markets and incentives. As he put it in his January 1963 Economic Message: "Only when we have removed the heavy drag our fiscal system now exerts on personal and business purchasing power and on the financial incentives for greater risk taking and personal effort can we expect to restore the high levels of employment and growth we took for granted in the first decade after the war." Appended to his statement is a lengthier excerpt from his 1963 Economic Report providing a further perspective on his tax cut proposal.

Second, it is asserted that the revenue-generating effect of the 1964 tax cut were not foreseen. Exactly the opposite was true. As President Kennedy said: "The impact of my tax proposals on the budget deficit will be cushioned * * * most powerfully, in time, by the accelerated growth of taxable income and tax receipts as the economy expands in response to the stimulus of the tax program." [2]

Let me return to the first two points. The core of the 1964 tax cut was a $12 billion-plus boost in after-tax income and profits injected into a slack, non-inflationary economy. At the time, we calculated (a) that actual output was running about $30 to $35 billion below potential output, and (b) that the $12 billion-plus cut—as it was spent and respent and as it energized new investment—would boost consumer spending and business investment by a combined amount of $25 to $30 billion a year without significantly stepping up inflation.

The true verdict of history is that the tax cut, predominantly operating through the release of purchasing power, worked almost precisely as planned:

The unemployment rate fell from 5.6 percent in January 1964 to 4.5 percent in July 1965 (when escalation in Vietnam began).

Inflation, which had been running at 1.4 percent a year just before the tax cut, crept up to only 1.6 percent by the summer of 1965 (mainly because of food price increases). In other words, the purchasing power punch of the tax cut was converted into higher sales of goods and services, higher output, more jobs, more income, and more tax revenues but not into higher prices.

As a careful quantitative appraisal by Arthur M. Okun (in late 1965) showed, the multiplied impact of the tax cut did indeed raise aggregate demand and GNP by about $30 billion (at annual rates) above what they would have been without the tax cut.[3]

KEMP-ROTH: SUPPLY RESPONSES AND INFLATION

But what about the alternative explanation offered by the Kemp-Roth forces that the 1964 tax cut accomplished all this by quickly expanding supply through its benign effect on incentives?

A great leap forward on the supply side would have to show up in a big jump in trend productivity increases and in the growth of GNP potential. The Kennedy

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[2] A careful appraisal of the official Treasury Tax estimates for the period in question shows that they too foresaw the revenue-stimulating potential of the income tax cut, expenditure increases, and associated measures. To be specific, the assertion that Treasury tax were off by $143 billion "because Treasury ignored the feedback effects of tax rate changes on production behavior" (as Congressman Kemp puts it) represents a complete misreading or twisting of the facts: (1) close inspection of the Treasury's actual year-by-year revenue estimates shows (a) that the tax-cut's feedback effects were indeed taken into account, (b) that apart from tax cuts, the Vietnam war played a major role in stimulating the economy and boosting revenues, and (c) that the "net miss" or revenue gains between 1963 and 1968 was about $2 billion, not $143 billion; (2) the Treasury table cited by Roth-Kemp advocates was in no sense a summary of Treasury revenue estimates but a 1968 submission to the House Banking Committee to show what revenues *would have been* in fiscal years 1963 to 1968 if (a) taxes had *not* been cut in 1962–64 but (b) the economy *had* nonetheless expanded as much as it did with the tax cut; (3) only the minus items in the Treasury's 1967 submission to the Banking Committee were used, and even those were not added up correctly. Those who did the staff work for Congressman Kemp and Senator Roth have clearly done them—and the cause of rational tax debate—a serious disservice.

[3] See "Measuring the Impact of the 1964 Tax Reduction" in Perspectives of Economic Growth, Random House, New York, Walter W. Heller, Editor, 1968.

tax program—including both the 1964 tax cuts and the 1962 investment tax stimulants in the form of the investment tax credit and liberalized depreciation guidelines—did in fact improve investment and work incentives and contributes to good, sustained growth in productivity. But no sudden bulge in productivity and potential has been found by any close student of the subject.

Yet it would take precisely such a bulge—many times as big a supply response as the 1964 tax cut produced—to get the kind of results that Senator Roth and Congressman Kemp claim on the basis of estimates by Norman B. Ture. There is no basis in either the 1964 tax cut or any other modern tax cut for Ture's prediction that a Kemp-Roth tax cut would in little more than a year, generate 4 million jobs and boost GNP by $157 billion, and soon boost tax revenues above pre-tax cut levels.[4]

Such findings stretch both credulity and facts. As Rudolph Penner of the American Enterprise Institute puts it, "There can't be two or three or four times more bang in a Kemp-Roth tax cut than we've had with any other."

Given no validated evidence that huge tax cuts would generate huge increases in supply—that is, in productive potential—what would the three-year $98 billion Kemp-Roth tax cut do to budget deficits and inflation? My answer won't surprise you: the huge surge in demand would overwhelm our supply capacity and soon generate soaring deficits and roaring inflation.

THE "LAFFER CURVE"

Increasingly, supporters of Kemp-Roth are drawing aid and comfort from the "Laffer Curve", a diagram purporting to show how tax changes can suppress or unleash incentives to work and invest and hence affect tax revenues. Some of my views on the subject are implicit in the foregoing comments. But let me add some thoughts that go beyond the 1964 tax experience:

The Andrew Mellon tax cuts of the 1920s are cited as evidence to support the Laffer thesis. As Jude Wanniski flatly put it (in the "Public Interest," Winter 1978): "As a result [of the Mellon cuts], the period 1921–1929 was one of phenomenal economic expansion . . ." At a time when a relative handful of Americans paid income taxes and Federal spending was less than 5 percent of GNP (in 1929, it was 3 percent), we are asked to believe that Federal income tax reduction powered the growth of GNP from $70 billion in 1921 to $103 billion in 1929!

Or take the 1948 tax cuts in West German, also advanced as "evidence" to support the Laffer thesis. As Chief of Internal Finance and Tax Adviser to General Lucius Clay in our Military Government in Germany in 1947–1948, "I was there." What actually touched off the great expansion? (1) A tough and successful currency reform; (2) Removal of wage and price controls; (3) The Marshall Plan; (4) Bountiful harvests; (5) Tax reduction and reform. Yet the whole German "economic miracle" is attributed to tax cuts. (Among other factors, the 2 million expellees and refugees from Eastern Europe, the major source of increased German labor supply in the post-1948 period, are conveniently ignored.)[5]

In short, the whole Laffer thesis and Kemp-Roth initiative rely excessively on post hoc, ergo propter hoc reasoning and on a one-dimensional view of the world. There's more to life than economics, and there's more to economics than taxes.

Apart from such shaky evidence, the alleged miracle effect of tax cuts in generating great surges of work, savings, investment, and productive potential has to face such questions as the following:

Why, in the face of Laffer's assertions, has "Denison's Law" held true through thick and thin for the past 100 years or so? Edward F. Denison of Brookings has found that U.S. gross private domestic saving has been virtually invariant year-in

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[4] As to the revenue impact of the 1964 tax cuts, the Congressional Budget Office in its April 1978 Background Paper, "Understanding Fiscal Policy", page 25, concludes that the economic stimulus of the near-$12 billion tax-cut "recaptures $3 to $9 billion of this revenue at the end of 2 years." Total revenues, of course, rose much more as GNP rose $155 billion in the 3 years following the tax-cut but, "there is no model or economist who would attribute all, or anything approaching all, of this increase to a $12 billion cut in personal taxes." (One should note that the references to the size of the 1964–1965 tax-cut differ somewhat depending in part on whether those cuts are looked at on a 1964 or a 1965 economic base and on whether corporate cuts are included.)

[5] The same statistical sin is committed in (a) attributing to the 1962–64 tax-cut all the expansion that occurred in 1963–1968, simply ignoring the huge (over-) stimulus of Vietnam expenditures and (b) attributing to the 1962–64 tax-cut all the revenue increase that occurred in 1963–68, ignoring Social Security payroll rate and base increases in 1965, 1966, 1967, and 1968 as well as the Tax Adjustment Act of 1966, which added $1.2 billion to revenues in fiscal year 1966 and $4.6 billion in fiscal year 1967.

and year-out in the face of high taxes, low taxes, or virtually no taxes. Adjusted to a high-employment level, it has held stubbornly at roughly 16 percent of GNP for about a century. And investment has necessarily been stuck right there with it. This simply does not square with the assertion that changes in tax rates touch off big changes in the will to work, save, and invest.[6]

And even if there were something to the Laffer thesis, who is to say that we are in a high enough tax zone to produce those dire effects of higher rates and delightful effects of lower rates that Laffer postulates? Not Dr. William Fellner of AEI: "The U.S. is not yet at high enough tax rates to produce anything like the revenue explosion Laffer is predicting * * * where the U.S. economy is along such a curve is completely undocumented, unexplored, and unknown."

And how is it that the Kemp-Roth tax cuts could, by increasing take-home pay sharply, lead to such an upsurge in the work ethic when a considerably larger average increase in real take-home pay in the decade of the 1960s (mostly as a result of sustained economic growth) produced no similar upsurge? People worked less in response to longer real pay per hour—they took longer vacations and more holidays, and worked shorter work weeks, i.e., they took out part of the proceeds of growth in more leisure. Why wouldn't they do the same with the proceeds of big tax cuts, i.e., respond as much or more to the increase in income (by working less hard to gain a given target income) as they would to the increase in incentives (by working harder as lower taxes made leisure more "expensive")? Or to put it in an economic frame, all the explorations of labor supply, of worker reactions to changes in after-tax income that I know of, cannot even tell us for sure whether the net will to work is increased or decreased by a rise in after-tax income.

A 1978 TAX CUT

Lest I be misunderstood, I want to add a few comments, on the wisdom of a tax cut in 1978 that will, I hope, maintain my credentials as a tax cutter. Nothing I have said above about the dangers of gigantic tax cuts in 1978–1980 applies to a moderate 1978 tax cut of $15 or $20 billion (or even $25 billion if monetary policy tightens a lot): with unemployment still at 6.1 percent and operating rates in manufacturing still hovering around 84 percent of capacity, there is still a sizable margin of unused supply potential to accommodate a $15 to $20 billion tax cut. Expecially in a year when payroll tax boosts and the "inflation tax" are increasing taxpayer liabilities by some $15 billion, it is economically safe and sound to enact a tax cut to help neutralize this increase and provide some modest stimulus to an economy that would otherwise slow down to an annual growth rate below 4 percent. It would work to the benefit of output, jobs, and incomes and pay a good dividend in tax revenues without shoving the economy into an excess-demand-inflation. Just two supporting comments:

A careful comparison of key unemployment rates today with those of 1971, when we were clearly operating well below our potential, shows that they are just about identical. Rates of unemployment of adult males were 4.4 percent then and 4.3 percent now (March, April, May average); adult females, 5.7 percent then and 6.0 percent now; teenagers, 16.9 percent then and 16.9 percent now; all persons, 5.9 percent then and 6.1 percent now. And one should recall that it took a 6.2 percent real GNP growth rate from mid-1971 to 1972IV to start stretching our supply capacity and falling prey to excess demand.

Apart from the need to overcome continued slack in the economy, we need added stimulus to private investment to serve our major economic goals. To forego the boost to incentives and markets that a $15 to $20 billion tax cut could provide might shrink the deficit in fiscal 1979, but it would result in higher unemployment, lower investment, a less vigorous economy, and the risk of higher deficits in fiscal 1980. That would be a poor trade-off indeed.

The economic slowdown that will confront the Congress and the country at the end of 1978 will leave a lot of red faces around here if Congress simply scuttles the Carter tax cut and does nothing. But if instead Congress adopts the Roth-Kemp super-cut, and thereby guarantees dizzying deficits and sizzling inflation, faces will be even redder.

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[6] The surprising finding by Michael Boskin (reported in the April 1978 "Journal of Political Economy") of a .3 to .4 interest elasticity of the saving rate—even though it runs counter not only to Denison's Law but to virtually all previous research results on this subject—deserves close and critical follow-up by other investigators. Even if Boskin's far-out estimate were to be corroborated by other research, one should note that a savings elasticity of .3 to .4 still falls far short of the taxpayer response required to support the sensational jumps in savings that underlie the Ture predictions of huge increases in investment, GNP and jobs under the impact of the Kemp-Roth bill.

APPENDIX

Excerpts From President Kennedy's January 1963 Economic Report

TAX REDUCTION AND REFORM IN 1963

We approach the issue of tax revision, not in an atmosphere of haste and panic brought on by recession or depression, but in a period of comparative calm. Yet if we are to restore the healthy glow of dynamic prosperity to the U.S. economy and avoid a lengthening of the 5-year period of unrealized promise, we have no time to lose. Early action on the tax program outlined in my State of the Union Message—and shortly to be presented in detail in my tax message—will be our best investment in a prosperous future and our best insurance against recession.

The Responsible Citizen and Tax Reduction

In this situation, the citizen serves his country's interest by supporting income tax reductions. For through the normal processes of the market economy, tax reduction can be the constructive instrument for harmonizing public and private interests:

The taxpayer as *consumer*, pursuing his own best interest and that of his family, can turn his tax savings into a higher standard of living, and simultaneously into stronger markets for the producer.

The taxpayer as *producer*—businessman or farmer—responding to the profit opportunities he finds in fuller markets and lower tax rates, can simultaneously create new jobs for workers and larger markets for the products of other factories, farms, and mines.

Tax reduction thus sets off a process that can bring gains for everyone, gains won by marshalling resources that would otherwise stand idle—workers without jobs and farm and factory capacity without markets. Yet many taxpayers seem prepared to deny the nation the fruits of tax reduction because they question the financial soundness of reducing taxes when the Federal budget is already in deficit. Let me make clear why, in today's economy, fiscal prudence and responsibility call for tax reduction even if it temporarily enlarges the Federal deficit—why reducing taxes is the best way open to us to increase revenues.

Our choice is not the oversimplified one sometimes posed, between tax reduction and a deficit on one hand and a budget easily balanced by prudent management on the other. If the projected 1964 Federal cash deficit of $10.3 billion did not allow for a $2.7 billion loss in receipts owing to the new tax program, the projected deficit would be $7.6 billion. We have been sliding into one deficit after another through repeated recessions and persistent slack in our economy. A planned cash surplus of $0.6 billion for the fiscal year 1959 became a record cash deficit of $13.1 billion, largely as the result of economic recession. A planned cash surplus of $1.8 billion for the current fiscal year is turning into a cash deficit of $8.3 billion, largely as the result of economic slack. If we were to slide into recession through failure to act on taxes, the cash deficit for next year would be larger *without* the tax redction than the estimated deficit *with* tax reduction. Indeed, a new recession could break all peace-time reficit records. And if we were to try to force budget balance by drastic cuts in expenditures—necessarily at the expense of defense and other vital programs—we would not only endanger the security of the country, we would so depress demand, production, and employment that tax revenues would fall and leave the government budget still in deficit. The attempt would thus be self-defeating.

So until we restore full prosperity and the budget-balancing revenues it generates, our practical choice is not between deficit and surplus but between two kinds of deficits: between deficits born of waste and weakness and deficits incurred as we build our future strength. If an individual spends frivolously beyond his means today and borrows beyond his prospects for earning tomorrow, this is a sign of weakness. But if he borrows prudently to invest in a machine that boosts his business profits, or to pay for education and training that boost his earning power, this can be a source of strength, a deficit through which he builds a better future for himself and his family, a defiicit justified by his increased potential.

As long as we have large numbers of workers without jobs, and producers without markets, we will as a Nation fall into repeated deficits of inertia and weakness. But, by comparison, if we enlarge the deficit temporarily as the by-product of our positive tax policy to expand our economy this will serve as a source of strength, not a sign of weakness. It will yield rich *private* dividends in higher output, faster growth, more jobs, higher profits and incomes; and, by the same

token, a large *public* gain in expanded budget revenues. As the economy returns to full employment, the budget will return to constructive balance.

This would not be true, of course, if we were currently straining the limits of our productive capacity, when the dollars released by tax reduction would push against unyielding bottlenecks in industrial plant and skilled manpower. Then, tax reduction would be an open invitation to inflation, to a renewed price-wage spiral, and would threaten our hard-won balance of payments improvement. Today, however, we not only have unused manpower and idle plant capacity; new additions to the labor force and to plant capacity are constantly enlarging our productive potential. We have an economy fully able and ready to respond to the stimulus of tax reduction.

Our need today, then, is

To provide *markets* to bring back into production underutilized plant and equipment;

To provide *incentives* to invest, in the form both of wider markets and larger profits—investment that will expand and modernize, innovate, cut costs;

Most important, by means of stronger markets and enlarged investment, to provide *jobs* for the unemployed and for the new workers streaming into the labor force during the sixties—and, closing the circle, the new jobholders will generate still larger markets and further investment.

It was in direct response to these needs that I pledged last summer to submit proposals for top-to-bottom reduction in personal and corporate income taxes in 1963—for reducing the tax burden on private income and the tax deterrents to private initiative that have for too long held economic activity in check. Only when we have removed the heavy drag our fiscal system now exerts on personal and business purchasing power and on the financial incentives for greater risk-taking and personal effort can we expect to restore the high levels of employment and high rate of growth that we took for granted in the first decade after the war.

Taxes and Consumer Demand

In order to enlarge markets for consumer goods and services and translate these into new jobs, fuller work schedules, higher profits, and rising farm incomes, I am proposing a major reduction in individual income tax rates. Rates should be cut in three stages, from their present range of 20 to 91 percent to the more reasonable range of 14 to 65 percent. In the first stage, beginning July 1, these rate reductions will cut individual liabilities at an annual rate of $6 billion. Most of this would translate immediately into greater take-home pay through a reduction in the basic withholding rate. Further rate reductions would apply to 1964 and 1965 incomes, with resutling revenue losses to be partially offset by tax reforms, thus applying a substantial additional boost to consumer markets.

These revisions would directly increase the annual rate of disposable after-tax incomes of American households by about $6 billion in the second half of 1963, and some $8 billion when the program is in full effect, with account taken of both tax reductions and tax reform. Taxpayers in all brackets would benefit, with those in the lower brackets getting the largest proportional reductions.

American households as a whole regularly spend between 92 and 94 percent of the total after-tax (disposable) incomes they receive. And they generally hold to this range even when income rises and falls; so it follows that they generally spend about the same percentage of dollars of income added or subtracted. If we cut about $8 billion from the consumer tax load, we can reasonably expect a direct addition to consumer goods markets of well over $7 billion.

A reduction of corporate taxes would provide a further increment to the flow of household incomes as dividends are enlarged; and this, too, would directly swell the consumer spending stream.

The direct effects, large as they are, would be only the beginning. Rising output and employment to meet the new demands for consumer goods will generate new income—wages, salaries, and profits. Spending from this extra income flow would create more jobs, more production, and more incomes. The ultimate increases in the continuing flow of incomes, production, and consumption will greatly exceed the initial amount of tax reduction.

Even if the tax program had no influence on investment spending—either directly or indirectly—the $8–9 billion added directly to the flow of consumer income would call forth a flow of at least $16 billion of added consumer goods and services.

But the program will also generate direct and indirect increases in investment spending. The production of new machines, and the building of new factories,

stores, offices, and apartments add to incomes in the same way as does production of consumer goods. This too sets off a derived chain reaction of consumer spending, adding at least another $1 billion of output of consumer goods for every $1 billion of added investment.

Taxes and Investment

To raise the Nation's capacity to produce—to expand the quantity, quality, and variety of our output—we must not merely replace but continually expand, improve, modernize and rebuild our productive capital. That is, we must invest, and we must grow.

The past half decade of unemployment and excess capacity has led to inadequate business investment. In 1962, the rate of investment was almost unchanged from 1957 though gross national product had risen by almost 16 percent, after allowance for price changes. Clearly it is essential to our employment and growth objectives as well as to our international competitive stance that we stimulate more rapid expansion and modernization of America's productive facilities.

As a first step, we have already provided important new tax incentives for productive investment. Last year the Congress enacted a 7-percent tax credit for business expenditures on major kinds of equipment. And the Treasury, at my direction, revised its depreciation rules to reflect today's conditions. Together, these measures are saving business over $2 billion a year in taxes and significantly increasing the net rate of return on capital investments.

The second step in my program to lift investment incentives is to reduce the corporate tax rate from 52 percent to 47 percent, thus restoring the pre-Korean rate. Particularly to aid small businesses, I am recommending that effective January 1, 1963, the rate on the first $25,000 of corporate income be dropped from 30 to 22 percent while the 52 percent rate on corporate income over $25,000 is retained. In later stages, the 52 percent rate would drop to 47 percent. These changes will cut corporate liabilities by over $2.5 billion before structural changes.

The resulting increase in profitability will encourage risk-taking and enlarge the flow of internal funds which typically finance a major share of corporate investment. In recent periods, business *as a whole* has not been starved for financial accommodation. But global totals mask the fact that thousands of small or rapidly growing businesses are handicapped by shortage of investible funds. As the total impact of the tax program takes hold and generates pressures on existing capacity, more and more companies will find the lower taxes a welcome source of finance for plant expansion.

The third step toward higher levels of capital spending is a combination of structural changes to remove barriers to the full flow of investment funds, to sharpen the incentives for creative investment, and to move tax-induced distortions in resource flow. Reduction of the top individual income tax rate from 91 to 65 percent is a central part of this balanced program.

Fourth, apart from *direct* measures to encourage investment, the tax program wil got to the heart of the main deterrent to investment today, namely, inadequate markets. Once the sovereign incentive of high and rising sales is restored, and the businessman is convinced that today's new plant and equipment will find profitable use tomorrow, the effects of the directly stimulative measures will be doubled and redoubled. Thus—and it is no contradiction—the most important single thing we can do to stimulate investment in today's economy is to raise consumption by major reduction of individual income tax rates.

Fifth, side-by-side with tax measures, I am confident that the Federal Reserve and the Treasury will continue to maintain, consistent with their responsibilities for the external defense of the dollar, monetary and credit conditions favorable to the flow of savings into long-term investment in the productive strength of the country.

Given a series of large and timely tax reductions and reforms, as I have proposed, we can surely achieve the balanced expansion of consumption and investment so urgently needed to overcome a half decade of slack and to capitalize on the great and growing economic opportunities of the decade ahead.

The impact of my tax proposals on the budget deficit will be cushioned by the scheduling of reductions in several stages rather than a single large cut; the careful pruning of civilian expenditures for fiscal 1964—those other than for defense, space, and debt service—to levels below fiscal 1963; the adoption of a more current time schedule for tax payments of large corporations, which will at the outset add about $1½ billion a year to budget receipts; the net offset of $3½ billion of revenue loss by selected structural changes in the income tax; most

powerfully, in time, by the accelerated growth of taxable income and tax receipts as the economy expands in response to the stimulus of the tax program.

Senator BENTSEN. Thank you, Mr. Heller. Our next witness will be Mr. Henry Kaufman.

STATEMENT OF HENRY KAUFMAN, PARTNER AND MEMBER OF THE EXECUTIVE COMMITTEE, SALOMON BROS., NEW YORK, N.Y.

Mr. KAUFMAN. I will try to shorten my prepared statement that I have submitted.

I am pleased to respond to your request for my views on the outlook for the American economy and financial markets. But, I must say, that I am saddened by the conclusions which I have reached from an analysis of the situation. I have concluded that our economy and financial markets are on a treacherous course. We are in the midst of a volatile economic recovery and a dangerously high rate of inflation. Cost-push inflation, to which our Government has contributed importantly through well-known legislative and administrative decisions, is now being reinforced by demand-pull inflation as employment continues to increase and more plant capacity is utilized.

The pressure on the economy this year is due particularly to the shrinking availability of skilled help which our aggregate statistics fail to reveal. Because of a variety of structural problems, full employment today must be considered at a higher rate than the post-World War II norm of a 4 percent unemployment rate. Indeed, Michael Wachter of the University of Pennsylvania, in analyzing these structural changes, has concluded that defining full employment as a 4 percent unemployment rate in 1957 is equivalent to defining it at 5.5 percent in 1977.

Similar conclusions have been reached in studies conducted by the Federal Reserve Bank of St. Louis.

Unfortunately, there are no policies now in place that will readily curb the growing economic and financial excesses. Indeed, official pronouncements by our Government that inflation is not the No. 1 national problem, is hardly reassuring. They can only be regarded as a failure in the recent past to perceive correctly the challenges that confronted us. If the inflation problem had been perceived correctly and countered with preventive measures, no such admission of failure would be necessary today, of course, recognizing correctly, the current problem is a step in the right direction. However, considering the complexity of the current economic and financial situation, I know of no easy or simple solution. Whatever direction policies will take from here on will be painful to some sectors, and most likely for the economy as a whole.

When the present business recovery is viewed in the broadest sense, two aspects stand out. One is the high degree of volatility in economic activity. On average, the economy has achieved an annual rate of real growth of 5.2 percent during the first 3 years of this expansion. This is not too different from the growth rates attained during the same years of the business expansion that began in 1961 and 1971. But the quarterly fluctuations in these growth rates have been exceptionally large since 1975.

For the 12 quarters involved, the difference between the high and low real growth rates equals 12 percentage points compared with 8.7 percentage points for the comparable period in 1971 through 1973, and only 6.3 percentage points for the 1961–63 periods. This economic volatility is continuing. In this quarter, real growth may be around 10 percent as compared with about zero growth in the first quarter. For the balance of the year, I would expect real growth in the range of 4 percent to 4.5 percent.

The other distinguishing feature of the present business expansion, the escalation in the rate of inflation, is ominous. It clearly validates the expectations of many who doubted the promise of Government to keep the inflation trendline moving downward.

The trend is quite the opposite, and the record now shows that the trend toward irregularly higher inflation rates is intact. This alarming pattern is clearly demonstrated in table 1 of my prepared statement, which shows the post-World War II cyclical lows and highs for the inflation rate as measured by the GNP deflator.

For the five cyclical periods, the lows in the inflation rate have moved progressively higher—from an actual reduction in the price level in the third quarter of 1949, to an increase of 4.7 percent in late 1976. The cyclical peaks of inflation have also moved progressively higher throughout the post-World War II years if one excludes the 1951 high when we were involved in the Korean war. The inflation peak for this cycle will probably be established during the next 12 months. We may well come close to testing the previous cyclical high of 11.6 percent which was reached in the early part of 1975.

In evaluating the inflation problem, there is a tendency to explain much of it away by focusing on food and fuel. While these two sectors are substantial cost-imbedding factors, they are not alone by any means. Even excluding food and fuel, the rate of inflation is alarmingly high today by any historical standard. I demonstrat this in table 2 of my prepared statement.

Neither fiscal nor monetary policies have functioned effectively to blunt the inflationary thrust. The most inappropriate actions so far have come from the fiscal side. By a wide array of yardsticks, the fiscal posture of the Federal Government this year is excessive, and virtually without historical precedent.

For example, this year's unified budget deficit is estimated at around $52 billion. During the comparable years of the two previous economic recoveries, the deficits totaled only $15 billion and $6 billion, respectively. Federal expenditures in this fiscal year will increase by 12 percent. This annual percentage increase has been exceeded only seven times during the past 25 years and only once in a nonwar year of economic expansion.

While much has been said during the current economic recovery about the extent to which the expansionary Federal fiscal policy has been offset by the surplus that is being generated by State and local governments, the net stimulus is still extraordinary. When the data for the first 3 years of the current economic recovery is examined, we find that the combined total cumulative public sector budget—Federal, State, and local—was in significantly greater deficit than in the previous comparable periods of economic recovery. I demonstrated that in table 3 of my prepared statement.

Monetary policy, however, has been far from faultless, although monetary policy operations have been hampered by the outsized deficit of the Federal Government. From a technical viewpoint, the Federal Reserve has had only mixed results in containing the growth of the money supply within the official long-run targets. For example, in each of the quarters starting mid-1977, the growth of the narrowly defined money supply—(M–1)—has exceeded the long-run range of tolerances targeted by the Fed.

More importantly, monetary policy has not been able to confine the massive debt creation to reasonable limits in this business recovery. The growth of debt in the United States is proceeding at even a more reckless pace this year than I had estimated in February, when I reported on this matter to the House Budget Committee.

Think of it in these terms. Outstanding credit market debt of all sorts rose at annual rates of 7.4 percent from 1962 to 1971. It accelerated to an annual average of 11 percent from 1972 to 1974. Thus far in this business recovery, it has increased by 8 percent in 1975, 11 percent in 1976, 14 percent in 1977, and in the first half of this year at an annual rate that probably is even higher.

The cutting edge of monetary restraint, at least so far, is not clearly visible in the credit markets, even though interest rates have increased sharply since early 1977 and are high by historical standards.

Today, new issues of AAA-rated utilities are around 9 percent, mortgage borrowing costs to finance private homes are at 10 percent in some sections of the country, and long-term Government bonds at around 8.5 percent. In the entire post-World War II periods, the average annual yields in long Government bonds and mortgages have never been higher than current levels and during only 2 years did AAA utility yields average higher than they are at the present time.

There are several reasons for the lack of bite from the current high levels of interest rates. Inflation, as a way of life and policy, is imbedded in the expectations of both users and suppliers of credit. Indeed, I know of no creditworthy borrowers that are shocked by the prevailing structure of interest rates, which not too many years ago would have been viewed with a lot of consternation.

Probably, inflationary expectations are most deeply imbedded in the household sector. This is reflected in the record-shattering volume of consumer credit financing and of mortgage borrowings. Consumer debt rose at an annual rate of $39 billion during the first 5 months of this year, as compared with $31 billion for all of 1977 and $21 billion for 1976.

The inflationary bias of individuals, which is reflected in their decision to refinance existing homes and to acquire new ones, is even more startling. Many individuals are convinced that not only will inflation persist, but that homes will increase in value at a rate exceeding the pace of inflation generally. As a consequence, the cost of money is not as key a determinant in the mortgage financing decision that it used to be. In turn, new residential mortgage financing will rise to record levels this year, perhaps as much as $110 billion net, compared with $103 billion in 1977, $70 billion in 1976, and an annual average of $47 billion from 1971 through 1975.

Another factor that has dulled the restraining influence of interest rates is the liquidity situation which, in some key sectors, is still quite

good for the start of the fourth year of economic expansion. For example, commercial banks still hold most of the $50 billion of U.S. Government's which they acquired in 1975 and 1976. Their reasonable liquidity position is also evidenced by their ready willingness to make loans for a variety of transactions including the financing of mergers and acquisitions, which is hardly a hallmark of tight money.

Business corporations still have large unused lines of credit at banks, substantial capacity to issue commercial paper and quite a few leading corporations have very large reserves of liquid assets. Even our thrift institutions are somewhat better situated to withstand the initial onslaught of higher interest rates because of longer dated deposits, enlarged borrowing capacity at the Federal Home Loan Banks and the innovation of new liquidity instruments such as the issuance of mortgage-backed bonds and passthrough certificates.

I must warn you, however, that the use of liquidity to finance the operational activities of individual endeavors has two consequences. It shelters for a while the sector trying to finance its activities through its own liquidity facility from the restraint usually associated with higher interest rates. In this sense, liquidity usage drives the economy further ahead, but it also pushes interest rates higher unless others seek less funds or create financial surpluses. But this is not happening because the credit demands from the private sector are rising this year, while the Federal Government is not moving to a surplus position.

The cutting edge of interest rates has also been dulled by important structural changes in our financial system. Financial institutions have been partly liberated from the pressures of rising interest rates through, among other things, the liberalization of regulation Q ceilings on time and savings deposits, floating interest rates on lending arrangements and access to foreign funds. As a result, they do not experience the full brunt of restraint themselves, as they had in the past. Instead, it is the final demander of credit, be it business, households, or governments, who is ultimately restrained by a much higher level of interest rates.

For the Federal Reserve, the liberation of the financial system from frictional impediments, which incidentally the Fed has supported, puts the central bank in a difficult position operationally. In attempting to curb excessive monetary growth, the Fed is forced to raise interest rates higher than heretofore when frictional devices helped to restrain monetary creation.

The recent regulation allowing deposit institutions to issue 6-month consumer certificates of deposit pegged to the Treasury bill rate is another of those changes that will push interest rates higher and complicate the task of monetary restraint. To be sure, this regulation is well intended. It permits thrift institutions to retain deposits and, at least to some extent, to attract new funds in support of new housing activity.

But, if housing is to be cushioned, then who is to be denied credit when credit formation is excessive? Is it to be the Federal Government, municipalities, or business or some consumer sectors?

Obviously, interest rates will have to move high enough to eliminate some demanders. The Federal Government will not be denied. Perhaps the inflationary bias among households will persist long enough

for them to outbid business, thereby terminating the revival in business capital spending or, as in the past, business and government will outbid the household sector.

In any event, the restraining influence of interest rates should be clearly visible during the second half of 1978. Interest rates will be driven higher by demands for credit which will exceed both genuine savings generation and the new funds supplied through the monetary creation process. Credit demands will be excessive even if money supply grows faster than the officially targeted growth rates.

I have illustrated the problem of net new credit demands of key sectors for the second half of calendar 1978 as compared with the second half of calendar 1977 when these demands were very large.

Against the backdrop of continued high rates of inflation and in the absence of fiscal restraint, the Federal Reserve has few, if any, palatable monetary options. At first glance, the advice might be to ease up a little on the credit reins because economic growth may be slowing. This would risk even higher rates of inflation in the future and would fail to take into account the capacity constraints in the economy. In addition, it is likely the Fed policy will be limited by the frail position of the dollar in the foreign exchange markets.

I said at the start of this testimony that there are no simple or painless solutions for the current excesses in the economy and the emerging credit stringencies. Once again, the timing has been missed in national stabilization policies in order to facilitate orderly economic growth. The best we can now do is to limit the excesses and to ward off severe damage. What should be done?

Let us lower the official targets for real national product growth to around 3 percent annually for the near term and use only selective measures to reduce the number of people who are structurally unemployed.

Let us belatedly reduce the fiscal stimulus by reducing Federal expenditure to the range of $460 or $470 billion for fiscal 1979 and by implementing mainly those tax reductions that will encourage investments.

In any event, the credit demands of the Federal Government at this stage of the economic recovery are much too large. When credit markets tightened sharply in 1973 and 1974, the net new financing of the U.S. Government and its agencies accounted for 13 percent of all credit demands as compared with an estimated 22 percent this year.

I would also recommend the adoption, or at least further consideration, of the Wallich-Weintraub proposals for reducing inflation through tax incentives. It is a cumbersome program, but in view of the precariousness of the current situation it is worth trying.

In the final analysis, however, the key problem which immediately faces the economic and financial markets is how to constrain large demands for wages in light of the inflation during the past year and the effective bargaining position of labor due to the shrinking supply of skilled help. It is quite clear how we got into this dilemma. Unfortunately, history shows that we return to a viable economy only after an onslaught of financial and economic shocks.

[The prepared statement of Mr. Kaufman follows:]

PREPARED STATEMENT OF HENRY KAUFMAN

My name is Henry Kaufman. I am a general partner and member of the Executive Committee of Salomon Brothers, an investment banking and market making firm headquartered in New York City. I also serve as the Firm's chief economist and head of its Bond Market Research Department.

I am pleased to respond to your request for my views on the outlook for the American economy and financial markets. But, I must say that I am saddened by the conclusions which I have reached from an analysis of the situation. I have concluded that our economy and financial markets are on a treacherous course. We are in the midst of a volatile economic recovery and a dangerously high rate of inflation. Cost-push inflation, to which our Government has contributed importantly through well-known legislative and administrative decisions, is now being reinforced by demand-pull inflation as employment continues to increase and more plant capacity is utilized.

The pressure on the economy this year is due particularly to the shrinking availability of skilled help which our aggregate statistics fail to reveal. Because of a variety of structural problems, full employment today must be considered at a higher rate than the post World War II norm of a 4 percent unemployment rate. Indeed, Michael Wachter of the University of Pennsylvania, in analyzing these structural changes, has concluded that defining full employment as a 4 percent unemployment rate in 1957 is equivalent to defining it at 5½ percent in 1977. Similar conclusions have been reached in studies conducted by the Federal Reserve Bank of St. Louis. If so, full employment is nearly at hand. Of course, our endeavors should continue in bringing the structurally unemployed into the work force but not by using broad stimulative measures which have been contributing to the rise of inflation.

Unfortunately, there are no policies now in place that will readily curb the growing economic and financial excesses. Indeed, official pronouncements that inflation is now the number one national problem is hardly reassuring. They can only be regarded as a failure in the recent past to perceive correctly the challenges that confronted us. If the inflation problem had been perceived correctly and countered with preventive measures, no such admission of failure would be necessary today. Of course, recognizing correctly the current problem is a step in the right direction. However, considering the complexity of the current economic and financial situation, I know of no easy or simple solution. Whatever direction policies will take from hereon will be painful to some sectors and most likely for the economy as a whole. It is dismaying to me to find that we have learned so little from the trying economic and financial experiences which began in the mid-1960's. As a consequence, we again are confronted with serious imbalances.

When the present business recovery is viewed in the broadest sense, two aspects stand out. One is the high degree of volatility in economic activity. On average, the economy has achieved an annual rate of real growth of 5.2 percent during the first three years of this expansion. This is not too different from the growth rates attained during the same years of the business expansion that began in 1961 and 1971. But, the quarterly fluctuations in these growth rates have been exceptionally large since 1975. For the twelve quarters involved, the difference between the high and low real growth rates equals 12 percentage points compared with 8.7 percentage points for the comparable period in 1971 through 1973 and only 6.3 percentage points for the 1961-63 period. This economic volatility is continuing. In this quarter, real growth may be around 10% as compared with about zero growth in the first quarter. For the balance of the year, I would expect real growth in the range of 4% to 4½ percent.

The other distinguishing feature of the present business expansion, the escalation in the rate of inflation, is ominous. It clearly validates the expectations of many who doubted the promise of Government to keep the inflation trendline moving downward. The trend is quite the opposite and the record now shows that the trend towards irregularly higher inflation rates is intact. This alarming pattern is clearly demonstrated in Table 1, which shows the post World War II cyclical lows and highs for the inflation rate, as measured by the GNP deflator. For the five cyclical periods, the lows in the inflation rate have moved progressively higher—from an actual reduction in the price level in the third quarter of 1949 to an increase of 4.7 percent in late 1976. The cyclical peaks of inflation have also moved progressively higher throughout the post World War II years if one excludes the 1951 high when we were involved in the Korean War. The inflation peak for this cycle will probably be established during the next twelve

months. We may well come close to testing the previous cyclical high of 11.6 percent which was reached in the first quarter of 1975.

In evaluating the inflation problem, there is a tendency to explain much of it away by focusing on food and fuel. While these two sectors are substantial cost-imbedding factors, they are not alone by any means. Even excluding food and fuel, the rate of inflation is alarmingly high today by any historical stanard. As shown in Table 2, the wholesale price index, excluding these two sectors of food and fuel, has increased at a seasonally adjusted rate of 9.2 percent during the first five months of 1978. This equals the 1973 high rate and was exceeded only two times in the past thirty years—in 1950, a Korean War year, and in 1974.

Neither fiscal nor monetary policy have functioned effectively to blunt the inflationary thrust. The most inappropriate actions so far have come from the fiscal side. By a wide array of yardsticks, the fiscal posture of the Federal Government this year is excessive and virtually without historical precedent. For example, this year's unified budget deficit is estimated at around $52 billion. During the comparable years of the two previous economic recoveries, the deficits totalled only $15 billion and $6 billion, respectively. Federal expenditures in this fiscal year will increase by 12 percent. This annual percentage increase has been exceeded only seven times during the past 25 years and only once in a non-war year of economic expansion. While much has been said during the current economic recovery about the extent to which the expansionary Federal fiscal policy has been offset by the surplus that is being generated by state and local governments, the net stimulus is still extraordinary. When the data for the first three years of the current economic recovery is examined, we find that the combined total cumulative public sector budget (Federal, state and local) was in significantly greater deficit than in the previous comparable periods of economic recovery. As shown in Table 3, the ratio of the cumulative public sector deficit to gross national product in the first three years of the present business expansion was 27.5 percent, at least four times greater than in any prior comparable period.

Monetary policy, however, has been far from faultless, although monetary policy operations have been hampered by the outsized deficit of the Federal Government. From a technical viewpoint, the Federal Reserve has had only mixed results in containing the growth of the money supply within the official long-run targets. For example, in each of the quarters starting mid-1977, the growth of the narrowly defined money supply (M1) has exceeded the long-run range of tolerances targeted by the Fed. More importantly, monetary policy has not been able to confine the massive debt creation to reasonable limits in this business recovery. The growth of debt in the U.S. is proceeding at even a more reckless pace this year than I had estimated in February when I reported on this matter to the House Budget Committee. Think of it in these terms. Outstanding credit market debt rose at annual rates of 7.4 percent from 1962 to 1971. It accelerated to an annual average of 11 percent from 1972 to 1974. Thus far in this business recovery, it has increased by 8 percent in 1975, 11 percent in 1976, 14 percent in 1977, and in the first half of this year at an annual rate that probably is even higher.

The cutting edge of monetary restraint, at least so far, is not clearly visible in the credit markets, even though interest rates have increased sharply since early 1977 and are high by historical standards. Today, new issues of AAA-rated utilities are around 9 percent, mortgage borrowing costs to finance private homes are at 10 percent in some sections of the country, and long-term Government bonds at 8½ percent. In the entire post World War II periods, the average annual yields in long Government bonds and mortgages have never been higher than current levels and during only two years did AAA utility yields average higher than they are presently. There are several reasons for the lack of bite from the current high levels of interest rates. Inflation as a way of life and policy is imbedded in the expectations of both users and suppliers of credit. Indeed, I know of no creditworthy borrowers that are shocked by the prevailing structure of interest rates, which not too many years ago, would have been viewed with consternation.

Probably, inflationary expectations are most deeply imbedded in the household sector. This is reflected in the record-shattering volume of consumer credit credit financing and of mortgage borrowings. Consumer debt rose at an annual rate of $39 billion during the first five months of this year, as compared with $31 billion for all of 1977 and $21 billion for 1976. The inflationary bias of individuals, which is reflected in their decision to refinance existing homes and to acquire new ones, is even more startling. Many individuals are convinced that not only will inflation persist but that homes will increase in value at a rate

exceeding the pace of inflation generally. As a consequence, the cost of money is not as key a determinant in the mortgage financing decision that it used to be. In turn, new residential mortgage financing will rise to record levels this year, perhaps as much as $110 billion net compared with $103 billion in 1977, $70 billion in 1976 and an annual average of $47 billion from 1971 through 1975.

These aggressive financing demands of the household sectors pose risks which cannot be adequately measured by existing data. While the number of wage earners and the income of households is increasing, it is also true that debt service burdens are mounting. Repayments on mortgage and consumer debt combined as a percent of disposable income are about to reach new highs. As debt service requirements will preempt a larger share of earnings, the risks increase for a slowing in economic activity. In turn, when economic activity slows or contracts, these debt service burdens impact discretionary spending.

Another factor that has dulled the restraining influences of interest rates is the liquidity situation which, in some key sectors, is still quite good for the start of the fourth year of economic expansion. For example, commercial banks still hold most of the $50 billion of U.S. Governments which they acquired in 1975 and 1976. Their reasonable liquidity position is also evidenced by their ready willingness to make loans for a variety of transactions including the financing of mergers and acquisitions which is hardly a hallmark of tight credit. Business corporations still have large unused lines of credit at banks, substantial capacity to issue commercial paper and quite a few leading corporations have very large reserves of liquid assets. Even our thrift institutions are somewhat better situated to withstand the initial onslaught of higher interest rates because of longer-dated deposits, enlarged borrowing capacity at the Federal Home Loan Banks and the innovation of new liquidity instruments such as the issuance of mortgage-backed bonds and pass-through certificates. I must warn you, however, that the use of liquidity to finance the operational activities of individual endeavors has two consequences. It shelters for a while the sector trying to finance its activities through its own liquidity facility from the restraint usually associated with higher interest rates. In this sense, liquidity usage drives the economy further ahead, but it also pushes interest rates higher unless others seek less funds or create financial surpluses. But this is not happening because the credit demands from the private sector are rising this year, while the Federal Government is not moving to a surplus position.

The cutting edge of interest rates has also been dulled by important structural changes in our financial system. Financial institutions have been partly liberated from the pressures of rising interest rates through, among other things, the liberalization of Regulation Q ceilings on time and savings deposits, floating interest rates on lending arrangements and access to foreign funds. As a result, they do not experience the full brunt of restraint themselves, as they had in the past. Instead, it is the final demander of credit, be it business, households or governments, who is ultimately restrained by a much higher level of interest rates.

For the Federal Reserve, the liberation of the financial system from frictional impediments, which incidentally the Fed has supported, puts the central bank in a different position operationally. In attempting to curb excess monetary growth, the Fed is forced to raise interest rates higher than heretofore when frictional devices helped to restrain monetary creation. The recent regulation allowing deposit institutions to issue 6-month consumer certificates of deposit pegged to the Treasury bill rate is another of those changes that will push interest rates higher and complicate the task of monetary restraint. To be sure, this regulation is well intended. It permits thrift institutions to retain deposits and, at least to some extent, to attract new funds in support of new housing activity. But, if housing is to be cushioned, then who is to be denied credit when credit formation is excessive? Is it to be the Federal Government, municipalities or business? Obviously, interest rates will have to move high enough to eliminate some demanders. The Federal Government will not be denied. Perhaps the inflationary bias among households will persist long enough for them to outbid business, thereby terminating the revival in business capital spending or, as in the past, business and Government will outbid the household sector.

In any event, the restraining influence of interest rates should be clearly visible during the second half of 1978. Interest rates will be driven higher by demands for credit which will exceed both genuine savings generation and the new funds supplied through the monetary creation process. Credit demands will be excessive even if money supply grows faster than the officially targeted growth rates. To illustrate the problem, here are estimates of net new credit demands of key sectors for the second half of calendar 1978 as compared with the second half of calendar 1977 when these demands were very large.

[In billions of dollars]

	1978	1977
Mortgages (privately financed)	55	57
External financing of business corporations [1]	42	35
Consumer credit	24	22
U.S. Government (privately financed)	33	37
Federal credit agencies (privately financed)	16	11
State and local governments	10	12
Total	180	174

[1] Excluding mortgages.

Against the backdrop of continued high rates of inflation and in the absence of fiscal restraint, the Federal Reserve has few, if any, palatable monetary options. At first glance, the advice might be to ease up a little on the credit reins because economic growth may be slowing. This would risk even higher rates of inflation in the future, and would fail to take into account the capacity constraints in the economy. In addition, it is likely the Fed policy will be limited by the frail position of the dollar in the foreign exchange markets.

I said at the start of this testimony that there are no simple or painless solutions for the current excesses in the economy and the emerging credit stringencies. Once again, the timing has been missed in national stabilization policies in order to facilitate orderly economic growth. The best we can now do is to limit the excesses and to ward off severe damage. What should be done?

Let us lower the official targets for real national product growth to around 3% annually for the near term and use only selective measures to reduce the number of people who are structurally unemployed.

Let us belatedly reduce the fiscal stimulus by reducing Federal expenditures to the range of $460 billion to $470 billion for fiscal 1979 and by implementing mainly those tax reductions that will encourage investments. Even if these fiscal measures are adopted, it would be unwise to expect that the return to stability would be reached quickly. The reduced fiscal stimulus might be offset by enlarged demands from the private sector which, after all, would still be operating at high capacity. The effort would nevertheless be worthwhile in improving the mix of economic expansion. A slower rate of Federal spending, which is primarily consumer-oriented, might slow the excesses in the household sectors and reductions in the capital gains tax and higher investment tax credits would probably encourage capital outlays. In any event, the credit demands of the Federal Government at this stage of the economic recovery are much too large. When credit markets tighten sharply in 1973 and 1974, the net new financing of the U.S. Government and its agencies accounted for 13% of all credit demands as compared with an estimated 22% this year.

I would also recommend the adoption of the Wallich-Weintraub proposals for reducing inflation through tax incentives. It is a cumbersome program, but in view of the precariousness of the current situation, it is worth trying.

In the final analysis, however, the key problem which immediately faces the economic and financial markets is how to constrain large demands for wages in light of the inflation during the past year and the effective bargaining position of labor due to the shrinking supply of skilled help. It is quite clear how we got into this dilemma. Unfortunately, history shows that we return to a viable economy only after an onslaught of financial and economic shocks.

TABLE 1.—POSTWAR INFLATION CYCLES

[GNP deflator]

Trough quarter	Percent change [1]	Peak quarter	Percent change [1]
1949:3	−2.5	1951:1	[2] 8.8
1953:4	.3	1957:1	4.0
1961:1	.6	1970:1	5.7
1972:2	3.9	1975:1	11.6
1976:4	4.7	1978:1	[3] 8–10.0

[1] Annual rate of change from same period in preceding year.
[2] Korean war.
[3] Estimated.

TABLE 2.—WHOLESALE PRICES LESS FARM PRODUCTS AND PROCESSED FOODS AND FUEL AND RELATED PRODUCTS

[Percentage change: December to December]

Years	Change	Years	Change	Years	Change
1948	4.84	1959	1.44	1970	2.86
1949	−4.84	1960	−1.21	1971	3.50
1950	15.23	1961	.03	1972	3.30
1951	.07	1962	−.26	1973	9.24
1952	−1.56	1963	.78	1974	22.37
1953	1.16	1964	.85	1975	5.03
1954	.67	1965	1.22	1976	6.16
1955	4.66	1966	2.21	1977	5.86
1956	4.15	1967	2.13	1978 [1]	9.21
1957	.96	1968	2.86		
1958	1.30	1969	3.84		

[1] 5 months, annual rate.

TABLE 3.—CYCLICAL PROFILE OF PUBLIC SECTOR NET BUDGET POSITIONS IN THE POSTWAR PERIOD

First 3 years of business cycle expansions	Cumulative net budget, surplus (+) or deficit (−)			Relative impact to GNP (percent)
	Federal	State and local	Total	
1954–57	+10.6	−3.3	+7.2	−6.7
1958–60 [1]	−3.7	−1.4	−5.2	4.7
1961–69	−7.6	+1.0	−6.6	4.8
1970–73	−46.0	+30.4	−15.6	6.2
1975–78	−175.5	+61.1	−114.5	27.5

[1] Expansion lasted only 2 years.

Senator BENTSEN. Thank you very much, Mr. Kaufman. We have some panelists here with some very strong views, and men who are very learned in their profession. In fact, we were commenting up here that we don't think we could have put together a more distinguished panel to discuss the subject.

Our next witness is Mr. Jay Schmiedeskamp. It is my understanding that you have a transportation problem, and we appreciate having your testimony. We will direct such questions as we have, and then we will excuse you to make your plane connection.

STATEMENT OF JAY SCHMIEDESKAMP, RESEARCH DIRECTOR, GALLUP ECONOMIC SERVICE, PRINCETON, N.J.

Mr. SCHMIEDESKAMP. Thank you very much. I appreciate that. I have to make a 1 o'clock plane.

As background, let me stress that I am an economist. Although my special field of expertise—for nearly 20 years—has been conducting

nationwide surveys of consumer attitudes and expectations, nevertheless I regard these surveys as providing only one important input to forecasts of changes in consumer spending. Therefore, while my testimony today will make reference to a number of specific recent survey findings, my conclusions are necessarily based not just on those findings, but rather on careful study over many years of a wide variety of economic data.

At present, Gallup is the only organization in the country conducting monthly indepth nationwide representative surveys of consumer attitudes and expectations with personal interviews.

In addition, Gallup has recently begun to conduct, in collaboration with the U.S. Chamber of Commerce, indepth quarterly surveys of top business executive attitudes and expectations. To my knowledge, this is the first time that has been done anywhere in the world.

As the only witness in these hearings whose job it is to study consumers, as opposed to just studying statistics about consumer behavior, I feel a special responsibility. Consumers have amply demonstrated their great power to influence the course of economic events.

I believe that a strong case can be made that a downward shift in consumer spending has been the primary cause of each recession since Wold War II. Certainly that was the case in 1973–74, at which time consumer surveys provided practically the only leading indicator of that downturn.

The recent success of Proposition 13 in California reminds us that consumers have not only great power in the marketplace, but also at the polling place. The vote on Proposition 13 reflects the great intensity of consumer concern with the financial pressure on their pocketbooks at present.

In my opinion, the economy has substantial upward momentum at present. Over the past year, there has been an enormous increase in the number of people with jobs, up by about 4 million. The economy has recovered well from the adverse effects of winter weather and the coal strike. Led by fast-paced auto sales and a near-boom in housing, consumer credit has been expanding at a record rate in recent months.

Contrary to the expectations of some expert observers who foresaw greater volatility, the current economic recovery from recession has proven to be quite durable. As we are already well into the fourth year, this ranks as one of the longer periods of economic expansion since World War II.

In many respects, this recovery remains rather well balanced. Because of an unsatisfactory level of business investment in new plant during this recovery period, there is little sign of the problem of overcapacity which has characterized most previous downturns. Inventories remain under good control. Consumers are not overextended, although it must be noted that both sides of their balance sheets have shown unusual growth in the last several years. Both the incurrence of installment debt and flows into savings institutions have been quite strong.

However, there are some very important and significant indications of imbalance in our economy:

First, inflation is certainly the No. 1 concern of consumers at present, and inflationary expectations have become increasingly pessimistic. The percent of consumers expecting the rate of inflation to become

worse during the next 12 months increased from 22 percent in January 1977, to 36 percent in January 1978, to 50 percent in May 1978.

To say that consumers resent inflation would be the understatement of the year. In May 1978, 48 percent expected that their income would go up less than prices during the next 12 months, while only 11 percent expected income to go up more than prices. Those are pessimistic expectations.

In passing, it should be noted that consumers' great concern about inflation goes far toward explaining the intensity of consumer feeling about property taxes, as reflected in the Proposition 13 vote. From the consumers' standpoint, a rise in the taxes they pay is inflation, in exactly the same way as is a rise in the price they pay for meat or for cars. However, there is one important difference: While consumers feel helpless to do anything about rises in general inflation, they may feel that they can do something about taxes. There is a great focus of concern on property taxes in particular because the ballot box provides a means to roll them back.

A second imbalance is interest rates, which have risen very rapidly in recent months, and credit conditions, as very well outlined by the previous witness. The Gallup surveys show that many consumers and businessmen expect interest rates to continue to rise in the months ahead. For this reason, demand is not very responsive to interest rate increases. Consumers reason that they should buy a house before the rising cost of the house and of the mortgage money needed to buy the house exceeds their ability to pay. Businessmen increasingly worry about the prospect of further credit tightening, and so do what they can to increase further their liquidity and extend their lines of credit.

Not so incidentally, business efforts to increase liquidity and to extend lines of credit result in an increase in both commercial loans and compensating balances at banks, which in turn lead to a higher rate of growth in the money supply. Particularly in these circumstances, in my opinion, the rate of growth in the money supply provides an especially inappropriate guide to what the proper monetary policy should be. I have long been of the opinion that monetary policy should be judged primarily on the basis of its practical effect on the behavior of consumers and businessmen, and that the rate of growth in the money supply is an overly simplistic, and very often misleading approach to the problem.

A third imbalance is that to an extraordinary extent, the American people lack confidence in the ability of the Government to achieve its economic objectives. In May 1978, only 12 percent of consumers believed that their government would go a good job in its economic policy during the next year or two, down from 32 percent in March of 1977, which in turn was substantially below the level of a decade ago. This lack of confidence, because it contributes directly to pessimistic expectations about inflation, in fact makes it more difficult to solve the problem of inflation. Increasing confidence in government should be a top priority in this country today.

Because of these imbalances, and a few other more minor considerations, the recovery is increasingly vulnerable at present:

(*a*) The housing industry is always particularly vulnerable to lessened credit availability. Under present circumstances, while housing demand may not be very responsive to rising interest rates, there

are reasons to believe that it may be especially sensitive to tightened credit availability. For one thing, many consumers have had a tendency to buy a larger house than they normally would, simply because they view a house as a good investment. As credit becomes less available, banks step up their requirements for downpayments and mortgage applicant balance sheets, thereby making it more difficult for consumers to make this kind of investment.

Refinancing of older housing, and second mortgages, have been an important source of funds for consumers in the last several years. This kind of credit is among the first to be cut back as mortgage funds become less available.

In my judgment, under these circumstances, the Federal Reserve Board should have its eyes fixed firmly on credit availability, and the impact of credit availability on our economy, rather than on interest rates which have a relatively small effect on business and consumer behavior under present conditions, or on the money supply which is an especially poor guide at present for reasons already explained.

The survey provides strong evidence that the average consumer has continued to channel substantial savings flows into savings institutions until quite recently. In other words, the shortfall of these savings flows since the first of the year may be a result of disintermediation to a greater degree than is generally recognized.

(*b*) A second source of vulnerability in our economy is that during 1977 and 1978 consumers have become increasingly pessimistic about the economic outlook. In May 1978, fully 51 percent expected bad times during the next 5 years, while only 23 percent expected good times to prevail. However, all through 1977 and so far in 1978 the Gallup surveys have shown that not many people have been thinking about the economy. Most people have managed to make it through the day quite nicely without thinking about the economy once, unlike several years ago when the economy was much on people's minds. And so the growing pessimism about the economic outlook has had relatively little adverse effect on consumer spending.

However, this increased pessimism meant that consumer attitudes have become increasingly vulnerable to any bad news which would focus attention on the economy, and translate the pessimism about the economy into concern about the economy.

Thus far in 1978, the increase in inflationary concern has not focused increased consumer attention on economic concerns or on the danger of a recession. To an increasing extent, consumers have come to view inflation and recession as two separate problems. Therefore, thus far in 1978 greatly increased inflationary concerns have not had much adverse effect on consumer spending.

Many people believe that since prices are going up, now is a good time to buy. With respect to cars in particular, the survey provides evidence that, at least in March, April, and May, the expectation of a high rate of price increase may have even stimulated auto sales, although the May survey data suggest that this "buy-in-advance" psychology may now be on the wane.

However, the combination of enormous concern about inflation and great pessimism about the economy has the potential for causing a sharp falloff in consumer spending, if consumers should get the idea

that their Government is trying to slow down the economy in order to fight inflation.

While many people may doubt the Government's ability to achieve its economic objectives in general, people do not doubt the Government's ability to slow the economy. The past record is that when the Government tries to do this, they succeed all too well.

In 1969, the buzz word was "gradualism." Instead, a recession resulted. In 1974, the target seems to have been a "growth recession." Instead, a severe recession was the result.

In my opinion, the main reason the Government tends to overshoot its objective is that it does not allow for declines in consumer and business confidence. As the economy slows, businessmen reduce their investment by more than their sales go down, and consumers reduce their spending by more than their income goes down.

In passing, I think it is important to note that econometric models tend to do best in years when there are not significant changes in the economy; 1977 was a very dull year, and that is a survey finding: There was very little economic news which influenced consumers' attitudes and expectations. Presumably, the same was true with respect to businessmen's attitudes and expectations.

My belief is that at present the odds are greatly increased for a recession later this year, or more likely, early next. The short-term outlook is good because of (1) the current momentum in the economy, (2) increased State and local spending, and (3) the increases in the labor force and incomes that we have had.

However, in my judgment, particularly if the Federal Reserve sticks with its present policy of high interest rates, and most particularly with its policy which I believe is leading very quickly to severe credit availability problems, then I believe we may be on a collision course with recession.

I believe, and Chairman Miller has expressed this view, that the best economic policy is one of moderation, one that avoids extremes. In that connection, I think a policy of the Federal Reserve Board which would result in a recession would be an extreme policy.

Unless the economy is overheated, which I believe it is not now, Government economic policies which risk recession are inappropriate. At present, I believe that the risk of recession far outweighs the risk that the economy may become overheated.

A recession acts to reduce real growth, productivity, and business investment. In my opinion, a shortfall in these things in recent years is the main reason why we have a high rate of inflation today.

Therefore, taking the long view, one should not advocate making the economy sick in order to make it well.

One of the most important problems which we have in this country today is the lack of training of our work force. I think we have a serious productivity problem, in large part simply because we have had a rotten economy for most of the last 8 or 9 years. It is an unfortunate truth that most of the useful vocational training takes place "on the job." When you have a labor force underutilized for long periods of time, the training, the human capital formation, does not take place.

In terms of human capital formation, the cost of the two recent recessions has been extraordinary, particularly because they occurred

at a time when so many of the underutilized workers were under age 25 and potential labor force entrants.

In conclusion, I would just simply like to make the point that in my opinion anything which reduces productivity per capita makes worse the longrun problem of inflation. I believe that another recession would do that an an extreme degree, and therefore we should be very conservative in our policies in terms of avoiding the risk of recession. That risk is now substantial.

Senator PROXMIRE [presiding]. Thank you.

Senator Bentsen had to leave. As he indicated, we will give you some questions first, Mr. Schmiedeskamp, and then dismiss you, and concentrate on your fellow colleagues.

Mr. Schmiedeskamp, one of the theses I have seen proposed in Business Week and Fortune magazine, and a number of other fine publications, is the quality of consumer expenditures that have changed. They argue that the consumer—and you are an expert in this area—in the past, in inflationary periods, has pulled in his horns, has gotten into a more liquid position, preparing for a catastrophe. But today, that consumer is taking advantage of the prices he thinks may be much higher than they will be later on, and buying much more than he would ordinarily buy.

The concern is that he might be making purchases now that he would otherwise make in the future, and therefore, if he buys an automobile in 1978, he will not buy that car in 1979. If he buys a house now, he will not buy a house later.

Did you find in your surveys that the positive, objective indication is that there has been this kind of change in the quality of consumer attitudes?

Mr. SCHMIEDESKAMP. I think you are quite correct that the ordinary consumer reaction to inflation has been to cut down spending. That has been the experience over many years.

However, there have been several periods when we have observed a strong "buy-in-advance" psychology, whereby people reason they should buy now before prices go up. That was certainly the case all through 1973 and the first half of 1974, when we had a series of events which kept the fear of future inflation more intense than concern about the inflation which had already occurred. That is a necessary ingredient of a buy-in-advance psychology.

In 1977, the buy-in-advance psychology did not play a very important role in stimulating consumer spending. It was a very passive reaction to inflation. If you asked people whether it was a good time to buy, many said that if you were going to buy anyway, you might as well buy now; prices will never be any lower.

In 1978, we find a more active buy-in-advance psychology which stimulated consumer spending. However, this stimulus has been primarily limited to cars, simply because car price increases have come along so frequently, and have been so visible at a time when people are interested in buying automobiles.

In my judgment, there has been some buying in advance, some borrowing from future sales, with respect to cars. But I think there are other reasons why auto sales are doing well, and will continue to do fairly well the rest of this year.

The industry has been very successful in getting across the image that a new car is an efficient package that is worth buying, and that it will save considerable amounts of gasoline. That is a beautiful built-in sales tool.

Senator PROXMIRE. At any rate, your general conclusion is that the buy-in-advance psychology, and maybe borrowing from the future, is rather restricted, limited to automobiles, rather than being a general idea.

What strikes me about the reactions of all you gentlemen, particularly Mr. Schmiedeskamp and Mr. Kaufman, is the general note of pessimism. You may be dead right, but I think there is very little recognition in the country somehow of the tremendously good economic year we had in some respects.

In inflation, it was very serious. But we had a remarkable increase in employment, the biggest increase in employment in the history of this country; and consequently, a big increase in family income, real income as well as money income.

It seems to me that that growth of the workforce which has grown so rapidly is something that should give us some heartened encouragement about the economy.

What is your reaction?

Mr. SCHMIEDESKAMP. First of all, let me try to explain why consumers are so pessimistic about the economy when, in fact, I share your view that the economy has been doing quite well, except for inflation. One of the main reasons for pessimism, of course, is the fact that inflation tends to produce pessimism.

Whenever inflation is intense, it is greatly resented and tends to make people pessimistic about the future. The point is that most people have had income gains in recent years. The world is full of people who make $15,000 or $20,000 who have long dreamed about making that much money, and they are in fact now little or no better off than they were when they made much less.

If you ask people why their income went up, they say it is because they have worked hard. It is a meritorious increase. If you ask them why we have inflation, they don't know. That is someone else's fault. They have nothing to do with it.

People resent something which seems to deny them from reaping the benefit of their hard-earned gains.

Senator PROXMIRE. You said in the course of your remarks that consumers are resentful, and they are particularly mistrusting Government, and that this lack of confidence is a serious economic problem.

What do you think are the most important things that Government can do to overcome that, that are practical? Obviously, we can try to adopt policies to restrict it. Wage-price controls are not supported politically. There is no support for them anywhere.

These other measures to hold down prices are important, but not likely to hold down prices. In the meantime, you have inflation. Is there anything we can do in the short run to restore that confidence, or do you think we should follow a policy—let me put it this way: Cutting spending, cutting the deficit, are those the important measures that the Federal Government can take to restore confidence?

Mr. SCHMIEDESKAMP. I think you are asking me for what is essentially a personal opinion as an economist.

Senator PROXMIRE. You are not only an economist, you are an expert in consumer attitudes. You are one of the top experts in this country.

Mr. SCHMIEDESKAMP. From the standpoint of consumers, I think the only thing that will really succeed in establishing confidence is success in getting down the rate of inflation and avoiding a recession.

My own personal opinion is that the best way to do that is, most importantly, as I said at the end of my testimony, to avoid Government policies which tend to lessen productivity per capita. I personally believe that it is terribly important to think in terms of per capita rather than per worker.

For example, increasing the size of the Government tends to lessen productivity, unless you believe—as is assumed in the standard calculation of productivity figures—that the output of the additional Government workers is equal in value to the wages paid to them.

There are any number of Government programs, and the Gallup business survey shows this very, very clearly, which tend to inhibit new business investment, and thereby reduce productivity gains in the private sector.

There are any number of things which tend to lessen productivity in general: The increased real cost of obtaining energy; the low level of business investment; the large amounts of what business investment there is going to clean up the air and water, and so forth.

All of these things which increase costs and/or lessen productivity tend to work their way into increased inflation. Therefore, any policy which has as its result lessening productivity, real growth, and business investment increases inflation over the long term. And that is why I emphasize again, I think it is terribly important to try to have policies now which lessen the risk of recession.

In my judgment, the risk of recession is greatly more than the risk of overheating, looking to the end of this year.

Senator PROXMIRE. My time is up.

Senator Roth.

Senator ROTH. I will be very brief. I do have one question.

We are all familiar with Proposition 13 of California. You mentioned that people are making higher incomes, but not progressing that much as far as actual purchasing power is concerned.

Do you think that a general tax reduction would build some confidence into the consumer market?

Mr. SCHMIEDESKAMP. There is no question, in my judgment, that a tax reduction would receive the approval of consumers. When a tax rebate was proposed last year and then taken away, the survey findings at that time were quite clear: People were in favor of the tax cut, not because they felt it would help the economy; not because they felt it would help in the battle against inflation—although interestingly enough, there were more people with that opinion than with the opposite opinion—rather people were in favor of tax cuts for the very simple reason that they wanted the money and felt they needed the money.

That is not the answer you are looking for. That survey finding should not be taken as a reason why we should have a tax cut or not have a tax cut.

However, my own opinion is that one thing wrong with the economic policy recently is the fact that we have had a rather stimulative

fiscal stance, together with a rather restrictive monetary policy, and that is a poor way to stimulate business investment.

Senator ROTH. From the standpoint of inflation, there are many people who feel that you might help relieve that pressure for larger wage demands, as well as other salary increases, if they were able to keep more.

Do you subscribe to that theory?

Mr. SCHMIEDESKAMP. No. I believe that those two things really have very little to do with one another. I personally believe that the main thrust behind wage demands is the demand to make up for inflation that has already occurred, plus inflation that is expected, and plus productivity gains, whether they are there or not.

Just to illustrate what I mean, if you can imagine a labor-management negotiation between George Meany and management, it would not do management any good to say, "Look, your workers are better off and therefore should accept a lower rate of wage increases because the air is cleaner, the water is cleaner, the Arabs are living better." In those respects, Mr. Meany would think you had changed the subject.

He is interested in the real income of his workers. He wants to catch up to inflation, and for productivity gains whether they are there or not.

Senator ROTH. One economist has proposed, I believe from Brookings, that tax cuts be tied to keeping wage demands or price demands down. Do you buy that?

Mr. SCHMIEDESKAMP. I personally see very little connection between the two from the standpoint of consumer attitudes.

Senator ROTH. Economists always interest me. It is like lawyers, when you get several of them together, you have different points of view.

Thank you, Senator Proxmire.

Senator PROXMIRE. Senator McClure, we have promised Mr. Schmiedeskamp he will be able to leave early. If Senator Roth does not have any more questions for him—you then may proceed, Senator McClure.

Senator MCCLURE. The Gallup poll shows that over 50 percent of the American public favors wage and price controls. The last time this occurred was in 1971 just before phase I.

Can you tell us what are the reasons underlying the causes of public turn to controls? Would you agree with the statement that has been made by some that part of the reason is that the public believes that the Government is ineffective in fighting inflation, and therefore controls are the only answer?

Mr. SCHMIEDESKAMP. If one is superstitious, and believes in omens, it is worth noting that the percentages favoring wage and price controls are precisely the same, down to a decimal point, as it was in the Gallup poll 2 weeks before President Nixon announced his new economic policy. I personally am not superstituous, and I don't think there are good grounds to compare the two figures.

To begin with, a lot of water has gone over the dam in terms of inflation rates since 1971. The American people are terribly upset these days about inflation. Almost any question you ask people about anything which holds any promise of holding down inflation tends, in my

judgment, to receive a favorable answer; and therefore, those survey findings may be a little misleading in that connection.

The only problem with that is that there are an awful lot of people who remember that controls did not work very well when they were last tried. We were in disarray when they were taken off.

In general, it is my view that the American people lack the confidence in the Government which would be necessary to make controls work. In my judgment, controls work when people believe they will work.

That was the situation in 1972 and 1973. If controls had been taken off in 1972, I think history would regard them as having been successful. But it is the nature of controls that they are not taken off when they are working. You wait until 1973 when they stop working before you take them off.

Then the judgment of history is that they don't work.

Senator McCLURE. You indicated that a good many people remember controls not working, yet you say that they are for controls because they work.

Mr. SCHMIEDESKAMP. No. They are for controls because they are desperate.

Senator McCLURE. It is the drowning man grabbing for a straw, not because he has faith that the straw will help, but because he has nothing else to add.

Mr. SCHMIEDESKAMP. That is very largely correct, and that is why the figures between now and 1971 are not comparable.

Senator PROXMIRE. Thank you very much. We are delighted to have had you, and you may leave.

Mr. SCHMIEDESKAMP. Thank you, Senator.

Senator ROTH. I regret I wasn't here in the beginning because of a hearing being held on tax policy in the Finance Committee.

I ask that my opening statement be included in the record.

Senator PROXMIRE. Without objection, so ordered.

[The opening statement of Senator Roth follows:]

OPENING STATEMENT OF HON. WILLIAM V. ROTH, JR.

Our hearings on the midyear state of the economy come at a time of great challenges and a great debate on the future of the public tax policy. Our economy is experiencing excessive rates of unemployment, inflationary pressures are increasing, GNP growth has been declining; productivity, investment and savings rates are low, and the trade deficit is at record levels.

The economy is facing massive new Social Security tax increases and automatic tax increases caused by inflation, and the American people are demanding tax relief. Yes despite the tax revolt sweeping the country, the Administration has unwisely reduced its $25 billion cut to $15 billion. However, a growing number of economists and Members of Congress from both parties now believe Congress must enact the Roth-Kemp Tax Reduction Act.

The Roth-Kemp bill, an across-the-board tax rate reduction of 33 percent, is designed to reduce the high rates of taxation now strangling economic growth, choking off private initiative, pushing up prices, and retarding savings, investments, and the creation of more jobs. Its enactment will increase the incentive to work, save, and invest, resulting in economic growth, lower prices, more jobs and higher Federal revenues.

Today we will hear testimony that the Roth-Kemp tax cut is based on a faulty view of history and that it would increase the budget deficit and inflation. I want to take a minute to respond to these charges.

I have read Mr. Heller's testimony and, despite the rhetoric, the thing that shines through, is that he admits there is a need for a major tax cut to get the economy moving.

The Roth-Kemp tax cut is modelled after the Kennedy tax cuts, the last across-the-board tax rate reduction enacted into law. The Kennedy tax rate reductions lowered unemployment, eased inflation, and produced more, not less, federal revenues. Yet we will be told that the same type of across-the-board tax rate reduction will not work today.

Assertions will be made which claim the Kennedy tax cuts worked only because it stimulated demand in a slack economy. Yet recent history shows that the tax cuts aimed only at stimulating demand—such as the Nixon tax cuts and the Ford rebates—had nowhere near the economic impact of the Kennedy tax cuts.

The Kennedy tax cuts worked because it stimulated supply as well as demand. The across-the-board tax rate reductions increased the supply of work effort, savings and output in addition to increasing purchasing power. By increasing supply as well as demand, the economy expanded enough to produce more, not less, federal revenues.

The increased production, savings, and investments will ease inflationary pressures. But testimony presented today will express skepticism about the increase in savings and work effort that will result from a tax rate reduction. However, modern economic researchers believe savings is responsive to tax changes.

Michael Bookin of Stanford University, one of the country's leading savings experts and price theorists, has published a study documenting the fact that savings responds, and responds strongly, to the after-tax rate of reward.

Michael Evans of Chase Econometrics has analyzed the Roth-Kemp bill and has estimated a substantial increase in savings. And Norman Ture predicts a savings and growth rate increase similar to Chase's.

Finally, it will be claimed that a one-year tax cut of up to $25 billion is needed to offset the higher Social Security taxes and the inflation-induced taxes, but that a three-year tax cut would be wrong.

But the increased Social Security taxes and the automatic tax increases caused by inflation are not going away next year—they will only get bigger. According to the Joint Committee on Taxation, Social Security and inflation tax increases will raise taxes by $20 billion in 1979, $35 billion in 1980, $57 billion in 1981, $77 billion in 1982, and $94 billion in 1983. Substantial tax reductions are needed merely to offset these massive new tax increases.

Mr. Chairman, the economics of yesteryear are failing. The status quo of more federal spending and income transfers will bring on a recession in which prices and the deficit will rise as production collapses.

To avoid both inflation and recession, we need tax rate reductions aimed at more savings, more jobs, and more production. The Roth-Kemp bill is a true economic growth bill. By lowering marginal tax rates, it will produce a production surge that will reduce unemployment, increase the supply of goods and services, and lower prices.

The Roth-Kemp bill fits the public mood for genuine tax relief. It puts Washington on notice to reduce its taxing and spending, and it will lead to the economic growth we need to provide meaningful jobs and a rising standard of living for all Americans.

Senator ROTH. Mr. Heller, I have read with great interest your prepared statement on the Roth-Kemp legislation. I have to say I disagree with you.

First, up here we call it the Roth-Kemp proposal, instead of the Roth-Kemp bill.

Second, in reading through your prepared statement, it puzzles me, it seems to me somewhat inconsistent. I am not an economist, and I admit that. But you, in my judgment, set up a number of strawmen, and then you knock them down; a very good technique that politicians often use. But when I read the whole thing through, I think what you are saying is that you support a very major tax cut, and basically for the same reasons that I have argued for.

You said, lest I be misunderstood, I want to add a few comments on the wisdom of the tax cuts; and you say that gigantic tax cuts do not apply to a moderate tax cut of $15–$20 billion dollars.

I would point out that the first stage of the Roth-Kemp tax cut is within that ballpark. We propose it for the same reasons; at least I do.

It seems to me that we have, as you point out, we have unemployment at 6.1 percent; you admit that operating rates are around 84 percent rate of capacity, although there is some disagreement on that, and that there is still a sizable margin of unutilized supply, a margin to accommodate a $15 to $20 billion tax cut.

Let me make a couple of comments on your beginning statements. I just want to clarify the record.

On the national debate on taxes, we will have a lot of things said. I have never said Kennedy tax cuts were powerful as a tax reduction. In fact, I have used exactly the same words that you have used in your prepared statement.

Again, I have never asserted that the revenue generating effects of the 1964 tax cut were not foreseen. Again, I have quoted both President Kennedy and Wilbur Mills, on what revenue gains were expected from the tax cuts.

I was not a Member of the Congress in the early 1960's, but I have done some reading, and perhaps they were inaccurate. But it is my understanding that when the Treasury Department, as so quoted in the many articles in 1963, that they did not foresee the revenue gains.

Why didn't the Treasury foresee the gains? Because I understand they relied on models that did not take into account supply-side variables. You only have to look at the administration which you were a part of.

But basically, it seems to me that you might disagree in some of the particulars, but that a substantial tax cut is very much in order.

But I would like to ask you this: We're faced with something like $98 billion in spending increases; $94 billion even without the energy tax, over the next 4 years. You recommend one $25 billion tax cut. You will let taxes rise by $73 billion.

Are you going to let the public guess what is coming? If we want to really restore confidence, aren't we better off offsetting these taxes now up front in a way that almost specifically does that?

Mr. HELLER. Senator, I find myself in the position of trying to combat a radical position with a conservative and moderate point of view, which I am noted for.

I read very carefully what you have said, and I had the pleasure of some give-and-take with Congressman Kemp last night.

I have also read very carefully what I believe the objective, careful, penetrating analysis of the Brookings Institution has said in "Setting National Priorities," their annual analysis of the U.S. budget.

They tell us that in terms of a realistic look at both the expenditures and the tax side of the picture, as well as the capability of the economy—and indeed it was somewhat of a disappointment to me and a surprise—that we have a total of about $25 billion of tax cut capacity between now and 1981 if we want a balanced budget at 21 percent of GNP in 1981.

As I said, as a conservative observer of the scene, I would like to see a balanced budget in a balanced economy at full employment.

Senator ROTH. I welcome you to the group of us. I think Senator Proxmire and I, and Senator McClure are all in agreement about that goal.

But one of my concerns is that people who talk along these lines not too often do much on the spending side. I think a balanced budget can

be reached in many ways, and one of them is to hold down the growth in the rate of spending. I believe Mr. Kaufman addressed that, and pointed out that there have been substantial increases.

During our consideration of the budget resolution, Senator Proxmire and I proposed, and led a fight, for a number of reductions in spending.

Unfortunately, that has not met with too much success, although the last couple of days we have seen a somewhat changed attitude on the part of the Senate, possibly because of a reaction to California's Proposition 13.

But I would like to ask, as I said to the Secretary of the Treasury, who was before us in the Finance Committee today, here he is leading the fight for restraint, asking labor to hold down the size of their increases, asking business to hold down their increases, asking the American people to be moderate in what they demand, and yet we find that that Department, the Treasury Department, whose appropriation was up yesterday, increased 31 percent over the prior year.

Part of that can be explained by an unavoidable cost in social security this year. I recognize that.

But the subcommittee's responsibility for the appropriations for that Department criticized that Department because they had a 21-percent increase in travel. You can't tell me there isn't a lot of waste.

Senator Proxmire asked for a 5-percent cut in the budget resolution.

What I am saying to you is, when you talk about $25 billion, if you take the administration's rate of growth some of us are suggesting that the better approach is to do in a sense what Kennedy did. At least he said it was his intent in his statements to Congress: "Let's give the private sector a chance to show what it can do." He said, "Admittedly we can decrease Federal spending, but I want to choose the latter way."

That is what we are trying to do, give the private sector a chance to see what they can do.

I understand my time has expired.

Mr. HELLER. May I comment on that? I said at the end of my prepared statement, Senator Roth, it is extremely hard not to be misunderstood in this type of discussion. I do think one should define rather sharply the difference between your advocacy of tax cuts and my advocacy of tax cuts.

I am in favor of a tax cut that will make use of supply capability of this economy; and we still have a lot of unutilized supply capability. I think we can establish a tax cut without having it worsen our inflation problem. We are not in the excess demand area.

But that is roughly a $20-billion tax cut this year, which I would phase in rather gradually in 1979, perhaps in two steps, something like Congress did with the 1964–65 tax cut. But that is a far cry from saying the economy should absorb—apparently, I underestimated the size of your cut in my opening statement—a $20-million cut in 1979; $35 billion in 1980; $57 billion in 1981 or a total cut of $98 billion in 3 years.

Supposedly, because of some enormous and unprecedented increase in the supply capability of the economy through a tremendous surge in work incentives and business incentives, supply would rise to meet demand. Nothing in economic experience or analysis supports this. The result would be—big deficits and bigger inflation.

I am just trying to take a moderate approach to the tax cut proposition, and to harken to the evidence of economic history about the impact of tax cuts, that it operates primarily on the demand side, and only over a long period of time, on the productivity side.

We took that into account in the Kennedy tax cut. I am not here to argue against Kennedy's tax cut. I think it did increase productivity. But it would not set off any surge that Mr. Ture assumes in his model. There is no historical precedent.

As Rudolph Penner said, "It can't be three or four or five times anything we have seen in history." I do think we should in that sense be very clear on the issues that stand between us, even though we may stand shoulder-to-shoulder on a $20- or $25-billion tax cut this year.

Senator ROTH. I want to reemphasize again that what the Roth-Kemp bill proposes is a tax reduction less than the higher taxes that are resulting from social security, energy, and inflation taxes.

For example, social security tax and inflation tax increases will raise taxes by $20 billion in 1979; $35 billion in 1980; $57 billion in 1981; $77 billion in 1982; and $94 billion in 1983. So when you are talking about $25 billion, you are not talking about a tax cut. You are talking about a tax increase.

Senator PROXMIRE. Senator Roth's time is up.

Senator McClure, you have 8 minutes left, and then we will go to Senator Javits.

Senator MCCLURE. Professor Heller, for many years economic policy has been based on the short-run Keynesian policy which focuses on the impact of fiscal policy on disposable income and spending; changes in demand have been the main policy tools.

In other words, little if any attention has been given to the impact of fiscal policy on aggregate supply. For example, fiscal policy has ignored that change in tax rates as an incentive or disincentive rate that could shift the average supply function.

Consider a reduction in tax rates. It is not just increased disposable income. It also increases the aftertax rate of return to workers' effort and investment. In an economy like ours, that relies on incentives, it seems pointless to ignore the incentive effects of fiscal policy.

We now have on public record many statements saying that fiscal policy and economic models used to estimate its effects do not take into account the supply-side effects.

For example, Mrs. Alice Rivlin, the Director of the Congressional Budget Office, has said, the models do tend to neglect the influence of the tax rate and others on the rate of supply and capital formation.

The Office of Management and Budget has said, the models do not include any relative price effects from an individual tax rate reduction; no incentive to work longer, to save more, to take greater risks, to be more innovative. Disposable income is increased, which raises consumption, and that is the only direct effect.

Mr. Mike Edwards, president of Chase Econometrics, has said, these models which are now used by virtually all economic policymakers are constructed in a way such that they are much better able to simulate the effects of tax policies on aggregate demand than on aggregate supply. Thus, the use of these models may have directed policymakers toward those policies which have visible short-term ef-

fects on aggregate demand without considering their likely intermediate and long-term effects on productivity capacity.

Professor Robert Lucas and Thomas Sargent state that the econometric models are incapable of providing reliable guidance for public policy, because they look at a sound econometric base.

Do you think that this neglect of the supply-side effect of fiscal policy could account for the appearance of simultaneous inflation and unemployment which produces a dilemma for senior management, so to speak?

Mr. HELLER. Yes. I will stop beating my wife.

Senator MCCLURE. She will be pleased to know that, too. [Laughter.]

Mr. HELLER. Touché. The way you posed the question does not readily permit an answer. But let me try to make a couple of observations.

One, my prepared statement explicitly, Senator McClure, tried to show that we did indeed take the incentives, supplies, investment stimulus aspect of the 1961–64 tax cut very much into account.

We started with the investment credit and eased depreciation guidelines. Those were aimed primarily at the supply side. As I have written about that experience in the past, I talk about a two-track policy, the demand side, which was predominant in the 1964 tax cut, and the supply or productivity side, which played a very important role in our thinking as a stimulant to growth and curb on inflation.

The demand side operates faster. I'd like a tax cut that engages the unutilized resources and unemployed labor and puts them to work. That works much faster than the supply side.

What I have said essentially to Senater Roth is that the Roth-Kemp bill is assuming you were going to have an explosion of supply capabilities, which is absolutely unsupported by any experience in history.

Spread out over a long period of time, as a balanced part of a supply stimulus versus demand stimulus, it could work. But to concentrate such gigantic tax cuts in such a short period of time is an open invitation to inflation and big deficits, and also, appropos Mr. Schmiedeskamp's comment, would bias the economy much more toward consumption and away from investment.

That is to say, because of this incredible fiscal expansion, you have to have very tight money to offset it. As a consequence, you would squeeze down investment through monetary policy, high interest rates, as an offset to stimulative fiscal policy.

One other thought: It troubles me that in supporting the Kemp-Roth approach, that the emphasis is entirely put on the one side of the incentive picture, as far as labor is concerned; that labor responds with more work because you increase the attractive——

Senator MCCLURE. Do you mean organized labor?

Mr. HELLER. No. I mean, you, me, all of us as human beings that are interested in working and increasing standards of living, and improving our income, and so forth.

But there is a dual response. One response is that if you have a lower tax rate, you work harder, because you get more per hour of work. The other response is to say, look, I am achieving my target income a lot more rapidly because we have a lower tax rate, and therefore, I will work less hard.

That, indeed, in large part is what the American worker—and I am using workers comprehensively—did in the 1960's to respond to the increase in the after-tax income, which is larger than that which the Roth-Kemp bill would provide.

Most of it was taken out in additional leisure, not in the form of working harder and longer hours.

As Herbert Stein put it at a meeting last Monday, we don't even know the sign of the elasticity of the labor supply in response to a change in after-tax income. Results of studies to date range from minus 0.2 to plus 0.3 or so at the outside, not even within striking distance of supporting the Kemp-Roth assertions. I am citing an authority from a side of the political and economic fence that is perhaps closer to you than to me.

I agree with Mr. Stein, for example, that we ought to have a good deal more research on the feedback, that we have not given enough emphasis to the supply side. But that does not mean we can leap from what we have done in the past to a conclusion that a tax cut will have this enormous supply-side effect—there is simply no evidence to support it.

Senator McCLURE. Nor is there any evidence to refute it. We need the research.

Therefore, I am not sure that you have made a case, other than for the fact that we need more basic knowledge, and until we get it, we are guessing, which I guess is where we always end up, particularly with a panel of economists.

Mr. Kaufman, Data Resources Corp., argued before this committee that a tight fiscal and monetary policy would reduce inflation while expanding the economy. Do you agree that this policy would reduce interest rates?

Mr. KAUFMAN. To some extent, I would share that view.

Indeed, one of the great problems of the last 3 years has been that we have had a very stimulative fiscal policy which has hampered monetary policy. The expansion in Federal expenditures here, as I indicated, in the past 3 or 4 years, has been extraordinary. In many ways, it has been unprecedented.

This has resulted in massive demand by the Federal Government and its agencies way above anything we have seen in the postwar period, either in dollar terms or percentagewise. Therefore, it has hampered, to some extent, the appreciation and the value of financial assets, and in turn, has hampered the incentives for the private sector. In turn, it has complicated monetary policy implementation. It has contributed to a somewhat larger monetary expansion than probably the Federal Reserve would have desired.

In that sense, it is unfortunate. As you know from my testimony, this is going on right in 1978, at the very time when Federal expenditures should have been slowed appreciably.

Senator JAVITS. Senator Proxmire, I came down because I welcome this debate very much, and I cannot think of better people to debate the issues than the people before us.

It is an open secret that I am in very much sympathy with the views of Mr. Heller, and indeed, with those of Senator Danforth of Missouri. We have proposed a tax cut proposal, which in essence follows the lines that he has in mind with a heavy emphasis on dealing with

depreciation in order to stimulate the modernization of American plants, which we suspect are growing obsolete under our very eyes, and also to stimulate capital investment through better treatment of investment tax credit.

Our tax proposal is sort of 50–50 for business, and individuals, with the assistance to individuals in the form of a readjustment of tax brackets.

This will be a hot debate. Superficially, what the Roth-Kemp bill is trying to do is very attractive. Who does not want a tax cut? Life would be much simpler if the attitude could be taken: If they want to cut $70 billion, fine; let them do it and also worry about the consequences.

But it is so hard in a democracy to get through reasoning along the lines of, tomorrow you will suffer for that which you imbibed last night.

I like what Senator McClure said: Until we get the information, we are guessing. That is just what we are doing with this so-called Laffer curve. The last laugh will be on us. We are guessing. It is just too serious to guess about.

I want to ask you a question. My colleague, Senator Roth, said that you are not even making up for the raises in social security, inflation, and the cost of energy with these massive tax cuts.

What is your answer to that?

Mr. HELLER. My answer is in terms of what I was suggesting to Senator McClure, that we have to look at the fiscal policy side of things, comprehensively, both the expenditures and the tax side. That is what the Brookings Institutions did in its annual review.

This review this year was quite critical of the Carter administration in many respects. It is an objective undertaking already—programed expenditure increases—including benefit increases attached to a lot of these tax increases, like payroll tax increases, would lead to a situation in which, if you want to achieve a Federal budget that is at about 21 percent of gross national product—and I want to interrupt to say that I accept President Carter's objective of that kind of a budget, that he should bring it down from the height to which the Republican administration pushed it, around 22 to 23 percent of GNP, and to bring it back down to 21 percent of GNP. I accept that.

Given that objective, and given the objective of a balanced budget by fiscal 1981, there is about $25 billion of leeway for tax cuts.

If Senators Roth and McClure were to cut the Federal budget well below the 21 percent, or were they to accept a sizable deficit, then there would be room for more tax cuts.

In the longer run, well managed tax cuts, well balanced investment stimulus and consumption stimulus, not excessive, can step up our increase in productivity. But that will not operate in 1 year or 2 years.

Senator JAVITS. Mr. Kaufman, you know the enormous regard I have for your views. I have consulted you before, and I will continue to consult you, if you allow me to.

But I noticed what you said about the need for cutting expenditures. Isn't it a fact that if we go for this gamble, which is what Roth-Kemp is, and we get in trouble—even small trouble—the first attack is going to be not only to cut expenditures, but also to cut them to the bone to avoid disaster?

Isn't the tax cut one of the great issues in this country? Should we fatten up demand for 85 percent of the Americans who live quite well, but starve the 15 percent of Americans who are in the poverty class, and make their situation even worse, because that is where the expenditure cuts will come?

Who is kidding who about this matter? May I have your opinion?

Mr. KAUFMAN. I suspect that I am somewhere in the middle.

First of all, I think the rate of Federal expenditures has been increasing at an unprecedented pace. It used to be said, in Keynesian policy, that we would work toward reducing Federal expenditures as economic activities increased. We have not done that at all in this cycle. There is no indication of adequate surveillance over Federal expenditure. The budget deficit, either in percentage terms or aggregate terms, is unprecedented.

I think there is an urgent need to assert discipline, even if we accept a rule of thumb that further expenditures should not increase in the aggregate, by more than 5 or 6 or 7 percent per year. It should be up to you and to the other people up on the Hill, to determine the application of those expenditures. I think that is a political decision.

The aggregate figures should be set in terms of economic requirements. The distribution of those expenditures, that is what you are asking.

I think it's an important point. But raising up expenditures without adequate regard for the economic consequences is an inappropriate tool of national policy.

Senator JAVITS. I appreciate what you have said, and I agree with you. But there is only one thing that worries me about these 5- and 2-percent cuts.

What happens is that the expenditure proposals we cut initially recur in supplementals; there is much proof that the final total somehow or another gets to be the same, so that we haven't actually bitten the budgetary bullet.

If you have program *a*, or you want to eliminate a program, or you vote to eliminate a program, you pay for it. Let's vote for program *a*, but let's not kid each other that fair adjustments will be made, because they make adjustments that will result in the poor and the depressed getting trimmed, and more consumption for those who already have good consumption.

I want to ask my last question of any member of the panel. I am of the view that if we undertake expansion of production and productivity in this country, the likelihood is that we will find we are running short of domestic markets, unless the goal is for everyone to have three televisions, three automobiles, and we take in each other's wash.

Isn't it a fact that a major drive to acquire greater markets is at least equal in importance to the need to counter the obsolescence of American plants?

Mr. KAUFMAN. Since I have the microphone, Senator, I would certainly share your view that we should enlarge our international markets. But as you know, we are not well prepared to do that, even though the dollar has depreciated against foreign currencies.

The fact of the matter is that the inflation rate in the United States has proceeded at a much higher rate than in most European countries, and in Japan, and the dollar depreciation has been offset by this.

Additionally, we are not focusing enough, I suspect, incentives to create a modern plant and modern machinery that will make us increasingly competitive in international markets. I hope we will slow the rate of inflation; otherwise, it will be very, very difficult to enlarge or export our export markets.

Mr. HELLER. If I may take up a little bit different aspect of your observation, Senator Javits, you said that perhaps we are reaching some point of satiety, at least in durable goods. I don't really think we have seen that point.

But it does make the point that we are increasingly turning to some of the more intangible aspects of life, cleaner air, safer working conditions, better health, and it is unfortunate, it seems to me, that as we talk about GNP and productivity and so forth, that those intangible elements don't get into the picture at all.

We consider it a reduction in productivity if we have to invest more in clean air and water and greater safety, and it is, in traditional terms, a lower productivity per unit of investment.

But I would hate to think that this country would feel that producing a better environment, cleaner environment, and safe working conditions, that this country would believe that that is not part of the economic and human well-being.

Senator JAVITS. My time is up.

Senator PROXMIRE. Senator Hatch has come in, and I will give him a chance to catch his breath.

Mr. Kaufman, you indicated that the employment level of 4 percent in 1957 is equivalent to 5½ percent—not your view, but the view of Mr. Wachter of the Federal Reserve of St. Louis.

Is that your conclusion, too?

Mr. KAUFMAN. Senator, I am not an expert on employment and structural problems on the employment side, but I merely indicate to you that there is a substantial difference of opinion today as to where the full employment level is.

It is probably significantly above 4 percent. The advocates of the 4 percent level are not as powerful and strong and theoretically powerful as they used to be. If it is not 5½ percent, perhaps it is 5 percent. But I would indicate that we cannot operate on that old margin.

My feeling is that structural unemployment should be addressed, but it ought to be addressed through selective measures, and not trying aggregate measures. There is a problem, on the one hand of those who are structurally unemployed, and those who are employed who have a different problem.

Senator PROXMIRE. This is a very, very pertinent and timely consideration. We just, 2 hours ago, in the Senate Banking Committee, reported the Humphrey-Hawkins bill, which provides for a 4-percent unemployment goal by 1981.

Nobody, either Democrat or Republican, challenged that goal in the course of our discussions. We had many witnesses from many different segments. They did not challenge the 4 percent.

There are other elements they did challenge. You are a highly reputable economist, and I think your observation should give us considerable pause.

Before I call on Mr. Heller, in this regard, let me ask you a followup question, because you suggest that a 3-percent growth in the economy

over the next few years should be our target to have a sustained growth and no inflation. That does concern me, because it seems if we have a 3-percent growth, given anything like our historic productivity and the growth in the work force, that that would suggest that we would have to have unemployment at the present 6-percent level.

That seems to be throwing in the sponge on 6 million people. What is your response?

Mr. KAUFMAN. I feel the structurally unemployed can be brought into the labor force over a longer period of time by training the very young, not just on the job, but improving educational facilities.

Very intense and academic training over a 10- or 12-year period for those——

Senator PROXMIRE. You don't argue that the 6 percent is all structurally unemployed?

Mr. KAUFMAN. Absolutely not. But I think a very significant part is structurally unemployed. Even if the full employment is 4 percent, the difference between what we have today, in terms of the unemployment rate and the 4 percent, is relatively small. It is one-third of the total, but I don't believe 4 percent is unemployment.

I believe we should restate the unemployment target in the official language of the Government. The target should be 5 to 5½ percent. With the policies now in force, we have heated up the system to a high rate of inflation, which is in no way going to come down during the near term. Indeed, with the policies now in place, without any change, the rate of inflation would remain high.

This is unacceptable to a complex system such as our society in terms of its structure, and politically. Therefore we run the risk of aggravating the inflation rate. Not only will it go higher, but the unemployment rate will be induced to go higher, and we have not accomplished anything. That is where my hangup is. I don't think we can go and eliminate unemployment through aggregate economic policies. A 12-percent increase in Federal expenditures will not bring down over the longer period of time the backup unemployment rate in this country.

Senator PROXMIRE. I agree with that. I submitted the Henry Kaufman amendment. I did that in no small part after I read your report analyzing our expenditures. Our banking committee not only adopted a 4-percent unemployment rate, they adopted a 0-percent inflation goal by 1983.

Would you like to comment on the position that Mr. Kaufman has just taken?

Mr. HELLER. First of all, I fully share your respect for my colleague, Henry Kaufman.

Second, I agree with what he was saying about the change in, not the goal, but what I like to call the pivot point of unemployment, which is an economic concept as distinguished from the target or goal, which is the Humphrey-Hawkins political concept.

May I just spend a moment on that, because I think there is a fair amount of confusion out of our failure to make that distinction. The pivot point, and some call it the NAIRU or nonaccelerating inflation rate of unemployment, that is a judgment as to how far you can reduce unemployment by essentially aggregate demand measures, monetary and fiscal policies, without escalating inflation, excess demand inflation.

I would entirely agree with Henry Haufman, that that has moved up because of changes in the composition of the labor force, and a lot of other things, from 4 percent to somewhere around 5 to 5½ percent. Does that mean it is therefore unsound in the Humphrey-Hawkins bill to adopt a target of 4 percent?

I don't think so because the structural measures that Mr. Kaufman spoke about serve as the reconciler, as it were, of the 5 to 5½ percent pivot point—this economic concept where you move into accelerating inflation—and say a longer run 4-percent unemployment goal. The point is that the direct structural measures, direct job creation and so forth, will not have nearly the same aggregate demand or inflation-creating effect.

They do improve the supply side, and that is where again we have to give some weight to the Roth-Kemp type of an approach and emphasize the supply side.

As I say, to sum up, the pivot point may have moved up from 4 to 5 percent, but that is no reason to do away with the 4-percent target.

Senator PROXMIRE. Let me ask Mr. Adams a question. We have been awful easy on you.

With respect to the Roth-Kemp bill, frankly, it has great appeal to me. It is hard to find a tax cut that I would not support. It is hard to find a spending cut that I would not support.

The Federal Government is much too big and inefficient, and for some other reasons. But what bothers me about the Roth-Kemp bill, although on balance I would support it, is that it does constitute $70 billion over 3 years in Federal Government taxes, balanced in part by substantial increases in payroll taxes, which are highly regressive, and then there is something, although I don't agree wholeheartedly, something to the notion that if you go that way, that that might be somewhat regressive, because you might take some of it out of the people with very low incomes.

Do you think, on balance, that there is a way that we can handle this that would not result in a major shift in justice and equity?

Mr. ADAMS. It is very difficult when you legislate in such large numbers, and legislate so far ahead into the future, to guarantee that you do achieve your equity targets at the same time that you achieve your tax and expenditure goals.

I think the point has been made that inevitably things get cut at the margin, and they are not always the things you want cut.

It strikes me that with regard to that bill there are basically three questions: One is how large should the Government be? Can we cut back expenditures? Can we cut back taxes? And somehow think the size of the Government is just right.

I think that is in large part a political decision. It depends how large Government should be and how much we are willing to pay for it. These are clearly joint decisions, and if they are made jointly, they might be made in such a way as to minimize the economic impact.

The other reaction I have is very much similar to the one that professor Heller had, which is that there is no assurance that the effects on the supply side are going to be anywhere near as large or anywhere near the kinds that are desired.

I can think of more specific tax legislation which will operate on the supply side, and which should have, I think, more measurable im-

pact. I am thinking of specific incentives for investment, for example, tax credits, depreciation, and so on. I am thinking of specific tax incentives in the direction we want, perhaps precisely for those industries that have been impacted by pollution control measures, by other kinds of Government regulations, and perhaps by high energy costs, and perhaps industries located in large urban centers.

We could influence the supply side in terms of taxes, but it is terribly important to try to focus these impacts in order to direct them into the place where we want them.

To talk in terms of general cuts, and then argue that there are supply impacts, is operating in a fog, so to speak. We really don't know exactly what will result. We will have to be very careful that the other impacts on the side of demand and inflation do not overwhelm the desired impact on the supply side.

Senator McCLURE. I have to attend another meeting. I know this is a committee that has been characterized by its nonpartisan nature. That nonpartisan rule does not apply to our witnesses, of course.

But I cannot help but observe what Mr. Heller said about the Republican administration driving expenditures to unprecedented highs. That was almost totally the result of actions taken by Democratic Congresses.

Mr. HELLER. I hope if I misstated it, that I will be corrected. I should have said that they reached uprecedented highs during Republican administrations. We will leave causality out.

Senator HATCH. Mr. Heller, you mentioned Denison's law; that is, that savings are unaffected by tax policy. Are you familiar with the recent study by Michael Boskin that shows that savings are much affected by tax policy?

Mr. HELLER. Yes, I am. One does have, in that sense, conflicting evidence.

Of course, we all respect very, very much Edward Denison and the study he has made. I don't think there is a more active observer and more intelligent probing student of the statistics of the gross national product, growth of the economy, and so forth.

He has found this remarkable stability, which suggests very strongly—it does merit further consideration, but suggests strongly that the gross savings rate of the economy is not responsive to changes in tax rates over the years.

Senator HATCH. Mr. Boskin stated:

> The notion that saving is perfectly interest inelastic has received widespread acceptance * * *. * * * nothing could be further from the truth * * *. * * * I hope to point out how costly it has been (and will continue to be) to accept the conjecture—based on evidence which is flimsy at best, and dangerously misleading at worst—that the interest elasticity of the savings rate is negligible. * * * the notion, which has come to be called "Denison's Law," that the savings rate is essentially constant and unaffected by changes in the tax system or other changes in the real after-tax rate of return to capital. * * *
>
> * * * A variety of * * * estimation methods all lead to the conclusion that private saving is indeed strongly affected by changes in the real after-tax rate of return. The estimated total * * * interest elasticities of private savings cluster around 0.3 to 0.4. While this is hardly an enormous elasticity by conventional standards, it is substantially larger than virtually all previous estimates in the conventional wisdom, and has drastic implications for the affect of tax policy on income, welfare, and income distribution.

Do you disagree with Mr. Boskin's conclusions?

Mr. HELLER. As I said, this is the first study that comes to this conclusion. I think we should pay respectful attention to that study. I think it should be considered in the course of further examinations of the savings relationships.

But let's recognize that this is one study; it is one finding, on econometric finding, that runs counter to all previous consensus on the subject.

The fact that economists reach consensus on the subject does not mean that it is right. But it means that we have to examine those results very, very carefully, and sort of hold off our judgment.

I would say that any well-rounded statement on the subject should include a reference to the Boskins study. Mine did not, and I suppose, therefore, my statement is not well rounded, because I mentioned only the Denison study.

But the jury is still out. That is the main point you are making, and I accept that.

Senator HATCH. Are you aware that we have found that Michael Evans of Chase Econometrics has analyzed the Roth-Kemp bill, and has estimated a substantial increase in savings. We also have heard from many others.

In other words, Mr. Boskin is not an isolated opinion.

Mr. HELLER. I would rather not comment. I'll hold my tongue.

Senator ROTH. I would ask unanimous consent that we put in the article by Mr. Boskin, because this whole question of savings and incentives is absolutely crucial.

Senator PROXMIRE. Without objection, the article will be included in the record.

[The article referred to follows:]

[From the Journal of Political Economy, April 1978]

Taxation, Saving, and the Rate of Interest

Michael J. Boskin

Stanford University and National Bureau of Economic Research

This study presents new estimates of consumption functions based on aggregate U.S. time-series data. The results are striking: a variety of functional forms, estimation methods, and definitions of the real after-tax rate of return invariably lead to the conclusion of a substantial interest elasticity of saving. The implications of this result for the analysis of the efficiency and equity of the current U.S. tax treatment of income from capital are explored. In reducing the real net rate of return, current tax treatment significantly retards capital accumulation. This in turn causes an enormous waste of resources and redistributes a substantial fraction of gross income from labor to capital. Rough estimates of the lost welfare exceed $50 billion per year (a present value close to $1 trillion!) and of the redistribution from labor to capital exceed one-seventh of capital's share of gross income. It also suggests that the usual calculations of tax burdens by income class substantially overestimate both the progressivity of the income tax and the alleged regressivity of consumption taxes.

The effect of interest rates on economic behavior, particularly on saving and consumption, has been a central concern of economists at least since the development of classical macroeconomics. Not only has the rate of interest been viewed as the mechanism for equating saving and investment in pre-Keynesian macroeconomic models, but it also has been at the center of virtually all microeconomic models of intertemporal consumer behavior. It is thus curious that empirical studies of the effects of interest

I am indebted to M. Abramovitz, P. David, M. Feldstein, V. Fuchs, R. Hall, A. Harberger, M. Hurd, J. Pechman, J. Scadding, E. Sheshinski, J. Shoven, J. Stiglitz, and other participants at seminars at Stanford, Harvard, the U.S. Department of the Treasury, NBER, and the NSF-NBER Conference on Taxation for valuable advice and encouragement; to L. Garrison for invaluable research assistance; and to the U.S. Department of the Treasury for financial assistance.

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rates on saving are few and far between.[1] Most such studies conclude that interest rates have only a negligible effect on consumption or saving.[2]

The notion that saving is perfectly interest inelastic has received widespread acceptance among empirical and policy-oriented macroeconomists. While I shall present below considerable evidence that nothing could be further from the truth, it is worthwhile exploring just how important the interest elasticity of the saving rate is in the analysis of a wide variety of vital issues of economic policy. In so doing, I hope to point out how costly it has been (and will continue to be) to accept the conjecture—based on evidence which is flimsy at best and dangerously misleading at worst—that the interest elasticity of the saving rate is negligible. This is done in Section I.

Section II discusses several previous studies of saving behavior. I deal with possible biases in previous estimates of the interest elasticity of the saving rate. Special attention is paid to the notion, which has come to be called "Denison's Law," that the saving rate is essentially constant and unaffected by changes in the tax system or other changes in the real after-tax rate of return to capital. An analysis of data for the United States in Section III leads me to conclude that no behavioral significance can be attributed to the conventionally measured gross private saving rate: it measures neither saving nor income in the appropriate manner, and attempts to do so reveal a saving rate which can hardly be called constant.

Section III also presents detailed sets of estimates of private consumption functions. A variety of functional forms, definitions of the variables, and estimation methods all lead to the conclusion that private saving is indeed strongly affected by changes in the real after-tax rate of return. The estimated total (income plus substitution) interest elasticities of private saving cluster around 0.3–0.4. While this is hardly an enormous elasticity by conventional standards, it is substantially larger than virtually all previous estimates and the conventional wisdom and has drastic implications for the effect of tax policy on income, welfare, and income distribution.

Section IV reports estimates from this same body of data of Harrod-neutral CES production functions. Again, a variety of estimation techniques yields similar estimates of the elasticity of substitution of approximately one-half. Combined with our estimates of the interest elasticity of the saving rate, this immediately implies that policies which raise the after-tax rate of return will increase labor's gross share of income in the long run.

Section V summarizes the implications of the empirical results for the analysis of the effects of various policies on income, welfare, and income

[1] Thus, Break (1974, p. 151) notes, "Unfortunately, empirical evidence on the interest elasticity of the saving rate is rare."

[2] A discussion of why these studies may have biased the estimated interest elasticities toward zero is presented below.

distribution. Briefly, policies (such as switching from an income tax to a consumption tax) which raise the after-tax rate of return to capital will increase income substantially, remove an enormous deadweight loss to society resulting from the distortion of the consumption-saving choice, and redistribute income from capital to labor.

Section VI concludes with a discussion of the limitations of the study and avenues for further research.

I. The Issues at Stake

I shall discuss in turn five basic concerns of economic policy: the effects of the income tax on the distribution of income, the differential incidence of a consumption and an income tax, the tax treatment of human and physical capital, the effect of inflation on the capital intensity of the economy, and the debate over whether the saving rate is high enough in the United States. We shall see that the interest elasticity of the saving rate is the key parameter in the analysis of each of these issues. The potential importance of the interest elasticity of saving in the analysis of the effect of monetary policy is obvious and well-known enough that repetition here is unnecessary.

Virtually all empirical estimates of tax burdens by income class allocate income taxes according to income; that is, they assume the tax is not shifted.[3] In an economy in which either the private saving rate is sensitive to the real after-tax rate of return or the marginal propensity of the public sector to invest out of revenues is different from the private sector's marginal propensity to save out of private income, this assumption is incorrect. Since an income tax both decreases the after-tax rate of return on capital and transfers resources from the private to the public sector, it affects the national saving rate and capital/labor ratio. If saving responds positively to increases in the rate of return and/or the public propensity to save falls short of the private propensity to save,[4] an income tax retards capital accumulation and leads to a lower level of income and lower wage/rental ratio than would otherwise exist.[5] Further, labor's share of gross income will fall with increases in income taxation if the elasticity of substitution falls short of unity.[6] In these circumstances, a proportional income tax is quite different from a tax which is borne in proportion to income; indeed, it transfers income from labor to capital and, hence, is regressive, relative to such a tax.

A closely related question concerns the differential incidence of an

[3] E.g., see Pechman and Okner 1974.

[4] I present evidence to support this position below.

[5] See the analysis in Feldstein (1974*a*, 1974*c*). Also see the contributions by Sato (1967) Hall (1968), and Diamond (1970).

[6] I present evidence to this effect in Section IV.

income and a consumption tax. While most economists recognize the efficiency advantages in taxing consumption rather than income, the general argument against a consumption tax has been that it is regressive because it excludes interest income from the tax base. This analysis is correct as far as it goes, for interest income does accrue disproportionately to the wealthy. However, it overlooks two basic points. First, the rate structure may be set differently under a consumption tax; second, the exemption of interest income from the tax base may increase the saving rate, the capital/labor ratio, the productivity of labor, and the wage/rental ratio. This long-run transfer of income from capital to labor must be offset against the short-run gain to capital from the interest income exemption. The net outcome, of course, depends upon the particulars of the two taxes being compared. Again, however, the prevalent view is that of Pechman (1971): "... The differential effect on consumption and saving between an income tax and an equal yield expenditure tax is likely to be small in this country" (p. 65).

A related issue concerns the relative tax treatment of physical and human capital. I have argued elsewhere (Boskin 1975) that the tax system probably biases capital accumulation toward investment in human capital and away from physical investment because most human capital investments are financed out of tax-free forgone earnings. This is equivalent to instantaneous depreciation of this component of human investment. Since we do not allow instantaneous write-off of investment in physical capital (except R & D expenditures), the current system of income taxation probably reduces the after-tax rate of return on physical capital relative to that on human capital. Hence, the deadweight loss from the misallocation of a given amount of investment in physical and human capital will depend upon, among other things, the interest elasticity of the saving rate.

Attention has recently been focused on the economic effects of inflation. In a Tobin-type monetary growth model with taxes, Feldstein (1978) demonstrates how inflation may decrease the capital intensity of production and hence affect the real economy. Again, a key issue appears to be whether saving responds positively to increases in the real net rate of return.

Finally, we come to the perennial issue of whether we are saving enough in the United States. A variety of economists and politicians have continually expressed concern over the slower rate of real economic growth in the United States than in Japan and western Europe. Hardly a day goes by when a major speech is not given on "the capital shortage." While the issue is complex and I can hardly hope to deal with it in detail here, suffice it to say that under a not implausible set of assumptions a major component of the answer reduces to whether or not current taxes, in driving a wedge between the gross marginal social yield and net marginal

private yield on investment, distort the timing of consumption over the life cycle; a sufficient condition for this to occur is a positive (pure-substitution) interest elasticity of the saving rate.[7]

Thus, if the saving rate displays some interest elasticity, our notions about tax incidence, about the effects of inflation on the real economy, and about intertemporal allocative efficiency will have to be revised drastically. I shall return to a more complete discussion of these issues in Section V below.

II. Previous Studies and Data Description

A. Previous Work on Saving Behavior

For several decades, econometric work on saving behavior consisted largely of estimating Keynesian-type consumption functions. The inclusion of an interest-rate variable in such analysis was the exception rather than the rule. Further, when interest rates were included, nominal before-tax rates rather than real after-tax rates were used. Feldstein (1970) has demonstrated that such a procedure almost certainly biases downward the estimated interest elasticity. Since most of the early work on consumption and saving focused on issues other than the effect of interest rates, perhaps it is not surprising that little attention was paid to the weak, and sometimes negative, relationship between saving and the rate of interest. Musgrave and Musgrave (1974, p. 478) report that "studies of the relationship between saving and the rate of interest differ in their conclusion. Some hold that there is a substantial negative relationship, while others attribute little weight to the rate of interest in the consumption function." It is curious, however, that little attention is paid to interest rates in consumption functions in the large-scale econometric macromodels in widespread use today.

Several recent studies of saving have included interest rates as determinants of saving. Wright (1969) includes a measure of after-tax rates of return on stocks and bonds in estimating consumption functions from U.S. annual time-series data. His estimates imply an interest elasticity of saving of approximately 0.2. As he himself notes, this is substantially larger than the usual assumption and, despite his efforts, may be closer to the total than the pure-substitution elasticity. However, his measures of consumption and income suffer from several deficiencies, and his data refer to the period prior to 1958. Hence, at the very least, his results must be improved and updated.

Weber (1970, 1975) examines the impact of interest rates on aggregate consumption. He finds a positive relationship between consumer expendi-

[7] This question is analyzed in detail in Feldstein (1978).

tures and nominal interest rates. In the second study, he includes the expected inflation rate as a determinant of consumer expenditures but finds no evidence that expected inflation affects consumption.

In a study of quarterly U.S. aggregate postwar data, Taylor (1970) estimates an enormous interest elasticity, approximately 0.8. Since his study is directed toward other issues, he merely reports this result without attempting to explain why his estimate is several times larger than that of other researchers. Perhaps this is because it is unclear that he is estimating a structural equation rather than a reduced form from some larger system.

Finally, in a thought-provoking reexamination of Denison's Law, David and Scadding (1974) document the continued constancy of the gross private saving rate, the constancy of the saving rate augmented to include consumer durables purchases in saving and the rental flow from durables in income, and changes in the composition of private saving between the household and business sectors. They interpret this relative constancy of the gross private saving rate as evidence that taxes—either through a reduction in private income or a reduction in the real net rate of return on capital—do not affect private saving behavior. While this argument also has been made by a large number of other economists, I shall demonstrate below that drawing such behavioral inferences from these data is not warranted.

In brief summary, there is very little empirical evidence from which to infer a positive relationship (substitution effect outweighing income effect) between saving and the real net rate of return to capital. Surprisingly little attention has been paid to this issue—particularly in light of its key role in answering many important policy questions—and those studies which do attempt to deal with it can be improved substantially.

B. The Data

The data used in this study came from a variety of sources reporting on aggregate U.S. annual time series from 1929 to 1969. Most of the data are derived from the complete—and consistent—accounting system for the private sector of the U.S. economy developed by Christensen and Jorgenson (1973). These data include information on private income, gross saving, wealth, consumer expenditure, labor compensation, property compensation, rates of return on capital disaggregated into four sectors, depreciation, replacement, and revaluation of assets. They are worked up from the U.S. national income and product accounts and other sources; Divisia price and quantity indexes are used throughout.

Data are also used directly from the national income and product accounts, the *Statistics of Income*, and a variety of miscellaneous sources. The definitions of the main variables used in the study, with emphasis on how they differ from conventional definitions, are as follows:

Gross private saving.—This constitutes national income accounts' (NIA) definition of gross private saving plus personal expenditures on durable goods plus statistical discrepancy. Christensen and Jorgenson (1973) include the surplus in the social insurance trust funds; for the period under study this makes little difference. I present gross private saving rates with and without the surplus included in tables 1 and 2 below.

Net private saving.—This is gross private saving less replacement and depreciation. Depreciation is estimated for each type of capital good and assumed to be geometric; while this may or may not be the best form to

TABLE 1

GROSS PRIVATE SAVING RATES, U.S. ECONOMY, 1929–69

Year	GPS/GNP	GPSS/GNP
1929	.222	.221
1930	.184	.183
1931	.168	.166
1932	.102	.099
1933	.104	.102
1934	.146	.144
1935	.173	.171
1936	.203	.199
1937	.204	.187
1938	.176	.163
1939	.206	.193
1940	.225	.213
1941	.255	.241
1942	.298	.282
1943	.286	.266
1944	.307	.286
1945	.275	.253
1946	.222	.245
1947	.212	.196
1948	.236	.224
1949	.239	.230
1950	.243	.240
1951	.244	.232
1952	.236	.225
1953	.237	.228
1954	.235	.228
1955	.246	.239
1956	.238	.230
1957	.237	.230
1958	.225	.225
1959	.227	.223
1960	.219	.212
1961	.217	.214
1962	.228	.223
1963	.227	.219
1964	.239	.231
1965	.243	.236
1966	.249	.236
1967	.248	.236
1968	.240	.230
1969	.251	.237

SOURCE.—Calculated from Christensen and Jorgenson (1973).
NOTE.—GPS = gross private saving as defined in text and GPSS = GPS plus surplus in social insurance account.

TABLE 2

SAVING OUT OF PRIVATE INCOME AND NET SAVING RATE, U.S. ECONOMY, 1929-69

Year	GPS/DPI	NPS/NNP	NPSS/NNP
1929	.18	.062	.061
1930	.14	−.005	−.007
1931	.11	−.039	−.042
1932	.06	−.150	−.153
1933	.06	−.131	−.134
1934	.08	−.048	−.050
1935	.11	.010	.008
1936	.14	.068	.063
1937	.15	.069	.050
1938	.11	.017	.002
1939	.14	.067	.052
1940	.17	.099	.085
1941	.21	.147	.130
1942	.19	.199	.181
1943	.18	.200	.179
1944	.21	.229	.206
1945	.21	.195	.171
1946	.22	.130	.111
1947	.22	.108	.091
1948	.24	.126	.112
1949	.24	.116	.106
1950	.27	.122	.118
1951	.27	.119	.106
1952	.26	.106	.093
1953	.28	.108	.098
1954	.27	.099	.092
1955	.30	.118	.110
1956	.29	.099	.090
1957	.29	.092	.083
1958	.28	.072	.072
1959	.29	.083	.078
1960	.29	.074	.066
1961	.29	.071	.068
1962	.32	.093	.086
1963	.32	.092	.083
1964	.35	.109	.099
1965	.36	.116	.108
1966	.38	.126	.110
1967	.39	.119	.105
1968	.39	.110	.097
1969	.38	.096	.080

SOURCE.—See table 1 for source.

NOTE.—NPS = net private saving, NNP = net national income, and NPSS = net private saving plus surplus in social insurance account.

impose on the data, it is probably a substantial improvement over the NIA depreciation figures (which are reconciled to IRS tax depreciation figures which, in turn, bear no simple relationship to true depreciation). Use of other measures of depreciation does not alter the conclusions reached below.

Disposable private income.—Unlike the NIA definition, I include retained earnings as part of disposable income. Also included is the rental flow from durables.

National income (net and gross).—This includes the rental flow from consumer durables.

Wealth.—This is the market value of private nonhuman assets.

Rates of return.—These are nominal after-tax rates of return from Christensen and Jorgenson (1973). Also used were the Moody's Aaa bond rate, adjusted for the average marginal tax rate on interest income, from *Statistics of Income*, and Standard and Poor's high-grade tax-free municipal bond rate.

Expected inflation rate.—This rate is estimated from an adaptive expectations model of price expectations, truncated after 8 years, with varying speeds of adjustment. Expectations were projected forward to form long-run average rates for 5, 10, and 20 years.

Miscellaneous.—This category includes population, unemployment rates, price data, and other components of income from NIA or the Economic Report of the President. All magnitudes are expressed in constant 1958 prices from Christensen and Jorgenson (1973); aggregate magnitudes are expressed in per capita terms.

III. Private Saving

The relative constancy of the gross private saving rate—the ratio of gross private saving to gross national income—so well documented by David and Scadding (1974) fails to reveal a variety of important features of private saving in the United States. For the sake of comparison, table 1 presents gross private saving rates for the U.S. economy, 1929–69, with and without the social insurance fund surplus included in the measure of gross saving. Again, the relative constancy of this ratio in years of full employment is obvious. In the postwar period, it ranges from 20 to 24 percent, with most of the observations at 22 or 23 percent.[8]

The gross private saving rate is the product of the saving rate out of disposable income and the ratio of disposable income to total income, that is,

$$\text{GPSR} = \frac{\text{GPS}}{\text{GNP}} = \frac{\text{GPS}}{\text{DPI}} \times \frac{\text{DPI}}{\text{GNP}}. \qquad (1)$$

We know that taxes as a percentage of total income have risen substantially over this period. Hence, the saving rate out of disposable income must have increased substantially to offset the decline in the ratio of private to total income. Table 2 documents this fact; indeed, the saving rate out of private net-of-tax income has increased by more than 50 percent since the early postwar period. The behavioral interpretation given to these data by David and Scadding (1974) is that taxes and present consumption are

[8] Recall that the inclusion of consumer durables raises this rate from 15 percent to 16 percent of the conventional measure.

essentially perfect substitutes: the rise in taxes is offset by an equivalent decline in current consumption. They go on to explore a variety of intriguing conjectures concerning consumer behavior.

Three basic points need to be made concerning this conjecture. First, most theories of consumer behavior relate saving to disposable income. If this is correct, the saving rate varies substantially. A direct test of whether disposable income or total income is the appropriate variable in a private saving function is presented below.

Second, it indeed would be surprising if consumers made this type of rational calculation vis-à-vis the government and business sectors in terms of gross saving and income. Consumers know their capital depreciates. Again, our economic theories generally relate to how consumers choose their net position. Further, except for some possible embodied technical change, it is net saving that is relevant to the issue of whether taxes affect capital accumulation. Table 2 presents calculations of the net private saving rate—net saving divided by net income. This series exhibits substantially more relative variation than the gross series and can hardly be called constant, even if we confine ourselves to the postwar period.[9] While depreciation series are notoriously unreliable, use of several alternative series based on tax, replacement cost, etc. depreciation still yields substantial variation in the net private saving rate. I take this to be a strong indictment of the structural interpretation of Denison's Law.

Third, even if total gross income and gross saving are examined, there still may be an independent effect of real net rates of return on saving. Even if taxes and present consumption are perfect substitutes (the public sector is doing its benefit-cost analyses properly, free-rider issues are ignored, etc.), the share of private wealth consumed today (publicly or privately) will depend upon the net, or after-tax, return to saving, whereas gross income is the flow from private wealth at the gross return. Hence, taxes decreasing the net return to saving may cause a decrease in saving.

Before proceeding to a variety of estimates of saving equations, it is perhaps worthwhile to offer a brief conjecture on the apparent constancy of the saving rate. Consider two motives for saving: smoothing of consumption over the life cycle and bequests. Further, assume bequests (broadly construed to include provision of education as well as pure financial bequests) are luxuries. Hence, real income growth would tend to increase saving. However, if saving is also positively related to the real net return on capital, the slight decline in this rate would lead to a decrease in saving. Hence, the two effects offset one another. No doubt many other effects have been at work as well. Thus, I find it extremely difficult to give any structural or behavioral interpretation to the constancy of the gross private saving rate.

[9] If one took the broader view of saving as inclusive of human investment, use of Kendrick's (in press) data reveals still more variability in the total saving rate, gross as well as net.

Merely pointing out some difficulties in interpretation of some data does not suffice to reject the conjecture outright nor does it provide an alternative behavioral interpretation. Hence, I turn now to estimates of the effect of taxes on private saving, that is, to estimates of consumption functions.

Equation (2) presents my basic estimate of a (private) consumption function:[10]

$$\begin{aligned} \text{LGCONSP} = {} & -3.8 + 0.56\ \text{LGDPI} + 0.18\ \text{LGDPI}(-1) \\ & \quad (1.3) \quad (0.12) \qquad\quad (0.08) \\ & + 0.28\ \text{LGWLTH}(-1) - 0.003\ \text{LGUNEM} - 1.07\ \text{R}, \\ & \quad (0.06) \qquad\qquad\quad (0.01) \qquad\quad (0.31) \end{aligned} \tag{2}$$

$$R^2 = .99; \qquad \text{SSR} = 0.00171; \qquad \text{SE} = 0.0088;$$

where LGCONSP is the natural logarithm of real per capita private consumption, DPI is disposable private income, WLTH is wealth, UNEM is the unemployment rate, R is the real after-tax return on capital, (-1) indicates a one-period lag, SE is the estimated standard error of the regression, and SSR is the sum of squared residuals. Estimated SEs appear in parentheses below the estimated coefficients.

The equation performs quite well by conventional standards. The estimated SE is a tiny fraction of the mean value of the dependent variable. The individual coefficients are measured relatively precisely and have the expected signs. The important thing to note is the positive real rate-of-return effect; the estimated interest elasticity of saving at mean values of the variables is approximately one-fourth. Also note that the implied income elasticity of saving exceeds unity.

A variety of authors have conjectured on the effect of inflation on saving. For example, Mundell (1963) argues that inflation increases saving because it destroys the value of accumulated wealth and consumers attempt to restore their wealth-income position. There is also an uncertainty argument which leads to a similar result: consumers hedge by spreading the loss of income over more than one period. These effects may offset any indirect effects of the rate of inflation acting through the real rate of return. We have thus entered the expected rate of inflation ($\hat{\pi}$) as an additional regressor in the basic equation. This yields

$$\begin{aligned} \text{LGCONSP} = {} & -0.46 + 0.57\ \text{LGDPI} + 0.18\ \text{LGDPI}(-1) \\ & \quad (1.34) \quad (0.12) \qquad\quad (0.08) \\ & + 0.26\ \text{LGWLTH}(-1) - 0.003\ \text{LGUNEM} - 1.07\ \text{R} - 0.29\ \hat{\pi}, \\ & \quad (0.07) \qquad\qquad\quad (0.011) \qquad\quad (0.33) \quad (0.06) \end{aligned} \tag{3}$$

$$R^2 = .99; \qquad \text{SSR} = 0.0017; \qquad \text{SE} = 0.0091.$$

[10] All equations delete 1941–46. The Cochrane-Orcutt adjustment for serial correlation has been made in this and subsequent equations when necessary.

The estimated real net rate-of-return elasticity is still substantial, virtually unchanged at about one-quarter. The other coefficients are hardly affected, and expected inflation does have the expected negative sign for consumption, holding r constant.

A loglinear specification gives similar results:

$$\begin{aligned} \text{LGCONSP} = &-0.60 + 0.56\ \text{LGDPI} + 0.17\ \text{LGDPI}(-1) \qquad (4)\\ &\quad (1.29)\quad (0.12)\qquad\quad (0.08)\\ &+ 0.28\ \text{LGWLTH}(-1) - 0.004\ \text{LGUNEM} - 0.041\ \text{LGR},\\ &\quad (0.06)\qquad\quad (0.01)\qquad\quad (0.011)\\ &R^2 = .99; \quad \text{SSR} = 0.0017; \quad \text{SE} = 0.0088. \end{aligned}$$

Again, the estimated interest elasticity is around one-fourth, and the other estimated coefficients are quite similar to those from the semilog specifications.[11]

The measure of the real net rate of return on capital involves three elements: the nominal rate of return, the tax rate, and the inflation rate. I have experimented not only with alternative methods (lag structure, forward projection, adjustment speed) of estimating the expected inflation rate but also with alternative measures of the nominal net return. Use of the Moody's Aaa bond rate in an equation analogous to (2) yielded an estimated coefficient of -0.6 with an estimated SE of 0.2. This implies an interest elasticity of slightly less than 0.2. Use of Standard and Poor's high-grade municipal bond rate makes it unnecessary to measure marginal tax rates on capital income; this also yielded an estimated coefficient of -0.6 with an estimated SE of 0.2; this produced an interest elasticity of slightly less than 0.2.

There is always a problem in interpreting saving or consumption functions estimated by single equation methods. It is difficult to believe that the rate of return (or wealth or income) is exogenous. Since the saving function is embodied in a larger model of economic activity—whether a simple growth model or a monetary growth model or a full-scale macroeconometric model—the parameter estimates obtained with single equation methods may be biased. Since I do not wish to specify a complete macroeconometric model, I proceed as follows: I estimate consumption functions by an instrumental variable technique using as instruments principal components of the exogenous variables from the Hickman-Coen annual macroeconometric model. The problem is thus reduced to one of manageable proportions. The exogenous variables from which the principal components are formed include tax rates, monetary

[11] Likewise, different adjustment speeds for inflationary expectations and different length of forward projection of $\dot{\pi}$ produced virtually identical results.

instruments (such as the discount rate and reserve ratio), population, time, etc. Use of these principal components as instruments yields consistent estimates of the structural parameters (see Amemiya 1966; Jorgenson and Brundy 1973). This procedure yields[12]

$$\begin{aligned} \text{LGCONSP} = &-5.83 + 0.55\ \text{LGDPI} + 0.32\ \text{LGDPI}(-1) \\ &\quad (1.55)\ \ (0.13)\qquad\ (0.23) \\ &+ 0.72\ \text{LGWLTH}(-1) - 0.031\ \text{LGUNEM} - 2.28\ \text{R} - 0.36\ \hat{\pi}, \\ &\ (0.03)\qquad\qquad\ (0.014)\qquad\quad (0.62)\ \ (0.21) \end{aligned} \tag{5}$$

$$R^2 = .99; \qquad \text{SSR} = 0.0087; \qquad \text{SE} = 0.021.$$

The equation performs quite well by conventional measures. The (consistent) estimate of the interest elasticity is somewhat larger than with ordinary least squares, slightly larger than 0.4. Again, it is measured quite precisely. While much more work with such estimators is necessary, these estimates are preferable to those reported above.

Finally, the estimated coefficients for the other variables are quite similar to the ordinary least-squares estimates except for that on lagged wealth. Allowing different combinations of the real net rates, wealth, and income to be endogenous produced a range of estimated wealth elasticities spanned by those reported here. It may well be that ordinary least-squares estimates of wealth coefficients are substantially biased downward.

Since the period 1929–69 includes the depression, the mere inclusion of the unemployment rate may not be sufficient to account for cyclical fluctuations in saving. Hence, I reestimated the basic equation using postwar data only:

$$\begin{aligned} \text{LGCONSP} = &-3.85 + 0.62\ \text{LGDPI} + 0.007\ \text{LGDPI}(-1) \\ &\quad (1.76)\ \ (0.21)\qquad\ (0.24) \\ &+ 0.72\ \text{LGWLTH}(-1) - 0.003\ \text{LGUNEM} - 2.08\ \text{R} + 0.007\ \hat{\pi}, \\ &\ (0.05)\qquad\qquad\ (0.02)\qquad\quad (0.81)\ \ (0.14) \end{aligned} \tag{6}$$

$$R^2 = .99; \qquad \text{SSR} = 0.0025; \qquad \text{SE} = 0.0139.$$

The now familiar pattern of a substantial interest elasticity is repeated with these data. The equation performs less well by the usual measures, since there is somewhat less variation in each of the series, and the sample size is reduced sharply when confined to the postwar era. Once again, however, I estimate a substantial elasticity of saving with respect to the real net rate of return, about 0.4.

Alternative measures of permanent income produced similar results. Using the natural logarithm of current and lagged labor income yielded

[12] Since the data on the principal components, which were supplied kindly by M. Hurd, go only through 1966, this equation excludes 1967–69.

TABLE 3

ESTIMATED REAL AFTER-TAX RATE OF RETURN ELASTICITY OF PRIVATE SAVING

	Ordinary Least Squares	Instrumental Variables
Semilog, R1	0.3-	0.4
Log-linear, R1	0.3-	0.4
Semilog, R2 and R3	0.2-	0.3
Semilog, labor income	...	0.6-
Semilog, postwar only	...	0.4

SOURCE.—R1 derived from Christensen-Jorgenson (1973) nominal rate of return, R2 derived from Moody's Aaa nominal bond yields, and R3 derived from Standard and Poor's high-grade municipal bond yields.

an estimated interest-rate coefficient of -3.32 with an estimated SE of 1.7; this corresponds to an interest elasticity of 0.6. The worse fit and less plausible estimated coefficients on the other variables are typical of this theoretically more appealing specification and lead me to reject these estimates in favor of those reported above.

Finally, the alternative real net rate of return measures yielded estimated interest coefficients of -1.32 (estimated SE, 0.29) and -1.33 (estimated SE, 0.29) on the Moody-based real net yield on bonds and the Standard and Poor-based real net yield on tax-free municipals, respectively; these coefficients correspond to an elasticity of about 0.3.

Table 3 summarizes the empirical results reported above. In brief summary, alternative sample periods, estimation techniques, measures of the real after-tax rate of return on capital and measures of permanent income all lead to the conclusion of a nonnegligible interest elasticity of private saving. The range of estimates goes from just under 0.2 to around 0.6 and clusters at about 0.3 to 0.4; the estimate I prefer on statistical grounds is that from equation (5), about 0.4.

IV. Production

In order to gain further insight into the effects of tax-induced changes in capital accumulation on the distribution of income, I have estimated production functions from the same data used to estimate private saving. Recall that a key issue in my two-factor aggregate model is the size of the elasticity of substitution between capital and labor. Increases in the capital/labor ratio will lead to increases (decreases) in labor's share of gross income if the elasticity of substitution is less (greater) than unity. Further, the increase in the wage/rental ratio due to an increase in the capital/labor ratio varies inversely with the elasticity of substitution.

Since I am dealing with a two-factor model, I estimate a CES production function with Harrod-neutral technological progress:[13]

$$y_t = \gamma[K_t^{-\rho} + (E_L L_t)^{-\rho}]^{-1/\rho}, \tag{7}$$

where y is output, K is the capital input, L is the labor input, t is time, $E_L = E_L(0)e^{-\lambda t}$, λ is the exponential labor augmenting rate,[14] and σ, the elasticity of substitution, equals $1/(1 + \rho)$.

Rearranging (7), it appears that

$$\log\left(\frac{wL}{y}\right) = c + (1 - \sigma)\log w + (\sigma - 1)\lambda t, \tag{8}$$

where c is a constant and w is the wage rate.

Estimating (8) on data for 1929–69, deleting the war years, for the private economy yields

$$\log\left(\frac{wL}{y}\right) = \underset{(0.06)}{-0.45} + \underset{(0.034)}{0.554}\log w - \underset{(0.0021)}{0.0045}\, t, \tag{9}$$

$$R^2 = .99; \qquad \text{SE} = 0.033; \qquad \text{SSR} = 0.033.$$

The equation fits the data quite well. The SE of the regression is a small fraction of the mean value of the dependent variable, and the estimated coefficients are measured rather precisely. The estimated elasticity of substitution is 0.45, which is quite similar to the usual time-series estimates.[15] This immediately implies that labor's share of gross income varies in the same direction as the capital/labor ratio. The derived estimate of λ, the labor-augmenting rate, is 0.009.[16]

Fit to postwar data alone, I obtain

$$\log\left(\frac{wL}{y}\right) = \underset{(0.18)}{-0.42} + \underset{(0.13)}{0.52}\log w - \underset{(0.006)}{0.005}\, t, \tag{10}$$

$$R^2 = .98; \qquad \text{SE} = 0.016; \qquad \text{SSR} = 0.0045.$$

[13] Diamond (1965) has demonstrated that Harrod neutrality is the only type of technological progress compatible with balanced growth. I interpret my results as derived from a Harrod-neutral CES production function. If technical change, e.g., was Hicks-neutral, the coefficient of log w is interpretable as a direct estimate of the elasticity of substitution. Indeed, this is the interpretation originally given by Arrow et al. (1961). Note, however, that the estimate of the elasticity of substitution is still about one-half.

[14] This specification thus avoids the "impossibility" problem pointed out by Diamond and McFadden (1965).

[15] See Nerlove (1967) for a survey of estimates of CES production functions. My estimate is quite similar to usual time series estimates, which in turn are usually smaller than cross-section estimates. While time-series estimates may be biased downward because of lagged adjustments, Lucas (1969) rejects this conjecture. Cross-sectional estimates suffer from a variety of problems; see Lucas (1969).

[16] One might think of this as including some exogenous human investment.

The estimated elasticity of substitution is 0.48; unfortunately, while the point estimate of the labor-augmenting rate is quite similar to that for the whole period, its estimated SE is quite large.

As with the estimates of saving functions, the issue of potential bias in the estimates must be confronted. Possible measurement error and the endogenicity of wages in a full model lead me to follow the same procedure as described above for consumption/saving. I use an instrumental variables estimator, using principal components from the exogenous variables in the Hickman-Coen model as instruments. This yields

$$\log\left(\frac{wL}{y}\right) = \underset{(0.02)}{-0.53} + \underset{(0.04)}{0.56}\log w - \underset{(0.002)}{0.005}\,t, \qquad (11)$$

$$R^2 = .99; \qquad \text{SE} = 0.034; \qquad \text{SSR} = 0.032.$$

Again, the equation fits quite well. The estimated elasticity of substitution is 0.44, and the estimated labor-augmenting rate is 0.009; both estimates are quite close to those reported above.

While increases in the capital/labor ratio will increase the wage/rental ratio (which is probably a more insightful way to analyze tax incidence in a growing economy than examining factor shares) regardless of the elasticity of substitution, these results suggest that policies which increase capital accumulation will increase labor's gross share of national income.

I now turn to a more detailed examination of the implications of my empirical results.

V. Implications for Income, Welfare, and Income Distribution

As discussed in Section I, these results have striking implications for tax policy. The current tax treatment of income from capital—primarily the personal and corporate income taxes—decreases the net rate of return to capital accumulation; the modest positive real net of interest elasticity thus implies a substantial tax-induced decrease in saving and the capital intensity of production, a reallocation of consumption from the future to the present, and a substantial transfer of gross income from labor to capital. To estimates of these effects I now turn.

A. Welfare

The welfare analysis of intertemporal resource allocation involves a variety of complex issues which are beyond the scope of this paper. For example, external benefits to saving and investment (e.g., learning by doing) may render the social rate of return higher than the private rate; other distortions (e.g., lack of a complete set of futures markets) may be important. If, however, I proceed in the usual manner and ignore all

distortions other than taxes and argue that to a first approximation the saving rate would be efficient in the absence of taxes, I may adopt the usual consumer surplus measure of lost welfare: one-half the product of the tax-induced increase in the price of future consumption and the compensated change in future consumption. Feldstein (1978) shows that this product may be written as

$$\Delta W = -1/2\left(1 + \frac{\varepsilon_{SR}}{rT}\right)\left(\frac{P_1 - P_0}{P_1}\right)^2 S_1, \tag{12}$$

where P_0 and P_1 are the prices of future consumption before and after taxes on capital income are imposed ($e^{(-rT/1-\mu)}$ and e^{-rT}), μ is the marginal rate of tax on capital income, r is the net rate of return on capital, T is the length of time between saving and dissaving, S_1 is saving for future consumption, and ε_{Sr} is the compensated interest elasticity of the saving rate.

Recall that, since the private sector is a net saver, the income and substitution effects of a change in the rate of return work in opposite directions. Hence, my estimates are lower bounds on the pure-substitution elasticity. The real net rate of return, r, averages about 3 or 4 percent over my sample period; T, the average length of time between saving and dissaving, is probably around 25 years. Hence, examining (12), it can be seen that the contribution of the real net rate-of-return elasticity to lost welfare is magnified by the factor $1/rT \simeq 4/3$.

While μ varies substantially by the type of capital and the progressive rate structure of the personal income tax makes it difficult to measure marginal, as opposed to average, tax rates, I adopt 50 percent as a reasonable estimate of μ. Harberger (1969) suggests that 60 percent is a good approximation; Pechman and Okner (1974) argue that 40 percent is better. The former figure does not deal adequately with the nonprofit sector, whereas the latter fails to impute any indirect business taxes to capital. Since S_1 is saving for future consumption, total net private saving understates S_1 because of the dissaving of the elderly population during retirement. If the population grows at 1–2 percent and real income grows at 3 percent per year, and $T = 25$ years, S_1 equals about one and one-half times total net private saving, about $200 billion. Estimates of the annual welfare loss resulting from the tax-induced distortion of the timing of consumption over the life cycle for different values of ε_{Sr} and r are reported in table 4. My preferred estimate, based on $r = 0.4$ and $\varepsilon_{Sr} = 0.4$, yields an estimate of the annual welfare loss of close to $60 billion! This estimate is rather insensitive to variations in r and only modestly sensitive to variations in ε_{Sr}.

In comparison with previous studies of the welfare loss from differential taxation of different types of capital, these numbers are enormous.[17] They

[17] See Harberger 1966 and Shoven and Whalley 1972.

TABLE 4

ESTIMATED ANNUAL WELFARE COST OF CURRENT CAPITAL INCOME TAXATION ($ Billions)

	ε_{Sr}		
	.2	.3	.4
.03	44.6	48.3	52.1
.04	48.0	52.0	56.0
.06	48.3	52.3	56.3

amount to an astounding waste of resources. Recall that these estimates are annual costs to society. The present value of these costs is a large multiple of the annual costs (the exact relation depending upon the assumed rate of discount) and can easily amount to hundreds of billions of dollars. Viewed another way, if we abolished taxes on income from capital this year, by the end of the decade welfare would have increased by close to $200 billion, or about twice the current annual yield of the individual income tax!

These estimates highlight the fact that the current tax treatment of income from capital induces consumers to save less for consumption later in life—primarily old age—than is socially optimal. It seems strange simultaneously to reduce substantially the return to saving—and, hence, private provision for retirement—and to attempt to increase provision for retirement publicly through social security, which in turn may well decrease private saving.[18] While both the taxation of capital income and the social security system serve other goals, they are in basic conflict in the attempt to provide retirement or old-age consumption.

Do such enormous welfare costs make sense? First, extrapolating the estimated interest elasticity over a large change in tax-induced variations in the real after-tax rate of return may not be warranted. On the other hand, the estimated elasticities are a lower bound on the pure-substitution elasticities, since they include a negative income effect of interest rate increases on saving.

Second, substituting taxes on labor income for those on capital income can produce a distortion in labor markets, for example, in the allocation of work between home and market. While most estimates of labor-supply functions suggest an aggregate supply of labor which is quite wage inelastic, it is quite difficult to measure labor supply in the envelope sense—subsuming effort and human investment—and taxes affect human investment in a variety of offsetting ways.[19] Since one reason a person works early in life is to save for future consumption, cross elasticities as well as

[18] See Feldstein 1974*b* and Munnell 1975.

[19] See Boskin 1976.

own elasticities are important; the interested reader is referred to Feldstein (1978) for a detailed discussion. I merely note that my estimates must be adjusted downward to get the net effect of substituting labor income taxes for capital income taxes.

Finally, one might expect that such an enormous inefficiency would result in an intense pressure to revive the tax laws or to provide retirement consumption. Indeed, social insurance benefits have grown rapidly, and increasingly generous treatment of income placed in retirement plans has been a key feature of recent tax reform.

B. Income and Its Distribution

The long-run effect of changes in the structure of capital income taxes on income and its distribution depends upon the exact change being considered. For example, integration of corporate and personal income taxes or switching from income to consumption as the base of personal taxation, or both, will increase income substantially if the rise in the real net rate of return is not offset by other policies (government saving, monetary policy, etc.). Assuming that no other policies are enacted which affect the real after-tax rate of return and that an equal current-yield consumption tax replaces current capital income taxation,[20] the real net rate of return, with $\mu = 0.5$, will double in the short run. This will lead to an increase in saving and in the capital/labor ratio and wage rates and to a fall in the gross rate of return to capital.

Feldstein (1974*a*) derives the relationship between the net rate of return to capital and capital income taxes in a growth model with factor taxes and variable saving rates. The estimates reported above (real net-interest elasticity of saving of 0.4, elasticity of substitution of 0.45, etc.) imply an elasticity of the net rate of return with respect to capital income tax rates of 0.3 (an elasticity of substitution of 1 would imply 0.6).[21] Hence, a complete abolition of capital income taxation would increase the real net rate of return some 30 percent (or more if the elasticity of substitution is larger). Since the capital/labor ratio increases in proportion to S/α, where S is net saving and α is labor's share of gross income, my estimates imply a new steady-state capital/labor ratio some 15–20 percent larger than currently.

From the production function and competitive factor markets,

$$\log \frac{W}{r} = C + (1 + \rho) \log k, \tag{13}$$

[20] It is quite likely that a personal consumption tax would have progressive rates: indeed, this often overlooked fact makes the distributional effects of switching from income to consumption taxes much more palatable.

[21] Extrapolations over such a large range are somewhat hazardous. I present here only illustrative calculations.

where ρ is the substitution parameter in the CES form, that is, $\rho = 1/\sigma - 1$, where σ is the elasticity of substitution. Hence, my estimate of ρ is around 1.2. Thus, a 15–20 percent increase in k would result in a 33–44 percent increase in the wage/rental ratio; the abolition of capital income taxation transfers gross income from capital to labor.

Further,

$$\log \frac{wL}{rK} = C + \rho \log k, \tag{14}$$

so the 15–20 percent increase in k implies an increase in this ratio of factor shares of about 18–24 percent. Since the factor-share ratio is currently around 3, it would increase to about 3.6. Thus, capital's share of gross income would fall by around 15 percent.

With the general distributional pattern developed above, I mention briefly two other important tax-incidence issues. First, the results presented above imply a substantial shifting of capital income taxes from capital to labor due to the decreased capital/labor ratio caused by current tax treatment. Again, Feldstein (1974*a*) develops a formula to measure this differential incidence; my estimates imply that capital shifts approximately one-half of the burden of capital income taxes onto labor. Failure to account for tax shifting via decreased saving has led many researchers to conclude that taxes on income from capital are much more progressive than they really are in fact; for example, the excellent study by Pechman and Okner (1974) ignores these long-run effects: capital income taxes are generally considered borne by capital and general income taxes in proportion to income.[22] The results reported here suggest that each of these procedures may overstate substantially the progressivity of such taxes.

Second, my results on the interest elasticity of the saving rate suggest that proposals to integrate the corporate and personal income tax which are financed by increases in labor income taxation or consumption taxation would increase saving, the capital/labor ratio, welfare, the wage/rental ratio, and labor's share of gross income.

These transfers of gross income from capital to labor from tax policies which decrease capital income taxation must be offset against the decrease in taxes on income from capital and possible increase in taxes on labor income to compare after-tax incomes. Further, the full transfer of gross income will take a period of years to occur.

This immediately raises the issue of what to assume about tax revenue and rates along the new growth path. Further, I have ignored government saving. The net increase in the capital/labor ratio must net out any

[22] Pechman and Okner (1974) do provide careful estimates based on a variety of generally accepted incidence assumptions; however, the case of a large share of capital income taxes being borne by labor is not included.

changes in government saving.[23] Since the increased capital/labor ratio will result in a corresponding increase in per-capita output, tax revenues at constant rates will increase well above what they would have been before an initial year equal-yield change. One may choose to compare situations with equal revenue year by year, or with equal shares of taxes in gross income, or with the initial rates continuing, or with still other scenarios. Hence, to give an accurate picture, one must compare changes in after-tax incomes under some well-defined set of assumptions about the course of tax rates.[24]

I shall not attempt to deal with this conceptual issue here. I merely note that, in addition to the usual efficiency arguments in favor of abolishing taxes on interest income,[25] and the often overlooked potential horizontal equity arguments in favor of consumption taxation,[26] the analysis and empirical evidence described above cast serious doubt on the usual comparison of the distributional effects of income and consumption taxes.

Again, while the net effect on income and its distribution depends upon the specific set of assumptions made, the general argument remains the same: the modest positive interest elasticity implies that tax policies—from corporate and personal income tax integration or switching to consumption taxes—which lower taxes on income from capital will increase saving, the capital intensity of production, income, and welfare and, further, will transfer gross income from capital to labor.

C. The Social Opportunity Cost of Public Investment

The results reported above on the interest elasticity of the saving rate have striking implications for the social opportunity cost of public funds and hence the rate of discount to be used in public benefit-cost analyses. Two schools of thought have emerged on this issue. One group of writers suggests that the gross-of-tax marginal product of capital in the private sector is the appropriate rate. Another group of writers suggests that the social rate ought to be lower than the private rate due to intergenerational external economies. Leaving the issue of reducing the social rate of discount to account for such effects aside, I note that the gross-of-tax marginal product of capital in the private sector is appropriate only if the public funds are obtained exclusively from a reduction in private investment. This generally is assumed to occur as government borrowing drives up the rate of interest and chokes off private investment.

[23] My preliminary estimates reveal a much lower government propensity to invest out of revenues than the private sector's propensity to save out of income.

[24] And other policies.

[25] See Musgrave 1959, chap. 12.

[26] Since consumption is a more stable function of permanent income than is current income, a consumption tax may improve our ability to tax persons with the same permanent income at the same rate.

TABLE 5

ESTIMATED SOCIAL OPPORTUNITY COST OF PUBLIC FUNDS

Marginal Product of Capital ρ (%)	Social Opportunity Cost of Public Funds ω (%)
7	5.6
12	8.9

My results, however, suggest that such an increase in the rate of interest will call forth an increase in private saving. Hence, the public funds come partly from decreased private investment and partly from increased private saving. Hence, the social opportunity cost of the public funds (as pointed out by Harberger [1969]) is a weighted average of the opportunity costs of the foregone investment and private consumption foregone in favor of increased private saving, that is, of the gross-of-tax marginal product of capital in the private sector and the net-of-tax real rate of return to savers (the supply price of private saving). The weights, of course, reflect the relative proportion of decreased private investment and increased private saving in providing the public funds; that is, they depend upon the interest elasticity of investment and saving, respectively. The formula is the following:

$$\frac{rS\varepsilon_s - \rho I\eta_I}{S\varepsilon_s - I\eta_I} = \omega,$$

where r and ρ are the real net return to savers and the real gross marginal product of capital, S and I are saving and investment, and ε_s and η_I are the interest elasticity of saving and investment, respectively.

The real net return to saving, r, is much smaller than the gross marginal product of capital, ρ, due to business and personal income taxes; r is about 0.03; for the production function estimated above, ρ is 0.07. Typical estimates of ρ based on Cobb-Douglas production functions are around 0.12. Table 5 presents estimates of the social opportunity cost of public investment for estimates of ρ of 0.07 and 0.12, current estimates of S and I, and estimates of η_I of -1.0 and ε_s of 0.4.[27] The social opportunity cost of capital in each case is substantially smaller than the gross marginal product of capital. Hence, social cost-benefit analyses should discount future benefits and costs at a rate substantially below the marginal product of capital in the private sector, irrespective of any intergenerational external economies. Indeed, use of the gross marginal product of

[27] Econometric evidence on η_I spans a wide range; see Hall and Jorgenson (1967), Coen (1969), and references cited therein.

capital as the discount rate causes both an underinvestment and an inefficient composition of public investment in favor of short-lived projects.

VI. Conclusion

I have presented a good deal of evidence which suggests that there is a positive relationship between private saving and the rate of return. A variety of definitions of variables, functional forms, and estimation methods all led to this conclusion. This relationship has immensely important implications for economic policy. Among the more important are that the current tax treatment of income from capital induces an astounding loss in welfare due to the distortion of the consumption/saving choice and that reducing taxes on interest income would in the long run raise the level of income and transfer a substantial portion of capital's share of gross income to labor. The overall distributional effects of such a policy combine this long-run effect with that of the exemption of interest income from taxation.

Taken as a whole, the results reported here substantially strengthen the case for reforming the tax treatment of income from capital in the United States, for example, integration of the corporate and personal income taxes or, better yet, switching from income to consumption taxation.

They also have obvious implications for the potential effectiveness of monetary policy in the short and long run.

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Senator HATCH. Mr. Heller, you said savings did not respond to these tax cuts. Last week I was speaking with the Finance Minister of Germany. He described the tax incentives given to German savers. He said that it really works to increase savings substantially, and it works all too well, he said, if I can recall his testimony. It was in a special meeting.

He said their experiences with these types of approaches really do work, and they have proven they work. I don't know whether you are aware of that, because I think the only people there were Chairman Bolling and myself.

Mr. HELLER. I have been a student of the German economy for many years, and I did study their savings incentives. I have to admit, it was a long time ago, in the early 1950's. At the time I looked at it, there was a very substantial network of savings shelters in the German income tax laws.

My conclusion at that time, and this is, as I said, in the early fifties, was that it mainly resulted in the transfer of savings from one form to another, from one form that was given a tax break, to another form that was not given a tax break.

I investigated that with German economists at the time, and they agreed with that conclusion. That is not something in which you can have a controlled experiment. It is the kind of thing—pitfalls exist in this kind of research.

The statement you are quoting, I think, would have to be subjected to pretty rigorous economic analysis before we could accept it.

Senator HATCH. To reach a balanced budget a $25 billion tax cut is all we can afford?

Mr. HELLER. I was quoting Brookings.

Senator HATCH. We know that taxes will rise to $98 billion by 1983. What you are saying is that we will balance the budget by raising taxes.

I don't know that a lot of people want the budget balanced at that cost.

Mr. HELLER. They were projecting a cutback in the Federal budget in terms of the ratio of gross national product to 21 percent of the gross national product, and they were plugging in the existing programs, and they were plugging in the existing tax legislation.

That is where they came out.

Senator HATCH. In 1965, after the Kennedy tax cut, only 2 percent of the tax returns filed by the people who were responsible for perhaps 10 or 15 percent of the country's savings, fell into the upper tax brackets.

Since then inflation has put 10 percent of the country's taxpayers who do perhaps 30–40 percent of the country's savings, into these higher marginal tax brackets. How long can we go on ignoring marginal tax brackets, and how much of our saving can we allow to be wasted in inefficient uses?

One of the main purposes of the Roth-Kemp bill is to get marginal tax rates down to the point where these people would not want to use tax shelters.

Would you agree or disagree with that?

Mr. HELLER. Again, as one who has had a very substantial hand in reducing the top rate from 91 percent to 71 percent back in 1964, as

one who has urged further reduction, and as one who has said, we ought to go very easy on widening tax shelters or capital gains, as one who has said that we should narrow tax shelters for oil and gas and a lot of other things in the tax laws, so that we could reduce the marginal tax rates, the top marginal tax rates on investment income to 50 percent—in other words, that it would be much better to have a lower marginal rate, and cut down the tax shelters—I cannot disagree with the general direction and approach of getting mortgage rates down.

That does not mean that one endorses a particular way of getting there. But I am certainly in favor of that approach, because I think there would be more incentives for investment, and there would be less distortion of investment, if one assumes that the free market really works in the sense of allocating resources to the best uses; then the distortion is created by specific tax breaks of the kind we are talking about, which would cause certain inefficiencies in those allocations.

That does not apply to measures that operate broadly across the board like the investment credit. But as to the many distortions of resource allocation through specific tax preferences or tax expenditures, I would be very much in favor of cutting those back, and cutting back on the marginal rates at the same time.

Senator HATCH. My time is up.

Senator ROTH. I will be very brief because of the late hour.

One thing, Mr. Heller, in your prepared statement intrigued me. You stated that the record is crystal clear that the great bulk of success of the taxes came from its stimulus to demand.

I emphasize, or ask, how do you know it is crystal clear? The reason I ask is that you appeared before this committee last year, and you were asked to comment on the Federal revenue gains from the Kennedy tax cut.

At that time you said it is difficult to pin down why revenues increased so much. After studying this for 14 years and not being sure, today you say it is crystal clear that the revenues came from a stimulus to demand. What happened during the last year that changed your mind?

Mr. HELLER. Since I have long held the view, based on a careful appraisal of the evidence, that the bulk of the thrust of the 1964 tax cut came from the demand side, I doubt that there is anything inconsistent between those two statements. At the same time, one cannot identify precisely where those GNP increases have generated the specific tax revenue expansions nor precisely which factors accounted for the size of the revenue increase.

What I am saying today is that in general, it had to be from the demand side, because in 1½ years, you could not possibly have increased the supply capability of the economy enough to account for those revenue increases. It was a surge in demand that generated increased buying that in turn generated an increased production response, more jobs, more income, more profits, and as a result, a fuller use, in other words, of existing supply capabilities.

You had a much higher flow of income, and that income flow generated tax increases. That was part and parcel of our thinking at the time, that we thought we would be able to balance the budget through that increase in revenues from increased demand, and as a result, increased GNP, even if it did not all come from the tax cut.

That indeed did happen. By the middle of 1965 we were running a $3 billion surplus in the budget on a cash basis, in terms of the calculations made at that time.

Then, of course, the bulge in expenditures for the Vietnam war knocked the whole thing off.

Senator ROTH. As a layman, I must confess it is somewhat difficult for me to reconcile the two statements. But in any event, even though we disagree in some particulars, I am glad that we agree that a substantial tax cut is needed; at least some time this year.

One of the interesting things is to hear people talk about additional incentives for increased investment, because the minute that is done, usually many people in the Congress, and some economists say, you are trying to help the rich.

For example, the Tax Subcommittee right now was considering whether or not we should change the capital gains treatment. The President, a couple of days ago argued that this is just to help the millionaires.

That is one of the problems you have, frankly, in trying to be constructive and discuss these things on a rational basis. It is easy to talk about taxes on the basis of three-martini lunches, and you are helping the millionaires. But that is really not getting to the main thrust.

I am not here to claim my particular bill is necessarily the best, and it cannot be improved upon; but it is a start. I regret that our fourth man has left, because there is one message that comes clear to me—it certainly came clear in California, but it came even clearer to me both on my recent stay in Delaware, and in my last effort for reelection a couple of years ago—that the working people of this country are very unhappy with our taxes, and this is not likely to go away.

If there is one difference, one significant difference between now and the sixties, Mr. Heller, it is that working Americans—and I don't happen to buy the school of thought that anyone who makes more than $17,000 is rich, as some liberals do—if you made $12,000 years ago, you now have to make $20,000 to have the equivalent purchasing power, and that puts you into a higher tax bracket.

Working Americans, it is interesting to hear how well people are living. We have one man quitting Congress because he cannot afford to send his children to college.

What I am saying to you is, we better start helping the people who earn $30,000 per year. There is nothing wrong with helping a man who makes $30,000 a year, because they are on a downward movement.

I think that is a fact we better listen to here in Congress. As far as I am concerned, I shall fight, and fight hard, to give working people a break. I think they are entitled to it. I think what we are trying to do from the supply side is to expand and increase our economy so that there is more to share, more to share with the poor, instead of being involved in some kind of income transfer.

I want to say that I enjoyed being here. I am sorry we did not know about this sooner, because I am confident we could have arranged for Mr. Laffer to be here.

Senator PROXMIRE. I want to thank you very, very much. This has been a marvellous panel.

The committee will recess until 10 o'clock tomorrow.

[Whereupon, at 1 p.m., the committee recessed, to reconvene at 10 a.m., Thursday, June 29, 1978.]

THE 1978 MIDYEAR REVIEW OF THE ECONOMY

THURSDAY, JUNE 29, 1978

MONETARY POLICY

CONGRESS OF THE UNITED STATES,
JOINT ECONOMIC COMMITTEE,
Washington, D.C.

The committee met, pursuant to recess, at 10:05 a.m., in room 1202, Dirksen Senate Office Building, Hon. Richard Bolling (chairman of the committee) presiding.

Present: Representatives Bolling, Reuss, and Heckler; and Senators Javits and Roth.

Also present: John R. Stark, executive director; Louis C. Krauthoff II, assistant director; Lloyd C. Atkinson, Thomas F. Dernburg, Kent H. Hughes, L. Douglas Lee, Deborah Norelli Matz, and M. Catherine Miller, professional staff members; Mark Borchelt, administrative assistant; and Charles H. Bradford, Stephen J. Entin, and Mark R. Policinski, minority professional staff members.

OPENING STATEMENT OF REPRESENTATIVE BOLLING, CHAIRMAN

Representative BOLLING. The committee will be in order. There will be other members coming along.

This morning it is a pleasure to welcome the distinguished Chairman of the Federal Reserve Board, the Honorable G. William Miller, to his first appearance as a witness before this committee.

You may recall that Chairman Miller was scheduled to join us previously, but we just ran into a problem of timing. It is something I guess which is one of the chronic problems of monetary policy also.

Worries about the economy seem to be growing daily, although we have had a good expansion. There is increasing fear that a slowdown, and perhaps even a recession, are likely next year. Productivity has been lagging, as has been capital spending that would raise productivity. And partly because of productivity, inflation appears to be accelerating, despite the evidence that the economy is overheating.

I'm sure you will explain to us the point of monetary fiscal tightening at this time, when considerable slack continues to exist in the economy.

Yesterday a witness warned us that another slowdown might set back the productivity, and make it more rather than less difficult to control inflation in the future.

I expect the main thing that concerns many of us is that many economists are pointing to the very recent rapid increase in Federal funding and interest rates as an indication of the Federal Reserve once again concluding that it is the only anti-inflation game in town, and that another costly and protracted recession is therefore becoming all but unavoidable.

Few of us, at least those of us who have been around very long, have been impressed by promises of a soft landing, having heard similar assurances a number of times before.

In 1969, we had a game plan; and in 1973, it was said we would have to endure no more than a growth recession. The soft landing is always eluding us, and at a very, very real cost.

I am sure you will address that problem.

We are very glad to welcome you to the Joint Economic Committee. You may proceed as you wish.

STATEMENT OF HON. G. WILLIAM MILLER, CHAIRMAN, BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

Mr. MILLER. Thank you very much.

I do appreciate the opportunity to be here for this first appearance. I apologize that the timing was off earlier, when I was just coming into office.

I hope in the future to be available to consult with you on a regular basis. I look forward to that. It is very helpful for us to try to explain to you and other Members of the Congress how the policies of the Federal Reserve relate to the economic growth and prosperity of our Nation, and how they correlate with other economic policies.

I might just comment, Mr. Chairman, on the point you just raised, and then, perhaps, refer to my prepared statement briefly, and then we can turn to questions.

I certainly share with you the concern that it is important in these difficult times to make a judgment of how to continue the expansion of the economy without accelerating the forces of inflation on the one hand, or, on the other hand, triggering a recession—which would not do very much to reduce inflation.

I think we will be walking through a very narrow valley during the next few months in making our judgments of how to interrelate economic policies so as to continue a moderate growth rate, without a recession and without building inflationary forces.

It is going to be a very important period for us.

It will take tremendous skill to steer us through this passage, and I only hope that, using what we have all learned in the past, we will be able to be more successful this time in, as you put it, making a "soft landing"—or at least be able to steer through this passage without abrupt moves toward either greater inflation or a recession.

Mr. Chairman, I would ask your permission to have my prepared statement submitted for the record, and then maybe I will just hit some of the highlights in it.

Representative BOLLING. The whole prepared statement will be included in the record.

Mr. MILLER. This committee is well aware of the economic background over the first half of this year. The first quarter of the year

was slow because of the severe winter and the coal strike; and the second quarter has shown a very strong pattern.

So, overall, real annual growth in GNP in the first half of the year has been around 4 percent, which is satisfactory in the fourth year of any expansion.

Strength in aggregate demand has allowed us to continue to expand job opportunities.

It is rather encouraging that more than 2 million nonfarm jobs were created over the last 6 months, which lowered the unemployment rate by more than one-half of a percentage point to just over 6 percent of the labor force. The jobless rate for heads of households fell one-half percentage point to 3.7 percent. The proportion of the working age population with jobs has moved up to 58.6 percent, a new record high. Therefore, the outlook is encouraging. The sustained strength of demand for workers suggests that businessmen remain optimistic, and are prepared to increase production and other activities further.

Growth, however, has recently slowed, as we would expect after the unusual pace of the spring. And yet we still see substantial levels of consumer spending, and of business outlays for inventories and fixed investments. So the outlook is one of continued moderate growth.

But, during the first half of the year—and looking over the horizon—the price situation has worsened, so we do have a serious concern about inflation.

The major factor in the acceleration of the inflation rate in the first half of the year has been the effect on food prices, particularly the increase in meat prices.

In any case, even if we exclude food and energy, retail prices have risen at an annual rate of over 8 percent this year, which is up from the 6.5 percent rate of increase in 1977 and, of course, is a matter of considerable concern. Monetary policy has responded to this situation.

The faster pace of price increases in recent months along with the sizable expansion of economic activity has been reflected clearly in financial market developments. Demands for both money and credit have exhibited appreciable strength. The Federal Reserve, for its part, has moved carefully in the direction of greater restraint in order to insure that excessive money and credit supplies do not add to powerful inflationary forces evident in our economy.

The firming of monetary policy was undertaken also in response to the clear tendency for monetary expansion to exceed the growth ranges that had been established. Transaction demands for cash balances have been especially sizable and the narrow money stock, M–1, has grown at an annual rate of nearly 8 percent thus far this year, somewhat faster than the upper end of the longrun range the Federal Reserve has set.

In the face of these conditions interest rates have risen significantly further. Most short-term rates have risen by three-quarters to 1 percentage point since the beginning of the year and long-term bond yields have followed much the same pattern. The rise of market interest rates has been accompanied by slower growth of savings and small-denomination time accounts at banks and thrift institutions. As a result, growth rates of broader monetary aggregates, M–2 and M–3, have remained within the Federal Reserve's longrun ranges.

A good deal of the rise in interest rates this year can be attributed to the acceleration of inflation. For lenders, rising prices of goods and services result in an erosion in the purchasing power of loan principal. Consequently, when greater inflation is expected, a rise in nominal interest rates is necessary to offset such losses and maintain the incentive to extend credit. For borrowers, higher interest rates are less of an obstacle to incurring debt under conditions of accelerating inflation. Greater cost savings can be enjoyed by buying now rather than later, while tangible assets purchased appreciate more rapidly in value. Borrowers, moreover, can expect to support greater debt service burdens via faster nominal earnings growth due to accelerated rises in prices, wages, and salaries.

The importance of such an anticipatory process is being demonstrated very clearly right now in the mortgage market. Evidently mortgage borrowers, while expecting their nominal incomes to continue to rise significantly, believe prices of homes will also escalate rapidly. Despite stiffer lending terms and higher interest rates on mortgages, home sales have continued high, and the demand for mortgage credit has remained strong.

The Federal regulatory agencies have taken action recently to improve the competitiveness of deposits subject to regulatory ceilings by authorizing two new savings instruments—variable ceiling, 6-month certificates with interest rates tied to the discount yield on newly issued Treasury bills, and 8-year certificates carrying ceiling rates of 7¾ and 8 percent for banks and thrifts, respectively. It is still too early to quantify the results, but early reports indicate considerable activity.

In the meantime, consumer borrowing and mortgage credit have run quite high. There has been a record increase in consumer installment debt, which could be a cause for caution. Thus far, however, households generally appear to be handling their increased indebtedness well.

Business demands for credit have expanded sharply of late, owing partly to the growth of capital spending and the pronounced upturn in inventories. So we can expect continued demand for credit in the business sector. Government borrowing at all levels has also remained high. Overall, then, the credit situation has been one of increasing demand.

The recent acceleration of inflation has serious implications for continued growth. This, I think, is the most serious problem we face.

The administration's decision to request a delay in, and reduction of the size of, the proposed tax cut, as well as to hold down Federal spending, and to try to develop voluntary price and wage restraint are encouraging.

These recent steps do not constitute, by themselves, an adequate long-term attack on the inflationary practices and policies which have given the economy its inflationary bias. Inflation is now the Nation's most serious economic problem. Because high rates of inflation erode economic values and raise uncertainties about the future, they continuously undermine the incentives for saving and investment. Without adequate investment in new, more efficient technology, growth of productivity tends to slow, lending further momentum to cost-based inflationary pressures. It is for this reason—because deep-seated in-

flation retards longrun growth and is a clear threat to sustained high employment—that inflation must be characterized as our highest priority economic problem.

As this committee has been in recent weeks in its first series of hearings on economic change, a major impetus to inflation lies in problems on the supply side of the Nation's economy. We have had: An inadequate growth of the capital stock; inadequate training, experience, and mobility among many of the unemployed; inadequate price competition in some product and labor markets; and counterproductive, and frequently inefficient, Government regulation of private enterprise.

Individually these supply side issues have been obvious for many years, but during the past 3 or 4 years there has been to be a general recognition that they must be addressed collectively and aggressively if we hope to achieve our national economic objectives. Reorientation of the Nation's economic policy to emphasize supply management will take time and careful consideration of many alternatives. However, some aspects of the necessary reorientation already command general agreement. Perhaps the key element is to give renewed primacy to technological advance and productivity growth. Surely, the sorry productivity performance over the last decade has been a significant factor in the sustained inflation of the 1970's and it clearly has played a role in weakening our international competitiveness.

Improving productivity growth involves working on three key elements: Labor, energy, and capital. Potential labor contributions to the restoration of faster productivity growth are many and varied. The Government has a role to play in enhancing labor productivity. It should focus its various labor market and welfare programs on skill training to the maximum practicable extent, and should carefully reexamine the cost and price implications of various labor market regulatory programs, and minimum wage policies.

The energy problem has two main elements: A need for research to find new sources of energy, and a need for appropriate incentives to encourage use of existing energy-efficient technologies. In this area, agreement on a national energy policy is long overdue, and the conference committee should intensify its efforts to reach a compromise on the administration's proposals.

The capital problem is even more complex. In recent years, the stock of capital actually has declined relative to the labor force. I call your attention to the bottom panel in chart 6 of my prepared statement. I think that it is a very revealing chart in that it shows the trend from 1948 to 1973 in the growth of capital stock relative to the labor force and compares this to actual performance. You will note that the ratio tapers off in recent years.

Capital accumulation is the chief engine of long-range growth of labor productivity and rising living standards. Yet, for an extended period, the Nation's tax policies have not provided adequate incentives to invest in new capital. In particular, depreciation guidelines do not approach actual replacement costs in periods of rapid inflation. I believe a near term, partial answer is to introduce a more liberal variant of accelerated depreciation. Oven time, careful reconsideration of all taxes on business is essential.

Because we have been neglecting capital accumulation and because the existing capital stock must also be adjusted to accommodate the

reality of more expensive energy, a larger share of GNP must be devoted to capital investment. It will not be enough simply to reach the 10.5 to 11 percent range that has been characteristic of past periods of prosperity and low unemployment. The Nation should set an ambitious objective for capital investment of, say, 12 percent of GNP for an extended period to enable us to make up for past deficiencies and to narrow the gap between our performance and that of other strong industrialized countries.

Fundamental to achieving this aim is an expansion in the savings available for investment from outside the business sector. To this end, Government must have a smaller role in the economy and budget deficits need to be eliminated over time, taking into account the ups and downs in the economy. The private sector can take up the slack if, over 5 or 7 years, the Federal Government curtails the growth of its expenditures until their ratio to GNP, which is now above 22 percent, is reduced to the 20 percent range. This interim goal for Federal expenditures clearly is attainable with a good measure of fiscal discipline coupled with reduced public demands for Government services.

As spending is brought under control, government will move from its position as a substantial net borrower of funds in credit markets. Such a change would moderate demand pressures on credit markets as well as relieve some of the pressures on prices that arise from passing on high and rising taxes. Resources will be more readily available to meet needs in the private sector. Easier credit market conditions, less inflation, and greater availability of resources should help insure adequate residential construction activity to meet the Nation's housing needs—needs that are now prey to a boom and bust syndrome that profits no one.

Another essential element of a long-term strategy aimed at a high-growth, low-inflation economy is extensive reform of Federal regulatory activities. This subject has been discussed extensively, and I will not add to that discussion.

Another important element that requires immediate attention, and which should be an important part of a long-term strategy for the U.S. economy, is a reduction of our foreign trade deficit. A sound national energy policy that reduces our dependence on oil imports is certainly one ingredient. In addition, we must raise the consciousness of businessmen to the sales potential and profits that export markets can provide. The Government can help by continuing with other governments to resist protectionist pressures, and by simplifying, and where possible eliminating, those regulations that hinder our export trade. In my view, our ultimate objective should be to expand the share of exports in our national product to 10 percent or so, in line with the secular rise in the share of imports.

I am convinced that the policy reorientation outlined above, by directly attacking inflation-causing conditions at their root, should lessen the burden on monetary policy and result in a better balance between fiscal and monetary policy, and thereby improve the prospects for lower interest rates. An economic program of this type would start the Nation on the road to becoming a model economy—an economy with a sound dollar, price stability, and sustained full employment.

Our Nation has met bigger challenges, and, with a sense of commitment on the part of policymakers and citizens, I am confident that we will meet this challenge as well. That concludes my oral testimony, Mr. Chairman.

[The prepared statement of Mr. Miller follows:]

PREPARED STATEMENT OF HON. G. WILLIAM MILLER

Mr. Chairman, I appreciate this opportunity to participate on behalf of the Federal Reserve Board in the Joint Economic Committee's mid-year review of the economy. These sessions provide an excellent opportunity to assess economic conditions and policies.

ECONOMIC ACTIVITY EXHIBITS HEALTHY GROWTH

The economy has continued to expand at a satisfactory though uneven rate over the first half of this year. Industrial production, construction, and retail sales were temporarily depressed early in the year by unusually severe weather and the long coal strike, as shown in Chart 1. But these were transitory effects—and business activity recovered vigorously in the spring. For the first six months of the year, real annual growth in the gross national product appears likely to average around 4 percent—close to the pace during the latter half of 1977. Thus, despite the considerable volatility in key areas of the economy, the underlying momentum of the expansion appears to have been well maintained.

The strength of aggregate demand has stimulated a substantial further improvement in the job market. As is indicated in the bottom panels of the Chart, employment gains have been exceptionally strong. More than 2 million nonfarm jobs were created over the last six months, which lowered the unemployment rate by more than one-half of a percentage point to just over 6 percent of the labor force. The jobless rate for heads of households fell one-half percentage point to 3.7 percent. The proportion of the working-age population with jobs has moved up to 58.6 percent, a new record high. The sustained strength of demand for workers suggests that businessmen remain optimistic, and are prepared to increase production and other activities further.

AND GROWTH PROSPECTS REMAIN FAVORABLE

Growth of economic activity recently has slowed, as was expected, from the unusually rapid pace of the spring. A moderate rate of economic growth appears to be a reasonable prospect for the balance of the year. Both consumer outlays and business spending should provide support for further expansion of activity. Consumers' demand for new cars has been particularly strong, and the current rate of sales is the highest in this expansion. The advanced sales pace may, in part, represent purchasing in anticipation of further price rises. But surveys indicate that consumer confidence remains generally high, although there has been some recent moderation, and if growth of income is sustained, the prospects for further gains in consumer spending appear good.

Business outlays for both inventories and fixed capital goods have contributed significantly to the recent pace of activity. A larger rate of inventory accumulation was to be expected, in light of the burst of final sales late last year, and the damping effect of adverse weather on production during the winter. Inventories in most sectors appear quite low relative to sales, and continued growth of inventory investment—albeit at a more moderate rate—should be evident over the next few quarters. Business investment in plant and equipment, after lagging early in the economic upswing, has increased at a reasonably good pace over the past two years. While recent surveys have shown little propensity for business to scale up capital spending plans, these and other indicators of prospective capital outlays suggest further moderate growth in the year ahead.

Our foreign trade position should also lend moderate support to the economic expansion. Some pick-up in growth abroad and our improved competitive position should help to boost exports. However, U.S. demand for imports—both oil and other products—is likely to remain quite high.

Among other sectors of demand, State and local governments have maintained conservative spending policies for some time, and it is likely that the reverbera-

tions of the passage of Proposition 13 in California may be evident in an even more cautious pattern of outlays in the period ahead.

Residential construction activity is expected to begin to taper off later this year in response to tighter mortgage market conditions. However, housing starts were still above a 2 million annual rate in May, virtually assuring brisk construction activity over the next few months.

BUT THE PRICE SITUATION HAS WORSENED

Thus in most respects the immediate outlook appears generally favorable. But in one critical regard the economic situation has deteriorated. The recent intensification of inflation, illustrated in Chart 2, raises profound questions in regard to the longer run. As can be seen in the Chart, the rate of price increase has accelerated sharply both at the consumer and producer level. A major factor was the effect on food prices of a decline in meat production. But other prices rose at an accelerated rate as well. Excluding food and energy, retail prices have risen at an annual rate of over 8 percent so far this year, up from a 6½ percent rate of increase in 1977. Actions of the Government have also played a significant role in the recent worsening of inflation. Service prices have risen strongly, influenced importantly by the rise in the minimum wage on January 1. Moreover, increases in social security and unemployment insurance taxes have added to labor costs on a broad scale, while costly regulatory actions continue to put upward pressures on costs.

There is some hope that the exceptional rate of increase in food prices will moderate as the year progresses, but there is much less likelihood of any easing of underlying inflationary forces. The recent acceleration in consumer prices will add to the pressure for substantial wage boosts, and resulting higher labor costs will largely be transmitted through to prices.

MONETARY POLICY HAS RESPONDED TO EMERGING DEVELOPMENTS

The faster pace of price increases in recent months along with the sizable expansion of economic activity has been reflected clearly in financial market developments. Demands for both money and credit have exhibited appreciable strength. The Federal Reserve, for its part, has moved carefully in the direction of greater restraint in order to ensure that excessive money and credit supplies do not add to powerful inflationary forces evident in our economy.

The firming of monetary policy was undertaken also in response to the clear tendency for monetary expansion to exceed the growth ranges that had been established. Transaction demands for cash balances have been especially sizable and the narrow money stock (M–1) has grown at an annual rate of nearly 8 percent thus far this year, somewhat faster than the upper end of the long-run range the Federal Reserve has set.

In the presence of strong credit demands, the worsening of inflation, and the Federal Reserve's efforts to contain excessive monetary expansion, market interest rates have risen significantly further. Most short-term rates have risen by three-quarters to one percentage point since the beginning of the year and long-term bond yields have followed much the same pattern, as illustrated in Chart 3. The rise of market interest rates has been accompanied by slower growth of savings and small-denomination time accounts at banks and thrift institutions. As a result, growth rates of broader monetary aggregates—M–2 and M–3—have remained within the Federal Reserve's long-run ranges.

A good deal of the rise in interest rates this year can be attributed to the acceleration of inflation. For lenders, rising prices of goods and services result in an erosion in the purchasing power of loan principal. Consequently, when greater inflation is expected, a rise in nominal interest rates is necessary to offset such losses and maintain the incentive to extend credit. For borrowers, higher interest rates are less of an obstacle to incurring debt under conditions of accelerating inflation. Greater cost savings can be enjoyed by buying now rather than later, while tangible assets purchased appreciate more rapidly in value. Borrowers, moreover, can expect to support greater debt service burdens via faster nominal earnings growth due to accelerated rises in prices, wages and salaries.

The importance of such an anticipatory process is being demonstrated very clearly right now in the mortgage market. Evidently mortgage borrowers, while

expecting their nominal incomes to continue to rise significantly, believe prices of homes also will escalate rapidly. Despite stiffer lending terms and higher interest rates on mortgages, home sales have continued high, and the demand for mortgage credit has remained very strong. Faced with reduced deposit inflows, thrift institutions have drawn down their liquidity and sharply increased their borrowing in order to accommodate these credit demands.

The Federal regulatory agencies have taken action recently to improve the competitiveness of deposits subject to regulatory ceilings by authorizing two new savings instruments—variable-ceiling, six-month certificates with interest rates tied to the discount yield on newly issued Treasury bills, and eight-year certificates carrying ceiling rates of 7¾ and 8 percent for banks and thrifts, respectively. It is still too early to quantify the contribution of the new accounts, but early reports indicate considerable promotional activity on the part of depositary institutions and interest on the part of savers.

CONSUMER AND BUSINESS CREDIT DEMANDS STRONG

Consumer borrowing through mortgage credit has been a principal influence in the sustained high level of total credit demands. Consumers have also taken on record amounts of new installment debt to finance purchases of durable goods, especially cars (Chart 4). The rapid rise of household borrowing is a matter of concern. High debt is apt to constrain spending later on, and always carries the risk of financial difficulties for those who have borrowed heavily. Thus far, however, households generally appear to be handling their increased indebtedness well. While the ratio of consumer and mortgage loan repayments to disposable income is very high by historical standards delinquency rates have only recently edged upward and they remain well below recession peaks.

Business demands for credit have expanded sharply of late, owing partly to the growth of capital spending and pronounced upturn in inventories (Chart 5). In addition, internal cash flows slowed early in the year as bad weather cut into sales and costs were pushed up by hikes in Government payroll taxes and in the minimum wage. Bank business loans rose at about a 20 percent annual rate over the first five months, with the largest rises in March, April and May. With credit demands strong banks have borrowed heavily in money markets, through the issuance of large certificates of deposit and nondeposit liabilities.

TOTAL GOVERNMENT BORROWING LARGE AS WELL

Government credit demands also have been large, as State and local units recently issued a particularly heavy volume of advance refunding obligations to take advantage of invested sinking fund provisions prior to a mid-May IRS ruling restricting securities with such provisions. Furthermore, Federal agencies have borrowed more to finance support activities in mortgage markets. Treasury borrowing—following heavy demands early this year—has moderated in recent months with the seasonal inflow of tax receipts.

INFLATION POSES THREAT TO THE ECONOMY

The recent acceleration of inflation has serious implications for continued economic growth. Unless inflation is brought under control, business and consumer confidence will be undermined, distortions and imbalances in the economy will develop, and ultimately recession will be the result. In this regard, the Administration's decision to request a delay in—and reduction of the size of—the proposed tax cut, as well as to hold down Federal spending, and to try to develop voluntary price and wage restraint are encouraging.

These recent steps do not constitute, by themselves, an adequate long-term attack on the inflationary practices and policies which have given the economy its inflationary bias. Inflation is now the Nation's most serious economic problem. Because high rates of inflation erode economic values and raise uncertainties about the future, they continuously undermine the incentives for saving and investment. Without adequate investment in new, more efficient technology, growth of productivity tends to slow—lending further momentum to cost-based inflationary pressures. It is for this reason—because deep-seated inflation retards long-run growth and is a clear threat to sustained high employment—that inflation must be characterized as our highest priority economic problem.

NEED TO FOCUS ON MANAGEMENT OF SUPPLY

As this Committee has heard in recent weeks in its first series of hearings on economic change, a major impetus to inflation lies in problems on the supply side of the Nation's economy. Among these problems are:

Inadequate growth of the capital stock;

Inadequate training, experience, and mobility among many of the unemployed;

Inadequate price competition in some product and labor markets; and

Counter-productive, and frequently inefficient, Government regulation of private enterprise.

Individually these supply-side issues have been obvious for many years, but during the past three or four years there has begun to be a general recognition that they must be addressed collectively and aggressively if we hope to achieve our national economic objectives. Reorientation of the Nation's economic policy to emphasize supply management will take time and careful ocnsideration of many alternatives. However, some aspects of the necessary reorientation already command general agreement. Perhaps the key element is to give renewed primacy to technological advance and productivity growth. Surely, the sorry productivity performance over the last decade has been a significant factor in the sustained inflation of the 1970's, and it clearly has played a role in weakening our international competitiveness.

LARGER GAINS IN PRODUCTIVITY NEEDED

Improving productivity growth involves working on three key elements: labor, energy, and capital. Potential labor contributions to the restoration of faster productivity growth are many and varied. The Government has a role to play in enhancing labor productivity: it should focus its various labor market and welfare programs on skill training to the maximum practicable extent, and should carefully reexamine the cost and price implications of various labor market regulatory programs, and minimum wage policies.

The energy problem has two main elements: a need for research to find new sources of energy, and a need for appropriate incentives to encourage use of existing energy-efficient technologies. In this area, agreement on a national energy policy is long overdue, and the Conference Committee should intensify its efforts to reach a compromise on the Administration's proposals.

The capital problem is even more complex. In recent years, the stock of capital actually has declined relative to the labor force, (depicted in Chart 6), and this is undoubterly one important factor in the slower growth of productivity.

CAPITAL STOCK NOW INADEQUATE

Capital accumulation is the chief engine of long-range growth of labor productivity and rising living standards. Yet, for an extended period, the Nation's tax policies have not provided aequate incentives to invest in new capital. In particular, depreciation guidelines do not approach actual replacement costs in periods of rapid inflation. I believe a near-term, partial answer is to introduce a more liberal variant of accelerated depreciation. Over time, careful reconsideration of all taxes on business is essential.

Because we have been neglecting capital accumulation and because the existing capital stock must also be adjusted to accommodate the reality of more expensive energy, a larger share of GNP must be devoted to capital investment. It will not be enough simply to reach the 10½ to 11 percent range that has been characteristic of past periods of prosperity and low unemployment. The Nation should set an ambitous objective for capital investment of, say, 12 percent of GNP for an extended period to enable us to make up for past deficiencies and to narrow the gap between our performance and that of other strong industrialized countries.

RESOURCES MUST BE FREED FOR PRIVATE SECTOR USE

Fundamental to achieving this aim is an expansion in the savings available for investment from outside the business sector. To this end, Government must have a smaller role in the economy and budget deficits need to be eliminated over time, taking into account the ups and downs in the economy. The private sector can take up the slack if, over five or seven years, the Federal Government curtails the growth of its expenditures until their ratio to GNP, which is now above 22 per-

cent, is reduced to the 20 percent range. This interim goal for Federal expenditures clearly is attainable with a good measure of fiscal discipline coupled with reduced public demands for government services.

As spending is brought under control, government will move from its position as a substantial net borrower of funds in credit markets. Such a change would moderate demand pressures on credit markets as well as relieve some of the pressures on prices that arise from passing on high and rising taxes. Resources will be more readily available to meet needs in the private sector. Easier credit market conditions, less inflation, and greater availability of resources should help ensure adequate residential construction activity to meet the Nation's housing needs—needs that are now prey to a boom and bust syndrome that profits no one.

STRUCTURAL REFORMS REQUIRED AS WELL

Another essential element of a long-term strategy aimed at a high-growth, low-inflation economy is extensive reform of Federal regulatory activities. A critical look at price-regulating Government programs should be undertaken; a painstaking examination of all existing and proposed regulatory activities in the environmental and health and safety areas is also necessary. In this connection, the President's recent executive order to improve the regulatory process is encouraging. The Federal Reserve is a participant in this process and has initiated an over-all review of its own regulations.

Another important element that requires immediate attention, and which should be an important part of a long-term strategy for the U.S. economy, is a reduction of our foreign trade deficit. A sound national energy policy that reduces our dependence on oil imports is certainly one ingredient. In addition, we must raise the consciousness of businessmen to the sales potential and profits that export markets can provide. The Government can help by continuing with other governments to resist protectionist pressures, and by simplifying, and where possible eliminating, those regulations that hinder our export trade. In my view, our ultimate objective should be to expand the share of exports in our national product to 10 per cent or so, in line with the secular rise in the share of imports.

I am convinced that the policy reorientation outlined above, by directly attacking inflation-causing conditions at their root, should lessen the burden on monetary policy and result in a better balance between fiscal and monetary policy, and thereby improve the prospects for lower interest rates. An economic program of this type would start the Nation on the road to becoming a model economy—an economy with a sound dollar, price stability, and sustained full employment. Our Nation has met bigger challenges, and, with a sense of commitment on the part of policymakers and citizens, I am confident that we will meet this challenge as well.

Chart 1

CURRENT ECONOMIC INDICATORS

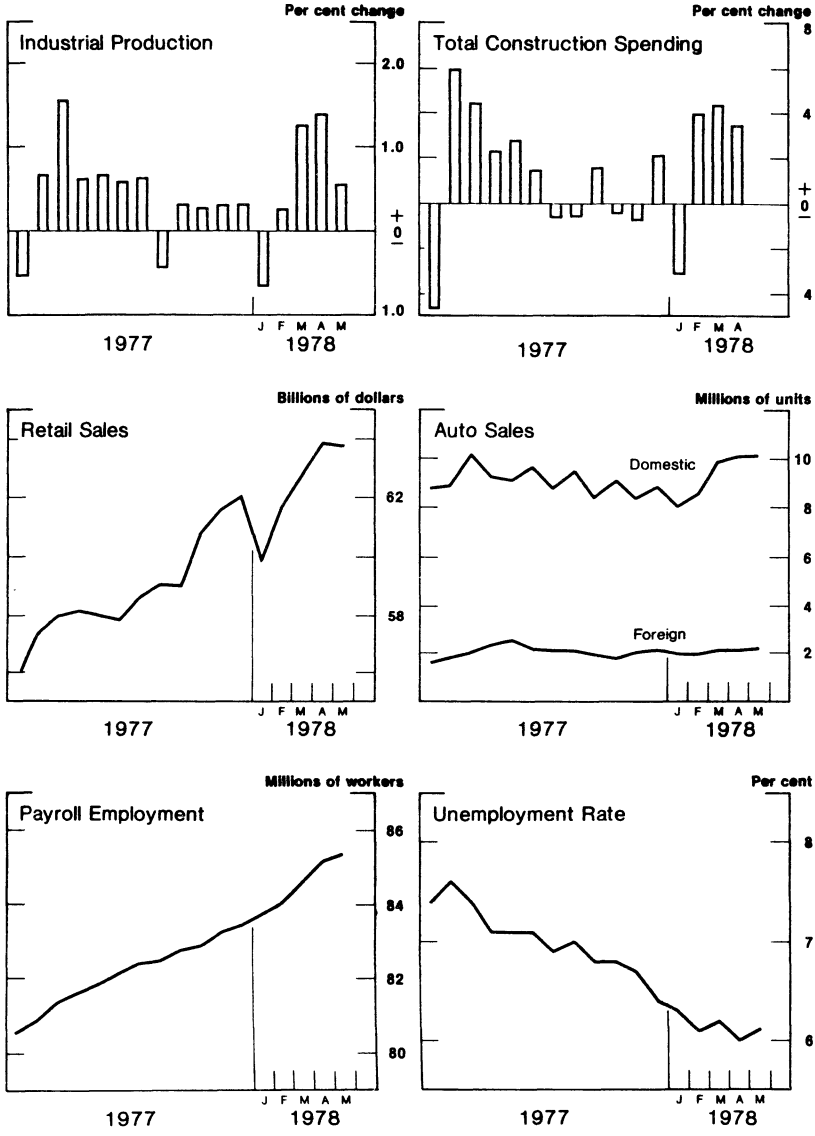


Chart 2

MEASURES OF AGGREGATE INFLATION

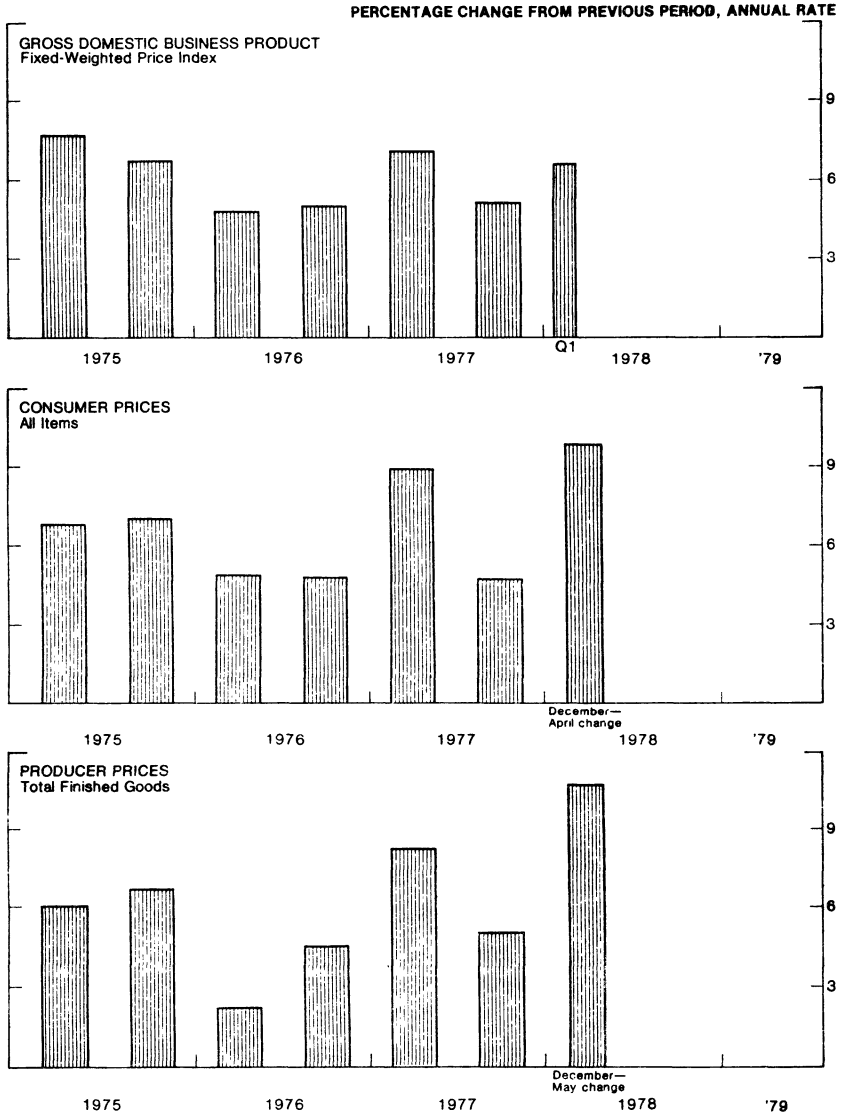
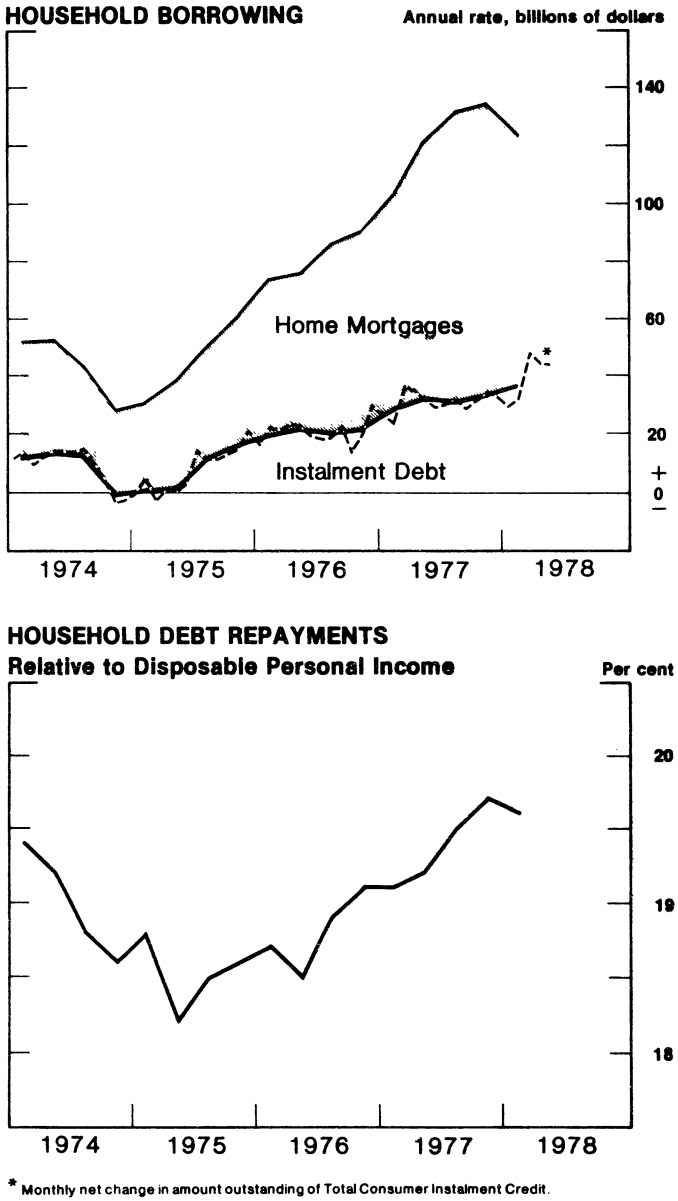


Chart 3

Chart 4



* Monthly net change in amount outstanding of Total Consumer Instalment Credit.

Chart 5

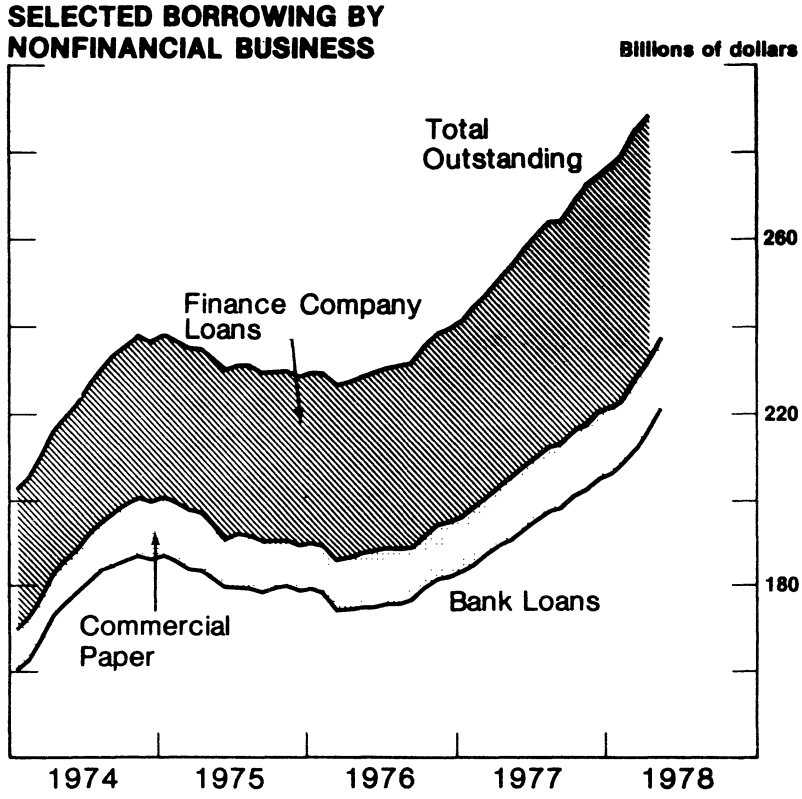
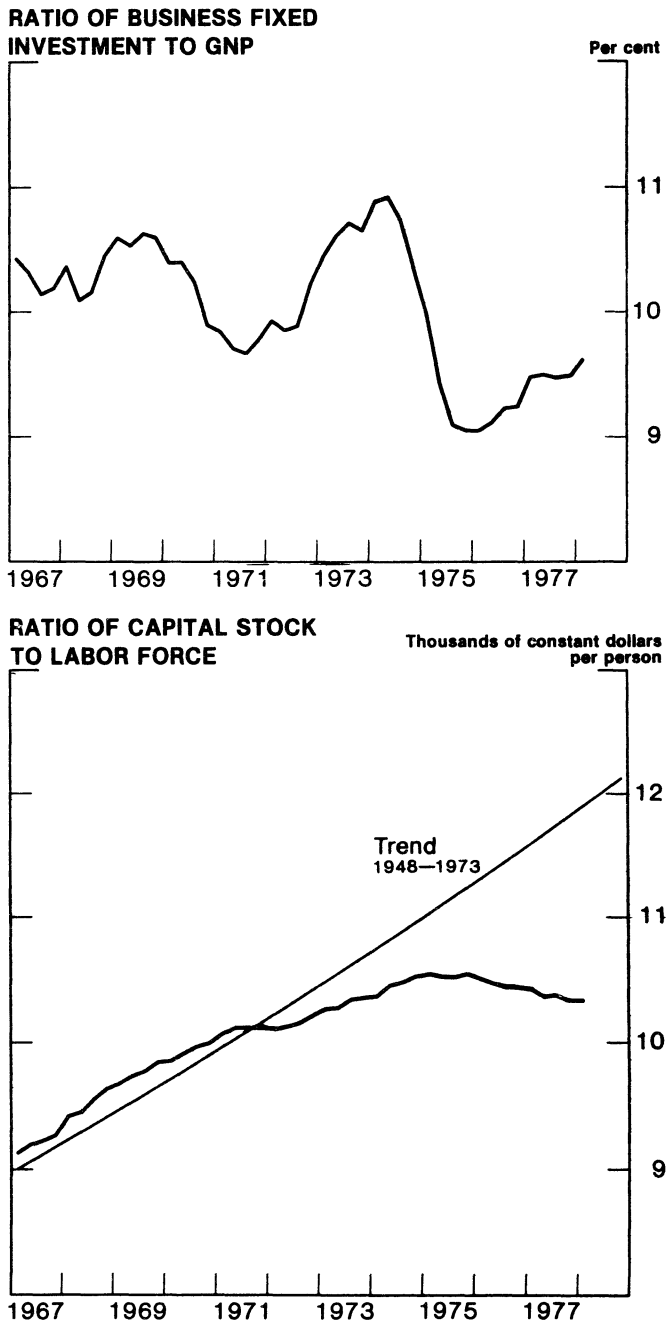


Chart 6



Representative BOLLING. Thank you, Mr. Miller. The first question I will ask is somewhat long and difficult. It is only because I feel very strongly that we must devise better techniques for the longrun coordination of all of the elements of government, the Federal, the Executive, and the Congress, that I burden you with this kind of a question.

As you undoubtedly know, this committee has long been concerned about the coordination between fiscal and monetary policies. In our annual report, page 47, we recommended as follows:

> The Federal Reserve should issue a written report to the Congress shortly after the receipt of the Economic Report of the President. * * * The Federal Reserve's report would be expected to meet three basic requirements: One, it would analyze the desirability, consistency, and feasibility of the quantitative goals for employment growth, and inflation for the forthcoming fiscal year as set forth by the President; two, it would provide the Federal Reserve's own quantitative forecast of economic activity for the forthcoming year on a quarterly basis; three, it would discuss in quantitative terms how the proposed monetary policies are designed to reconcile the President's targets and the Federal Reserve's own forecast.

We went on to organize that:

> This reform would eliminate many serious policies. It would provide this committee with the information it needs to perform its policy coordination role effectively. It would also insure that monetary and fiscal policies aim at the same goals rather than work at cross purposes * * *. Such biases as the one that has supported consumption but held back investment during the course of the current recovery would be eliminated.

One of the reasons that I have supported that approach, or at least, as a strong suggestion, and one of the reasons that I was glad that something like it was included in some of the drafts of the Humphrey-Hawkins proposal, has been my reading of history.

There is naturally an inevitable built-in conflict among all three different forces that affects the overall economy, the Executive, Federal Reserve, and the Congress.

But in reading what I guess is the authorized biography of Marriner Eccles, I notice that the key to the success, and I think it was a success, of monetary and fiscal policies during the period, of his holding of the position of the Chairman of the Federal Reserve, is that while he often disagreed in details, some of which were not trivial, that in one way or another, there was worked out on a very informal basis, but relatively systematically, some kind of an effective coordination.

People say that the Congress is more diverse; that power is more diffused; that there cannot be that kind of coordination.

I would like very much to have your comment on the problem, and not in relation to a specific situation now, and your suggestions, if you have any, on this question.

Mr. MILLER. Mr. Chairman, without addressing the details of your report, let me first say that I concur with the principle that you are setting forth. That principle is that there ought to be a better method of consultation and exchange of ideas—before the fact—so that there is at least a better opportunity for coordinating monetary, fiscal, and other policies to achieve national goals.

I believe we all agree on what the national goals are. The national economic goals—and these are not the only goals—are full employment, price stability, and a sound dollar.

Where we disagree occasionally is about how to achieve them and how they interrelate. I concur with your general proposition. And I'm rather pleased, personally, because in recent weeks we have been working with the Senate Banking Committee on language for the Humphrey-Hawkins bill which follows the lines of your report—not in detail, but it is consistent with it.

Let me describe to you what we have worked out. We would arrange for two written reports from the Federal Reserve to Congress each year—one before February 20, and one before July 20.

The first report would indicate the expected monetary policy guidelines over the calendar year and relate them to the President's Economic Report. This report would take into account the factors of production and prices, unemployment and employment—the whole series of economic specifics that allows for complete interchange of information. Our report would set forth the Federal Reserve's view of the economy, indicating the policies that we expect to follow and how they relate to the President's report.

Then there would be a second report in July which would update information and indicate the direction of Federal Reserve policy until the end of the calendar year and for the following year, to give Congress a perspective, and help it prepare for the next planning cycle.

I hope that is consistent with what you have in mind. I think it is. I believe it would be helpful.

Representative BOLLING. It is very responsive.

I have one comment on Humphrey-Hawkins. I gather that when it came out of the Senate Banking Committee on a sequential referral from at least one other committee, the Senate Budget Committee, it also came out with an amendment adopted which made the goal on inflation zero inflation by 1983.

That is certainly a desirable goal. I think it also may have an undesirable effect. I think it may kill the bill.

Mr. MILLER. Some people may think it is desirable and some may think it undesirable. I would just comment on that, if I may.

I think it is wise to have in the Humphrey-Hawkins bill the recognition that reducing inflation has to be a primary objective. We will not achieve full employment if we have high inflation rates, because high inflation rates tend to breed disinvestment, and disinvestment tends to breed unemployment, and unemployment tends to breed recession.

My personal preference, which probably will not be reflected in the bill, would be to leave to Congress a lot more flexibility in setting numerical targets—because the world changes.

I think Humphrey-Hawkins does a great service in setting objectives and measuring our policies against our ability to achieve those objectives. But I think we live in a changing world, and each and every Congress may want to look at the forces at work, over several years ahead, and adjust the targets up or down.

It may be that some periods will be ripe for zero inflation and 2 percent unemployment. Maybe other periods will be ripe for 2 percent inflation and 5 percent unemployment. I think there Congress should have some flexibility in setting numerical targets.

Representative BOLLING. I entirely agree with that. I am hopeful that you would think we might achieve informally good times with relatively full employment, zero inflation. I also look at the years when we got down to 1.2 or something like that, in remarkable good years.

Mr. MILLER. Mr. Chairman, many people say we will not achieve our national goals. I am not that pessimistic.

We look at the complexity of our problems, and we assume that they can never be solved. But if we look at our history, we will see that problems that looked like they could not be solved were solved. If we look back at our history, we will see that from 1961 through 1965 we had full employment, we had price stability, and we had a sound dollar. That is the record.

During that period, the inflation rate was less than 1 percent—zero, if your measurement accounts for the improvement in the quality of goods and services produced.

So we have experienced a period of 4 years with zero inflation for all practical purposes. I don't know that we can replicate that condition very often, but I don't want to foreclose recreating such a period.

Remember from 1961 to 1965 we had a doubling in the aggregate dollars going into investment. I think that is what we need to do again—to stimulate the investment side of our economy so that we do work on this productivity issue, we do bring our unit costs down, we do bring our units costs of the use of energy down—thereby producing the best chance for providing employment and at the same time combating inflation.

Representative BOLLING. I am delighted to have your view on that. I share that view precisely.

I think that those who say that it is impossible to achieve anything based on the record of past achievements in this country must be very wrong, clearly.

It is possible to do what is considered by many people very nearly impossible. I think our charge now clearly is to establish full employment, without inflation, for all practical purposes.

While it is true that no country has done it for a long period of time, that is no proof that this country is not able to do it for a long period of time.

I think if we get to the point where all policymakers more or less accept that approach, we have made a great stride, because the doomsayers often bring on part of the doom themselves.

But I do think it takes an enormous amount—and I know you share this view—of fresh analysis and fresh effort, because the economy is so different today than it was in 1961–65.

It is very difficult to say that the same things would have the same results. That is one of the reasons why I have been very much interested in the study that we have undertaken, the special study we have undertaken on economic change, because the nature of the American economy, and its relationship to the world, is almost incredibly different than they were just a few years ago for a variety of reasons, all of which are pretty obvious from the fact that we don't have, and probably will never have again, unless we have some miracle, we will probably never again have cheap food and cheap energy, except in very relative terms.

That, of course, had a great deal to do, in part, with our post-World War II period functioning as well as it did.

Now we have some narrow questions. I hope in the interim some of our absent members who planned to be here will arrive.

Mr. MILLER. I don't mind, because, so far I like our conversation.

Representative BOLLING. I don't know what will happen. I don't know if it will improve or deteriorate when others get here.

I have been fascinated by what is going on politically, and I am not asking you a political question.

But there is something curious going on politically. My own view would be that accelerated depreciations would be mose beneficial—accelerated depreciation would be the most effective way to encourage capital formation, that it is the way that would, let's say, please business more than any other way.

And yet we have a very curious problem, specific problem, in the Committee on the Ways and Means, with which you are familiar.

It is a dual problem. We are running into people that tell us that they will not vote for any tax decrease. They cannot relate the need to stem inflation and the need to increase demand by a tax decrease, or they say the only thing that they should do is to change the capital gains rate.

It would seem to me that a change in the capital gains rate would be somewhere down the line. I am not trying to get you to make a comment that would be embarrassing on any part of this, because one element is certainly conservative, and the other element is essentially with an opposite view.

But I think in most cases, they are misguided, and it is leading to a kind of deadlock which is enormously difficult.

There are two questions, in the abstract: No. 1, can you give me your order of preferences for changes in tax rates and so forth, in order to achieve a higher rate of capital formation?

And No. 2, and also related, do we still need a relatively modest cut in taxes, in the order of $15 to $20 billion?

Mr. MILLER. Mr. Chairman first let me speak about priorities.

I agree with your remarks. It seems to me that one of the things we now need is a longer range perspective of how to overcome inflation and achieve our other goals.

We operate on too short a time horizon. If we would look out 5 to 7 years and develop policies that would lead us toward a model economy at that time, we would have a better chance of placing in priority the things that need to be done and of realizing that there is a time for each and every one of them to be considered.

The first thing that is needed in the short run is to introduce fiscal discipline, to start on a course of action which, over the years, will bring us to a balanced budget with full employment.

I commented on efforts to curtail the amount of the tax cut; and deferring it is a very encouraging step in the right direction. Our pattern should be to bring the deficit below $50 billion in fiscal year 1979; below $40 billion in fiscal year 1980; below $20 billion in fiscal year 1981; and to a balanced budget in fiscal year 1982.

If we believe that that kind of gradual program is important, sensible, and realistic, then we must time our tax measures to be consistent with it.

My view is that a tax cut on the order of magnitude of $15 to $18 billion, starting January 1, would fit into that program well. There needs to be relief from the effect of inflation on real income, and from the effect of the progressive income tax, which drives inflated incomes into a higher tax bracket.

I personally would not want to suggest to Congress what it should do. But there should be some relief for individuals and some relief that would stimulate business investment.

I think business, generally, would prefer a tax proposal that reduces tax rates. I prefer, as you do, accelerated depreciation, because while a reduction of corporate taxes does relieve the burden on corporations, it does not affect how the money released will be used. It might be used for higher profits or dividends. If we go to accelerated depreciation on the other hand, we know the tax relief will be used in exchange for investment. I think that would head the economy in a strong direction; that would be my preference.

I would put any reform in the categories of capital formation, entrepreneurship, venture enterprises—reforms we need to build our technology—downstream in my priorities, considering them as we get on that course to a balanced budget. But I would put the first priority on a commitment to a discipline that will reduce the deficit.

Then we could consider some of the more interesting, but at this time I think premature, actions.

I hope that helps you.

Representative BOLLING. Thank you.

I have to absent myself. I apologize. I will ask Congressman Reuss to take over.

Mr. MILLER. Thank you very much. I enjoyed it.

Representative REUSS [presiding]. Thank you.

Mr. MILLER. Thank you. I have been before your committee more than any other.

Representative REUSS. Advancement is very rapid in the armed services.

Let me especially welcome you because our relationship, both professional and personally, has been most excellent since you arrived here.

I am thus sorry that a cloud—which I hope can be dispelled here and now—has come across that. I read your interesting prepared statement, and particularly what you reiterated, that "the budget deficit needs to be eliminated." Amen.

Some weeks ago you came to see me, which I appreciated, on a gem of an idea which you and your colleagues at the Fed had about an arrangement whereby, in effect, you would take up to a billion dollars of taxpayers' money each year, and instead of turning it over to the Treasury so it could help reduce that deficit, it would turn it over to the banks, largely the largest banks, because they are the ones that keep the greatest reserves.

I told you then that I thought it was a problem that very much needs consideration by the Congress, that we would cooperate fully, but that it was, under the Constitution, a matter for the Congress to legislate. We stand for election every 2 years, and the people tell us whether they want us back or not. And like it or not, that is the way the constitution sets things up.

You replied that someone in your legal office, some anonymous soul, had put out a piece of paper which suggested that the Fed had the right to legislate on this matter, not the Congress.

Senator Proxmire, who you were also kind enough to see, took a similar view, and a series of calls and letters ensued. In your letter to me of June 12 you said, "If your respective committees agreed with your interpretation, it would seem to me unlikely that the Board would go ahead and act in the absence of appropriate congressional approval."

That was a pleasant way of telling us that you did not quite take our word for it, that you wanted the word of the House Banking Committee.

So I have undertaken to find out what the House Banking Committee thinks of it. So far as I know unanimously, it believes that the matter of reserves and payments, is indeed a matter of congressional constitutional duty, and that it is not entrusted to members of the administration, or members of independent bodies, however, worthy.

Early this week, however, I received another letter from you containing a copy of a proposed, quite complex Federal Reserve proposal, along the lines I have generally described, having to do with reserve requirements, and payment of interest on reserves, and universal requirements, and charging of services of various sorts, et cetera, et cetera.

This piece of paper, which I have before me, quite clearly, as I read it, suggests that, despite what I have just said, the Federal Reserve seems to think that it is the duly elected Congress of this land.

I will read from the last paragraph of your enclosure to me:

> To aid in consideration of the Board's proposal, interested persons are invited to submit relevant data, views, or comments. Any such material should be addressed to the Secretary of the Federal Reserve Board, Washington, D.C. 20051, to be received within 90 days. All material should contain the docket number R–000.

I also read an article in last evening's Washington Star which said:

> Miller has said Fed lawyers assure him that the agency already has the power to make the payments out of the massive income it receives from its massive portfolio of securities. In his current letter to Reuss, Miller said he would be asking for legislation imposing uniform reserve requirements on all depository institutions. However, he was less clear about the interest payment issue. A Fed spokesman said the likely result of tomorrow's session——

That is the Board of Governors meeting this afternoon?

Mr. MILLER. Yes.

Representative REUSS [continues reading]:

> Would be a proposed regulation to be put out for public comment. We would certainly hope that Congressman Reuss would comment.

If I might, I would like to comment, in a friendly way, that the Federal Reserve can go jump in the lake. We are trying to be cooperative. We have before us an excellent bill put in by our fine ranking minority member, Congressman Stanton, cosponsored by 12, which attempts to address itself to the problem. I invite the Federal Reserve to bring us a bill. We cannot operate from a vague statement such as that which you apparently intend to act on this afternoon, and, of course, we will take prompt action on any important matter like this.

But I consider this as a totally unnecessary constitutional confrontation. If I may say so, it is not worthy of you.

I have commented. I invite your comment.

Mr. MILLER. This is the Joint Economic Committee hearing, Congressman Reuss, but I might say that I did not realize and I am not aware that there is a constitutional or any other kind of confrontation.

As you know, one of the problems that I have faced in my new role as chairman of the Federal Reserve has been the eroding membership in the Federal Reserve. We are slowly losing members which means that we are losing the amount of deposits subject to the control of the Federal Reserve, and that the amount of earnings on our assets going to the Treasury is slowly eroding.

It is also apparent that, as a result of a changing world, there is now a very inequitable mode of competition among depository institutions; banks that are members of the Federal Reserve are required to maintain sterile reserves, reserves that yield no income; banks that are not members of the Federal Reserve are able, in almost all jurisdictions, to maintain their reserves in interest-bearing form or as assets that help their competitive position.

Membership in the Federal Reserve involves, if you will, an additional "tax" in the form of non-interest-bearing reserves——

Representative REUSS. Let me say, I will stipulate, and have for many years, to the problem. It needs solution. We of the House Banking Committee have offered a solution before your body 2 years ago which has not been taken. It has been on our minds.

We want to be most cooperative in finding a solution that will give us sound monetary policies. So my question is, why, in the face of what I am telling you, is the Federal Reserve, apparently with your consent, going on this afternoon to put out a regulation which sounds as if the Federal Reserve Board intends to do this thing, rather than the Congress, and indeed, by some coincidence, gives the final date for comment 90 days from today, which happens to be, as all the world knows, precisely the day on which the current Congress goes out of business, according to its schedule.

Am I unjustly suspicious?

Mr. MILLER. I think so.

Representative REUSS. You were not going to do it this afternoon, then?

Mr. MILLER. If you would let me give the background for my views, as you did with yours, I would be happy to do so. If you merely want me to respond in an adversary way, I will.

Representative REUSS. You may, but the problem here is not the niceties of reserve requirements or charging for services of various kinds, but the problem of whether it should be done by the Congress with the cooperation and advice of the Federal Reserve, or whether the Federal Reserve should attempt to do this by regulation.

Mr. MILLER. Let me explain; people can understand our action only if they understand the motivation.

The motivation, for my part, is to find a constructive solution to an inequitable method of competition among financial institutions, which also indirectly impairs the efficiency and the cost effectiveness of our payments mechanism. Not only did I describe an inequity among banks, but member banks now are also competing with thrift

institutions and other kinds of financial institutions which can provide lower cost services because they do not carry the burden of membership. So we find that the banks' share of the total financial mechanism for providing money and credit is generally shrinking.

So I have addressed myself to how this can best be solved and have asked our staff to come up with some suggestions. I have described—since March, when I first appeared before your committee—the elements of a plan for how we could relieve the burden of the membership, retain and enlarge our membership, and thereby contribute to a growth in income for the Treasury.

In this context, one of the ways to relieve the burden of membership is to pay some compensation on sterile reserves to make the situation for member banks comparable to that of nonmember banks. However, I also believe—looking to the efficiency of banking operations—that it would be wise for the Federal Reserve to unbundle services. It has tried to make up for the burden of membership by giving away services. Since banks have to maintain reserves and they get no income for them, our effort has been to give them services. That is unsound, because it builds up a system of services that is not monitored or measured for its effectiveness. So it seems to me that we also should unbundle services and charge banks for them and create a competitive climate: More services might be performed by other financial institutions, and our own services would be measured by some standard of efficacy.

Putting all those elements together, it had been my hope to consult with you and members of your committee—to get your viewpoint and to shape and explain each element for your consideration. As events have taken place, we have not found the time to do that. Now that the preliminary memo sent to you has been made public, I think we can proceed from here on the basis that we wanted to originally; that is, we will submit to you and to the Senate Banking Committee an outline of a plan we think would be workable and ask for you to hold hearings on it and to take legislative action that would authorize us to go forward. I know of no other draft document and no intention to do otherwise. It would be very desirable for the Board of Governors to give their approval this afternoon to submitting this document. You would then have what you asked me for this week—a document from the Federal Reserve on which you can hold hearings and on which you can take legislative action.

Representative REUSS. There has been a misunderstanding, then, because what we would like from you—and I thought I had been clear from the beginning—is a piece of legislation, not just a statement of principles accompanied by a justification. Twelve members of the House Banking Committee, led by Congressman Stanton have introduced a bill looking in this general direction. We are anxious to hold hearings on that. We are anxious to hold hearings on any bill the Fed may care to submit, either as an amendment to the one now before us or as an independent bill. But I do not think it is useful to just send us a statement of principles and——

MR. MILLER. May I suggest——

Representative REUSS [continuing]. Then produce a bill for you in a few days.

Mr. MILLER. May I suggest a procedure? What you have been dealing with is a memo which I sent to you. We had intended to supplement this memorandum with legislative proposals.

Representative REUSS. Let me say that the memo you sent to me personally was released to the world by the Fed. That did not bother me. I am not charging bad faith.

Mr. MILLER. It was not released by the Fed.

Representative REUSS. It certainly was not released by me; and indeed, you sent to the House Banking Committee half a hundred copies.

Mr. MILLER. That is true. If you——

Representative REUSS. That is not that great a degree of confidentiality.

Mr. MILLER. May I suggest a procedure and see if it is satisfactory to you. We intended to ask the Board of Governors to approve a plan as the basis on which legislation could be drawn. We intended to have two pieces of legislation to submit with the proposed plan. And I must say that I an personally appreciative of your willingness to take on this issue and bring it to a head. The Congress could decide that our proposal is a good one or a bad one. It could decide that parts of it are good and parts of it are bad or write in its own judgment of a solution; I would be perfectly willing to live with the judgment of Congress.

What I am anxious to do is get a decision as to whether we want to build the membership of the Federal Reserve or let it decline. What we planned to do was to submit an outline of the proposal with as much detail as available. We had intended to send two pieces of legislation to you: The first, a bill that would require universal reserves so that all financial institutions would be on an equal basis; and the second, legislation that would appropriately cover this question of interest on reserves. If we could get the Board of Governors to approve—which I will try to do, because I cannot offer this proposal just on the staff recommendation—if the governors should bless the proposal, we would send you a memo, the two pieces of legislation, which would form the basis for your committee hearings and actions on those legislative proposals.

Representative REUSS. Almost, but not quite. We would like from the Fed legal language to illuminate the entire Federal Reserve proposal. Let us, the Congress, be the judges of what the Constitution requires us to do. Give us your entire proposal in legislative language. We will then act promptly on it and on any other proposals made.

Mr. MILLER. I am not sure I understand you; the language would be legislative language for a law to be enacted by Congress.

Representative REUSS. That is right, but you said you would give it to us on two subjects. Give it to us on the entire proposal.

Mr. MILLER. There are two subjects on which legislation is involved.

Representative REUSS. There you go with your executive "I make the decisions" attitude. You have got the Congress to deal with, and cantankerous though we may be, we have unanimously decided that we want to review in the public interest the entire proposal to take around $1 billion a year from the taxpayers' pockets and put it in the banks' pockets. It may well be an excellent proposal just as you submit it, but this is what we would like to do.

Second, I think it is improper that you put out a Federal regulation for public comment that which Congress, in light of what you have said, expects you to submit to us. We cannot get to your bill this afternoon because, one, it is not drawn; second, we will go into recess tonight. But I would hope by July 10, when we return, the Fed will present to us a comprehensive piece of legislation, either by way of amendment to a bill before us or by way of separate legislation. And I will be pleased to introduce that, by request, so that it is before us the day it arrives. And I would further hope that you would not—I repeat—not go ahead with the suggestion that the Fed proceed in this matter as if this were all a nice little matter for the Federal Reserve and that it is sufficient, as your spokesman says, that Congressman Reuss can come around and comment.

Mr. MILLER. I do not intend to do that. I intend to follow the regular legislative procedures.

Representative REUSS. So why not follow the Constitution?

Mr. MILLER. Congressman Reuss, I will. But I do not know what you mean, and I will submit some legislation; you can reject it. But I cannot submit something when I do not understand what you are saying. As I said, I will submit some legislation and you can consider it; if you do not like it, throw it out. That is what I am going to do; and you can decide whether you want to act or not, as you indicated; I hope you will act as promptly as you promise me you would.

But your telling me that I cannot prepare a memo without your blessing is not acceptable. I am going to write memos to go with legislation any time I am ready. Is that all right?

Representative REUSS. All right.

Mr. MILLER. Thank you. What is the next subject for today. That is enough on that.

Representative REUSS. You may think it is enough, but I want to say a little more——

Mr. MILLER. Fine.

Representative REUSS [continuing]. Because I want it to be clear. I hope that the bill you send up to us will come as promptly as your staff can prepare it——

Mr. MILLER. Tomorrow.

Representative REUSS [continuing]. And approve it. I hope that bill will be comprehensive, so we may look at the entire Federal Reserve proposal. I further hope that the Federal Reserve will not take action this afternoon to proceed as if it were going to act by administrative regulation in a matter where the House Banking Committee has clearly indicated it considers it has jurisdiction and where it has answered the question you propounded in your June 12 letter when you said, "Of course, if Congress thinks this is for Congress, then the Federal Reserve will go along." Congress does think it is for Congress. So again, I express the hope that you will promptly get to us a comprehensive piece of legislation. We will make it an order of priority to consider it and other legislation on the same subject matter before us.

We will try to turn out something serviceable. But we are very upset that the Federal Reserve continues to believe it can just go ahead and legislate in matters which under the Constitution are reserved for the Congress. I have had my say.

Mr. MILLER. The Federal Reserve had no intention of implementing any regulation without first providing for congressional review. We are planning to submit legislation for your consideration.

But first, the amount of money involved in the plan, if it were adopted, is not $1 billion. The net cost in 1981, at today's level of membership, would be $250 to $300 million. Retaining and building membership, instead of losing it, offsets a larger loss to the Treasury. So I wish, Congressman Reuss, that we would please not get this $1 billion figure repeated, because it is incorrect and it will create an inflammatory situation. We intend to protect the Treasury with a plan that would assure we retain membership and retain deposits to the benefit of the treasury.

Second, we are going to submit to you legislation to authorize us to carry out this plan if Congress feels that it is proper. And, if Congress feels that it is not proper, as I have said, it can make that decision. We will know where we stand, and we will proceed on other issues.

It is an important issue and deserves to be addressed. If the Congress feels that the answer is to retain the present system, or not to change the system, or to change it in some other way, that would be satisfactory to me. But this decision should be made.

Representative REUSS. OK. As you say, let us now go on to something else.

Mr. Miller, many witnesses before the Joint Economic Committee have testified that high interest rates are a serious impediment to the recovery of capital spending. Yesterday one of our witnesses warned us that another slowdown would set back the recovery of productivity and make it more, rather than less, difficult to control inflation in the future and suggested the desirability of a shift in the mix of policy in favor of a tighter fiscal and easier monetary policy.

Since Congress is in the process of slowing spending and tearing down and delaying tax reduction, isn't it time for the Fed to consider holding off further increases in interest rates?

Mr. MILLER. Congressman Reuss, as you know, I think it is very encouraging to see the prospect of tighter fiscal policy. This will be extremely helpful in developing a better balance in policies, as you suggest. I think you have made this suggestion ever since I have been in Washington; you started off with it the first day we met at your committee hearings.

Let me point out, as I have in the past, that the Federal Reserve does face a very serious dilemma—or at least did face such a dilemma when I first took office. With rising inflation, and with a rapidly expanding base for money and credit, if the Federal Reserve failed to take restraint, then surely inflation would accelerate and surely, in due course, there would be a very serious rise in interest rates from inflationary forces. There would be disinvestment in housing, there would be disinvestment in business, and there would be a serious recession. On the other hand, the Federal Reserve has every hope that its actions will be balanced by some fiscal discipline, so that such restraint, necessary to dampen inflationary forces, will not trigger a short-term recession.

I think that is the main task we face right now. Can we move through the balance of this year with appropriate Federal Reserve monetary restraint and with overshooting so we trigger a recession?

On the other hand, will there be time for fiscal policy to come into play to dampen the effect of Federal deficits, so as to allow less restraint and an improved environment for the exercise of monetary policy?

I believe that with the type of coordination and dialog we now have, the opportunity for moving through this period successfully is quite high. And I believe that a lot has been gained in the last few months in the way of a better understanding and better program for balancing these policies.

Representative REUSS. The range projected by the Fed for some months for the growth of M–1 has been 4 to 6½ percent. Yet, in fact, this has happened in the past too, but particularly significant in the last few months, in fact, the growth rate of M–1 has been more than 20 percent, over the top side of the Fed's target.

It is impossible to quantify how much of the international disturbance of the dollar and the uneasiness at home, is caused by the money managers' failure to stay within their target, but certainly it has some discombobulatory effect.

Wouldn't it be an idea worth considering of modestly raising the top of our target for the present, not the 8 percent that you are actually hitting, but somewhat over the 6½ percent which you mock by not coming close, and then staying within that target? Wouldn't that be a healthy tonic for the world?

Mr. MILLER. Congressman Reuss, I think you have a point. Conditions have changed, and it may be that the range for M–1 in relation to the kind of velocity we are now experiencing—which is different than expected—needs to be reexamined. You are on sound ground.

I would point out that all is not lost, because the Federal Reserve's range for M–2 and M–3. So out of three measurements, two are within bounds; the other has been more difficult to assess because of changes in the economy such as you mentioned. Therefore, you are right: it is worth while to reconsider whether there has been some change in the mix of activities or in velocity and whether those ranges are appropriate.

Representative REUSS. Unfortunately, you see, the world is clearly Friedmanized and everybody looks at M–1.

Mr. MILLER. They pay too much attention to it, I think.

Representative REUSS. It may well be, but the Fed, if I may say so, and occasionally the Congress, tends to defy M–1. Thus people take it very seriously when there are consistent deviations on the up side. So I am very glad that we are harmonious on this.

There is an Open Market Committee meeting coming up in mid-July, I think, and I know it will be on your agenda——

Mr. MILLER. Congressman Reuss, I think you are well aware of this, but may I point out to you that we need to continue to examine these issues and to improve our techniques.

One of the items that is pending, to be effective on November 1, is a change in regulation Q to permit—for individuals only—automatic transfer from savings accounts to checking accounts. That will have some influence on the data for M–1. So it is important not only to look at M–1 as we now know it, but to be prepared to make the technical adjustments for the new kind of M–1 that will result from new payments techniques. I hope that you will bear that in mind.

Representative REUSS. To turn to energy, there is your call for early congressional action on the energy conference report. I have been calling for it for many months without success, and I wish the President had it in hand before he goes to Bonn in a few weeks. I hope he will.

If Congress does pass an energy bill, and if that energy bill, by way of deregulation or by way of taxation, raises the price level, if the Federal Reserve failed to accommodate that increase—check me if you think I am going wrong here—that this could be a recessionary scenario. Can Congress pass such an energy bill with some assurance that the Federal Reserve will help to accommodate such a price increase that comes about through, not excess demand, but through what the Congress and the President felt is necessary in order to get us in a better energy position?

Mr. MILLER. I can only speak for myself, and as one member of the Federal Open Market Committee. But it seems to me that when you have an exogenous circumstance which may effect a structural change, you ought to take it into account and accommodate to it. We do not want to become doctrinaire or take technical action for its own sake, but we do want to act with some feel for the real world and the economy. That is my personal viewpoint; it is a matter for the FOMC to decide.

Domestic oil price rises have an inflationary impact, but—to the extent that we restrain the demand for foreign oil and improve the condition of the dollar—have a counterforce that would reduce inflationary pressures. So, over time, we will find ourselves in a much better condition if we do adopt a strong energy policy.

Representative REUSS. Thank you very much, Mr. Miller. Before recognizing Senator Roth I have one question which I will ask you, but I do not want to take further time, so I will just ask you the question and you can perhaps submit it for the record at a later date.

The difficulty with attempting to slow inflation by slowing the growth of GNP is that it is difficult to predict how the slower growth will be divided between less inflation and less real growth.

In Germany the Bundesbank announces in advance how much nominal GNP growth it will finance. This tells business and labor how much prices and wages can rise without slowing real growth and without increasing unemployment, and this puts pressure on business and labor to reach a wage-price restraint consensus.

What is your reaction to this approach which attempts to combine monetary policy with incomes policy? Do you think it could be workable in the United States? I think it is something that you could submit for the record.

Mr. MILLER. I will be happy to address that.

[The following information was subsequently supplied for the record:]

There are substantial similarities between the procedures followed by the Bundesbank and by the Federal Reserve. Both central banks set monetary growth ranges that they believe to be consistent with what would be an acceptable performance of the economy, given current conditions. In reaching this decision, consideration is given to such matters as the trend growth of productive capacity, existing levels of unemployment of labor and plant, "built-in" cost pressures, and the behavior of velocity. Both central banks then announce their projected rates of monetary expansion. The Bundesbank goes one step further, however, by also

announcing the growth of nominal GNP that it believes consistent with the specified increase in "Central Bank Money."

Whether or not there is particular advantage in this further step is, it seems to me, uncertain at this point. It will take some time to determine its efficacy. At first glance, it would seem reasonable to expect that the announcement of the GNP figure would focus attention more clearly on a trade-off between real output gains and inflation and thus provide an incentive for wage and price restraint. But one can point to several probable complications.

First, there is no mechanical trade-off between inflation and real output growth; if inflation were to slow unexpectedly, for example, it is possible that real output growth would increase by more than is contemplated in a nominal GNP projection (assuming a given money stock). Second, and a related point, there is in general a loose linkage between short-run movements in money and nominal GNP, and certainly projections of GNP-money relations are subject to substantial ranges of error. I believe that German experience, as well as our own, bears this out. Third, to the extent that projections prove unreliable, they probably lose much of the desired impact on economic decisions, casting further doubt on the value of such projections.

Much of the benefit in terms of influencing expectations and economic decisions may, however, be achieved through the announcement of monetary growth ranges alone. Theoretical and empirical work by economists indicates that the trends in monetary expansion have, over the longer run, little impact on the behavior of real output and employment—the primary impact being on prices. Thus, if the monetary authority makes clear its commitment to the achievement of money stock growth rates that will ultimately be consistent with price stability, it will have provided a reliable basis for planning. This has been the direction in which the Federal Reserve has attempted to move during the past three years, and in which we plan to continue to move in the years ahead.

Representative REUSS. Senator Roth.

Senator ROTH. Thank you, Congressman Reuss.

Mr. Miller, I want to welcome you here. I am sorry that I have not been here, but unfortunately the Finance Committee is also having a hearing on taxes; and as you may know, that is a matter of considerable interest to me.

I am very concerned, as you are, about the impact of inflationary pressures on our economy and I would like to address, if I could, a few questions in this direction.

Yesterday we had a well-known economist here by the name of Henry Kaufman, who is recognized as being an outstanding scholar by both liberals and conservatives, and I would like to read part of his testimony.

He said:

By a wide array of yardsticks, the fiscal posture of the Federal Government this year is excessive and virtually without historical precedent. For example, this year's unified budget deficit is estimated at around $52 billion. During the comparable years of the two previous economic recoveries, the deficit totaled only $15 billion and $6 billion respectively. Federal expenditures in this fiscal year will increase by 12 percent.

This annual percentage increase has been exceeded only 7 times during the past 25 years and only once in the nonwar year of economic expansion.

Mr. Miller, this current budget is a tight budget. Many of us feel that there should be effort to make substantial cuts in Federal spending. Would you agree with that and do you think that would be helpful insofar as inflationary pressures?

Mr. MILLER. I do agree with that, Senator Roth. I do believe, however, that the right way to go about reducing in Federal spending is not only to make a short-term reduction but also to adopt a longer term goal, too. And I would like, personally, to see our goal—for 5 or 7 or 8 years from now—a reduction in Federal spending until it

amounts to only 20 percent of the GNP instead of the present 22 percent. We need to start a constant trend in the right direction. This process would shift resources back to the private sector; the same size economy could be run with more decisions about spending being made by businesses and individuals rather than by Government.

Senator ROTH. One of the problems of the current budget is it authorizes $100 billion for spending. That is a 20-percent increase, much larger than we have ever had in the past.

One of the problems is every year we come up with the fact that authorizations are way ahead, so that do you feel that, nevertheless, we should make every effort to eliminate all fat and unnecessary spending at the current time?

Mr. MILLER. Absolutely. Nothing I say about continuing the process should in any way detract from the importance of starting it right now—but we should cut spending not just this year but next year and the following years.

Senator ROTH. I could not agree more strongly with you because we always find ourselves trying to catch up with those authorizations in the future.

Mr. Miller, there is a scheduled increase in the minimum wage rate from $2.65 to $2.90 to be effective January 1, 1979.

Do you believe that that should be allowed to go forward, and if so, what are the economic implications of that increase?

Mr. MILLER. The minimum wage has been inflationary. The increase at the beginning of this year was quite large percentagewise and showed immediately in a number of sectors of the economy—the service sector particularly—and contributed to our inflation.

I am sure when Congress enacted the provision for scheduled increases in the minimum wage that its intention was a good one. As it turns out, with hindsight—with inflation becoming a more serious problem—I believe that it was a mistake.

I would personally welcome any way possible to defer or to change what is going to happen next January 1. I would put it off for a couple years or something so that we do not have another burst of inflationary ripples running through a sector of the economy.

Senator ROTH. Have you made that recommendation to the President?

Mr. MILLER. I have suggested it to the administration, yes. I do not know if anybody has done a study of the issues, but I would think that the better choice would be a 2-year deferral rather than an attempt to undo the increase. That would, perhaps fit in with other timetables and be more logical.

Senator ROTH. You think it would be helpful to have some type of partial exemption with respect to the teenage employment, permitting the youth to be employed at something less than the standard minimum wage?

Mr. MILLER. Senator, there is no question but that that would be a wise move. Young people today have great difficulty in getting their first job, particularly those without higher education. But after they do get a job and have had it a few years, they progress very well. They can take up their place in society with well-paying jobs. It is in their own self-interest to get that first work experience, even at a differential wage. Many of them are living at home; they have less personal

expenditures; they are not married; and they can afford to go through an apprenticeship, if you will, as many of us did in our years of learning. They learn what work is and what responsibility is. They learn what it means to be a part of the team and to produce. So I don't think it would be socially regressive; I think it would be progressive to give them that opportunity.

Senator ROTH. Many of us feel that it would be very helpful in providing some amelioration of structural unemployment with the teenagers, particularly in the inner-city. So I am happy to see that you would support that.

How much would you say the minimum wage increase might affect the inflation rate?

Mr. MILLER. I might have to turn to one of my colleagues.

The effect next year could work through to about a half percent; the effect last January was a little more, as I recall.

Senator ROTH. One-half of 1 percent?

Mr. MILLER. Yes. That, of course, is a very large inflationary impact.

Representative REUSS. Would the Senator yield?

Senator ROTH. Yes.

Representative REUSS. I appreciate the Senator's yielding because I am required over on the House floor and I will ask Senator Roth to preside from here on out.

I am sorry I will miss the testimony of my old friend, Arthur Laffer, who always has something interesting to say; and on our side, Senator Roth, Mr. Atkinson will perhaps have a question to ask Mr. Laffer.

Mr. MILLER. Congressman Reuss, before you depart I wanted to thank you. I am glad we could straighten out a misunderstanding. I am glad you will give early consideration to our legislative proposal. Thank you very much.

Representative REUSS. I trust the misunderstanding is straightened out. Did you have any doubt in your mind——

Mr. MILLER. No.

Representative REUSS [continuing]. When I told you that we would give early consideration to your legislative proposal as soon as you made it?

Mr. MILLER. I am glad we have straightened out the misunderstanding.

Representative REUSS. Thank you.

Senator ROTH [presiding]. Mr. Miller, you estimated that the impact on the economy would be one-half of a percent increase on inflation, a not inconsiderable amount.

What are your predictions as to what will be the rate of inflation by next year?

Mr. MILLER. Senator, I would like to have your permission to check that figure of one-half of 1 percent for the record.

This year, I am afraid inflation will run over 7 percent. The best prospect I see at the moment is for something around 6½ percent next year, which is far too high; and even that, of course, depends on achieving some of the changes that we are all working on that would at least start the process of bringing inflation rates back down.

But if it were 6½ percent—and part of that rate reflects the impact of an increase in the minimum wage—there could be a significant additional reduction from deferring that action for a couple of years.

[The following information was subsequently supplied for the record:]

It is my estimate that the boost in the minimum wage scheduled for January 1, 1979, will raise the overall level of prices by close to one-half percent.

The scheduled increase from $2.65 per hour to $2.90 per hour is likely to raise compensation directly by 0.3 to 0.4 percent. In addition to the direct cost, there will also be upward pressure on wage rates from workers above the minimum who want to maintain their traditional relative wage position and from noncovered workers who attempt to emulate the gains made by covered workers. Such indirect effects may be roughly one-half the size of direct effects, bringing the total expected rise in compensation to around 0.5 percent. Since no additional productivity gain can be expected to accompany the minimum wage adjustment, unit labor costs will be boosted by a comparable amount, and historical evidence suggests that about two-thirds of the rise in unit labor costs is passed through into higher overall prices. In addition, these higher prices will have secondary effects on other wages that are linked to prices through escalator clauses. Cost pressures resulting from these wage adjustments will be reflected partially in further price changes. Thus, if the January 1, 1979, minimum wage increase were deferred the rise in prices could be reduced by nearly one-half percentage point from that which would have occurred otherwise.

Senator ROTH. Would you favor reestablishing what Congress created some several years ago: The requirement that your larger companies give prior notice as to any price increases—a 2-month notice—and the same with banks, as a means to perhaps have a stronger talking basis on which to hold down inflation?

Mr. MILLER. Senator, I believe we should expect and should have the cooperation of the private sector in the President's deceleration program. And there is no reason, as that program takes effect, that there cannot be good coordination with the Council of Economic Advisers and the Council on Wage and Price Stability so that they receive information of that type.

Whether it is timely to have a formal requirement of prenotification, I do not know. I would prefer to get information on a voluntary basis, because I think each time we impose another set of regulations or another set of mechanical requirements we create another layer of burden. And I would rather see the basic industries—I think that is what you are talking about—supply information on a voluntary basis as a sign of their willingness to cooperate.

Many people have said that there is not much teeth in the deceleration program, but I think there is a tremendous advantage to cooperation and it's in the self-interest of those businesses. If businesses do not cooperate in finding means for deceleration, then we will have high rates of inflation. This will create great obstacles for business in maintaining their real profits, their real incomes, and the real values of their assets. So I think there is a tremendous reason why they ought to be cooperative. If there is not cooperation, I would look at the next steps.

Senator ROTH. But for the moment you are satisfied with the progress being made?

Mr. MILLER. I would prefer to have this worked out with businesses voluntarily.

Senator ROTH. In your prepared statement you talk about the need of providing free resources for the private sector. One of my greatest concerns at the present time is the decline in productivity of the United States; the fact that we are not competing effectively with our

foreign competitors, as witnessed by the unfavorable balance of trade.

What are the recommendations that you would make to try to improve the productivity of the United States?

Mr. MILLER. One of the principal suggestions is to create a policy of stimulating increased fixed business investment. We have had a substantial lessening of productivity gains recently, as you know. I pointed out—on chart 6, attached to my prepared statement—that the ratio of capital stock to the labor force has been deteriorating. And it seems to me that this is coincident with the deterioration in productivity. It seems to speak loudly for the proposition that we should increase our capital investment as a means of improving productivity and combating inflation.

One of the best ways to do that, I believe, is to have a substantial liberalization of depreciation allowances. I have recommended a 5-year writeoff for productive equipment and processes and a 10-year writeoff for structures used in production, as a way to create the cash flows that would make the risks of investment less and increase the prospects of profitability.

As a national goal, I would like to see us increase capital spending to 12 percent of the GNP; now, it is about 9 percent. In previous periods of peak activity we have seen capital spending up at 10½ or 11 percent, but recently we have been underspending very seriously.

Japan is investing about 21 percent of its GNP; Germany is spending about 15 percent; we have been spending 8 or 9 percent. I think it is extremely important that we develop a conscious program of increasing our capital base and our investment base in order to make us competitive—get our costs down, get us enough modernization, and develop the new technologies that are essential for efficiency.

Senator ROTH. Well, as I understand it, there is no question that our depreciation policies are much less generous than those of, say, Germany, even Socialist Sweden, and Japan. Is that correct?

Mr. MILLER. Generally they are less favorable, and generally I favor higher depreciation because depreciation is a very efficient means of giving incentive for investment. It defers tax relief; once the depreciation is completed taxes are paid. An investment tax credit, on the other hand, is a form of reduction of taxes. Depreciation is merely a deferral of the time of payment; the Federal Government eventually collects the tax, but at a discounted value. Depreciation also works efficiently.

Our total rate of recapture—including investment tax credits and depreciation—on the capital investment is slower than many of the other industrialized nations.

Senator ROTH. What we were holding hearings on in the Finance Committee was on the capital gains, modification of capital gains, going back to what we had some years ago, the so-called Steiger bill, Steiger-Hansen bill.

One question I have is would you care to comment on that proposal, but I would also like to point out that one of the problems in making any of those proposals for capital formation, the administration has taken the attitude that they are millionaire benefits that are not helping the average people, and you could say the same thing about

liberalization of depreciation. You are helping those that have it, particularly the big companies. Would you care to comment?

Mr. MILLER. Let me take the latter first. Recapture of capital is now permitted. Liberalized depreciation merely improves the rate of recapture; it does not really create any ultimate economic favoritism. Moreover, business investments are made by small businesses and large businesses; and it is this vital method of creating job and improving productivity that helps every American. So I do not see how it favors business over the average American; I think it would benefit all.

But more than that, I think that most American companies are owned by Americans—either through pension funds or direct investments or through indirect means—so ultimately the beneficiaries are the American people. We have far more involvement in the ownership of enterprises than most people realize, through direct stock and growth of pension funds. It should be clear—and I believe the administration would agree—that an increase in business fixed investment is desirable. Either method—investment tax credits or accelerated depreciation—would be desirable, although I prefer the latter.

On the Steiger bill, I feel that our priority should be to generate direct action for increased investment in operating enterprises. The capital gains tax has an indirect impact; it might bring more capital in, which might ultimately be invested.

We are, therefore, back to a question of fiscal discipline. I have felt that there is no room now for another tax reduction. The Steiger amendment or a variation of it should be considered in a later year, when we have proved that we can get this budget deficit down.

Senator ROTH. Or the alternative, we could cut the budget.

Mr. MILLER. Reduce expenditures? Fine. Yes, I am talking about reducing the budget deficit. But if we are going to be stuck with spending at $499 billion in fiscal year 1979 and we are going to collect just so much revenue, my first dedication is get that deficit below $50 billion, and I do not want any tax cuts that would impair that. If you can cut spending, fine. But I have not addressed the Steiger amendment per se; I have addressed its philosophy. My philosophy is that in due course, when it can be afforded consistent with a conscious, continued plan for balancing the budget, those kinds of actions might be appropriate. If we examine the great enterprises, we will see businesses started by entrepreneurs who went out and developed the new technologies; they were motivated to do that because of the incentive of capital gains. We see this in our computer industry, which led the world since World War II, and in many large companies that started literally from nothing.

Senator ROTH. I am sure you are aware of the fact that many, many economies believe a modification of capital gains tax will increase revenue rather than decrease revenue to the Federal Government.

Mr. MILLER. Senator, I am not a student of those analyses. Some of them make different assumptions about the effect on the stock market, which would affect the revenue formula. My belief is that there would be a negative effect in the first year, and that it would take some time before there would be a positive effect. And my concern, again, is that if there is to be any change in the taxation of capital gains or double taxation of dividends, I want to be sure that it is timed

consistent with the primary purpose of reducing the Federal deficit. Our primary objective is to reduce the fiscal stimulus and achieve a balanced budget and full employment.

Senator ROTH. I would point out that some of these studies say they would have a benefit within at least 2 years; some even predict the first year.

I have one or two more questions, but at this time I will yield to Congresswoman Heckler.

Representative HECKLER. I would like to say, Mr. Miller, it is a pleasure to welcome you. While I am a strong admirer of the previous chairman, I cannot think of a better replacement.

Mr. MILLER. I think I lived in your district from time to time.

Representative HECKLER. That is exactly right.

Mr. MILLER. I do not vote there, however.

Representative HECKLER. I am really pleased with your selection for any number of reasons and encouraged, because I think while you have the expertise to deal with problems of the Federal Reserve, I think you also have a perspective of the New England economy, which we rarely see. In New England, as you know, we have deep-rooted economic problems with structural stagnation in our particular area; and it is a source of encouragement that you would embody that kind of understanding.

At the same time I must say as a member of the committee, one of my primary interests is the development of the small business sector of the economy; and while I am supportive of many of the statements you have made, I would be interested in your response to a proposal which actually was generated by small- and medium-sized firms in New England and relates to the need for a stimulus.

Their problems of capital formation are even greater than the large companies, and their proposal in the upcoming tax package suggests an increase of the surtax exemptions from the present $50,000, which was part of the tax bill passed in 1974 which raised the surtax benefit for small businesses—set in 1938 at $25,000, which in 1978 dollars would be equivalent to $124,000. Their proposal, which I have drafted into legislation, would increase the surtax exemption to $150,000.

Now possibly that amount cannot be achieved, but their point is that small business needs some form of internalized capital formation because in times of tight money their ability to borrow is certainly not as great as their larger competitors. A study from the Amos Tuck School of Business Administration at Dartmouth seems to validate that point and suggests that we could generate a very significant number of jobs, 207,000, at a cost of $10,000 each in the first year versus $25,000 in the President's plan. I wonder how you have looked upon this and whether or not you see the need to develop somewhat different policies to face the particular problems of the small- to medium-sized business sector in the country.

Mr. MILLER. Congresswoman Heckler, New England has been impacted by dramatic changes in its economy. At one time it was the part of the Nation that was industrialized the earliest, and it had a high percent of manufacturing employment; but for all kinds of reasons, there has been a steady decline, and the adjustment process has been painful.

One of the strengths of New England has been the growth of small business; a lot of the technological businesses have grown up in your State. That is important to the region and to the Nation, because the technological base has revolutionized many parts of our society. So we need a whole battery of policies to encourage that kind of entrepreneurship, and I think your suggestion is worthy of consideration.

I would only point out, as one caution, that the proposal should be designed so that it does benefit operating businesses and does not become a basis of tax shelters for multiple corporate operations. If you can design such a protective device, you have got a good idea. The problem is that this will be used for tax purposes by the multiple corporations; and every child in the family will have a little corporation with special tax rates. If you can solve that, you have a good idea.

Representative HECKLER. That is a suggestion that has been made and I will pursue it.

Of course, our major interest in New England is this question of inflation. Recently in a letter to the New York Times an economic consultant said:

> The trouble is the high interest rate policy of the Federal Reserve Board. Since last summer, for example, the Federal Reserve has raised the discount rate from 5¼ to 7 percent. This is why the consumer prices have risen drastically. In the past 18 years consumer prices have always risen when the Federal discount rate has been raised and have only slowed down when the rate has been lowered. If Congress would legislate an interest cut by forcing the Board to lower the FRB rate generally back to where it was in the 1940's, before the Board began to raise it, consumer prices would stop going up and economic troubles would fade in due course.

This perhaps might be a statement of one who is asking for utopia, but I wonder what your comment is.

Mr. MILLER. I guess it is a question of which came first, the chicken or the egg. Do interest rates go up because of inflation or does inflation go up because of interest rates? I am afraid that interest rates go up because of inflation.

If you look back over time you will find that when the capital was available, the American economy had fairly steady, constant real interest rates of 2½ to 3 percent.

It is very easy now to look at mortgage rates, and see 10 percent, and say, "That is terrible." But if you deduct from that rate the 7-percent rate of inflation, the only real gain on the investment is 3 percent. So it is that phenomenon that causes people to believe that inflation is caused by higher interest rates. To the contrary, rates go up because inflation has started them on that pattern.

Now the whole theme—not the whole theme, but a good deal of the theme—of my statement this morning was based upon a series of policy suggestions that would better balance our economy policies in order to take pressure off the monetary side. And in my closing remarks in that statement I said that if we do follow this reorientation, then we will lessen the burden on monetary policy which will give us a better balance and, at least, improve the prospects for lower interest rates.

If the Federal Reserve should do what many people would like it to do—just take the restraint off and let money be printed to bring down interest rates—then what would happen would be that inflation would

escalate. While things would go well for a while, it would only be a matter of a year before we would be at 9, 10, or 12 percent inflation. There would be disaster in the economy.

On the other hand, if we restrain too much, then the worries of the consultant who wrote that letter and of other people will be fulfilled and we will have a different problem. So we try to walk a narrow line and hope for better coordination and a better balance with other parts of the economy. Then we can take the pressure off monetary policy. And that is what we tre trying to accomplish.

Representative HECKLER. About the offering of 6-month term certificates in denominations of $10,000 or more, commercial banks can sell them at maximum interest rates, the same as the U.S. Treasury. The savings and loans can sell them at one-fourth percent more than the prevailing Treasury rate. The purpose of this policy is to keep money in banking systems rather than in other investments such as Traeasury bonds.

However, I am told that in the vast majority of cases no new money is being raised. In fact, a survey taken in New York recently indicates that 80 to 85 percent of the transactions involve a mere transfer of money rather than new money, with the concomitant result that there are higher operating costs for banks. I am wondering what your initial reaction is to this study. Are they beneficial? Are they a threat to industry and the housing market? Are they inflationary and do they increase the operating costs for banks? How do you review it?

Mr. MILLER. Congresswoman Heckler, the purpose of those instruments, as you pointed out, was to avoid disintermediation. The last time we had a rise in market rates, there was a large outflow of funds from savings accounts and thrift institutions. That outflow of funds had an enormously adverse impact on housing; housing starts dropped to 1.1 million, and it was a disaster.

I think it is very important, whatever other problems we have in the economy, that we do try to maintain an adequate level in the housing industry and a strong base. Housing starts should be at 1.8 million or more. What we feared, with the rise in other interest rates because of inflation, was that money would begin to move out. We already had seen a decline in inflows to thrift institutions.

Now, at some point in time, it becomes worthwhile for individuals—particularly people with larger amounts of money—to remove them from savings accounts and to buy Treasury bills. What happened when we introduced those accounts was, in my opinion, that there was some retention of money that would otherwise have flowed out. Our initial check shows that, as far as thrift institutions, about 40 percent of the money was new money, depending on how much they promoted it. If they did nothing, the money was mostly shifting from one account to another. If they promoted the new certificates, they were receiving about 40 percent new money. That is not universal; you might find New York different because of its different financial sector. But the results have been rather encouraging; the first week about $3 billion went into the 6-month certificates; 40 percent, approximately, was new money.

Representative HECKLER. Again, on the housing sector question, there is great concern about the new increases in the credit rates. FHA

went from 9 to 9.5 percent just yesterday, I believe. I wonder how far you expect this to go? How long will the interest rates continue to increase, and when will they peak, or begin to roll back? Can you answer that question?

Mr. MILLER. The answer is entirely tied to inflation. As soon as inflationary forces begin to abate, I think we will see interest rates begin to peak and turn down.

The movement in that interest rate, which I read, as you did, I believe, was designed with the same purpose as the new savings instruments—be sure that federally insured programs would be able to continue to provide money for housing, and that they would not become so noncompetitive as to dry up. These programs are extremely important. One of the great new developments in the housing industry is that those programs offered by Ginnie Mae can tap sources of money to keep the housing industry going. So I am delighted to see that move, even though it does result in higher cost to the home purchaser. But as least it makes possible the purchase of a home.

You ask me when the rates will go down. I wish I could predict that. I often tell reporters who ask me that that if I told them they would get rich and retire from journalism, and then they would not be able to enjoy their profession! They could speculate and make a killing in the market, so I do not tell them. I cannot tell you either, but I hope we will see a peak in the coming quarter, so that we can end this period of difficulty and move on to a more favorable condition.

Representative HECKLER. Thank you.

Senator ROTH. Mr. Miller, I understand that you have a luncheon engagement and must leave at 12 o'clock, so I will let you go.

Mr. MILLER. Thank you very much.

Senator ROTH. I would now like to call Professor Arthur Laffer.

I want to welcome you to this committee and thank you for taking time out on such very short notice. As you know, testimony was presented to our committee yesterday in which it was claimed that the so-called Roth-Kemp tax reduction would result in increased inflation and massive budget deficits. Further assertions were made that tax rate reductions would not result in increasing the work effort or savings, investment, and production.

As you know, I for one, reject these arguments. I am pleased to have you here to discuss the Roth-Kemp tax reduction and the Laffer curve.

STATEMENT OF ARTHUR B. LAFFER, PROFESSOR, UNIVERSITY OF SOUTHERN CALIFORNIA

Mr. LAFFER. I would like to make two points, if I could, and also, I have a prepared statement for the record.

In looking at the effect of taxation on work output and employment, people basically do not work to pay taxes. Basically, firms do not locate as a matter of social conscience. Firms locate where they can get after-tax profitability.

The important aspect of the Roth-Kemp bill, is that it reorients incentives and increases them the most where they are now the most destroyed. Let me give you an example.

When Jack Kennedy was President of the United States the lowest tax rate was 20 percent and the highest tax rate was 91 percent. A per-

son in the lowest tax rate category, who earned a dollar paid 20 cents in taxes and the incentive was the 80 cents he got to keep.

A person in the highest category, who earned a dollar paid 91 cents in taxes and his incentive was the 9 cents he got.

What the Kennedy tax rate cut did was cut tax rates across the board. He cut the lowest category down to 14 percent and the 91 percent rate down to 70 percent. It is clear what happens to incentives.

After the Kennedy tax rate cut on personal income, the person who earned a dollar in the lowest category, instead of keeping only 80 cents, got to keep 86 cents as incentive for working. His incentive went from 80 cents to 86 cents. That is an increase in incentive of 7½ percent for a 30 percent cut in the tax rate.

But if you look at the top bracket you find that the person who earned a dollar before and kept only 9 cents as incentive, with the new tax rate cut of 23 percent, paid 70 cents in taxes and got to keep 30 cents as incentive. He went from 9 cents to 30 cents, an increase in incentives of 233 percent for a 23 percent cut in the tax rate.

The important point here is that people do work for incentives, and if the tax rate is reduced there will be an increase in incentives for working, saving, and investing.

As I look at the Roth-Kemp bill it cuts tax rates across the board over 3 years by approximately 30 percent. It reorients incentives and changes the constellation of taxes such that the bill increases incentives the most where they have been destroyed the most by our tax structure. The Roth-Kemp bill would have a major effect on work output and employment, and would increase those areas exactly where they are the most destroyed today.

On the Federal revenue level, there is quite a reasonable chance that within a very short period of time, a year or two or three, that not only will the cut in taxes cause more work output and employment, but the incomes, profits, and taxes, because of the expansion of the tax base, would actually increase.

It is very clear to me that a cut in these tax rates, along the lines you suggested, sir, would increase State and local revenues substantially. There is no ambiguity there. Any increase in incomes productivity and production will increase State and local revenues substantially. If you take the Government as a whole, it is likely that more revenues will increase.

One additional point is that by cutting the rate as you suggested in the Roth Kemp bill, I think we would increase employment, reduce poverty, and Government spending on unemployment compensation, and Government spending on poverty programs would literally diminish—not because we are spending any less per person who is in need. We will be spending the same amount per person, but there will be fewer people in need, and less people unemployed, and less government spending.

If you look at the Kennedy tax cut, it had a dramatic effect on unemployment. If you look at revenues you can see they rose sharply during this period. They rose faster than did Government spending at the Federal level.

If you look at inflation rates then, the GNP deflator during the Kennedy era is 2 percent, and that is not per month like now. If you look

at the wholesale price index it is slightly over 1 percent on the average during this period.

If you look at all sorts of other measures, capacity utilization, et cetera, real income growth averaged over that 6-year period from 1961 to 1966, 5.4 percent, quite a change from what we have been having.

The last point I would like to mention is the effect the Roth-Kemp bill would have on inflation.

One hears that tax cut bills will cause inflation. In fact, there exists a proclivity to look at the trade-offs with the bill along these lines. But, it is unambiguously clear that unemployment will fall, and as a consequence I do not think anything could be further from the truth that such a cut will cause inflation.

Let us run a mental experiment for a moment. Hold the money supply in the United States constant and reduce the output level of the United States to the output of Luxembourg where we have 99.999 percent employment. What do you think would happen to Luxembourg's price level with our money supply? It would not fall, it would go through the ceiling.

Inflation, basically, is too much money chasing too few goods. The more goods there are, the lower prices. The faster output rises, the lower the rate of inflation.

If you take the Economic Report of the President and just plot quarterly the rate of inflation against the rate of growth of real output for the last 7 years, what you find is, just as theory would suggest, as the rate of output growth increases, the rate of inflation decreases, and as the rate of output growth decreases, the rate of inflation increases. They move in opposite directions, and as far as I can tell, the Roth-Kemp tax cuts will have a major effect on inflation. They will reduce the rate of inflation because they increase the supply of goods and services, and thereby put less pressure on the monetary policy.

[The prepared statement of Mr. Laffer follows:]

PREPARED STATEMENT OF ARTHUR B. LAFFER

The Roth-Kemp Bill

In the absence of a "tooth fairy" resources spent by the government are the total tax burden on the economy's productive sector. Wether government spending constitutes much needed public services, transfer payments, pure waste, or even worse; these resources must come from the economy's workers and producers. As such, they comprise a major part of the wedge driven between payments made for factor services and payments received by the factors themselves. Taken alone, increases in this wedge per se raise wages paid for factor services, lower wages received by factors and thereby lower the demand for and the supply of productive factor inputs. Output falls.

The Roth-Kemp bill does nothing directly to impact this aggregate wedge. To stop here however would miss not only the essence of the Roth-Kemp bill, but much of the lessons from the history of taxation.

Output depends as much on the constellation of individual factor tax rates as it does on the overall tax burden. If one productive factor is faced with exceptionally burdensome tax rates it will withdraw from the market place. Its departure from the market place will lower output by its production potential and, in turn, reduce the production potential of all other factors with which it is complementary. High productivity and high wages for truck drivers require the existence of trucks for the drivers to drive. If trucks are taxed excessively their numbers will decline as will the wages and productivity of truck drivers. Output will be impacted doubly. In the limiting case when all returns to trucks are confiscated none will exist and wages accruing to truck drivers will be zero. Output, too, will

be zero though there no taxes on the earnings of truck drivers. Tax receipts will also be zero.

As a pedagogic device, imagine that we reduce all tax rates in the sample by one-half. The earnings of truck drivers remain untaxed but now earnings accruing to trucks are taxed at 50 percent instead of the previous 100 percent. Savers who either abstain from consumption or work harder can now obtain an after tax rate of return by accumulating trucks. There will be more trucks, higher wages, more output and tax receipts will rise. The increase in tax receipts results exclusively from the increase in production and the lowering of tax rates.

The Roth-Kemp bill, armed with the experience of similar, but far more extreme, measures carried out by President Kennedy in the early sixties, addresses the current counter productive constellation of individual factor tax rates. By partially redressing the counter productive structure of current tax rates it most likely will lead to a substantial increase in output and, in the course of very few years, will probably reduce the size of goverment deficits from what they otherwise would have been. Net revenues could well expand even though income tax rates at each and every bracket are reduced. Part of the effect on the deficit, of course, will occur because higher output means less unemployment, less poverty and therefore lower total spending on unemployment benefits and poverty programs. In this sense, the Roth-Kemp bill actually reduces government spending and the overall wedge, albeit indirectly.

People don't work and save to pay taxes. They basically work and save in order to acquire after-tax income. It is the after-tax incentive that drives production, savings and employment. In a Newsweek column several years ago Milton Friedman illustrated the sharp increase in the progressivity of personal income taxes resulting from an across-the-board income tax surcharge. The Roth-Kemp bill, as the earlier Kennedy tax rate cuts, is precisely a negative income tax surcharge. Its effects will be to lower the progressive nature of income taxes. The Roth-Kemp bill will increase those incentives the most where the incidence of taxation is currently the highest.

Using the Kennedy income tax rate by way of illustration, when Kennedy came in to office Federal personal income tax rates ranged from 20 percent in the lowest brackets to 91 percent in the highest bracket. A worker in the lowest bracket who earned $1 on the margin paid 20 cents in taxes and his incentive was 80 cents. In the highest bracket one dollar of marginal earnings yielder 91 cents in taxes and an incentive of 9 cents. By cutting tax rates across-the-board by about 30 percent the lowest bracket after the Kennedy tax cut was 14 percent and the highest bracket 70 percent. The incentive effects however were radically different for the two extremes. The incentive in the lowest bracket was raised from 80 cents on the dollar to 86 cents or an increase of 7½ percent. In the highest bracket where the cut was 23 percent as opposed to 30 percent the incentive was raised from 9 cents on the dollar to 30 cents or an increase in incentive of 233 percent.

The Kennedy era is an excellent example of the type of impact a Roth-Kemp bill could have. While occurring at different times the Kennedy tax program included an across-the-board cut in personal income tax rates. The corporate tax rate was reduced from 52 percent to 48 percent, depreciable lives for legal purposes were shortened and the investment tax credit was instituted. In addition, major tax rate reductions were carried out under the Kennedy round tariff cuts.

From 1961 through 1966 real GNP grew on average at a 5.4 percent annual rate. Unemployment rates fell from 6.7 percent in 1961 (5.5 percent in 1962) to 3.8 percent in 1966. Capacity utilization as measured by the Federal Reserve Board rose from 77.3 percent in 1961 to 91.1 percent in 1966. Annual inflation averaged 2.1 percent, 1.6 percent and 1.1 percent for the GNP price deflator, consumer price index and wholesale price index respectively. For some, the behavior of stock prices is perhaps the best indicator of the era's growth. The ratio of the S+P 500 to GNP went from .1104 in 1960 to .1154 in 1967. The low was the 1960 ratio but peaked at .1281 in 1965. Over the 1961–66 period stock prices rose at an annual rate of 5.5 percent and from 1960 through 1967 at an annual rate of 7.8 percent.

During the 1961–1966 period Federal spending rose at a rate lower than GNP growth, 6.2 percent versus 7.5 percent. As a consequence the overall federal wedge fell from 18.75 percent in 1961 to 17.62 percent in 1966. The deficit on the Federal level fell consistently from the $3.1 billion level in 1961 to a surplus of $1.4 bil-

lion in 1965 and literal balance in 1966. Defense spending increases during this era were less than non-defense increases.

While the prognosis of dire consequences were the range in the early 1960's they didn't materialize. In many ways the situation is similar today. Unemployment is high, currently sitting a little above 6.0 percent. Federal spending, or the aggregate wedge, stands about 22.6 percent and S & P stock prices relative to GNP are at .045, close to their all-time low. Inflation is far higher today, running at rates well over 6 percent. The federal deficit in the most recent period is about $45 billion.

While the Federal tax code on the surface appears less distortive today than at the beginning of the Kennedy era other changes have occurred that could even result in more distortions. Additional changes have also occurred that make marginal tax rates relative to average rates even higher now than before. The institution and expansion of State and local taxes, the systematic reduction of real exemptions and credits combined with the highly distortive effects of inflation on the incidence of tax rates on real earnings have resulted in widely divergent marginal tax rates on different factors of production. The effects on incentives of the current structure of taxes are quite conceivably greater today than they were prior to the Kennedy cuts.

An across-the-board tax rate cut, as shown earlier, increases incentives the most where the incidence of the tax structure is most restrictive. Without a great deal more specific knowledge the Roth-Kemp bill would be a good first step in an overall tax reform package. It would go a long way in reorienting incentives with market contributions.

The Roth-Kemp bill by no means ends the need for tax reform and tax rate reductions. Additional legislation such as the Steiger-Hansen bill and the Stockman bill would be complementary with the Roth-Kemp bill. Looking out into the future, indexation legislation such as former Senator Taft's bill and legislation proposing full integration of the corporate tax structure with personal income taxes are desirable. Even more distant would be some proposal for the substitution of a value added tax for other far less efficient taxes. Social Security tax and benefit reforms are also badly needed.

In analyzing the Roth-Kemp bill it is important to recognize that the bill is a beginning to a meaningful tax reform, not an end. The need for other legislation does not mitigate the need for Roth-Kemp now. The best cannot be allowed to be the enemy of the good.

The Roth-Kemp bill should also have a good effect on inflation. Inflation is primarily a consequence of too much money chasing too few goods. Excessive money growth has long been recognized as a cause of inflation. It is equally as true, however, that too few goods will also cause prices to rise.

To put this relationship into clear focus, one need only to imagine the following: What would happen to prices in the United States if output were reduced to, say, the output level of Luxembourg and the amount of money stayed unchanged? Prices would skyrocket, not fall. Higher unemployment means lower output. As such, high unemployment is, by itself, a cause of high prices.

High prices and rapid inflation increase the prospects for high unemployment. With progressive income tax schedules, high price levels raise tax rates for each level of production. Rapid increases in prices result in firms underdepreciating their plant and equipment and also under-valuing their cost-of-goods sold. Pretax profits are overstated. This results in higher tax rates for businesses for each level of output. The increase in tax rates that result from higher prices and inflation reduce output directly and cause unemployment.

Fortunately, this view has two highly attractive characteristics. First and foremost, this view is supported by a large body of experience. Secondly, the policy implications offer some hope to a world badly afflicted with economic malaise. The Roth-Kemp bill would start the process in the correct direction.

Senator ROTH. Thank you, Professor.

Yesterday Professor Heller, in all candor, raised a number of strawmen and proceeded to knock them down as to certain statements. He asserted that some of us supporting the Roth-Kemp bill had made a mistake, but when all was said and done, he came out himself in favor of a $25 billion increase, so that I am not sure whether it was the authors he was opposed to or the tax cut. But the thing that he kept

saying was that the Kennedy tax cut worked, primarily, because stimulated demand and had a benign effect.

I take from your discussion that you strongly disagree with that.

Mr. LAFFER. Yes. But let us imagine that he was correct, that it worked exclusively on aggregate demand. Why not do it now too? Do we have too low unemployment now? Is our inflation too low? If it works through demand, let us do it that way.

There are reasonable areas for disagreement among economists. I just listened to President Kennedy's state of the Union message in 1963 a little while ago, when he was talking about these tax cuts, and he stressed the incentive. In fact, I think his statement was "a rising tide lifts all boats," and I think what he said is we are reinstituting in America a fundamental American principle which states that if a man works hard, if he produces more, if he shows drive and initiative, he should be allowed to keep some of his product. And basically that was strictly an incentive statement.

I guess I was an undergraduate during that time and we all studied the economics of Walter Heller and we were all convinced at that time that the father of the tax bill, Walter Heller, was correct in what he did; and I guess I still believe it.

By the way, they also cut the corporate profit tax substantially, instituted the investment tax credit. You are talking about a massive tax rate cut of very large proportions, much larger than your bill. They also did the Kennedy tariff cuts, which are the major cut in tax rates, and they did not have a delay factor in those tax cuts, if I remember correctly.

Senator ROTH. Mr. Laffer, I am going to ask Congresswoman Heckler to takeover, if she will, because I have to run and vote and I will return right afterward.

Representative HECKLER [presiding]. I would just like to have you discuss what the increasing tax rate faced by workers and business is doing to the cost of labor and the cost of investment in the United States.

Mr. LAFFER. It has quite a substantial effect on the price paid for labor and the price paid for capital.

There are two prices for labor and two prices for capital. There is a price paid by the purchaser and a price received by the producer. The difference between the price paid and the price received is what we call the tax wedge.

If you tax a product at a rate of 50 percent, the price paid is twice as high as the price received. As you raise those taxes, the prices paid keep going up and it makes the industry that is exceptionally heavily taxed uncompetitive. And as you go to very, very high tax rates any residual competitiveness disappears.

The same thing is true with labor and any category of factor in the U.S. economy.

Representative HECKLER. In terms of our international competition, you feel the Roth-Kemp bill is likely to place the American manufacturer of goods in a better position?

Mr. LAFFER. Very definitely. For example, the way we tax the steel industry is discriminatory. With the corporate profit tax, OSHA standards borne by the firm, pollution controls, there is a very high marginal tax rate on some of the major industries, especially steel,

utilities and a few others, because replacement cost accounting is not adopted for tax purposes.

Representative HECKLER. What evidence is there that high tax rates are costing us revenue?

Mr. LAFFER. There are some experiments, though anecdotal, that show evidence of what happens when tax rates are cut, and what happens to revenue.

In a recent experiment in the Commonwealth of Puerto Rico Governor Romero cut personal income tax rates by 5 percent across the board. At that time they were running a deficit and the tax exempt bond yields were about 12 percent, which puts them in the category with New York City. Governor Romero cut the tax rates across the board. This year I think the budget is in a slight surplus and the bond yields have gone down to about 8 percent. That is one example.

Let's look at New York City. Is there any question that more should be spent for repairing roads and more for sanitation? If you look at the wages of city employees, part of these wages are in pensions held in questionable asset forms. How do you get greater spending in New York? Do you raise the tax rates in New York and drive the last two businesses out or do you lower the taxes and bring the people back and provide a larger economic base and more employment; less poverty and more diversity of funds? Instead of welfare and unemployment, you get the city going again; and if you look you will see that New York City is quite a depressing sight.

But to come directly to the answer, the higher the tax rates are, the more likely revenues will decrease. And if you lower the tax rate, the more likely that revenues will increase. But raising revenue should not be the only objective. In fact, far from it. Unemployment and inflation are also important.

Representative HECKLER. Another very critical question is the issue of the timelag between the time that a tax reduction is passed and the time that the great beneficial consequences occur. What happens to the society in the interim and what kind of a timelag are we talking about?

Mr. LAFFER. With regard to the Federal tax rate cuts of the Kennedy era there did not appear to be a timelag. Budget deficits declined fairly straightforwardly.

In Puerto Rico the revenues increased the next year. Also, behavior is sometimes affected before a tax change becomes law. If manufacturers anticipate that a bill is going through they will invest ahead of time. Revenues increase before the actual signing of the bill because of the anticipation of the tax cut. I do not know what kind of lag we would have here. We have not done estimates of that. I do not think the lag would be very great; perhaps 1, 2, or 4 years. In the interim the capital market would be far more amenable to accepting the Federal debt during the transition period.

If you owned all of New York City's bonds and controlled their policy, would you raise the tax rates or lower them? The same thing is true for the United States as a whole.

Representative HECKLER. Why is it that you feel people are reluctant to accept this philosophy?

Mr. LAFFER. I am in the field of economics, not psychology. I do not know why. Frankly, I do not understand. It seems to me that there are two types of error an economy can make. Type 1 error is changing

policy when you shouldn't and type 2 error is not changing policy when you should. And it seems to me that in our country today there is something quite wrong with the economy. Our unemployment is too high for the fourth year of recovery. Inflation rates are too high. Perhaps it is time to change policy. The mistake of not changing policy can be very costly.

Representative HECKLER. I think Mr. Atkinson has some questions he would like to ask you.

Mr. ATKINSON. My name is Lloyd Atkinson, staff economist, and I am sitting in for Congressmen Reuss while he is on the floor.

It seems to me that there is one critical issue which you have raised and that is the extent to which a cut in taxes of the magnitude proposed by Congressman Kemp and Senator Roth would generate a sharp increase in incentives. The opposition in large measure stems from the fact that many people think that there has been a serious overstatement of the impact which the tax cuts will, in fact, have on incentives and that, in fact, all we will end up doing is stimulating aggregate demand, and setting off another surge of inflation.

The comment made by Mr. Heller yesterday that he was in favor of a tax cut was based in large measure on the fact that there has been an increase in payroll taxes and inflation and this has drained real personal consumer income; and second, that there is some unused capacity and it is not inappropriate to have some stimulus to aggregate demand.

The fundamental question we address in this issue of the Roth-Kemp bill is the magnitude of the tax change itself, spaced in over some period of time and fundamentally whether or not we can anticipate the increase in our potential GNP that presumably derives from these improvements in incentives, and therefore, whether the increases in aggregate demand would generate additional inflation; indeed, potentially could reduce the rate of inflation.

The question is, What kind of hard evidence can you bring to the committee that will demonstrate that these incentives are as highly responsive to changed tax rates as you say in your testimony?

Mr. LAFFER. The hard evidence is the examples looked at in the past, and there are a number of them. They are admittedly anecdotal, but expectations change with every piece of new evidence. There is a book entitled "The Way the World Works" by Judy Wanniski which compares Germany and Japan to the United States and Great Britain in terms of the differences in their performances. There is an economist by the name of Norman Ture who has done work on this. We have a group of eight or nine of us developing an economic model. The purpose of the model's development is to stand as a juxtaposition against some of the demand models. The estimates are coming out rather nicely. Again, they are not in final form, but I would be happy to share some of them. It does appear that the tax rates in the upper income tax brackets, and especially in the lower brackets, are inordinately high and are costing revenue, Federal revenue. No. 2, it suggests that high rates are costing revenue on the State and local levels. From our estimates, and those are very limited, but it does look like a cut along the lines of the Kemp-Roth bill would have positive revenue effects on the Federal level, because the Kemp-Roth bill cuts the lowest rates the most. In the inner-city, tax rates are exceptionally high because of the means test and the incomes test. For an inner-city Los Angeles family

of four whose income ranges from zero to $1,000 per month, the average tax rate is 86 percent. Our preliminary estimates are much in line with the fact that the cut in these rates, just using the aggregate supply side framework, will lead to revenue increases. But again I and my academic colleagues are not in the business of making your decisions, we are solely trying to provide you with help to help you make better decisions.

Mr. ATKINSON. Let us review the tax cut during the Kennedy era to see if it had the kind of impact which you allege. How much did our potential GNP grow relative to what it otherwise would have been, since that fundamentally is the key issue?

Mr. LAFFER. Average real growth was 5.3 percent per annum over the 6 years. Unemployment rates went from 6.5 to 3.8 percent. This fall was not because of deficit spending or the Vietnam war. The deficit grew more slowly than the rest of the budget, which grew slowly.

Senator ROTH [presiding]. If I can interrupt for a moment, because I know Senator Javits can only stay for a moment; he has to be on the floor with a bill being considered to help New York City. So at this time I would yield to Senator Javits.

Senator JAVITS. Thank you, Senator Roth.

Professor Laffer, I am very glad to meet you, and I deeply feel this matter deserves thorough examination.

Unfortunately, you have come here on the very day we have the New York City bill on the floor. I am interested in pursuing your thesis. Therefore, I asked Senator Roth whether you were likely to return, and he said you probably would before this matter comes to the action stag, and so I am going to ask the chairman to recall you, subject to your convenience, so that we may have a panel discussion. I respect what you believe and am very interested in listening to your views. I have never been found lacking in interest in new ideas, and yours are new ideas and a new approach.

Although I think your approach is more of a gamble than we ought to take, I am willing to listen and see what the proof is.

Obviously, this matter is high in your personal priorities. If you are agreeable, it might be interesting f you would take the Heller testimony and answer it point by point. If it would be simpler for you, subject to my approval, and I will carefully monitor it and sign the letter myself, I would be willing to have my staff actually raise Mr. Heller's points and questions.

But you may prefer simply to take the testimony yourself and answer it point by point.

Mr. LAFFER. Why don't I take it and answer it point by point. I think that is better.

Senator JAVITS. I think that may be better because you might not agree that we are paraphrasing it correctly. I appreciate your cooperation, for this would give us a document so that when you do appear again—and I very much hope you do—we will be able to tackle the matter with some preliminary analysis before us.

Mr. LAFFER. I would enjoy that, sir.

Senator JAVITS. When should we hold the panel, in 2 weeks, 3 weeks?

Mr. LAFFER. Let me go back and check. I have got to go to Europe shortly, and as they once said, I shall return.

Senator JAVITS. Thank you very much.

Senator ROTH. Thank you, Senator.

One of the things that disturbed me, Mr. Laffer, is that in the testimony yesterday Mr. Heller said that really taxes have no impact on savings; that the rate of savings of the American people pretty much runs the same irrespective. Would you agree with that?

Mr. LAFFER. No. There are two things that we want to separate here. Mr. Heller referred in his testimony to Denison's law, which is that savings are, roughly speaking, 16 percent of national income. There are two effects of increasing incentives on savings. If you increase incentives for saving, you increase savings and as savings expand, investment expands and in turn income expands. Both savings and income expand by an increase in incentive for savings.

Now, the question is, Does one of those expand more rapidly than the other? The only reason people save or invest is to consume in the future. To save is not the objective unless they can someday convert it back to consumption. So if you increase the incentive for savings, you increase the numerator of the savings ratio and increase the denominator of the total income; and the question is which is more dominant. And there is no reason in my mind for one to dominate the other. The ratio of savings to investment could stay the same—savings to income—but you could expand both at a more rapid rate. But there is nothing inconsistent with a constant savings rate and having increased incentives to savings, increased absolute savings and absolute income at the same time.

Senator ROTH. If we have a tax cut, just for business without cutting tax rates for individuals, will we get enough savings to fund the credit demand of big business and government?

Mr. LAFFER. Basically, businesses do not pay taxes. Their employees and shareholders do and consumers do, but businesses do not pay taxes; and people couldn't care less, frankly, where their taxes are taken out. What they care about is how much they get after all taxes. If you look at the structure and constellation of taxes, the sharp distinction between business taxes and personal income taxes is really missing. There is a precise correspondence between any given business tax rate cut and another personal income tax rate cut; precise correspondence because people pay taxes.

Senator ROTH. Are you familiar with the so-called Javits-Danforth proposal?

Mr. LAFFER. Not very much.

Senator ROTH. One of the charges made is that if we adopt the Roth-Kemp tax cut that the people who are really going to pay for that legislation are the poor and the disadvantaged; that it is going to create tremendous deficits, and because of tremendous deficits there will be less opportunity to help those on the lower end of the economic scale.

Would you agree with that?

Mr. LAFFER. No, I would not. I addressed the deficit question a little bit, but let me address the income distribution question. We know from economic theory that the incidence of a tax is not the same as the burden of a tax.

If you tax one group, the higher income group, you will hurt the lower bracket. Let me give you an example.

I grew up in Ohio. In that area there were always truckdrivers and their wages were low when there were no trucks around to drive. Unless you give a person an after-tax incentive for either abstaining from consumption or working harder to provide the requisite capital to back the company, you will not get trucks and the wages will remain low. If you lower the tax rate you increase investment and raise wages of drivers.

We are very much in that situation in the United States. My personal belief is we are taxing certain groups so much that we are losing the necessary capital to raise the wages of the lower income groups. In fact, to help the poor today I think it is important to reduce some of our exorbitantly high marginal rates.

The Kennedy tax rate cuts were very much along these lines. By cutting rates and increasing incentives the most where the tax rates were the highest, the unemployment rate fell and real wags rose. We are very much in that situation today that to help the lower income people you want to reorient taxes—in order to tax the rich there have to be some rich around to tax. But if you tax them too much they will be gone. Then the burden falls upon the poor. We are in that arena today.

Senator ROTH. In one sense it seems to me that what we are trying to do is increase the size of the pie so there is more to share so that the poor and disadvantaged move up into the million-dollar class rather than on the low end of the economic scale.

Mr. LAFFER. Yes. The only way a poor person can ever get rich is by earning income. But if you tax income excessively, you preclude any poor person from ever getting rich.

Senator ROTH. The one thing that bothers me the most about those who are opposing our reduction is that it does not benefit the low end of the economic scale the most, but it does cut roughly 33 percent across the board. But the thing that bothers me is the fact that there seems to be an attitude of soak the middle class and I am bothered by the fact that a man making $20,000 today might be making $35,000 a few years from now and he will have the same amount of purchasing power yet they are pushed into a higher tax bracket. They cannot buy as much as before because they have to pay taxes.

I think it is time some of these people in Congress, some of the big spenders, listen to what happened in California. People are concerned with the fact that they are working harder, wives are working harder, and they cannot keep the same standard of living.

As I have said many times, we are in the midst of a tax revolt and we had better begin listening to the complaints of the people.

Is there any reason why a general tax reduction cannot have the same beneficial impact that it did in Kennedy's 1960's? We agree that the situation is not analogous in every regard, but even Mr. Heller admitted that capacity is not being used. He admitted that there is high inflation and high unemployment. And won't our legislation promote wages too?

Mr. LAFFER. I believe it will take care of that in the short run. I believe the wages are similar to the 1960's. We had high unemployment rates and low capacity utilization, and the tax rate cuts today would do much of what this did then.

Mr. ATKINSON. Coming back to this issue, there is a curve for which your name is associated, I understand.

Mr. LAFFER. Yes, though I did not name it.

Mr. ATKINSON. Obviously it is important in terms of the kind of illustrations which you provide on the side of the curve you are on?

Mr. LAFFER. Yes.

Mr. ATKINSON. Because obviously, to the extent that we are on the side of the curve different from the side you are suggesting, a tax cut would have exactly the opposite effects, lower output——

Mr. LAFFER. No, no, please. The curve has only to do with the revenue. It has nothing to do with output. It is assumed to always respond to incentives. We are just talking about revenues on that curve. The tax base always expands when you cut the tax rates on the margin.

Mr. ATKINSON. How would we go about determining the optimum tax rate?

Mr. LAFFER. The longer you wait the more likely it is that revenues increase. If a guy builds a plant, let us say, and presumes a 10-percent tax, and the day it is built the tax jumps up, he does not throw the plant away. When something wears out he just does not repair it. It takes a long time to build capital stock and a long time to destroy it. The longer you wait the more revenue you are going to lose.

One of the Henry George theorems is when you want to tax for revenue purposes you want to tax the most that factor that can escape the tax the least and tax those factors the least that can escape the most. It appears to me that we are taxing the most those who can escape the most, and we are taxing the least those which can escape the least. For example, a plant can move from New York to Chicago, to Bermuda, anywhere; yet that is where we are taxing heavily. The next area is the inner city. Inner city inhabitants can go into a subculture and deal in a nonmarket economy, avoiding taxes. If you look at a lot of the activities, it is all done on a cash basis. Yet we tax the inner city among the highest, and they have all of these escape valves. This seems to me to be the incorrect structure of taxing for the purpose of revenue, and that is all we are talking about here.

Admittedly no one has the precise estimation of what these rates would do and never has had them on any model. But being imprecisely correct is not as bad as being precisely wrong.

Mr. ATKINSON. Why are we to believe this tax cut will lead to a large upsurge in work in response to an increase in pay? In the Kennedy era there was a response of working shorter hours and taking longer holidays. They opted for more leisure time.

Mr. LAFFER. Do not confuse the effects of a tax rate cut on and individual with the tax rate cut on the economy. We know that there are income effects of tax rates on individuals. But there is also a cumulative effect on the overall economy and the closed economy net income effect is zero.

Let me give you the example of an income change and the price of apples, the classic case Hicks used. If the price goes up, positive income effects occur because more is needed to be produced. There is a negative effect in that a few will buy less than before. The net income effect in the closed system is zero. However, the substitution effects cumulate right across the board. So that while individuals may be affected negatively, they net out across the whole economy; so that the emphasis is

plain wrong unless you can show major distribution effects on different groups. Then you could get a different answer, but in general the effects net to zero.

Mr. ATKINSON. But the fundamental question, as I said before, there would be very little disagreement with Kemp-Roth if we felt there would be the kind of expansion in our potential GNP as suggested. Yet we do tend to find that there should be an increase in work effort in the aggregate, which is the basis for the expansion of our potential GNP. Why do we find that seems to have worked the opposite before?

Mr. LAFFER. I am using the Economic Report of the President, and real income growth from 1961 to 1966, our real income grew at 5.4 percent. That is not a slowing down to me. Unemployment went from 6-plus percent to a little lower than 4 percent. That does not seem to be a worsening to me either. I do not know what you are referring to. Maybe people choose to take some longer vacations. If total output has expanded and some voluntarily choose longer vacations, I do not see any reason why we should not do so. I see nothing wrong with individual vacations.

Senator ROTH. I would like to make one comment on attached rates. I am not an economist, but if anyone goes back on their constituency—and there is no question about the fact that the American people feel taxes are too high. I think proposition 13 is one example of that. Another example of the fact that your tax rates are too high would be the development of subterranean economies to avoid the tax impact. Would that not be some evidence?

Mr. LAFFER. Sure, of course.

Senator ROTH. One final question, Mr. Laffer. Are you at all concerned about the spending side of the equation? I know that we all agree that long range will do more for the economy, but what should we be trying to do to hold down spending currently?

Mr. LAFFER. I am less concerned about spending because in many areas Government spending should actually be increased. For example, in New York City it would be a shame to hold down spending when the roads are in the shape they are in and the sanitation is in the shape it is in.

My perspective on spending comes from the time I was here in Washington. If a department's budget is cut, they usually do not cut the fat. They usually cut the lean. And the only way, I think, to cut spending is to permit private alternatives to Government spending and thereby make more efficiency. But seriously, an overall spending ceiling I would not go along with personally. In fact, I would be opposed to it.

Senator ROTH. Thank you very much.

[Whereupon, at 12:45 p.m., the committee recessed, to reconvene at 10 a.m., Tuesday, July 11, 1978.]

[The following letter and article were subsequently supplied for the record by Senator Roth:]

STAFF LETTER TO ARTHUR B. LAFFER TRANSMITTING ADDITIONAL WRITTEN QUESTIONS POSED BY SENATOR ROTH

CONGRESS OF THE UNITED STATES,
JOINT ECONOMIC COMMITTEE,
Washington, D.C., July 14, 1978.

Prof. ARTHUR B. LAFFER,
Rolling Hills Estates, Calif.

DEAR PROFESSOR LAFFER: During your testimony before the Joint Economic Committee on June 29, 1978, Senator Roth requested that I submit to you in writing additional questions for your written response. Per Senator Roth's request, the following questions are hereby submitted:

(1) Whether the tax cuts proposed by Kemp and Roth are appropriate is heavily dependent on (a) the magnitude of the increases in aggregate spending that they bring about and (b) the magnitude of the increase in our potential GNP—however measured—that they induce.

Many economists favor a relatively simple tax cut in 1979 on the order of $15–$25 billion. A tax cut of this size is deemed necessary in view of (a) the continued presence of slack within the economy and (b) the losses in purchasing power attributable to the "inflation tax" and the legislated increases in payroll taxes. In the minds of most economists, then, the tax cut is needed in order to raise aggregate spending above what it would otherwise be in order to ensure a level of economic activity that is closer to our potential.

Moreover, it is likely that the tax increases attributable to the "inflation tax" and the payroll tax are likely to be sizable for the next several years, and future offsetting legislated tax cuts in 1980 and 1981 might well be called for in order to ensure that our economy continue to operate at or close to our GNP potential. In view of the fact that we have, at best, very imprecise knowledge about the future course of aggregate private and government spending, do you think it is appropriate for the government to lock itself into sizable tax cuts of the magnitude proposed by Roth and Kemp for 1980 and 1981 without a better idea of the magnitude of the tax cuts that might be needed in order to ensure a high level of economic activity consistent with a non-accelerating rate of inflation?

(2) You state in your testimony: "By partially redressing the counterproductive structure of current tax rates, (the Kemp-Roth bill) most likely will lead to a substantial increase in output, and in the course of very few years, will probably reduce the size of government deficits from what they otherwise would have been." Moreover, you go on to state that the effects of the Kemp-Roth bill "will be to lower the progressive nature of income taxes." * * * (It) will increase those incentives the most where the incidence of taxation is currently the highest."

The implications of your views are that the Kemp-Roth bill will have a decidedly positive impact on our potential GNP as well as our actual GNP, and further that tax revenues will be larger than otherwise (which is consistent with the view that we are currently operating in the prohibitive range of the so-called "Laffer Curve").

(*a*) Now, the revenue feedback resulting from the Kemp-Roth bill will exactly equal the initial tax reduction only if the growth of actual GNP per dollar of tax reduction is equal to the reciprocal of the overall marginal federal tax rate. Under present law, this rate is about 25 percent which implies a tax multiplier of 4—a numerical value that is significantly larger than the implied tax multipliers calculated from most econometric models of the U.S. economy. How do you reconcile your revenue feedback conclusions with those econometric models that imply less than proportionate revenue feedbacks? And what evidence can you provide to this Committee in support of the implied numerical value of your tax multiplier?

(*b*) Using CEA estimates of the gap between our potential GNP and our actual GNP for the years 1979–1981, and assuming as our baseline, current tax law, a tax cut of the size proposed by Kemp and Roth produces both higher inflation and lower tax revenues than otherwise. Even Norman Ture's projections

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and those developed by Michael Evans imply smaller future tax revenues than otherwise. How do you reconcile these results with your own conclusions respecting the tax revenue impact of the proposed Kemp-Roth tax cut?

(*c*) If the Kemp-Roth tax cut is to produce "a substantial increase in output", "a good effect on inflation", and an expansion of tax revenues, there must of necessity be a huge increase in aggregate spending and an increase potential GNP as well. Can you explain to this Committee (i) how the tax cut will affect our potential GNP, (ii) how the change in potential GNP feeds back to affect aggregate spending and (iii) how one would go about determining the value of the "tax multiplier" in the face of this aggreate demand and potential output interaction.

I would very much appreciate your reply within the next two weeks. I thank you for your cooperation.

Sincerely,

LLOYD C. ATKINSON,
Senior Economist.

[EDITOR'S NOTE.—The above letter was not responded to by Mr. Laffer at time of printing the hearings.]

[From the Public Interest, Summer 1978]

The breakdown of the Keynesian model

PAUL CRAIG ROBERTS

THERE is much talk these days about "the crisis in Keynesian economics." That some such crisis exists is evident from the bewilderment and impotence our economic policy makers are displaying in their confrontation with economic reality. But what exactly is the nature of this crisis? What went wrong and what can put it right?

The answer, I would suggest, is almost embarrassingly simple. Today in the United States, public economic policy is formulated in bland disregard of the human incentives upon which the economy relies. Instead it is based on the Keynesian assumption that the gross national product (GNP) and employment are determined only by the level of aggregate demand or total spending in the economy. Unemployment and low rates of economic growth are seen as evidence of insufficient spending. The standard remedy is for government to increase total spending by incurring a deficit in its budget. GNP, it is believed, will then rise by some multiple of the increase in spending. Keynesian economics focuses on estimating the "spending gap" and the "multiplier" so that the necessary deficit can be calculated.

This view of economic policy is enshrined in the large-scale econometric forecasting models upon which both Congress and the

Executive Branch rely for simulations of economic policy alternatives. It is a view that is extraordinary in its emphasis on spending. True, it is obvious that if people did not buy, no one would produce for market. It also seems obvious that the more people buy, the more will be produced and, therefore, that the use of government fiscal policy to increase total demand will increase total production or GNP. All this is so obvious to Keynesians that they believe any fiscal policy that produces an increase in government spending, even a spending increase matched by a tax increase, will produce an increase in GNP.

The concept of the "balanced-budget multiplier" illustrates the primacy that Keynesians give to spending as the determinant of production. According to this concept, government can increase total spending and, thereby, GNP by raising taxes and spending the revenues. The reasoning is as follows. People do not pay the higher taxes only by reducing their spending (consumption); they also reduce their savings. Therefore, when taxes are raised, the decrease in private spending is less than the increase in government spending. Conversely, a cut in tax rates, matched by a decrease in government spending, would result in a reduction in total spending (i.e., saving would increase), a fall in GNP, and a rise in unemployment.

For years after the 1964 Presidential election, college students were asked a standard question on economic exams: What would happen if Barry Goldwater's prescription for a tax cut, matched by a spending cut, were implemented? They missed the answer if they did not reply that there would be a reduction in aggregate demand and, therefore, a fall in GNP and employment. Alas, for too many policy makers that is still the answer.

Since the "balanced-budget multiplier" implies that the greater the increase in taxes and in government spending, the greater the increase in GNP, it is a wonder no one ever asked what happens to production as tax rates rise. This question confronts economic policy with the incentive effects it has disregarded. It should be obvious even to Keynesians that when marginal tax rates are high, people will prefer additional leisure to additional current income, and additional current consumption to additional future income. As work effort and investment decline, production will fall, regardless of how great an increase there might be in aggregate demand. Such a recognition of disincentives implies a recognition of incentives, and Keynesians are gradually having to rethink the answer to their standard question about Barry Goldwater. Once one recognizes that people produce and invest for income, and that income depends on

tax rates, one has reached the realization that *fiscal policy causes changes not just in demand but also in supply.*

The economics of supply

The economics of spending has thoroughly neglected the economics of supply. On the supply side there are two important relative prices governing production. One price determines the choice between additional current income and leisure; the other determines the choice between additional future income (investment) and current consumption. Both prices are affected by the marginal tax rates. The higher the tax rates on earnings, the lower the cost of leisure and current consumption, in terms of foregone after-tax income.

As an illustration, consider the decision to produce. There are two uses of time—work and leisure. Each use has a price relative to the other. The price of additional leisure is the amount of income foregone by not working, and it is influenced by the tax rates. The higher the tax rates, the smaller the amount of after-tax income foregone by enjoying additional leisure. In other words, the higher the tax rates, the lower the relative price of leisure. When the marginal tax rate reaches 100 percent, the relative price of additional leisure becomes zero. At that point, additional leisure becomes a free good, because nothing has to be sacrificed in order to acquire it.

We often hear that a person works the first five months of the year for the government, and then starts working for himself. But that is not the way it goes. The first part of the year, he works for himself; he only begins working for the government when his income reaches taxable levels. The more he earns, the more he works for the government, until rising marginal rates discourage him from further work.

Take the case of a physician who encounters the 50-percent rate after six, eight, or 10 months of work. He is faced with working another six, four, or two months for only 50 percent of his earnings. Such a low after-tax return on their efforts encourages doctors to share practices, to reduce their working hours, and to take longer vacations. The high tax rates thus shrink the tax base by discouraging them from earning additional amounts of taxable income. They also drive up the cost of medical care by reducing the supply of medical services. A tax-rate reduction would raise the relative price of leisure and result in more taxable income earned and also in a greater supply of medical services.

The effect of tax rates on the decision to earn additional taxable

income is not limited to physicians or to the top tax bracket; it operates across the spectrum of tax brackets. Studies by Martin Feldstein show that the tax rates on the average worker practically eliminate the gap between his after-tax take-home pay and the level of untaxed unemployment compensation he could be receiving if he did not work. In this case, a marginal tax rate of 30 percent (including state and Federal income taxes and Social Security taxes) reduces the relative price of leisure so much that, by making unemployment competitive with work, it has raised the measured rate of unemployment by 1.25 percent and shrunk GNP and the tax base by the lost production of one million workers.

It is useful to give another example to illustrate that it is not just the top marginal rate that causes losses to GNP, employment, and tax revenues by discouraging people from earning additional taxable income. Blue-collar workers do not yet encounter the top marginal tax rate (although if inflation continues to push up money incomes, and the tax-rate structure remains unadjusted for inflation, it will not be many years before they do). Nevertheless, the marginal tax rates that many blue-collar workers already face are high enough to discourage them from earning additional taxable income. Take the case of a carpenter facing only a 25-percent marginal tax rate. For every additional $100 he earns before income tax, he gets to keep $75. Suppose that his house needs painting and that he can hire a painter for $80 a day and hire himself out for $100 a day. However, since his after-tax earnings are only $75, he saves $5 by painting his own house, so it pays him to choose not to earn the additional $100. In this case, the tax base shrinks by $180—of which $100 is the foregone earnings of the carpenter, and $80 is the lost earnings of the painter who is not hired. (Also, the productive efficiency associated with the division of labor vanishes.)

Suppose, instead, that the marginal tax rate on additional earnings by the carpenter were reduced to 15 percent. In this case, his after-tax earnings would be $85, and it would pay him to hire the painter. The reduction in the marginal tax rate would thus expand the tax base upon which revenues are collected by $180.

Studies by Gary Becker have made it clear that capital and labor are employed by households to produce utility through non-market activities (e.g., a carpenter painting his own house). Utility produced in this way is not purchased with income subject to taxation. Therefore, the amount of household-owned capital and labor supplied in the market will be influenced by marginal tax rates. The lower the after-tax income earned by supplying additional labor and

capital in the market, the less the utility that the additional income can provide, and the more likely it is that households can increase their utility by allocating their productive resources to non-market activities. A clear implication of the new household economics is that *the amount of labor and capital supplied in the market is influenced by the marginal tax rates.*

Now consider how relative prices affect the choice concerning the use of income. There are two uses of income, consumption and saving (investment), and each has a price in terms of the other. The price of additional current consumption is the amount of future income foregone by enjoying additional current consumption. The higher the tax rates, the smaller the amount of after-tax future income foregone by enjoying additional current consumption. In other words, the higher the tax rates, the lower the relative price of current consumption.

Take the case of an Englishman facing the 98-percent marginal tax rate on investment income. He has the choice of saving $50,000 at a 17-percent rate of return, which would bring him $8,500 per year before taxes, or purchasing a Rolls Royce. Since the after-tax value of that $8,500 additional income is only $170 per year, the price of additional consumption is very low: He can enjoy having a fine motor car by giving up only $170 per year of additional income. This is why so many Rolls Royces are seen in England today. They are mistaken for signs of prosperity, whereas in fact they are signs of high tax rates on investment income.

A tax-rate reduction would raise the price of current consumption relative to future income, and thus result in more savings, making possible a growth in real investment. A rate reduction not only increases disposable income and total spending, *it also changes the composition of total spending toward more investment.* Thus, labor productivity, employment, and real GNP are raised above the levels that would result from the same amount of total spending more heavily weighted toward current consumption.

Tax cuts and rebates

The econometric models upon which the government relies for simulations of policy alternatives do not take into account these supply-side effects on GNP of these relative price changes. Consider the alternatives faced by the Keynesian policy maker who wants "to get the economy moving again." His goal is to increase aggregate demand or total spending. How can he do this? He has the choice

between the balanced-budget multiplier (i.e., increasing both taxes and government spending) or a deficit. He will discard the balanced-budget multiplier, because it is relatively weak and deficits are more politically acceptable than legislating higher tax rates. Having settled on a deficit, he has to choose how to produce it. He can hold tax revenues constant and increase government spending, or he can hold government spending constant and cut tax revenues. In the latter case, he has a choice between rebates and permanent reductions in tax rates. Wanting the most stimulus for his deficit dollar, he will ask for econometric simulations of his three policy alternatives: a tax rebate, a tax rate reduction, or an increase in government spending programs.

The simulations, all based on Keynesian assumptions, will show that a revenue reduction of a given amount, whether in the form of a rebate of personal income taxes or a reduction in personal-income-tax rates, will raise disposable income—and thereby spending and GNP—by the same amount. The policy maker may prefer the rebate for reasons of "flexibility." The spending stimulus may not be required in the following year, and, if it is, he has the option of providing it either by another rebate or by an increase in government spending programs. But on the basis of the econometric simulation, he will be indifferent as to the choice between rebates or rate reductions. As for his third option, an increase in government spending programs, the simulation may report that, dollar for dollar, an increase in government purchases (as contrasted with transfers) will have a more powerful impact on GNP because the government spends all of the money, whereas if it is returned to consumers they will save part of it. Based on the econometric simulation of his alternatives, he will conclude that there is no compelling economic reason in favor of any of the three, and he will make his choice on a political basis.

But the econometric models have misled the policy maker. Unlike a reduction in personal-income-tax rates, a rebate affects no individual choice at the margin. It does not change the relative prices governing the choices between additional current income and leisure or between additional future income and current consumption. It does not raise the relative prices of leisure and current consumption. Therefore, a rebate directly stimulates neither work nor investment. For any given revenue reduction, a rebate cannot cause as great an increase in GNP as a rate reduction, because it does not affect the choices that would cause people to allocate more time and more income to increasing production for the market.

An increase in government spending fares no better by comparison, and may fare even worse. It too fails to raise the after-tax rewards for work and investment. Furthermore, it increases the percentage of total resources used in the government sector. If the government sector uses resources less efficiently than the private sector, as seems to be the case, the result is a decline in the efficiency with which resources are used—which means GNP would be less than it otherwise would be. Yet the econometric simulations of the policy maker's alternatives will pick up none of the incentive and disincentive effects of these relative price changes. Instead, they focus on the effects of these alternatives on disposable income and on spending.

There are a number of adverse consequences of this extraordinary preoccupation with spending. One is that *the models exaggerate the net tax-revenue losses that result from cutting tax rates.* The only "feedback effect" on the tax base and tax revenues that they provide for is the expansion of GNP in response to an increase in demand. They do not provide for the expansion in GNP that results from higher after-tax rewards for work and investment. The supply-side "feedback effects" are ignored. Similarly, revenue gains from tax-rate increases will be overestimated, because the disincentive effects are left out.

A second consequence follows from the popular misidentification of a tax rebate as a tax cut, and from a similar tendency on the part of most policy makers to see rebates and rate cuts as variations of the same policy instrument. If Milton Friedman is correct that personal consumption is a function of *permanent* income, a temporary rebate has little impact even on spending. Thus, on the basis of experience with rebates, tax cuts *per se* might come to be seen as relatively ineffectual, leaving the field open to proponents of government spending programs.

A third consequence is that the true effects of large tax increases (such as the proposed energy taxes, or the $227-billion increase in the Social Security tax over the next decade) will not be accurately calculated. Policy makers see these tax increases as withdrawals from disposable income and spending, and their only concern is "to put money back" into spending so that aggregate demand does not fall. However, these tax increases change the *relative* prices and incentives of leisure and work, consumption and investment. They produce resource reallocations that have adverse implications for employment and the rate of economic growth. Yet the econometric models, as now constructed, flash no warning lights.

Consider what Arthur Laffer, in the *Wall Street Journal,* has called

the "tax wedge." The Social Security tax increase provides a good example of this phenomenon. It is a tax on employment, and, as economists should know, a tax on employment will reduce employment. The employer's decision to hire is based on the gross cost to him of an employee. The employee's decision to work is based on his after-tax pay. We know that the higher the price, the less the quantity demanded, and the lower the price, the less the quantity supplied. The Social Security tax both raises the price to the demander and lowers it to the supplier. By increasing the Social Security tax, policy makers reduced both job opportunities and the inclination to work.[1] They raised the cost of labor relative to capital for the employer, and they narrowed the gap between unemployment compensation and after-tax take-home pay for a wider range of workers. Since the revenues available for paying Social Security benefits depend on both the tax rates and the number of people paying into the system, the increase in rates will be offset to some degree by a decrease in the number of people paying into the system. It is hard to see how the Social Security system can be saved by decreasing employment, or how increasing the demand for unemployment compensation is likely to free general revenues for Social Security benefits.

"Crowding out" investment

There are at least two other important points on which economic policy is misinformed by the neglect of incentives and of choices made at the margin. One is the impact on GNP of reductions in the corporate-income-tax rate, and the other is the controversy over whether government fiscal policy "crowds out" private investment.

Simulations run by the Congressional Budget Office and the House Budget Committee on two of the three large-scale commercial econometric models show *declines* in GNP as a result of reductions in corporate-tax rates. In one of the models, corporate investment did not depend on after-tax profits in a very strong way, but was very sensitive to changes in interest rates. Since interest rates rise as the Treasury increases its borrowing to finance the deficit resulting from

[1] Theoretically, the effect on work effort depends on the present value of the Social Security benefits and taxes. If the increased tax means increased future benefits, the employee's work decision will take into account his increased future income, as well as his reduced current income. However, the recent changes in the Social Security law raised taxes and reduced benefits as a proportion of pay before retirement. As the *Wall Street Journal* put it, "the extra money will go to pay people now or soon to be on the retirement rolls, not to finance your own high living in the 21st century" (February 6, 1978).

the tax cut, investment falls, and *the model predicted a decline in GNP as the result of a tax-rate reduction that increased the profitability of investment.*[2]

The other model predicted that a corporate-tax-rate reduction would slightly raise real GNP after a lag of a couple of quarters, but it predicted a lower nominal GNP for two years. Nominal GNP declined because the corporate-tax-rate reduction reduced the user cost of capital, the price mark-up, and thereby the inflation rate, thus lowering the nominal price level.

To the extent that Keynesians think about the "crowding out" of private investment by fiscal policy, it is in terms of upward pressure on interest rates as a result of government borrowing to finance budget deficits. They do not realize that *investment is crowded out by taxation, regardless of whether the budget is in balance.* To understand how, consider the following example. Suppose that a 10-percent rate of return must be earned if an investment is to be undertaken. In the event that government imposes a 50-percent tax rate on investment income, investments earning 10 percent will no longer be undertaken. Only investments earning 20 percent before tax will return 10 percent after tax. Taxation crowds out investment by reducing the number of profitable investments. When tax rates are reduced, after-tax rates of return rise, and the number of profitable investments increases.

So "crowding out" cannot be correctly analyzed merely in terms of events in the financial markets: "Crowding out" occurs in terms of real output. It is the preempting of production capacity by government outlays, regardless of whether these outlays are financed by taxing, borrowing, or money creation.

Responding to incentives

A concern with the supply-side effects of fiscal policy is incompatible with the concept of economic policy that currently reigns in the Congress and in the Executive Branch. Members of the House Budget Committee asked Alice Rivlin, Director of the Congressional Budget Office, and Bert Lance, then Director of the Office of Management and Budget, about the neglect of the incentive effects of tax-rate changes on supply and also about the econometric predic-

[2] According to staff in the Office of Management and Budget, there have recently been changes in the model, but one can still get the perverse result because a reduction in the tax rate directly and substantially reduces multi-unit housing starts.

tions that GNP would fall in response to a reduction in corporate tax rates.

Dr. Rivlin said that she and her staff had been "particularly troubled" by model findings that GNP declines if corporate tax rates are reduced. However, she went on to say:

> Studies have generally found that tax-rate changes are less important than changes in the cost of capital and changes in levels of national output in influencing the level of investment. It follows that an investment tax credit or liberalized depreciation will increase investment more than a corporate-tax-rate reduction of equivalent revenue loss. While we do not believe that corporate-tax-rate cuts reduce investment, it would not be surprising to find that tax cuts had only a minor expansionary effect.

The OMB staff reply to this question was ambiguous.

Both CBO and OMB realized that the question about incentive effects most fundamentally challenged their concept of economic policy. The comments of Rivlin, Lance, and the OMB staff all unequivocally acknowledged that the econometric models upon which they rely for guidance in the choice of economic policy alternatives do not include any relative price effects of changes in personal-income-tax rates. However, since they believe that the performance of the economy is a function of spending levels, not of production incentives, they expressed no concern over this neglect. They said that economic theory and empirical studies leave it unclear whether the neglected supply-side effects are important; regardless of how the issue is resolved, they questioned the practical importance of supply incentives for short-run policy analysis.

There are two parts to this argument. One is that it is unclear whether lowering personal-income-tax rates will increase or reduce work effort. The other is that it is unclear whether any incentive effects on work effort and investment would show up as quantitatively important in a short-run policy framework. The first proposition questions the existence of the incentive effects; the second questions whether they would be effective in time to deal with an immediate problem of economic stabilization.

It is easy to dispose of the latter point. The long-run consists of a series of short-runs. If policies that are effective over a longer period are neglected because they do not have an immediate impact, and if policies that are damaging over the longer period are adopted because they initially have beneficial results, then policy makers will inevitably come to experience, sometime in the future, a period when they will have no solution for the crisis they have provoked. In the United States, that future might be now.

As for the first point, Rivlin acknowledged that a personal-income-tax-rate reduction raises the relative price of leisure, and that work effort will increase as people substitute income for leisure. This is known in economics as the "substitution effect," and it works to increase supply. However, Rivlin also said:

> It is also theoretically arguable that when a tax cut provides people with more after-tax income, many of them will *reduce* effort through what is called the income effect. For most people, leisure has some positive value, and it may even be a "luxury" good; these people could respond to a tax reduction by reducing their working hours, benefiting from more leisure time and still maintaining their after-tax income. For other people who like their work, there may be little or no labor supply response to the income *or* the substitution effect. In much of the United States economy, work weeks are fixed, leaving little possibility for individuals to make marginal adjustments in hours of work.

In other words, CBO believes that the "income effect" works to decrease supply.

Rivlin then went on to say that it was an empirical question whether the "income effect" offset the "substitution effect," referred to a narrow range of studies that left the question unresolved, and concluded: "In the range of policy options that we have been dealing with, I think the assumption that changes in marginal tax rates have no quantitatively significant effect on labor supply is quite plausible."

But the concept of a targeted or desired level of income unaffected by the cost of acquiring such income is foreign to the price-theoretical perspective of economic science. Rivlin's idea that people respond to a cut in income-tax rates by maintaining their existing income levels while enjoying more leisure implies that, if their tax rates went up, they would work harder in order to maintain their desired income level. Lester Thurow has actually employed this reasoning to argue for a wealth tax. According to Thurow, a wealth tax is a costless way to raise revenues because the "income effect" runs counter to and dominates the "substitution effect." He assumes that people have a targeted level of wealth, irrespective of the cost of acquiring it. Therefore, he says, a tax on wealth will cause people to work harder in order to maintain, after tax, their desired wealth level.

Note the perverse ways in which people respond to incentives and disincentives according to the Rivlin-Thurow line of argument: When tax rates go down and the relative price of leisure rises, people demand more leisure; when tax rates go up and the relative price

of leisure falls, people demand less leisure. In economics, any time the "income effect" works counter to the "substitution effect," we have the relatively rare case of what is called an "inferior good" (i.e., people purchase less of it as their income rises). Since income is command over all goods, Rivlin's argument implies that *all* goods are inferior goods: A tax cut will cause people to purchase only more leisure, not more income (i.e., goods). What kind of people are these? Well, the only kind of people who fit this kind of economic analysis are people who respond to a monetary incentive in perverse ways.

Perhaps Rivlin merely meant to say that lower tax rates would allow people to have a *little* more income for a *little* less work. Even so, as long as she maintains that the "income effect" works counter to the "substitution effect," her argument carries the implication that goods in general are inferior.

A perverse logic

Whatever the weight one assigns this point, there is a more fundamental defect in her argument. Notice the stunning inconsistency: People respond to a tax-rate reduction "by reducing their working hours . . . and still maintaining their after-tax income." But it is impossible for people *in the aggregate* to reduce their work effort and maintain the same level of *aggregate* real income! If people respond to tax cuts by working less, real GNP would fall, and it would be impossible to increase real disposable income, spending, and demand in the aggregate. Rivlin's argument is directed against the effectiveness of incentives in raising aggregate output, but if she were correct, it would mean that Keynesian fiscal policy also is ineffective!

The fatal error in the Rivlin-Thurow argument can be put this way: It derives from trying to aggregate a series of partial equilibrium analyses (individual responses to a change in relative prices) and, in the aggregate, ignoring the *general* equilibrium effects.

There are various ways a non-economist can grasp this point. Assume that the government cuts taxes and maintains a balanced budget by reducing spending. In this case, the higher income accorded the taxpayers whose rates are reduced must be matched by a negative impact on the incomes of recipients of government spending. Some or all of these may be the same people. Assume, for example, that both the tax burden and government spending are evenly distributed. In this case the "income effect" (the substitution of leisure for work) "nets out" for each individual. Since the ag-

gregate income effect is zero, it cannot offset the "substitution effect" (the substitution of work for leisure).

If taxes are cut and government spending is unchanged (resulting in a budget deficit), the nominal disposable income of taxpayers as a group will rise relative to the nominal disposable income of the recipients of government spending as a group. The former will be able to bid real resources away from the latter. The real income gains of the former will be matched by the real income losses of the latter. Since the bidding will raise prices, the real income loss might be suffered by individuals who hold money. Regardless of who loses and who gains, the individual income effects "net out," leaving only the "substitution effects," which unambiguously increase work effort.

There can be no aggregate "income effect" unless the impact of incentives is to raise real aggregate income. Economic theory makes it perfectly clear that a tax-rate reduction will increase work effort and total output.

In the final analysis, Rivlin's argument is not that the supply-side incentive effects are unimportant, but the equally false argument that their impact is perverse—that is, only a tax-rate *increase* can produce a rise in real national income! She may not actually believe any such thing, of course—but that is where her reasoning leads her.

From economics to politics

An economist might see the flaw in the Rivlin-Thurow argument, but it is not obvious to politicians. Take something simple, like Rivlin's assertion that a fixed work-week precludes adjustment of the labor supply to tax-rate changes. To an economist her assertion is obviously false, but to the politician it sounds reasonable enough. He will not realize that the "adjustments" will be reflected in absenteeism rates, turnover rates, the average duration of unemployment, labor negotiations for shorter work-weeks and more paid vacation rather than higher wages, and in the quality and intensity of work. Nor will he think of the entrepreneur who, because of high tax rates, loses his incentive to innovate—to make the economy itself (all of us) more productive.

Besides, one has to have an idealistic view of government to believe that politicians even want to know. The Keynesian concept of the economy is that of an unstable private sector that must be stabilized by fiscal and monetary policies of the government. This view has served as a ramp for the expansion of the interests of gov-

ernment. It has also served the interests of economists by transforming them from ivory-tower denizens to public-spirited social activists, a transformation which has much increased their power and enlivened their life styles. Unemployment can always be said to be too high. And the rate of economic growth can always be found to be below "potential." This means that there is always a "scientific" economic reason for expanding government spending programs that enlarge the constituencies of the Congress and of the Federal bureaucracy. From the standpoint of the private interests of policy makers, Keynesian economic policy will always be judged a success.

To write about all of the problems of econometrics and economic policy would require a book, not an article, but one other important problem must be mentioned in closing. Professor Robert Lucas has demonstrated that the standard econometric models assume that the structure of the economy remains invariant under wide variations in policy paths. What this means is that the models assume that people do not learn. But people do learn, and their expectations change as they experience various policies: They may not repeat the same behavior in response to the same policy at different times. Therefore, the policy simulation may always misinform the policy makers. This is not an optimistic note on which to end an article about public policy in a country that believes we need a great deal of it. But our faith in public policy has exceeded our knowledge, and we will find out that, in this area, there is no such thing as free faith.

THE 1978 MIDYEAR REVIEW OF THE ECONOMY

TUESDAY, JULY 11, 1978

INVESTMENT IN THE CURRENT RECOVERY

CONGRESS OF THE UNITED STATES,
JOINT ECONOMIC COMMITTEE,
Washington, D.C.

The committee met, pursuant to recess, at 10:25 a.m., in room 6226, Dirksen Senate Office Building, Hon. Lloyd Bentsen (vice chairman of the committee) presiding.

Present: Senators Bentsen and Hatch.

Also present: Louis C. Krauthoff II, assistant director; Jack Albertine, Lloyd C. Atkinson, William R. Buechner, Thomas F. Dernburg, and M. Catherine Miller, professional staff members; Mark Borchelt, administrative assistant; and Robert H. Aten, Charles H. Bradford, Stephen J. Entin, and Mark R. Policinski, minority professional staff members.

OPENING STATEMENT OF SENATOR BENTSEN, VICE CHAIRMAN

Senator BENTSEN. Gentlemen, I apologize for the lateness of the start of the hearings. I had a conflict in my schedule.

The sluggish recovery of business fixed investment during the current recovery is a serious cause for concern. It has been an important contributing factor to our poor productivity performance, and it has therefore exacerbated inflationary pressures. It has slowed the rate of growth of our potential output, it has reduced the international competitiveness of our industries, and it raises the specter of a possible recurrence of the shortages and bottlenecks of 1973.

The upswing in real business fixed investment from the trough of the recent recession in 1975 has been markedly weaker than the average experience for other postwar recovery periods. The investment ratio reached a peak of 11 percent in 1966. Today, that ratio is an unsatisfactory 9.3 percent. If we net out those Government-mandated expenditures for such outlays as pollution abatement—which do not add to productive capacity—the picture is worse still. There is, finally, little indication that much improvement is to be expected in the near term.

A year ago, the administration's targets for 1981 called for a reduction of the unemployment rate to 4¾ percent, a reduction in the rate of inflation to $4\frac{3}{10}$ percent, and a balanced Federal budget with Federal expenditures equal to 21 percent of GNP. It was recognized that at-

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tainment of these targets required extraordinary strength in the private sector, in particular a rate of growth of real business fixed investment of 10 percent for 5 successive years. However, fixed investment has shown no sign of proceeding at such a rate, and the targets—with the possible exception of the employment target—are therefore unattainable.

Why are rates of return on investment so much lower today than they were in the midsixties? Is it true, as many economists have alleged, that the real culprit is inflation? Or is it oppressive taxation? Or are there basic trends in technology and resource supply that are making for an economy that is less capital intensive?

I am hopeful that the panel of experts here today will provide us with some answers to these questions and a solution to our investment dilemma. A number of other countries—most notably Germany and Japan—have been successful in attaining much higher rates of capital formation than we have in the United States. What accounts for these differences? And what can we in Government do to speed up the rate of capital formation? Will a reduction of the capital gains tax do the trick? Is there any evidence to suggest that a tax cut of the sort proposed by Senator Roth and Congressman Kemp will increase incentives for saving and investment? What would be the impact of an enlarged and expanded investment tax credit? What should be the role of monetary policy in supporting capital formation?

I am hopeful that this distinguished panel will provide us with the guidance we so badly need.

Our witnesses today are: Mr. Michael K. Evans, president of Chase Econometrics; Mr. Martin Feldstein, professor of economics at Harvard University and president of the National Bureau for Economic Research; Mr. Gary Fromm, director, Stanford Research Institute; and Mr. Charles D. Kuehner, director of security analysis and investor relations, American Telephone & Telegraph Co.

Gentlemen, welcome to this hearing of the Joint Economic Committee. Let us proceed in alphabetical order. Mr. Evans, will you please begin.

STATEMENT OF MICHAEL K. EVANS, PRESIDENT, CHASE ECONOMETRIC ASSOCIATES, INC., BALA CYNWYD, PA.

Mr. EVANS. Thank you, Senator Bentsen.

I am very pleased to have the opportunity to discuss investment and the current recovery and discuss my somewhat controversial views this morning.

The present economic recovery has been distinguished for its longevity if not its robustness. The current upturn is now longer than any other peacetime postwar expansion, and is within hailing distance of the alltime record.

Yet, it is extremely curious that fixed business investment spending has had virtually nothing to do with this sustained upturn.

In some of the figures I have in my prepared statement, we can see that plant and equipment spending is still below 1973 peak levels, while consumption has actually outstripped the average gain in previous postwar expansions.

So the present boom we are now in has consisted almost entirely of consumer behavior improving with no assist at all from investment spending.

If we look at figure 2, it shows much the same picture.

Figure 2 shows the ratio of fixed business investment to GNP and by any measure this ratio has dropped off sharply in the past 4 years from the peaks it had reached in the mid-1960's and early 1970's.

If we adjust investment for the fact that much of investment in capital stock that has been in nonproductive areas, that is, in Government mandated measures with respect to pollution and other measures, we see that this investment has dropped to an alltime postwar low.

Clearly, something is wrong. Investment has not recovered, even though the rest of the economy is not doing badly. Unemployment has dropped below 6 percent, and we are beginning to see various bottlenecks emerge.

Why has investment done so poorly? One answer, it seems to me, is with respect to investment and tax rates. We have had three investment booms in the postwar period, one 1955 to 1956; one, 1964 to 1966; and one, 1972 to 1973.

Each of these investment booms was preceded in a previous year by a change in the tax code favorable to investment.

In 1954, we ended the excess profits tax, and we also had a liberalization of depreciation allowances.

In 1962, we had an increase, or the beginning of the investment tax credit of 7 percent, and a liberalization of the depreciation tax levies of 20 percent.

Finally, in 1964, we had a corporate rate cut of 10 percent, which resulted in an increase in investments of 20 percent the next year, the only time that has ever happened.

Finally, in 1971, we had the reinstatement of the investment tax credit and a further 20-percent reduction in taxes.

So, we have a 1-to-1 correspondence with changes in the tax code favorable to investment and investment booms in the next year.

For the last 4 years, the tax code has turned unfavorable to investment. We have had the end of the loopholes, and the net effect is to raise the overall tax rate.

The next figure, figure 4, shows a very close correlation between the investment ratio and the ratio of stock prices to construction costs.

This ratio lags 1 year, to indicate the time necessary for a change in market forces to result in new plant and equipment spending.

According to this theory, when the cost of equity capital is relatively low, the stock market is relatively high, and firms will expand by building new facilities. On the other hand, when the cost of equity capital is high and the stock market is very low, firms will expand by buying out existing businesses rather than building new ones.

I might say that the argument which is shown graphically in figure 4 is a bipartisan argument. The figures behind this have appeared both in the 1977 Economic Report of the President by Mr. Alan Greenspan and in the 1978 report by Mr. Charles Schultze.

So the ratio of investment to the stock market would appear to be well established and in fact documented by both administrations.

In view of these factors that the major factors determining investment would appear to be the effective rate on corporate income and the value of the stock market relative to construction costs, it seems to me that if we want to stimulate investments, as I think almost everyone would agree we can do, we need to undertake changes in the tax code that could accomplish these objectives; namely, reduction in corporate tax rates and increases in the value of the stock market, and thereby a decrease in the cost of equity capital.

There are many ways in which this could be done. The best way that I know of would be reduction in the maximum rate of taxes on capital gains, and it is this suggestion which I believe the chairman has referred to as being somewhat controversial.

Particularly, the finding which we have come up with; namely, that a rise in stock market prices would be very substantial and in particular a reduction in the maximum rate of capital against taxes from 49.1 to 45 percent would, indeed, raise the stock market by 40 percent over the next 2 years.

This 40-percent figure has been claimed as being much too high, and, yet we need to know that something is amiss with the stock market. During the last 8 years, the gross national product has increased at an average rate of 9 percent per year and corporate rate profits have increased at an average rate of 11 percent a year.

Yet, the stock market has shown, actually, no increase at all. The Standard & Poor's index of 500 stocks, for example, is no higher than it was in 1969, the last year in which capital gains taxes at the maximum rate of 25 percent existed.

This is an amazing performance of the stock market considering the rather robust growth of the economy, and we find that of this stagnation stock market, approximately half of it is due to the fact that inflation has increased and, therefore, corporate profits are overstated and approximately half is due to the increase in the capital gains taxes to 49 percent.

This works out to 4.3 percent a year retardation in the stock market which has occurred because of higher capital gains taxes.

In particular, we note that the stock market declined sharply in 1970 when higher capital gains taxes were first raised, and probably more importantly, a fact which has been ignored by some, the stock market declined very sharply in 1977, even though corporate profits were up 11 percent, real GNP grew 5 percent and the general employment situation was favorable.

In fact, there seems to be no other economic factor that turned sour in 1977, except for the further increase in the maximum tax rate for capital gains.

The reduction in capital gains rates, then, would, I think, result in a 40-percent increase in stock market prices over 2 years and represents a natural reversal of the trends which have been ailing the stock market over the past 8 years.

Now, in making this argument, I am aware of the fact that in the postwar period, capital gains taxes have not declined. They have only risen. So, some critics of this approach have argued that the argument may not be symmetrical.

They say what I have done is to imply what would happen for a decline in capital gains taxes when the only evidence that we have is an increase.

In doing further research, I went back and discovered the fact that a wide variety of taxes, including capital gains taxes, were actually reduced in the early 1920's.

Before the First World War, we had no income tax, and an income tax was put on during the First World War and, in fact, reached a maximum rate of 73 percent at one point.

After the war, the tax rates were dropped and that rate was reduced to 55 percent and, finally, to 25 percent in 1926.

Now, we have some figures about what happened in the 1920's, and let us take the class of very wealthy people, the class that Secretary Blumenthal says are getting a fair advantage if we were to lower capital gains taxes.

A millionaire would translate into someone with an income of $300,000, then. The translation is not exact. But let's look at the amount of taxes paid by individuals with an income of $300,000 or more in 1922 when the tax rate was 55 percent and in 1972, when the tax rate was 25 percent.

We are not talking about all taxpayers, but about millionaires, these people who are going to get all the tax benefits from lower capital gains.

In 1922, this group of people paid total taxes to the Federal Government of $77 million. Five years later, with a lower tax rate, they paid $230 million. They paid three times as many taxes at a lower tax rate.

Senator BENTSEN. What were these years?

Mr. EVANS. 1922, when they paid $77 million, and 1927, 5 years later, when they paid $230 million. The tax rate in 1922 was 55 percent maximum, and in 1927, it dropped to 25 percent maximum.

So, I realize this happened a long time ago, but it is direct, irrefutable evidence that lowering tax rates can result in higher payments to the Treasury even among the upper income groups, who are presumably ripping off the rest of society if we reduce capital gains tax.

I think all of the evidence needs to be considered, and in this case, we have discovered a rare tax bill, where cutting the rates actually result in higher revenues to the Treasury.

In fact, we have estimated that a reduction in the maximum capital gains rate from 49 percent to 25 percent would result in a decrease in the Federal deficit of $16 billion over a 5-year period.

There are a number of other ways which could be used to cut corporate taxes, and increase investment, and I think that many of these other ways also need to be considered favorably.

I refer to the cut in corporate income tax rates, the revaluation of depreciation of replacement instead of historical costs, the integration of personal and corporate income tax schedules, and the expansion of the investment tax credit.

While I think that all of these would have some beneficial effects upon society and on capital formation, I think that we have to rank them in order to decide which bill should be passed first, and in my own personal ranking, I would put the capital gains first, the cut in corporate taxes second, the revaluation in capital investment third, and the investment tax credit would be fifth out of five.

I have listed these in that order, considering, first of all, the efficacy of the tax cuts, how much bang for the buck, how much increase in GNP do you get per dollar of lost revenue.

In the case of capital gains, you don't lose any revenue.

In the other four, you lose some revenue, but not as much as the original tax cut.

The second is the question of mobility of capital. The less restrictions there are on capital mobility, the greater the opportunity for capital to flow into its most efficient use, and by using the capital gains tax and moving money from municipal bonds back into the equity market, I think this helps increase efficiency more than any of the others.

Finally, the investment tax credit, which, as I say, is last on my list, although still useful, as it is currently structured tends to favor equipment over structures and tends to create tax shelters where none existed before, and, therefore, creates less dollars for tax expenditure than the other four.

In summary, it is clear something needs to be done to increase investment since the investment outlook and the investment performance of this recovery has been by far the worst in the postwar period.

In view of the past historical evidence, I would suggest that this problem is man made. If we were to turn over the investment slump and examine it, we would find stamped on the bottom, "Made in Washington."

This is not a problem of the free market, but of the onerous tax legislation which has crept up over the last 5 years, and this needs to be reversed.

If we do so with capital gains and income tax reduction, it is my opinion that we could have an investment boom that would last into the early 1980's.

Thank you, Senator Bentsen.

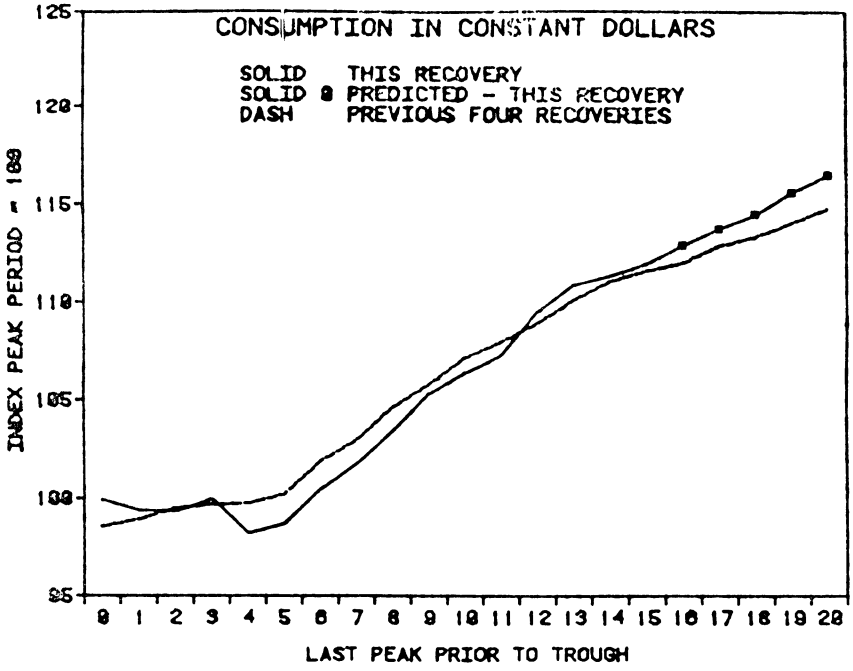
[The prepared statement of Mr. Evans follows:]

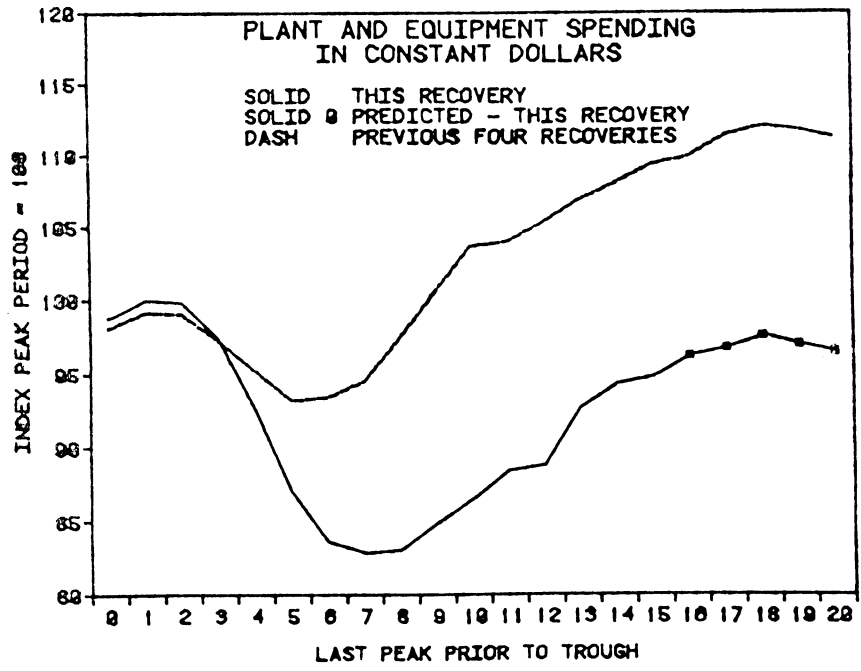
PREPARED STATEMENT OF MICHAEL K. EVANS

Investment in the Current Recovery

The present economic recovery has been distinguished for its longevity if not its robustness. The current upturn is now longer than any other peacetime postwar expansion, and is within hailing distance of the all-time record. Yet it is extremely curious that fixed business investment spending has had virtually nothing to do with this sustained upturn. Indeed, as shown in Figure 1, plant and equipment spending is still below 1973 peak levels, while consumption has actually outstripped the average gain in previous postwar expansions. Figure 2 indicates that the ratio of fixed business investment to GNP in constant prices has declined from a peak level of approximately 11 percent in the mid-1960's and early 1970's to about 9½ percent today, and the decline is even more dramatic if we exclude that portion of capital spending which has been diverted to nonproductive uses mandated by the Federal Government.

FIGURE 1





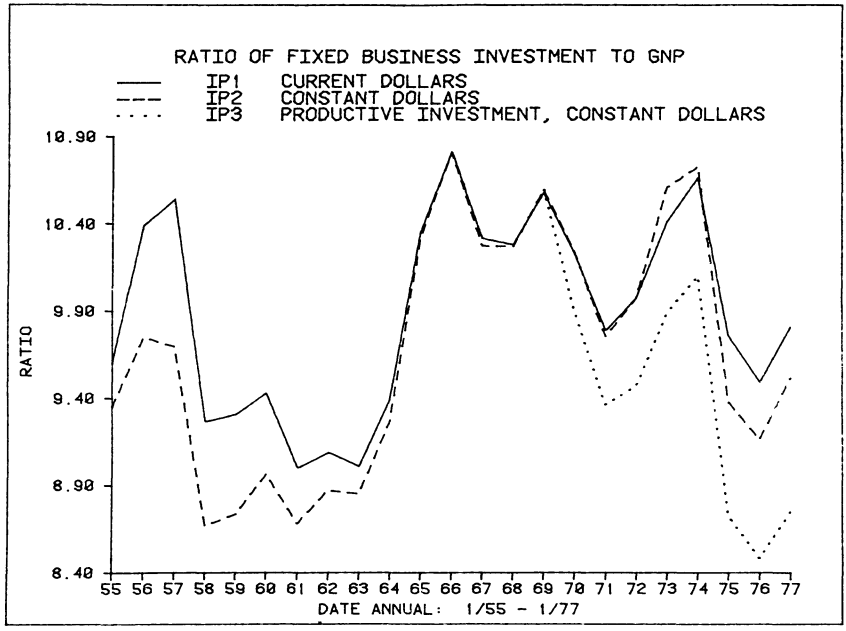


FIGURE 2

This problem is particularly critical because investment has failed to improve significantly even though total sales have risen rapidly, capacity utilization has now increased to the point where previous investment booms have started, and both internal and external funds have been plentiful in the current recovery. Yet even the eternal optimists have just about given up hope for the resurgence of capital spending in the next year or two, and the most dependable surveys show an increase in fixed business investment of only 4 percent to 6 percent this year in real terms, with the estimate for next year at even lower levels.

We at Chase Econometrics have studied the determinants of investment for many years, and have concluded that one of the major determinants of capital spending is the effective rate of taxation on corporate income. The relationship between these variables is shown in Figure 3.

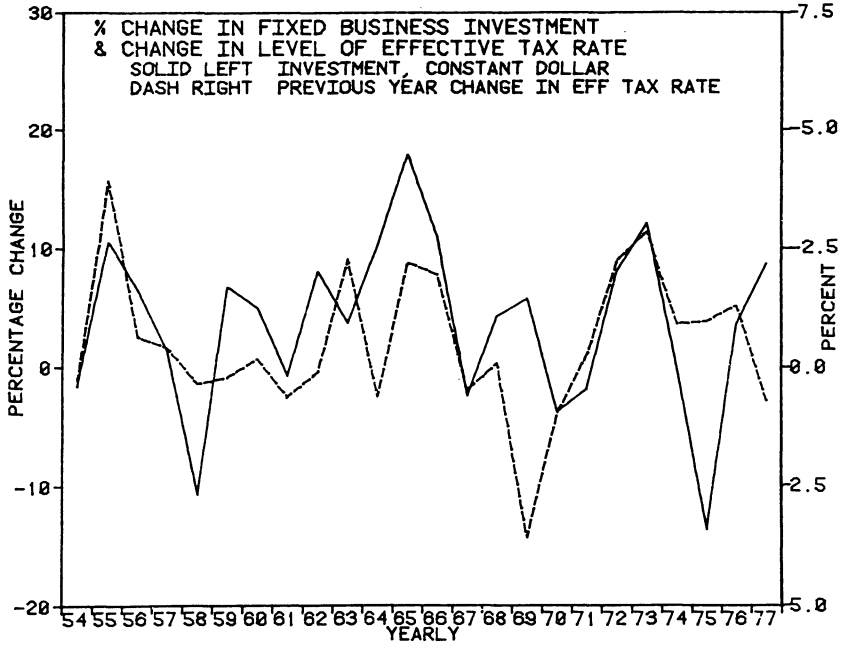


FIGURE 3

To summarize the information given in that graph, the U.S. economy has undergone three investment booms in the postwar period: 1955–1956, 1964–1966, and 1972–1973. Each of these booms has a common characteristic: it was preceded in the previous year by a major change in the tax code which was favorable to investment. Hence 1954 marked the end of the excess profits tax from the Korean War and the first liberalization of depreciation allowances. The investment tax credit was introduced at a 7 percent rate in late 1962 and was accompanied by a 20 percent reduction in accounting tax lives; when this was followed by a reduction in the corporate income taxe rate from 52 percent to 48 percent in 1964, capital spending climbed 20 percent in constant prices in 1965, the only time in the postwar period that has occurred. Finally, in 1972 the investment tax credit was reinstated at 7 percent and accounting tax lives were reduced by an additional 20 percent.

We also note that the sharp increase in tax rates in 1969, caused by the imposition of the 10 percent income tax surtax and the suspension of the investment tax credit, was sufficient to cause a decline in investment in 1970 even though the economy was still operating at high utilization rates.

However, the correlation between changes in investment and changes in the effective corporate income tax rate is not perfect. In particular, the sharp declines in investment in 1958 and 1975 appear to be unrelated to changes in the tax code, and were indeed caused by the severe recessions which occurred in those years.

This anomaly disappears when we correlate the investment ratio and the ratio of stock prices to construction costs, lagged one year. As shown in Figure 4, this ratio captures both the cyclical and secular movements in the investment ratio. This fact has received bipartisan support, as it was prominently discussed in both the 1977 and 1978 issues of the Economic Report of the President.

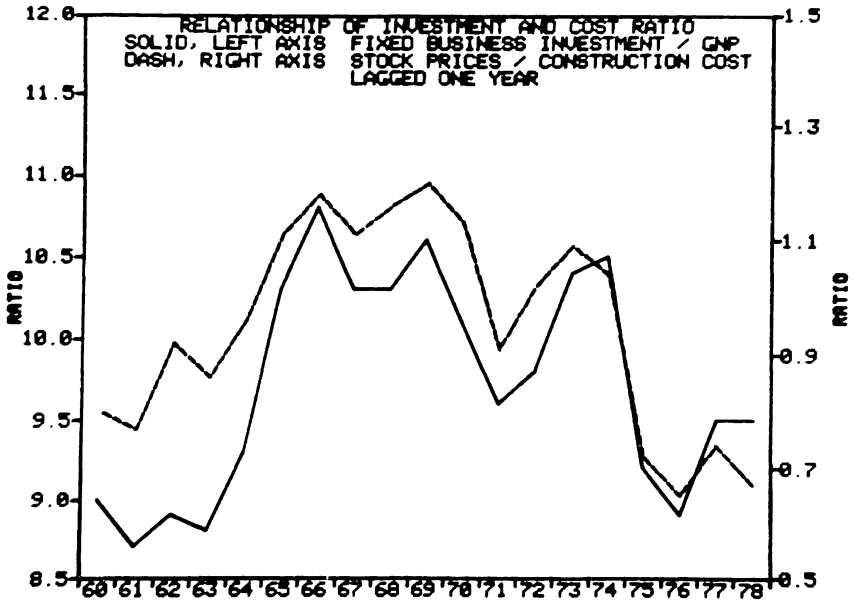


FIGURE 4

The theory behind this ratio is fairly straightforward. When stock prices are high relative to construction costs and equity capital is relatively inexpensive, businesses will expand by building new plants and filling them with new equipment. However, when stock prices are relatively depressed, businesses will expand by buying smaller existing businesses, rather than by investing more in new capital assets. The course of the stock market is thus of extreme importance in determining the growth in investment. Since stock prices are very sensitive to the rate of taxation on capital gains, this is one factor behind the widespread popularity of the recent proposal to reduce capital gains taxes.

What many would-be experts on investment theory fail to understand is that it is not the level of cash flow or output which is the primary determinant of investment, but rather the expected future rate of return and the incentives to entrepreneurship which are affected by the various tax rates on corporate income and on capital. This area of investment theory has received much less attention than the traditional links between investment, output, and capacity utilization, and deserves to be studied in further detail.

The spur to fixed business investment spending through corporate tax rate reduction con be accomplished by one or a combination of five different methods, which are as follows:

(1) A reduction in capital gains taxes.

(2) A reduction in the corporate income tax rate.

(3) Revaluation of depreciation allowances in replacement instead of historical terms.

(4) Ending the double taxation on corporate income.

(5) Expansion of the investment tax credit.

These are listed in decreasing order of recommendation.

The reduction in capital gains taxes is most highly recommended for three principal reasons. First, it will have the greatest effect on increasing the efficiency of capital by unlocking capital gains and drawing money out of municipal bonds and other forms of tax-sheltered income. Second, it will stimulate the rebirth of risk capital, which has almost completely disappeared in the past decade and will be left virtually untouched by the other four types of corporate tax reduction. Third, it is the only one of the five alternatives listed above that will result in a decrease in the Federal budget deficit during the next five years. Because of the timeliness of this issue, and also the present controversy

surrounding some of the alleged effects of this reduction, I will confine the remainder of my remarks to the benefits of capital gains tax reduction.

The legislation which has been proposed to return the maximum rate on capital gains to its earlier level of 25 percent on January 1, 1980 for both individuals and corporations would be quite beneficial to the overall economy. The rate of growth in constant-dollar GNP for the period 1980–1985 would average 3.6 percent, compared to a 3.4 percent annual average growth rate otherwise. An additional 440,000 new jobs would be created by 1985. Expenditures for plant and equipment would rise 5.7 percent per year in constant prices, compared to 4.7 percent otherwise. In addition, the Federal budget deficit would be $16 billion less by 1985 than would be the case without this reduction in capital gains taxes.

The reduction in capital gains taxes stimulates economic activity through the following combination of events:

(1) A reduction in capital gains taxes raises stock prices.

(2) Higher stock prices lead to a faster rate of growth in capital spending.

(3) Higher stock prices lead to more equity financing, which reduces the debt/equity ratios of corporations. As a result, interest rates are lower than would otherwise be the case.

(4) More investment creates higher levels of output, employment, and income, and reduces inflationary pressures by increasing productivity and raising maximum potential GNP.

(5) The increase in economic activity raises Federal government revenues, hence reducing the budget deficit. This in turn leads to lower interest rates and lower rates of inflation.

Economists generally agree that an increase in capital gains taxes will depress the stock market, while a reduction will raise stock prices. However, the link between these two variablies has not often been measured. Some studies which purport to show a link between capital gains taxes and economic activity merely assert that such a relationship does exist without providing empirical justification. However, as shown in Figure 5, the relationship is extremely important. The sharp declines in the stock market in 1970 and 1977 are due in large part to the Tax Reform Acts of 1969 and 1976.

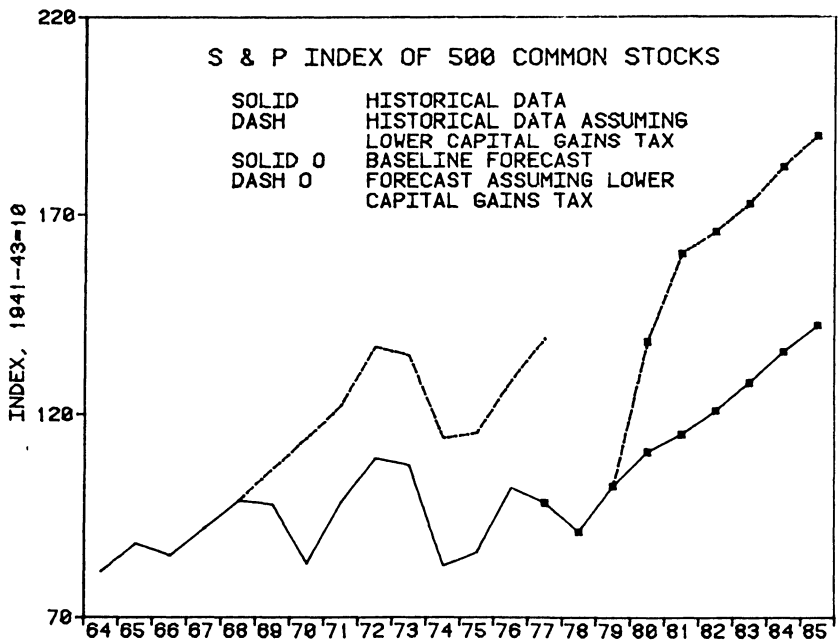


FIGURE 5

The latest version of the CEAI model contains an equation relating stock prices to capital gains and five other variables: corporate profits, disposable income,

the ratio of dividends to profits, the prime interest rate, and the overstatement of profits due to inflation (CCA adjustment). The capital gains tax rate figures prominently in this equation, and the coefficient of this term indicates that a 10 percent change in the capital gains tax rate will result in a 17 percent change in stock prices. This result is empirically determined from multiple regression analysis and is not simply an assumption generated in order to emphasize the beneficial aspects of capital gains tax reduction.

Some economists have indicated that the 40 percent increase in stock prices over the next two years which we claim results from a 25 percent reduction in the maximum capital gains tax rate far overstates what would actually happen. Since this appears to be a fairly common misconception, we explore the matter in greater detail.

To put the reduction in average stock market prices in perspective, the average price/earnings ratio for the 1964–1968 period—after the reduction in the maximum personal income tax rate but before the increase in the capital gains rate—was 17.4; in 1977 it was only slightly above 9. This discrepancy cannot be explained without recourse to the change in capital gains taxes.

In 1969, the last year that capital gains were taxed at a maximum rate of 25 percent, the Standard & Poor's 500-stock price index averaged 97.8 (1941–1943=10). In 1977, it averaged 98.2, for a decidedly inferior growth rate of 0.0 percent. During the same period, GNP and aftertax corporate profits advanced at average annual rates of 9 percent and 11 percent respectively. Interest rates were not a factor, since the prime rate averaged 8.0 percent in 1969 compared to 6.8 percent in 1977. Two factors appear to have caused this stagnation on the stock market. First the sharp increase in inflation led to an understatement in depreciation allowances and hence an overstatement of book profits. Second, the maximum rate on capital gains is now 49.1 percent instead of 25 percent.

The econometric analysis which we have performed indicates that if capital gains taxes had remained at pre-1970 rates the stock market will be some 40 percent higher. Over an 8-year period that means that stockprices would have risen only 4.3 percent per year, compared to the no-growth situation which actually existed. Even this figure would be way below the average increase in either GNP or profits. Seen in this light, the 40 percent figure does not seem so remarkable after all.

The total change in stock prices caused by a change in capital gains taxes does not occur instantaneously because of the lock-in effect. Higher capital gains taxes reduce the number of individuals willing to sell their stock at any given time; since these capital gains remain unrealized, less new funds are available for purchases of other stock and hence prices gradually decline. We have found that this effect usually takes about 2 years to become fully operative. Similarly, a reduction in capital gains taxes will not cause all individuals to sell their assets immediately. However, many investors will sell sooner; as this happens more funds will be committed to purchases of equities. This will raise stock prices and cause an increasing number of investors to realize their capital gains, thus providing even more funds for equity financing. Hence we would expect the full effect of a reduction in capital gains taxes on stock prices to occur in 1981 and 1982.

Some economists have claimed that to make capital gains rate cuts revenue neutral, sellers would have to liquidate large parts of their portfolios and these liquidations would act as a dampener on asset price increases. The trouble with this analysis is that it overlooks one blade of the scissors. It concentrates solely on supply without realizing the massive increase in demand that would result from a lowering of capital gains taxes. Since investors would unlock their capital gains and use these funds to purchase additional equities, market performance would improve. In addition, billions of dollars would flow from sources such as tax-free municipal bonds into the stock market, hence raising the demand still farther.

We now turn to the critical issue of the effect of a reduction in capital gains taxes on the Federal budget deficit. Economicts, businessmen and politicians are in general agreement that reducing tax rates has some positive effect on economic growth and employment. The major drawback to tax cuts is that they increase the size of the Federal budget deficit, which is thought to lead to higher interest rates and a faster rate of inflation.

Some economists have argued that the Federal budget deficit can actually be decreased through a reduction in personal or corporate income tax rates.

The logic supporting this hypothesis suggests that the economic effects stemming from these tax cuts will be so large that the increase in revenue will offset the initial decline. However, this claim is unsupported by empirical evidence. In 1977, Federal government revenues accounted for exactly 20 percent of total GNP. Thus in order for an income tax cut to leave the deficit unchanged, the implicit spending multiplier would have to be about five, far greater than the investment multiplier of about two. While we have often argued for a reduction in personal and corporate income tax rates because of their positive effects on productivity and incentives and their beneficial long-term effects in widening the private sector tax base, we have never claimed that such a move would actually decrease the size of the Federal budget deficit.

The capital gains tax, however, is unique in its leveraged effect on the economy. The major reason for this, and the factor which distinguishes the capital gains tax from all other levies, is that the taxpayer can in large part determine whether or not he wishes to pay the tax. For most individuals who are unhappy with their high marginal tax bracket, the only (legal) option is to earn less income. Tax avoidance and tax shelters provide some limited relief, but the options are sharply constrained. However, the owner of a capital asset can delay his tax indefinitely by the simple expedient of not selling the asset. Such a decision is economically inefficient, for it restrains capital from flowing to its most productive use and hence retards growth in productivity and output. However, this option is available to taxpayers with capital assets, and most of them use it.

As a result, the revenue raised from capital gains taxes is minuscule relative to the levels of Federal personal and corporate income taxes. Figures for capital gains taxes are not readily available, but Joseph A. Pechman has prepared estimates through 1973 for both personal and corporate taxpayers, which are given in Table 1.

TABLE 1.—ESTIMATES OF CAPITAL GAINS TAXES

[Dollar amounts in billions]

Year	Pechman estimates			Total capital gains, individual income tax returns	Percent change, stock prices
	Individual [1]	Corporation	Total		
	(1)	(2)	(3)	(4)	(5)
1960	$1.9	$0.6	$2.5	$5.1	−2.7
1961	2.9	.8	3.7	7.6	18.7
1962	2.1	.7	2.8	5.8	−5.9
1963	2.3	.7	3.0	6.4	12.0
1964	2.7	.7	3.4	7.9	16.5
1965	3.4	.8	4.2	10.0	8.4
1966	3.4	.9	4.3	9.7	−3.3
1967	5.0	1.0	6.0	13.5	7.8
1968	7.2	1.3	8.5	17.7	7.4
1969	4.8	1.4	6.2	14.3	−.9
1970	2.3	1.1	3.4	8.7	−14.1
1971	3.8	1.3	5.1	13.1	18.1
1972	5.3	1.8	7.1	16.7	11.1
1973	5.0	2.0	7.0	16.1	−1.6
1974			[2] 5.6	13.5	−22.9
1975			[2] 5.5	13.7	4.0

[1] Including fiduciaries.
[2] Preliminary.

Sources: Cols. (1)–(3), Joseph A. Pechman: Federal Tax Policy, 3d ed., table C–13, p. 352; col. (4), Statistical Abstract.

Two facts are immediately apparent from these figures. First, the amount of tax collected is relatively small, generally less than 5 percent of Federal income tax. Second, and of particular interest for this study, the amount of capital gains tax paid in 1970, when rates were increased to a maximum of 35 percent. was less than in 1968 and 1969, the last years of 25 percent maximum rates. Furthermore, tax collections have remained below 1968 peaks through 1975 and are unlikely to be higher for 1976 and 1977 in view of the dismal performance of the stock market.

The counterargument to be made is that capital gains taxes have declined since 1968 because of the relatively poor performance of the market since that date.

This argument is not well taken, however, for two reasons. First, the stagnation of the market itself is due to the higher capital gains taxes, as we have already shown. Second, the amount of capital gains taxes is relatively insensitive to the yearly fluctuations in the market, as can also be seen from the figures presented in Table 1. The capital gains taxes in 1971 and 1972, which were relatively good years for the market, were only about $1 billion greater than in 1974, which was a disastrous year.

During the postwar period, the two major changes in capital gains taxes have both been in the upward direction. Thus some critics of the Steiger-Hansen legislation have argued that we have no concrete evidence of what might occur if they were lowered. However, capital gains taxes— and income taxes in general— were lowered substantially during the 1920's. Before the U.S. entered World War I, the maximum tax rate on personal income was 15 percent, but this rate rose dramatically to a peak of 73 percent. It was cut to 55 percent in 1922 and 25 percent in 1926.

It is extremely instructive to learn what happened to taxes paid by millionaires—that group which has been singled out by Messrs. Carter and Blumenthal as unworthy of further tax relief. To adjust for the differentials caused by inflation, we consider those taxpayers with incomes of over $300,000 in 1922 and in 1927, although even this adjustment is an understatement of the true effects of rising prices. In 1922, this group paid taxes of $77 million, while in 1927, the year after the reduction in rates, they paid a total of $230 million. Not only did the economy benefit significantly, but the millionaires themselves—those undeserving rich who would presumably unfairly benefit by capital gains tax reduction—paid three times as much in taxes with lower rates.[1]

In conclusion, the sorry performance of capital spending during the past four years is not primarily a product of natural economic forces. In fact, if we were to examine this slump more closely, we would see "Made in Washington" stamped in block letters. For the shift of the tax code in favor of consumption and against investment started as early as 1968, but has intensified during the past five years. If we are to increase the investment ratio by the 2 percent necessary to return productivity growth to earlier postwar levels and resume our upward course in the standard of living, it will be necessary to cut corporate income tax rates more than personal income tax rates during the next few years. While a variety of methods is available which will accomplish this, the one which gives the most "bang for the buck"—both in terms of increase in GNP and increase in capital spending—is the reduction in the rate of taxation on capital gains.

Senator BENTSEN. Thank you, Mr. Evans.

Your testimony raises a number of questions, but I am going to defer those until all of the witnesses have had an opportunity to testify.

Mr. Feldstein, would you proceed.

STATEMENT OF MARTIN FELDSTEIN, PRESIDENT, NATIONAL BUREAU OF ECONOMIC RESEARCH, AND PROFESSOR OF ECONOMICS, HARVARD UNIVERSITY

Mr. FELDSTEIN. Thank you, Senator.

In the invitation that the staff addressed to me, they asked me to talk specifically about the impact of inflation on capital formation. I also have some views and have done some work on the question Michael Evans has just talked about—the impact of reductions in the capital gains tax—which I would be happy to talk about during the questioning period, but I want to focus my remarks on the effect of inflation as such.

I think inflation has had a very substantial adverse effect on capital formation in the United States because of the way our tax system operates in inflationary times.

[1] These figures are taken from "The Mellons," by David E. Koskoff, p. 238.

During the past decade, effective tax rates have increased dramatically on capital gains, on interest income, and on direct returns to investment in plant and equipment. Investors in stocks and bonds now pay tax rates of early 100 percent, and in many cases more than 100 percent, on their real returns.

This change has taken place without debate and without legislative action. It has occurred almost by accident because our tax system was designed for an economy with little or no inflation. But if current rates of inflation persist, the existing tax laws will continue to impose effective tax rates of more than 100 percent on investment incomes. To make matters even worse, the current tax laws imply that future tax rates will depend haphazardly on future rates of inflation and therefore cannot be predicted at the time that investment decisions are being made.

These extremely high tax rates and the uncertainty about future tax rates are a cloud that hangs over both the stock market and business investment decisions.

This morning I will describe the results of several recent studies at the National Bureau of Economic Research that quantify the effect of inflation on the taxation of investment income and therefore on the incentive to investment. I am submitting two of these studies for the record of these hearings.

I will first discuss the impact of inflation and the taxation of capital gains.

Inflation distorts all aspects of the taxation of personal income but is particularly harsh on the taxation of capital gains. As you know, when corporate stock or any other asset is sold, current law requires that a capital gains tax be paid on the entire difference between the selling price and the original cost even though much of the nominal gain only offsets a general rise in the prices of consumer goods and services. Taxing nominal gains in this way very substantially increases the effective tax rate on real price-adjusted gains. Indeed, many individuals pay a substantial capital gains tax even though, when adjustment is made for the change in the price level, they actually receive less from their sale than they had originally paid.

In a recent study at the National Bureau of Economic Research, we measured the total excess taxation of corporate stock capital gains caused by inflation and the extent to which this distortion differs capriciously among individuals. For this study we used the Treasury Department's sample of individual tax returns for 1973. Our sample consisted of over 30,000 individuals and more than 230,000 stock sales in 1973. Although the individuals are not identified, the sampling rates are known; the sample can therefore be used to construct accurate estimates of totals for all taxpayers.

What did we find? We found that in 1973 individuals paid capital gains tax on $4.6 billion of nominal capital gains on corporate stock. When the costs of these shares are adjusted for the increase in the consumer price level since they were purchased, this gain becomes a loss of nearly $1 billion.

Senator BENTSEN. I will interrupt there and ask you what period of time did you use?

Mr. FELDSTEIN. We looked at all the sales actually made in 1973 by individuals.

Senator BENTSEN. You actually went back and traced that?

Mr. FELDSTEIN. We had that from the tax returns. We had the actual data from the tax returns, the same way that the Treasury——

Senator BENTSEN. You had the date of purchase and the date of sale and the inflation rate during each period?

Mr. FELDSTEIN. Exactly, sir; and, if you do that, you find that, although people pay taxes on $4.6 billion of gain, they actually had lost in real terms almost $1 billion.

Senator BENTSEN. Incredible.

Mr. FELDSTEIN. The $4.6 billion of nominal capital gains resulted in a tax liability of $1.1 billion. The tax liability on the real capital gains would have been only $661 million. Inflation thus raised tax liabilities by nearly $500 million, approximately doubling the overall effective tax rate on corporate stock capital gains.

Let me again clarify for you just what we did. We recomputed each individual's capital gain on the basis of a price-adjusted basis and calculated how much tax he would have paid if that had been the gain rather than the tax that he actually paid. The result is to cut in half the tax liability that individuals had.

Although adjusting for the price change reduces the gain at every income level, the effect of the price level correction is far from uniform. In particular, the measurement of capital gains is most severe for taxpayers with incomes under $100,000.

Exhibit 1, which is at the back of my prepared statement, compares the nominal and real capital gains and the corresponding tax liabilities for each income class.

The figures are in millions, $86 million up to $4.6 billion for the total.

Row 2 presents the corresponding real net capital gains. In the highest income class there is little difference between nominal and real capital gains. Individuals with incomes over $500,000 had nominal capital gains of $1.2 billion and real capital gains of $1.1 billion.

Senator BENTSEN. Is there some pattern which gives that result?

Mr. FELDSTEIN. Basically, our analysis suggests that these are individuals who have very low basis stock, which they might have acquired when a company was formed.

Senator BENTSEN. I see.

Mr. FELDSTEIN. For them, the inflation effect is very small. You can take a 10-cent stock and multiply it by a lot of inflation adjustment, and it still remains a 10-cent stock.

In the highest income class, therefore, there is little difference between nominal and real capital gains; in contrast, taxpayers with incomes below $100,000 suffered real capital losses even though they were taxed on positive nominal gains.

The tax liabilities corresponding to these two measures are compared in rows 3 and 4. In each income class up to $50,000, recognizing real capital gains makes the tax liability negative. At higher income levels, tax liabilities are reduced but remain positive on average; the extent of the current excess tax decreases with income.

Let me summarize the study. It showed inflation has substantially increased—roughly doubled—the effective tax rate on corporate stock gains.

Although this relates to 1973, since that is the only year this type of data is available from the Treasury, the continuing high rate of inflation means the rate is likely to be even greater.

Let me turn to the second of the major problems that inflation causes in the tax system—the treatment of depreciation. As you know, the amount of depreciation allowed on any asset under current law depends on its original cost. When inflation raises the price level, the real value of these depreciation allowances is reduced. This reduction in the real value of depreciation that is caused by the historic cost method of depreciation is equivalent to a substantial increase in the rate of tax on corporate and other investment income.

We are currently doing a study of this problem at the National Bureau of Economic Research. Although I therefore cannot tell you as much as I hope we will eventually know, I want to mention one very important figure. We estimate that the historic cost method of tax depreciation caused corporate depreciation in 1977 to be understated by more than $25 billion.

Senator BENTSEN. Does that mean that profits are overstated?

Mr. FELDSTEIN. Yes; for tax purposes, by $25 billion. As a result, corporate liabilities are increased by $12 billion, a 20-percent increase in total taxes; or, to look at it a different way, this extra inflation tax reduced net profits by 23 percent of the total 1973 net profits of $53 billion. Although I do not have more to say at this time about the adverse effect of historic cost depreciation, I want to stress that I think that this is the single most important adverse effect of inflation on capital formation.

This brings me to the final tax problem caused by inflation, the failure to distinguish between nominal interest and real interest. This problem is fundamentally different from the problems involved in capital gains taxation and in depreciation. The nature of this difference is still not widely appreciated. It is extremely important, however, because it implies that changing the tax treatment of interest is less urgent that the other changes. Let me explain why.

It is clear that taxing nominal interest income imposes an unfair burden on bondowners and other lenders.

But allowing a deduction for nominal interest expenses also provides an unfair benefit to corporations and other borrowers. When financial markets have had a chance to respond fully to the higher rate of inflation, interest rates will adjust to reduce the unfair burden on borrowers and to reduce the unfair advantage of lenders. If all borrowers and lenders had the same marginal tax rate, the market adjustment of interest rates would eliminate all inequities, leaving borrowers and lenders with the same real aftertax rates of interest that they would have in the absence of inflation.

Let me emphasize, however, that this rough, longrun justice would only be achieved if the current method of depreciation is replaced by price-indexed or current-cost depreciation. If we stay with our current system of depreciation, interest rates will fail to adjust fully and bondholders will suffer a substantial permanent fall in their real aftertax returns.

A recent NBER study showed that, roughly speaking, with our current system of depreciation and taxation, each 1 percent rise in the expected rate of inflation will induce a 1-percent rise in the mar-

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ket rate of interest. The real rate of interest will remain unchanged, but the real aftertax rate of interest will fall sharply. This is, in effect, the mechanism by which firms transfer some of the adverse effect of historic cost depreciation to bondholders.

The magnitude of this effect is large enough to imply effective tax rates of more than 100 percent on interest income. Consider what has happened since the early 1960's. The inflation rate was then only 1 percent, and the 5 percent nominal yield on Baa corporate bonds provided a real yield of 4 percent. An investor with a 40 percent marginal rate obtained an aftertax yield of 3 percent, and a real aftertax yield of 2 percent.

By comparison, during the past 3 years a Baa bond yielded 10 percent, but consumer prices rose 6 percent. An investor with a 40 percent marginal rate obtained a 6 percent aftertax yield but a real aftertax yield of zero. In short, the effective rate of tax on real income was 100 percent.

The meaning of this calculation is clear. If historic cost depreciation is continued, taxpaying bondholders will receive little or no aftertax income. This can be remedied by allowing bondholders and other lenders to include only real interest receipts in their taxable income. But this should be seen as only an imperfect way of dealing with the more basic problem of depreciation.

Moreover, it is important to limit this change in the treatment of interest to bondholders; reducing the deduction taken by corporations to their real interest payments without adjusting depreciation rules would only transfer the full burden of mismeasuring depreciation to equity investors.

Only if we made the adjustment in depreciation, only then would it be correct to change the taxation of interest payments for bondholders, and so forth.

Replacing the current method of depreciation is, therefore, the key problem. If this is done, adjusting the taxation of interest income is of secondary importance. The specific method of depreciation that is adopted—replacement cost depreciation, general price indexing or immediate expensing of investment—is a much less important issue than the general principle that the value of depreciation must be insulated from the effects of inflation.

Let me summarize what I have said this morning.

Inflation reduces capital formation because even moderate rates of inflation cause very large increases in the effective rates of tax on investment income. The tax system must be changed to revive the needed incentives to invest and to reintroduce greater predictability of future effective tax rates. The key change that should be made is to use a real cost adjusted basis for calculating both depreciation and capital gains. While reducing inflation should remain a principal goal of economic policy, changing our tax system to recognize the real basis for depreciation and capital gains would eliminate one of the most harmful effects of inflation on capital formation and therefore on our economic prosperity.

That concludes my oral statement. Thank you.

[The prepared statement of Mr. Feldstein, together with the studies referred to, follows:]

PREPARED STATEMENT OF MARTIN FELDSTEIN [1]

The Impact of Inflation on Capital Formation

Thank you, Mr. Chairman. I am very pleased to have this opportunity to testify again before this distinguished committee.

In your invitation, you asked me to discuss the impact of inflation on capital formation. I believe that inflation has a very substantial adverse effect on capital formation in the United States. Our tax system is the most important reason for this harmful effect of inflation on capital formation.

During the past decade, effective tax rates have increased dramatically on capital gains, on interest income and on the direct returns to investment in plant and equipment. Investors in stocks and bonds now pay tax rates of nearly 100 percent—and in many cases more than 100 percent—on their real returns. This change has taken place without public debate and without legislative action. It has occurred almost by accident because our tax system was designed for an economy with little or no inflation. But if current rates of inflation persist, the existing tax laws will continue to impose effective tax rates of more han 100 percent on investment incomes. To make matters even worse, the current tax laws imply that future tax rates will depend haphazardly on future rates of inflation and therefore cannot be predicted at the time that investment decisions are being made.

These extremely high tax rates and the uncertainty about future tax rates are a cloud that hangs over the stock market and business investment decisions. This morning, I will describe the results of several recent studies at the National Bureau of Economic Research that qualify the effect of inflation on the taxation of investment income and therefore on the incentive to investment. I am submitting two of these studies for the record of these hearings.

INFLATION AND THE TAX OF CAPITAL GAINS

Inflation distorts all aspects of the taxation of personal income but is particularly harsh on the taxation of capital gains. As you know, when corporate stock or any other asset is sold, current law requires that a capital gains tax be paid on the entire difference between the selling price and the original cost even though much of the nominal gain only offsets a general rise in the prices of consumer goods and services. Taxing nominal gains in this way very substantially increases the effective tax rate on real price-adjusted gains. Indeed, many individuals pay a substantial capital gains tax even though, when adjustment is made for the change in the price level, they actually receive less from their sale than they had originally paid.

In a recent study at the National Bureau of Economic Research,[2] we measured the total excess taxation of corporate stock capital gains caused by inflation and the extent to which this distortion differs capriciously among individuals. For this study we used the Treasury Department's sample of individual tax returns for 1973. Our sample consisted of over 30,000 individuals and more than 230,000 stock sales in 1973. Although the individuals are not identified, the sampling rates are known; the sample can therefore be used to construct accurate estimates of totals for all taxpayers.

We found that in 1973 individuals paid capital gains tax on $4.6 billion of nominal capital gains on corporate stock. When the costs of these shares are adjusted for the increase in the consumer price level since they were purchased, this gain becomes a loss of nearly $1 billion.

The $4.6 billion of nominal capital gains resulted in a tax liability of $1.1 billion. The tax liability on the real capital gains would have been only $661 million. Inflation thus raised tax liabilities by nearly $500 million, approximately doubling the overall effective tax rate on corporate stock capital gains.

Although adjusting for the price change reduces the gain at every income level, the effect of the price level correction is far from uniform. In particular, the mismeasurement of capital gains is most severe for taxpayers with incomes under

[1] President, National Bureau of Economic Research, and professor of economics, Harvard University. The views expressed here are my own and not necessarily that of either the NBER or Harvard.

[2] M. Feldstein and J. Slemrod, "Inflation and the Excess Taxation of Capital Gains", National Bureau of Economic Research (to be published in the National Tax Journal, June 1978).

$100,000. Exhibit 1 compares the nominal and real capital gains and the corresponding tax liabilities for each income class. The first row presents the net capital gains as defined by the current law. Row 2 represents the corresponding real net capital gains. In the highest income class, there is little difference between nominal and real capital gains; in contrast, taxpayers with incomes below $100,000 suffered real capital losses even though they were taxed on positive nominal gains.

The tax liabilities corresponding to these two measures are compared in rows 3 and 4. In each income class up to $50,000, recognizing real capital gains makes the tax liability negative. At higher income levels, tax liabilities are reduced but remain positive on average; the extent of the current excess tax decreases with income.

Inflation not only raises the effective tax rate, but also makes the taxation of capital gains arbitrary and capricious. Individuals who face the same statutory rates have their real capital gains taxed at very different rates because of differences in holding periods. For example, among taxpayers with adjusted gross incomes of $20,000 to $50,000, we found that only half the tax liability on capital gains was incurred by taxpayers whose liabilities on real gains would have been between 80 and 100 percent of their actual liabilities. The remaining half of tax liabilities were incurred by individuals whose liabilities on real gains would have been less than 80 percent of their actual statutory liabilities.

In short, our study showed that inflation has substantially increased—roughly doubled—the overall effective tax rate on corporate stock capital gains. Although this estimate relates to 1973 (because that is the only year for which data of this type is available), the continuing high rate of inflation means that the tax distortion for more recent years is likely to be even greater.

DEPRECIATION

The second major problem that inflation causes in our tax system is in the treatment of depreciation. As you know, the amount of depreciation that is allowed on any asset under current law depends on its original cost. When inflation raises the price level, the real value of these depreciation allowances is reduced. This reduction in the real value of depreciation that is caused by the hiestoric cost method of depreciation is equivalent to a substantial increase in the rate of tax on corporate and other investment income.

We are currently doing a study of this problem at the National Bureau of Economic Research. Although I therefore cannot tell you as much as I hope we will eventually know, I want to mention one very important figure. We estimate that the historic cost method of tax depreciation caused corporate depreciation in 1977 to be understated by more than $25 billion. The understatement increased corporate tax liabilities by $2 billion, a 20-percent increase in corporate taxes. This extra inflation tax reduced net profits by 23 percent of the total 1973 net profits of $53 billion.

Although I do not have more to say at this time about the adverse effect of historic cost depreciation, I want to stress that I think that this is the single most important adverse effect of inflation on capital formation.

REAL INTEREST RATES

This brings me to the final tax problem caused by inflation, the failure to distinguish between nominal interest and real interest. This problem is fundamentally different from the problems involved in capital gains taxation and in depreciation. The nature of this difference is still not widely appreciated. It is extremely important, however, because it implies that changing the tax treatment of interest is less urgent than the other changes. Let me explain why.

It is clear that taxing nominal interest income imposes an unfair burden on bond owners and other lenders. But allowing a deduction for nominal interest expenses also provides an unfair benefit to corporations and other borrowers. When markets have had a chance to respond fully to the higher rate of inflation, interest rates will adjust to reduce the unfair burden on borrowers and to reduce the unfair advantage of lenders. If all borrowers and lenders had the same marginal tax rate, the market adjustment of interest rates would eliminate all inequities, leaving borrowers and lenders with the same real aftertax rates of interest that they would face in the absence of inflation.

Let me emphasize, however, that this rough, long-run justice would only be achieved if the current method of depreciation is replaced by price-indexed or

current cost depreciation. If we stay with our current system of depreciation, interest rates will fail to adjust fully and bondholders will suffer a substantial permanent fall in their real aftertax returns. A recent NBER study [3] showed that, roughly speaking, with our current system of depreciation and taxation, each 1-percent rise in the expected rate of inflation will induce a 1-percent rise in the market rate of interest. The real rate of interest will remain unchanged, but the real aftertax rate of interest will fall sharply. This is, in effect, the mechanism by which firms transfer some of the adverse effect of historic cost depreciation to bondholders.

The magnitude of this effect is large enough to imply effective tax rates of more than 100 percent on interest income. Consider what has happened since the early 1960's. The inflation rate was then only 1 percent, and the 5 percent nominal yield on Baa bonds provided a real yield of 4 percent. An investor with a 40-percent marginal rate obtained an aftertax yield of 3 percent, and a real aftertax yield of 2 percent. By comparison, during the past 3 years a Baa bond yielded 10 percent, but consumer prices rose 6 percent. An investor with a 40-percent marginal rate obtained a 6-percent aftertax yield but a real aftertax yield of zero. In short, the effective rate of tax on real income was 100 percent!

The meaning of this calculation is clear. If historic cost depreciation is continued, taxpaying bondholders will receive little or no aftertax income. This can be remedied by allowing bondholders and other lenders to include only real interest receipts in their taxable income. But this should be seen as only an imperfect way of dealing with the more basic problem of depreciation. Moreover, it is important to limit this change in the treatment of interest to bondholders; reducing the reduction taken by corporations to their real interest payments without adjusting depreciation rules would only transfer the full burden of mismeasuring depreciation to equity investors.

Replacing the current method of depreciation is, therefore, the key problem. If this is done, adjusting the taxation of interest income is of secondary importance. The specific method of depreciation that is adopted—replacement cost depreciation, general price indexing or immediate expensing of investment—is a much less important issue than the general principle that the value of depreciation must be insulated from the effects of inflation.

SUMMARY

Let me summarize what I have said this morning. Inflation reduces capital formation because even moderate rates of inflation cause very large increases in the effective rates of tax on investment income. The tax system must be changed to revive the needed incentives to invest and to reintroduce greater predictability of future effective tax rates. The key change that should be made is to use a real cost adjusted basis for calculating both depreciation and capital gains. While reducing inflation should remain a principle goal of economic policy, changing our tax system to recognize the real basis for depreciation and capital gains would eliminate one of the most harmful effects of inflation on capital formation and therefore on our economic prosperity.

EXHIBIT 1

CAPITAL GAINS AND ASSOCIATED TAX LIABILITIES

[In millions of dollars]

	Adjusted gross income class								
	Less than zero	Zero to $10,000	$10,000 to $20,000	$20,000 to $50,000	$50,000 to $100,000	$100,000 to $200,000	$200,000 to $500,000	More than $500,000	All
1. Nominal capital gains	86	77	21	369	719	942	1,135	1,280	4,629
2. Real capital gains	−15	−726	−895	−1,420	−255	437	839	1,125	−910
3. Tax on nominal capital gains	1	−5	23	80	159	215	291	374	1,138
4. Tax on real capital gains	0	−25	−34	−52	58	141	235	337	661

[3] M. Feldstein and L. Summers, "Inflation, Tax Rules and the Long-Term Interest Rate", 1978.

Inflation and the Excess Taxation of Capital Gains on Corporate Stock

(By Martin Feldstein and Joel Slemrod)*

SUMMARY

The present study shows that in 1973 individuals paid nearly $500 million of extra tax on corporate stock capital gains because of the distorting effect of inflation. A detailed analysis shows that the distortion was greatest for middle income sellers of corporate stock.

In 1973, individuals paid capital gains tax on more than $4.5 billion of nominal capital gains on corporate stock. If the costs of these shares are adjusted for the increases in the consumer price level since they were purchased, the $4.5 billion nominal gain becomes a real capital loss of nearly $1 billion. As a result of this incorrect measurement of capital gains, individuals with similar read capital gains were subject to very different total tax liabilities.

These findings are based on a new body of official tax return data on individual sales of corporate stock.

Inflation distorts all aspects of the taxation of personal income but is particularly harsh on the taxation of capital gains. When corporate stock or any other asset is sold, current law requires that a capital gains tax be paid on the entire difference between the selling price and the original cost even though much of that nominal gain only offsets a general rise in the prices of consumer goods and services. Taxing nominal gains in this way very substantially increases the effective tax rate on real price-adjusted capital gains. Indeed, many individuals pay a substantial capital gains tax even though, when adjustment is made for the change in the price level, they actually receive less from their sale than they had originally paid.

The present study shows that in 1973 individuals paid nearly $500 mililon of extra tax on corporate stock capital gains because of the distorting effect of inflation. The detailed evidence presented below shows that this distortion is greatest for middle income sellers of corporate stock.

More specifically, in 1973 individuals paid capital gains tax on more than $4.5 billion of nominal capital gains on corporate stock. If the costs of these shares are adjusted for the increases in the consumer price level since they were purchased, the $4.5 billion nominal gain becomes a real capital loss of nearly $1 billion. As a result of this incorrect measurement of capital gains. individuals with similar real capital gains were subject to very different total tax liabilities.

These findings are based on a new body of official tax return data on indivídual sales of corporate stock. The first section of the paper describes the data and the method of analysis. The basic results are presented in section 2. The third section analyzes the extent to which equal real gains are taxed unequally under current rules. Several alternatives to the current law are then examined in detail. A final section examines how a permanent inflation rate of 6 percent would quadruple the effective rate of tax on capital gains.[1]

1. THE DATA AND ESTIMATION METHOD

Each year the Treasury Department and the Internal Revenue Service select a large scientific sample of tax returns with which to study various aspects of income sources and tax liabilities. In order to provide adequate information on high income taxpayers, the sample contains a much larger fraction of high income returns than of low and middle income returns. Since the sampling rates are known, the sample can be used to construct accurate estimates for the entire population.

In 1973, the information collected for the annual sample of tax returns was extended in a special study to include detailed data on capital asset transactions. The complete record on each sale of a capital asset (as recorded in Schedule D

* Harvard University and the National Bureau of Economic Research. This study is part of the NBER program of research on business taxation and finance. We are grateful to Daniel Frisch, Sy Rottenberg, and Shlomo Yitzhaki for helpful discussions, to the U.S. Treasury for providing the data, and to the National Science Foundation for financial support. This paper has not been reviewed by the NBER Board of Directors.

[1] For previous discussions of the taxation of capital gains in an inflationary economy see Brinner (1973, 1976) and Diamond (1975). The theory of the effect of income taxation in an inflationary economy, including the tax treatment of interest and capital gains, is developed in Feldstein, Green and Sheshinski (1978).

of Form 1040) was combined with the other information from that taxpayer's return. In the current study, we consider only the sales of corporate stock. Our sample consists of information for 30,063 individuals and 234,974 individuals corporate stock sales in 1973.[2]

We supplemented the record for each transaction by calculating a price indexed capital gain. More specifically, we multiplied the acquisition price of the stock by the ratio calculated by dividing the consumer price index (CPI) for 1973 by the CPI for the year of purchase. This has the effect of restating the cost of the stock in 1973 dollars. Subtracting this price-index cost from the amount for which the stock was sold in 1973 yields a correct real capital gain in 1973 dollars. Since the CPI was higher in 1973 than in any previous year, the real capital gain is less than the nominal gain for all regular sales and greater than the nominal gain for all short sales.[3]

Of the $4.63 billion in nominal capital gains, transactions representing $1.79 billion do not have a correctly coded year of purchase, presumably because the taxpayer failed to provide this information on this tax return. In order to calculate the price-adjust cost of these stocks, we estimated the year of purchase by using the adjusted gross income (AGI) of the taxpayer and the ratio of the selling price to the original cost of the transaction. More specifically, all of the transactions for which we have correctly coded years of purchase were classified into one of eight AGI groups and one of 25 classes of the ratio of selling price to original cost. For each of these 200 categories, the average holding period was calculated. This average holding period was then applied to each of the transactions that had no purchase date on the basis of the taxpayer's AGI and the transaction's ratio of sale price to purchase price. When the holding period predicted in this way involved a fraction of a year, the price index was interpolated between the two bordering years' indices.[4]

To assess the excess tax that resulted from the mismeasuring of the capital gains, we must calculate the tax liability that individuals incurred in 1973 on their nominal capital gain and the liability that they would have incurred if the real capital gain had been included instead. To do this we use a special computer program that incorporates the relevant features of the income tax law as of 1973 and that calculates each individual's total tax liability for different measures of the capital gain.[5] Comparing the total tax liability based on the nominal capital gain (or loss) as recorded for 1973 with the liability if there were *no* gain (or loss) on corporate stocks provides the value for each individual of the actual capital gains tax on nominal gains. Similarly, comparing the total tax liability with the real capital gain for 1973 as described above with the liability if there were no gain provides the value for each individual of the capital tax on real gains. These tax calculations distinguish short-term and long-term capital gains in the usual way.

All calculations are done using the provision of the law of 1973 that limited the loss to be charged against current income to $1,000. Because using a real capital gains measure makes capital losses much more common than they now appear to be, we also show the effect of removing the loss limitation. Several other changes in the tax law were also studied and will be described below.[6]

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[2] In a relatively small number of transactions, there is a discrepancy between the reported gain or loss and the difference between the reported purchase and sale prices. These non-matching transactions were dropped from our sample, reducing the total capital gain on corporate stock from $5.01 billion to $4.63 billion. Our sample also excludes transactions in which the taxpayer did not specify the asset type and transactions recorded on partnership and fiduciary returns. Our estimate of the excess tax paid because of inflation is therefore an underestimate of the true value.

[3] Since the seller generally does not get the use of the proceeds of short sales, this also tends to understate the true excess tax.

[4] Although there is no reason to believe that our procedure introduces any bias in the calculation of the excess tax, there is no way to test this directly. As a partial test of our method, the real gains of the transactions with known purchase dates were calculated using the predicted holding period rather than the actual. The resulting distribution of real gains is very similar to the actual real gains. To the extent that the transactions with purchase year missing are similar to those with a correctly coded date, our procedure will accurately approximate the real gain.

[5] The program includes such features as the alternative tax, the preference tax and the limit on tax losses as well as full information on each individual's income, deductions, etc. This TAXSIM program is described and used in Feldstein and Frisch (1977).

[6] Because of the new Treasury data, our method represents a substantial improvement over the estimation procedure used by Brinner (1976). He worked with published data on capital gain in 1962 and did not have adequate measures of individual marginal tax rates on capital gains. Moreover, 1962 came after a period of relative price stability: the CPI rose at an average annual rate of less than 1.3 percent during the previous decade. Brinner was of course careful to warn his readers of these limitations.

2. THE EXCESS TAX ON CAPITAL GAINS

The current practice of taxing nominal capital gains resulted in a tax liability of $1,138 million on the sales of corporate stock in 1973.[7] If capital gains were measured instead in real terms, the tax liability would only have been $661 million.[8] The excess tax was thus $477 million, an increase of more than 70 percent. If the current limit on deducting capital losses were also eliminated, the tax on real capital gains would only have been $117 million.

Table 1 shows the detailed calculations by income class that underlie these total figures. The first row presents the net capital gain as defined by the current law. For each of the eight adjusted gross income (AGI) classes, the net capital gain figure is the weighted sum of all of the individual net capital gains of taxpayers in that AGI class; the weights reflect the sampling probabilities, making our total figure a valid estimate of the total net capital gain for all taxpayers in that class.[9] Note that the current law's nominal measure of the capital gains implies that there is a positive net gain in each income class. The sum of these gains is $4.63 billion.

TABLE 1.—CAPITAL GAINS AND ASSOCIATED TAX LIABILITIES

[In millions of dollars]

	Adjusted gross income class								
	Less than zero	Zero to $10,000	$10,000 to $20,000	$20,000 to $50,000	$50,000 to $100,000	$100,000 to $200,000	$200,000 to $500,000	More than $500,000	All
1. Nominal capital gains	86	77	21	369	719	942	1,135	1,280	4,629
2. Real capital gains	−15	−726	−895	−1,420	−255	437	839	1,125	−910
3. Tax on nominal capital gains	1	−5	23	80	159	215	291	374	1,138
4. Tax on real capital gains	0	−25	−34	−52	58	141	235	337	661
5. Tax on nominal capital gains, no loss limit	0	−7	−6	−31	91	191	288	372	897
6. Tax on real capital gains, no loss limit	−1	−38	−94	−259	−97	72	209	325	117
7. Total tax liability, those with corporate stock capital gain	10	224	1,556	5,492	3,986	2,467	1,582	1,133	16,450
8. Total tax liability, all individuals	16	15,490	40,895	32,275	10,367	4,922	2,480	1,638	108,084

Note: See text for source and method. All figures relate to capital gains on corporate stock sold in 1973.

Row 2 presents the corresponding real net capital gains. This adjustment for the rise in the price level changes the $4.63 billion nominal gain into a $910 million real loss. Although adjusting for the price change reduces the gain at every income level, the effect of the price level correction is far from uniform. For taxpayers with AGI's below $100,000, the price adjustment indicates that real capital gains were negative. This group had $1.27 billion of nominal capital gains but, after adjusting for the rise in consumer prices, had a real capital loss of $3.31 billion. In contrast, taxpayers with AGI's above $100,000 had nominal gains of $3.36 billion and real gains of $2.40 billion.

[7] Recall that our sample excludes sales in partnership and trusts and omits a small fraction of sales in which the reported gain or loss did not correspond exactly to the difference between selling price and original basis.

[8] This calculation and all other calculations in the current paper are based on the actual stock sales in 1973. Changing the law to tax only real capital gains would of course increase the amount of stock that is sold. On the sensitivity of common stock sales to the taxation of capital gains, see Feldstein and Yitzhaki (1978) and Feldstein, Slemrod and Yitzhaki (1978).

[9] See footnote 7 above.

The tax liabilities corresponding to these two measures of capital gains are compared in rows 3 and 4. In calculating these tax liabilities, individual losses are subject to the limit of $1,000. In each AGI class up to $50,000, recognizing real gains makes the tax liability negative. At higher income levels, tax liabilities are reduced but remain positive on average; the extent of the current excess—both absolutely and relatively—decreases with income. Thus taxpayers with AGI's between $50,000 and $100,000 paid an excess tax of $101 million or nearly three times the appropriate tax on their real capital gains. By contrast, taxpayers with AGI's over $500,000 paid an excess tax of $37 million or only 11 percent more than the tax on their real capital gains. This pattern of capital gains and of tax liabilities shows why the total tax on real capital gains remains positive even though total real capital gains are negative.

The substantial real capital losses for taxpayers with AGI's below $100,000 that are shown in row 2 suggest that the limit on the deductability of capital losses has a substantial effect on tax liabilities when capital gains are measured in real terms. Lines 5 and 6 show the tax liabilities corresponding to nominal and real capital gains if the loss limitation is disregarded.[10] For nominal capital gains there is only a modest difference since the general rise in prices substantially reduces losses. The total tax liability is reduced from $1.14 billion to $0.90 billion, with almost all of the difference in the liabilities of taxpayers with AGI's between $20,000 and $100,000. By contrast, with real capital gains the current loss limit raises tax liabilities by $544 million or more than 80% of the $661 million tax liability.

The importance of the current excess taxation of capital gains can be seen by comparing the excess tax with the total tax liabilities shown in rows 7 and 8. Row 7 shows the total tax liabilities for taxpayers who had any capital gain or loss on corporate stock. The excess tax liability can thus be compared with the total liability for the same groups of individuals. With the current loss limitation retained, this excess tax is roughly constant as a percentage of total tax for all groups with AGI's over $20,000. For example, individuals with AGI's between $20,000 and $50,000 paid $132 million in excess tax or 2.4 percent of their total tax liability of $5.49 billion. For individuals with AGI's between $100,000 and $200,000, the extra tax is $74 million or 3.0 percent of their total tax of $2.47 billion. A maximum of 3.3 percent occurs for those with AGI's over $500,000.

3. TAXING EQUAL GAINS UNEQUALLY

The mismeasurement of capital gains does more than raise the effective tax rate on real capital gains. It also introduces an arbitrary randomness in the taxing of capital gains. Two individuals with the same real capital gain can pay tax on very different nominal gains. This section presents striking evidence that equal real capital gains are taxed unequally to a very substantial extent.

Table 2 compares the tax liability that would be due on real capital gains with the tax liability that was actually assessed on nominal gains.[11] There is very substantial variation among individuals in the ratio of the tax liability on real gains to the liability on nominal gains. Consider for example the taxpayers with adjusted gross incomes between $20,000 and $50,000. Only 26.5 percent of the actual tax liability on nominal gains was incurred by taxpayers whose liabilities on real gains were between 90 percent and 100 percent of these nominal liabilities. An additional 18.4 percent of the actual tax liability was incurred by taxpayers whose liabilities on real gains would have been between 80 and 90 percent of their actual liabilities. The remaining 55 percent of actual tax liabilities were incurred by individuals whose liabilities on real gains would have been less than 80 percent of their actual statutory liabilities.

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[10] Recall that we are looking only at the stocks actually sold in 1973. Allowing unlimited deduction for losses would induce more sales of stocks with accrued losses. Our estimates should be interpreted as the extent of overtaxation of the stocks actually sold rather than as estimates of the effect of changing the law to remove the limit.

[11] We have considered here only those returns with a positive nominal gain so as to avoid ambiguity in interpreting the sign of the ratios.

TABLE 2.—DISTRIBUTION OF ACTUAL TAX LIABILITIES BY TAX LIABILITY ON REAL GAINS AS A PERCENTAGE OF TAX LIABILITY ON NOMINAL GAINS

[In percent]

	Adjusted gross income (in thousands of dollars)							
	0–10	10–20	20–50	50–100	100–200	200–500	500+	All taxpayers
Tax liability on real gains as percentage of tax liability on nominal gains:								
Less than zero	13.5	11.0	6.1	5.6	2.5	1.1	0.3	3.4
Zero	21.7	8.8	3.8	4.1	1.6	1.1	.4	2.6
10 percent	.8	1.7	.8	1.3	1.0	.4	.1	.7
20 percent	1.6	.8	1.7	2.1	1.8	.8	.8	1.3
30 percent	3.8	4.5	5.0	4.1	1.7	1.2	.3	2.4
40 percent	9.0	9.3	2.0	3.6	2.3	1.7	1.1	2.5
50 percent	9.7	5.3	4.4	3.4	3.5	2.5	.6	2.9
60 percent	8.5	5.1	17.1	6.2	7.0	4.1	2.0	6.7
70 percent	2.3	9.2	14.1	12.9	11.7	8.5	3.9	9.6
80 percent	16.0	16.0	18.4	20.3	18.6	16.2	11.2	16.4
90 percent	24.5	28.4	26.5	36.3	48.2	62.3	79.3	51.5

Note: Each entry is the percentage of the tax liability on the nominal capital gains as actually incurred by taxpayers in that AGI class. Computations consider only those returns which showed a positive nominal gain on corporate stock capital gains.

The disparities are even greater for taxpayers with lower AGI. Among those with AGI's between $10,000 and $20,000, 27 percent of actual liabilities were incurred by taxpayers whose liabilities on real capital gains were less than 40 percent of their actual statutory liabilities while an equally large amount (28.4 percent) of liabilities were incurred by taxpayers whose liabilities on real gains would have been nearly as large as their liabilities on nominal gains.

Table 3 shows this pattern of unequal taxation of real capital gains in a different way. This table shows the numbers of taxpayers at each level of liability on real capital gains who pay quite different amounts on nominal gain.[12] Thus, more than 220,000 of the taxpayers with real capital losses paid tax on nominal capital gains. Within this group, more than 3,000 paid capital-gain taxes of over $2,000 and nearly 1,000 paid taxes of over $5,000. Similarly, among taxpayers who had real gains but with corresponding tax liabilities of less than $1,000, more than 40,000 paid tax liabilities of more than $1,000 and nearly 1,000 paid tax liabilities of more than $5,000.

The same sense of substantial and arbitrary randomness is evident if we look at the rows of the table. For example, if we look at the 3,355 taxpayers who incurred tax liabilities of $20,000 to $30,000, we find that 463 would have had liabilities of less than $10,000 on their real gains.

In short, the effect of taxing nominal gains rather than real gains is of very little significance for some taxpayers but involves a very substantial distortion for others.

TABLE 3.—NUMBERS OF TAXPAYERS CLASSIFIED BY TAX LIABILITIES ON REAL GAINS AND NOMINAL GAINS

	Tax liability on real capital gains (in thousands of dollars)									
	Negative	0–1	1–2	2–5	5–10	10–20	20–30	30–50	50–100	Over 100
Tax liability on nominial Capital gains (in thousands of dollars):										
Negative	1,281,463									
0–1	213,632	1,083,048								
1–2	7,416	33,820	36,055							
2–5	2,212	7,033	10,269	29,083						
5–10	708	477	753	8,038	11,453					
10–20	196	174	49	616	2,617	6,402				
20–30	54	34	127	40	208	1,049	1,843			
30–50	23	13	10	19	30	135	722	2,111		
50–100	12	9	4	5	6	13	42	359	1,804	
Over 100	1	5	0	1	0	2	3	19	234	1,810

Note: "Tax liability on nominal capital gains" is the actual 1973 liability. The "tax liability on real gains" is the corresponding liability if real gains were calculated by adjusting the basis for the change in the CPI.

[12] Our calculation ignores the small number of taxpayers whose short sales meant that their nominal gain would actually be less than their real gain.

4. ALTERNATIVE TAX RULES

This section examines the implication of price indexing the basis of capital gains in combination with two other proposals that have been frequently advocated: (1) taxing all corporate stock capital gains like short-term capital gains, i.e., eliminating the alternative tax method and the current exclusion of one-half of long-term gain, and (2) limiting income tax rates to 50 percent on so-called "unearned income" as well as "earned income." [13] Again we limit our attention to the tax consequences for the stocks actually sold in 1973 and thus disregard the way in which portfolio selling would be altered by these tax changes.

The current treatment of capital gains could be modified in either of two different ways. First, the current method of excluding one-half of long-term capital gains and of allowing the alternative tax could be ended while still limiting the deductible losses to $1,000. Alternatively, the limit on loss deductibility could be suspended at the same time. Table 4 shows the effects of applying each of these rules to the corporate stock sales in 1973.

TABLE 4.—TAX LIABILITIES WHEN CAPITAL GAINS ARE TAXED LIKE ORDINARY INCOME

[In millions of dollars]

	Adjusted gross income class								
	Less than zero	Zero to $10,000	$10,000 to $20,000	$20,000 to $50,000	$50,000 to $100,000	$100,000 to $200,000	$200,000 to $500,000	More than $500,000	All
1. Tax on nominal capital gains	1	−5	23	80	159	215	291	372	1,138
2. Tax on real capital gains	−0	−25	−34	−52	58	141	235	337	661
3. Tax on nominal capital gains; no loss limit	−0	−7	−6	−31	91	191	288	372	897
4. Tax on real capital gains; no loss limit	−1	−38	−94	−259	−97	72	209	325	117
5. Tax on nominal capital gains with all gains treated as short-term gains	9	30	109	406	469	562	676	804	3,065
6. Tax on real capital gains with all gains treated as short-term gains	6	−8	14	174	285	421	569	736	2,196
7. Tax on nominal capital gains with all gains treated as short-term gains; no loss limit	7	19	44	183	340	514	665	799	2,571
8. Tax on real capital gains with all gains treated as short-term gains; no loss limit	4	−38	−112	−216	14	302	523	715	1,193

Note: See text for source and method. All figures relate to capital gains on corporate stock sold in 1973.

For convenience, the first four rows show the tax liabilities based on the current exclusion and alternative tax rules. The next four rows show the corresponding tax liabilities when the exclusion and alternative tax rules are eliminated. Simply eliminating these features while retaining the use of nominal gains and the loss limitation would have raised the tax liability from $1.14 billion (row 1) to $3.06 billion (row 5). Taxing only real gains but eliminating the exclusion and alternative tax would nearly double the 1973 tax liability from $1.14 billion to $2.20 billion (line 6). Only the combination of no loss limit and the taxation of real capital gains (row 8) would leave the total tax essentially unchanged at very different from the actual 1973 tax liabilities: liabilities would almost double for those with AGI over $200,000 with offsetting falls for those with incomes under $100,000.

A maximum tax rate of fifty percent would have little effect if the current definition of taxable income is maintained. This is shown in rows 5 through 8 of Table 5. The standard results for the current law and for price indexed capital gains are shown for comparison in rows 1 through 4. The combination of a 50 percent maximum rate and the elimination of the capital gains exclusion and alternative rate (rows 9 and 10) significantly raises total tax liabilities.

[13] Tax rates can still be somewhat higher than this because of the minimum tax.

Only if this is combined with the taxation of real gains only and a full offset of losses is the total tax kept to its current level. Again, there is a substantial redistribution within this total.

TABLE 5.—TAX LIABILITIES ON CAPITAL GAINS WHEN THE MAXIMUM TAX RATE IS 50 PERCENT

[In millions of dollars]

	Adjusted gross income class								
	Less than zero	Zero to $10,000	$10,000 to $20,000	$20,000 to $50,000	$50,000 to $100,000	$100,000 to $200,000	$200,000 to $500,000	More than $500,000	All
1. Tax on nominal capital gains	1	−5	23	80	159	215	291	374	1,138
2. Tax on real capital gains	0	−25	−34	−52	58	141	235	337	661
3. Tax on nominal capital gains; no loss limit	0	−7	−6	−31	91	191	288	372	897
4. Tax on real capital gains; no loss limit	−1	−38	−94	−259	−97	72	209	325	117
MAXIMUM TAX RATE OF 50 PERCENT									
5. Tax on nominal capital gains	2	−5	23	80	164	211	255	293	1,022
6. Tax on real capital gains	1	−25	−34	−52	64	142	207	265	568
7. Tax on nominal capital gains; no loss limit	0	−7	−6	−31	99	190	252	292	789
8. Tax on real capital gains; no loss limit	−1	−38	−94	−258	−85	81	187	255	49
MAXIMUM TAX RATE OF 50 PERCENT—ALL CAPITAL GAINS TREATED LIKE SHORT-TERM GAINS									
9. Tax on nominal capital gains	7	29	109	402	453	491	537	584	2,615
10. Tax on real capital gains	5	−9	13	171	276	374	455	535	1,819
11. Tax on nominal capital gains; no loss limit	6	18	44	180	329	452	529	580	2,137
12. Tax on real capital gains; no loss limit	3	−38	−112	−218	15	269	419	520	857

Note: See text for source and method. All figures relate to capital gains on corporate stock sold in 1973.

5. CONCLUDING COMMENTS

The evidence presented in this paper shows that the taxation of capital gains is grossly distorted by inflation. In 1973, the tax paid on corporate stock capital gains was $1,138 million, nearly twice the $661 million liability on real capital gains. If the limit on the deduction of real capital losses is disregarded, the net tax liability falls to only $117 million. By this standard, nearly all of the tax paid on nominal capital gains represents an excess tax caused by inflation. Moreover, our current tax rules introduce an arbitrary randomness in the taxing of capital gains; with inflation, taxpayers with equal real capital gains are often required to pay tax on very different nominal gains.

The taxation of capital gains is distorted because, when there is inflation, our current tax rules mismeasure capital gains. Other aspects of capital income and expenses, primarily interest and depreciation, are also mismeasured in the presence of inflation. The taxation of capital income is therefore more severely distorted than the taxation of wages and salaries which are correctly measured. All types of personal income, including wages and salaries as well as capital income, are subjected to artificially high tax rates because of the progressivity of the tax structure, but this "bracket rate effect" is small in relation to the distortions that result from mismeasurement.

Our estimates relate to 1973 because that is the only year for which data of the type that we have analyzed is available. There is, however, no reason to think that the tax distortion for 1973 was any greater than for other recent years. Indeed, since share prices were relatively high in 1973, the ratio of real capital gains to nominal gains would also be expected to be high. More generally, it is useful to consider the effect of our current tax law on an individual who invested twenty years ago in a diversified portfolio of common stock and sold

this stock at the end of 1977. According to the Standard and Poor's Index, the price of such a portfolio approximately doubled between 1957 and 1977. However, the CPI also doubled in this twenty-year period, implying that there was no real increase in the value of the stock.[14] If the investor pays a 25 percent tax on the nominal capital gain when the stock is sold in 1977, he will actually have lost about 15 percent in real terms on his investment over the 20-year period.

The problem of excess taxation of capital gains when there is inflation is not peculiar to the past 20 years but is inherent in our current tax system. Unless this aspect of the tax law is changed, the problem will continue in the future. If we abstract from fluctuations in the price-earnings ratio, the effect of retained earnings should make the real value of common stock rise at about 2 percent a year.[15] If these accruing capital gains are taxed at an effective rate of 20 percent, the net after-tax yield is 1.6 percent a year. With a 6 percent steady rate of inflation and a constant price-earnings ratio, share prices would be expected to rise at 8 percent a year.

This still leaves the same real before-tax increase of 2 percent that would occur without inflation.[16] But a 20 percent capital gains tax on the 8 percent nominal capital gain leaves an after-tax nominal gain of only 6.4 percent. After subtracting the 6 percent inflation, the real after-tax gain is only 0.4 percent. The effective tax on real capital gains is thus 80 percent when the inflation rate is 6 percent. An 8 percent rate of inflation would make the effective tax rate equal to 100 percent!

The distorting effect of inflation on the taxation of capital gains could be remedied by adjusting the original cost of assets for the rise in the general price level.[17] This would reduce the effective rates of tax on real capital gains and would thereby reduce the loss in economic welfare that results from such taxation of capital income.[18] Measuring capital gains in real terms would have the further advantage of reducing the penalty for switching assets which currently distorts investor behavior.

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[14] The increase in both the Standard and Poor's Index and the CPI was actually between 115 percent and 120 percent.

[15] If we correct the measurement of retained earnings for the artificial depreciation and inventory figures, the ratio of retained earnings to price averaged 1.8 percent for the period from 1958 through 1977.

[16] Our calculations show that the effective rate on realized nominal capital gain was 24.5 percent in 1973. Since then tax legislation has raised significantly this effective tax rate through changes in the minimum tax and maximum tax. We use a 20 percent effective rate on accruing capital gains to reflect the advantages of postponement.

[17] The substitution of a cash-flow or expenditure type income tax for our current system would also eliminate all such problems. See Andrews (1974) and U.S. Treasury (1977).

[18] See Feldstein (1978) for a discussion of the welfare loss of capital income taxation.

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Inflation, Tax Rules, and the Long-Term Interest Rate

ALTHOUGH the return to capital is a focus of research in both macroeconomics and public finance, each specialty has approached this subject with an almost total disregard for the other's contribution. Macroeconomic studies of the effect of inflation on the rate of interest have implicitly ignored the existence of taxes and the problems of tax depreciation.[1] Similarly, empirical studies of the incidence of corporate tax changes have not recognized that the effect of the tax depends on the rate of inflation and have ignored the information on the rate of return that investors receive in financial markets.[2] Our primary purpose in this paper is to begin

Note: This study is part of the program of Research on Business Finance and Taxation of the National Bureau of Economic Research. We are grateful to the National Science Foundation for financial support, to several colleagues for useful discussions, and to Dale Jorgenson and Barbara Fraumeani for making unpublished data available. This paper has not been reviewed by the Board of Directors of the National Bureau.

1. For a review of recent empirical studies, see Thomas J. Sargent, "Interest Rates and Expected Inflation: A Selective Summary of Recent Research," *Explorations in Economic Research,* vol. 3 (Summer 1976), pp. 303–25. This criticism applies also to Martin Feldstein and Otto Eckstein, "The Fundamental Determinants of the Interest Rate," *Review of Economics and Statistics,* vol. 52 (November 1970), pp. 363–75, and Martin Feldstein and Gary Chamberlain, "Multimarket Expectations and the Rate of Interest," *Journal of Money, Credit, and Banking,* vol. 5 (November 1973), pp. 873–902.

2. The prominent econometric studies include Marian Krzyzaniak and Richard A. Musgrave, *The Shifting of the Corporation Income Tax: An Empirical Study of*

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to build a bridge between these two approaches to a common empirical problem.

The explicit recognition of corporate taxation substantially changes the relation between the rates of inflation and of interest that is implied by equilibrium theory. The Fisherian conclusion that the nominal rate of interest rises by the expected rate of inflation, leaving the real rate of interest unchanged, is no longer valid when borrowers treat interest payments as a deductible expense and pay tax on profits net of accounting depreciation.[3] A more general theory is discussed in the first section and is used there to analyze the expected impact of changes in inflation with the tax and depreciation rules in effect during the past twenty-five years. The analysis shows that changes in the rate of inflation are likely to be significantly nonneutral even in the very long run.

Since the long-term interest rate measures the yield available to individual investors, analysis of it provides an operational way of studying the incidence of changes in corporate tax rules. Oddly enough, this natural way of measuring tax incidence has not been exploited before. The first section shows how to translate the postwar changes in tax rates and depreciation rules into the changes in the interest rate that would prevail if no shifting occurred; it thus lays the foundation for econometric estimates of the actual degree of shifting set out in later sections. This approach requires separating the effects of inflation from the effects of tax changes. Since most of the postwar changes in corporate taxation have been in depreciation rules and investment credits, the effect of these changes on the long-term interest rate is of obvious importance in determining their potential stimulus to investment.

In a previous theoretical paper, Feldstein analyzed how an increase in

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Its Short-Run Effect upon the Rate of Return (Johns Hopkins Press, 1963); Robert J. Gordon, "The Incidence of the Corporation Income Tax in U.S. Manufacturing, 1925–62," *American Economic Review,* vol. 57 (September 1967), pp. 731–58; and William H. Oakland, "Corporate Earnings and Tax Shifting in U.S. Manufacturing, 1930–1968," *Review of Economics and Statistics,* vol. 54 (August 1972), pp. 235–44. Other major empirical studies include Arnold C. Harberger, "The Incidence of the Corporation Income Tax," *Journal of Political Economy,* vol. 70 (June 1962), pp. 215–40, and John B. Shoven and John Whalley, "A General Equilibrium Calculation of the Effects of Differential Taxation of Income from Capital in the U.S.," *Journal of Public Economics,* vol. 1 (November 1972), pp. 281–321. None of this research refers to either inflation or financial-market return.

3. One statement of Fisher's theory can be found in Irving Fisher, *The Theory of Interest* (MacMillan, 1930).

the rate of inflation would alter the interest rate in an economy in steady-state growth. Although that model brought out the important nonneutrality of inflation and the need to revise Fisher's theories to reflect taxation, its relevance is severely limited by the assumptions that all investment is financed by debt and that capital goods do not depreciate. Both of these restrictive assumptions were relaxed in a subsequent paper in which firms were assumed to finance investment by a mixture of debt and equity and in which capital depreciates.[4] Introducing depreciation permits an analysis of the effect of allowing only historic-cost depreciation for tax purposes. This more general model shows that the way inflation affects the real interest rate depends on two countervailing forces. The tax deductibility of interest payments tends to raise the real interest rate while historic-cost depreciation lowers it. The net effect can be determined only by a more explicit specification of depreciation and tax rules than was appropriate in that theoretical study. Such an explicit analysis is presented in the first section below. Equally important, the empirical analysis of the subsequent sections does not assume that saving is inelastic or that all forms of investment are subject to the same tax rules.

The three main sections of our paper might almost be regarded as three separate studies tied together by the common theme of inflation, taxes, and the interest rate. In the first section, we extend previous theoretical studies of the interaction of taxes and inflation by making explicit calculations based on the actual tax rules of the past two decades. These calculations show how changes in tax rules and in inflation rates have altered the maximum nominal interest rate that firms could pay on a standard investment. An important implication of this analysis is that Fisher's famous conclusion is not valid in an economy with taxes on capital income.

The second section is an econometric analysis of the observed relation between inflation and the long-term interest rate. A novel feature of this analysis is the use of an explicit predicted inflation variable which is derived from an optimal forecasting equation based on an ARIMA (autoregressive integrated moving average) process, as described there.

4. See Martin Feldstein, "Inflation, Income Taxes and the Rate of Interest: A Theoretical Analysis," *American Economic Review,* vol. 66 (December 1976), pp. 809–20; and Martin Feldstein, Jerry Green, and Eytan Sheshinski, "Inflation and Taxes in a Growing Economy with Debt and Equity Finance," *Journal of Political Economy* (forthcoming).

The third section studies the effects of changes in tax rules and in pretax profitability. This section is the most ambitious in its attempt to link the econometric estimates to the analytic method developed in the first section. We regard its results as preliminary because all of our estimates are conditional on specific assumptions about the mix of debt and equity used to finance marginal investments and about the relative yields on debt and equity that the market imposes. We believe that it is important to explore a wider range of assumptions and that our method provides the correct framework for such an extended analysis.

A brief concluding section summarizes the major findings.

The Analytic Framework

The central analytic feature of this paper is the operational method of converting any change in tax rules and in expected inflation into the implied change in the long-term interest rate that is consistent with a fixed marginal product of capital. This method is presented in the current section and is then used (1) to analyze the effects of specific changes in tax rules, (2) to derive the relevant generalization of the Fisherian relation between inflation and the interest rate, and (3) to calculate the implied equilibrium interest rate for each year from 1954 through 1976. These estimates underpin the empirical analysis in the rest of the paper.

A SIMPLE ILLUSTRATIVE MODEL

It is useful to begin by analyzing a simple illustrative case in which all marginal investment is financed by debt.[5] Moreover, the aggregate supply of loanable funds is taken as fixed.[6] We assume also that all investment

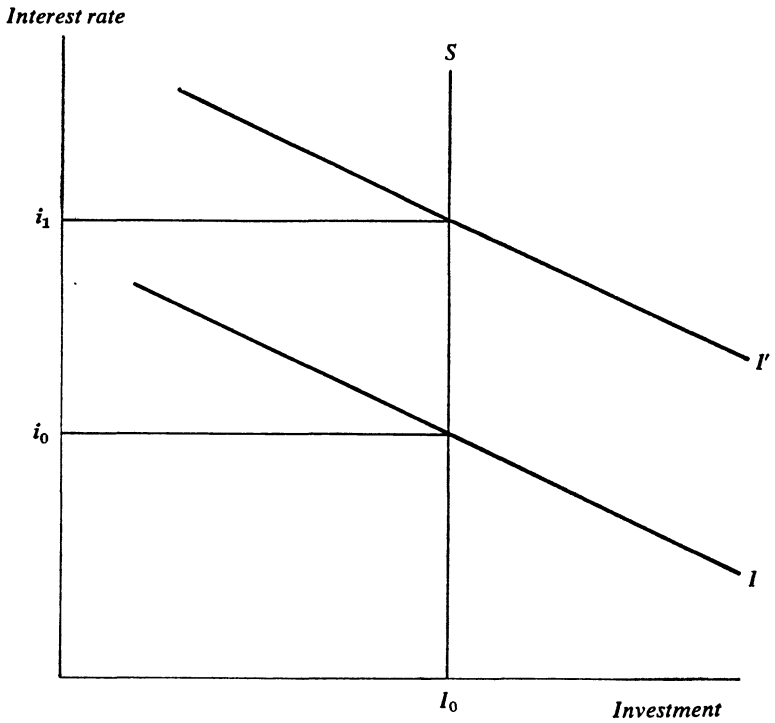
5. That the *marginal* investments of all firms are financed by debt does not preclude their using retained earnings to finance investment; this view is developed by Joseph E. Stiglitz in "Taxation, Corporate Financial Policy, and the Cost of Capital," *Journal of Public Economics,* vol. 2 (February 1973), pp. 1–34, and Stiglitz, "The Corporation Tax," *Journal of Public Economics,* vol. 5 (April–May 1976), pp. 303–11. For a contrary argument, see Martin Feldstein, Jerry Green, and Eytan Sheshinski, "Corporate Financial Policy and Taxation in a Growing Economy," *Quarterly Journal of Economics* (forthcoming).

6. This implies that the volume of saving is fixed and that the demand for money is interest inelastic.

is subject to the same tax and depreciation rules.[7] While these assumptions do not even approximate reality, they do permit a simple exposition of our method. Working through this simple case makes it easier to examine the more general framework with mixed debt-equity finance, an elastic supply of loanable funds, and differential tax rules.

We start by examining an economy with no inflation and see how tax changes alter the rate of interest. We then see how the interest rate responds to inflation under alternative tax and depreciation rules.

The diagram below illustrates the traditional determination of the equilibrium interest rate (i_0), which equates the inelastic supply of loanable funds (S) to the downward-sloping investment-demand schedule (I). In the absence of taxes, each point on the investment schedule indi-



7. This assumption ignores, for example, the difference between the tax treatment of investment in plant and equipment and of investment in residential real estate.

cates the internal rate of return on the marginal project at the corresponding aggregate level of investment.[8]

The introduction of a corporate income tax with proper economic depreciation and the deductibility of interest payments does not shift this investment schedule; any investment that could pay a maximum interest rate of i before the introduction of the tax can pay exactly the same rate subsequently.[9] In contrast, an investment tax credit or acceleration of depreciation would raise the maximum potential interest rate on every project and would therefore shift the investment-demand schedule to the right to line I'. Given a completely inelastic supply of investable funds, such a tax change simply raises the interest rate without any increase in investment.

Tax Changes. Analyzing quantitatively the effect of tax changes (and later of inflation) calls for an operational method of translating tax changes into changes in the interest rate—that is, a method of calculating i_1 in the diagram; the method must be compatible with a fixed marginal product of capital. To do this, we select a hypothetical "standard investment" and calculate the internal rate of return under different tax regimes. Consider a standard investment in equipment in which the real net output declines exponentially at δ percent a year[10] until the project is scrapped at the end of T years; the initial value of net output (a_0) is chosen so that, in the absence of any tax, the project has an internal rate of return of 12 percent.[11] Such a project has net output $a_0(1 + \delta)^{-t}$ in the tth year of its

8. This is essentially Keynes' formulation of the schedule for the marginal efficiency of investment. We implicitly assume that mutually exclusive options are described by Irving Fisher's incremental method and that multiple internal rates of return can be ignored. For a cautionary note about this procedure, see M. S. Feldstein and J. S. Flemming, "The Problem of Time-Stream Evaluation: Present Values versus Internal Rate of Return Rules," *Bulletin of the Oxford Institute of Economics and Statistics,* vol. 26 (February 1964), pp. 79–85.

9. The pretax situation may be described by $f'(I) - i = 0$, where $f'(I)$ is the marginal product of investment; a tax at rate τ with the deductibility of interest does not change the implied value of i in $(1 - \tau)\, f'(I) - (1 - \tau)i = 0$.

10. Note that this is "output decay" and not "depreciation"; see Martin S. Feldstein and Michael Rothschild, "Towards an Economic Theory of Replacement Investment," *Econometrica,* vol. 42 (May 1974), pp. 393–423, for an analysis of these concepts.

11. This is based on our earlier estimates of the pretax return on private investment in nonfinancial corporations; see Martin Feldstein and Lawrence Summers, "Is the Rate of Profit Falling?" *BPEA, 1:1977,* pp. 211–27. We raised the average return of 10.6 percent for 1948–76 reported there to 12 percent because we regard that sample period as overrepresenting cyclically low years, but the choice of any constant pretax rate of return does not alter our analysis.

life, where a_0 is selected to satisfy

$$(1) \qquad a_0 \sum_{t=1}^{T} \frac{(1+\delta)^{-t}}{(1.12)^t} = 1.$$

In practice, it is important to distinguish between investments in equipment and in structures because the depreciation rules and tax credits affect the two very differently; for example, the investment tax credit does not apply to structures. Our "standard investment" is therefore specified to be a mix of equipment and structures in the ratio of 1.95 to 1.[12] The specification of equation 1 is used to describe an investment in equipment with a ten-year life and an exponential decay rate of 13 percent. The net output of the investment in structures is assumed to decay at 3 percent a year and the structure is scrapped after thirty years; the output of a dollar's investment in new structures is also chosen to make the pretax rate of return equal to 12 percent. The standard investment is a thirty-year "sandwich" project, of which 66.2 percent of the investment in the first year is in a standard structure and the remainder is in equipment; the equipment is then replaced at the end of ten and twenty years.

The maximum potential interest rate corresponding to any given tax regime (that is, the value of i_1 in the diagram) is defined as the interest rate that can be paid on the outstanding balance of the loan used to finance the project, where the balance is reduced to zero at the end of the life of the project. If L_t is the loan balance at time t and x_t is the net cash flow of the project during t (except for interest expenses), the internal rate of return is the interest rate i that satisfies

$$(2) \qquad L_t - L_{t-1} = iL_{t-1} - x_t, \quad t = 1, \ldots, T,$$

where $L_0 = 1$ and $L_T = 0$. In the special case of the pure equipment project and no tax, equation 2 reduces to

$$(3) \qquad L_t - L_{t-1} = iL_{t-1} - a_0(1+\delta)^{-t};$$

the solution of this equation with $L_0 = 1$ and $L_T = 0$ is exactly equivalent to the familiar definition of the internal rate of return given by equation 1.

When a tax at rate τ is levied on the net output minus the sum of the interest payment and the allowable depreciation (d_t), the loan balance changes according to

$$(4) \qquad L_t - L_{t-1} = iL_{t-1} - x_t + \tau(x_t - d_t - iL_{t-1}).$$

12. This figure, when used in conjunction with the procedure described below, yields an investment mix corresponding to the average composition over the past twenty years.

The value of i_1 corresponding to any tax regime is therefore available by solving for the value of i that is consistent with equation 4 for our x_t "sandwich" with $L_T = 0$ and L_0 equal to one minus the investment tax credit.

Inflation. The preceding method of analysis can also be used to analyze the effect of inflation on the investment-demand schedule and therefore on the equilibrium rate of interest if the supply of loanable funds is inelastic. More generally, the method can be extended to decompose the increase in the interest rate induced by a rise in inflation into one part due to the shift in the demand for funds and one due to a shift in the supply; we return to this decomposition below.

It is again easiest to begin by examining the case in which marginal projects are financed by debt only. Consider first the situation in the absence of taxes. In terms of equation 2, the effect of introducing a constant expected inflation at rate π is to raise the future net profit in each year by a factor $(1 + \pi)^t$ and thus to convert the fundamental equation to

$$L_t - L_{t-1} = iL_{t-1} - (1 + \pi)^t x_t, \quad t = 1, \ldots, T. \tag{5}$$

For any sequence of real net profits, the internal rate of return i that satisfies the initial and terminal equations ($L_0 = 1$, $L_T = 0$) is increased by exactly the rate of inflation.[13] With a fixed supply of loanable funds, this increase in the maximum potential interest rate on all projects would raise the equilibrium interest rate by the rate of inflation.

This Fisherian conclusion is no longer valid when taxes are considered.[14] Equation 4 now becomes

$$L_t - L_{t-1} = iL_{t-1} - (1 + \pi)^t x_t + \tau[(1 + \pi)^t x_t - d(\pi)_t - iL_{t-1}], \tag{6}$$

where $d(\pi)_t$ is the depreciation allowed for tax purposes when there is inflation at rate π. Depending on the depreciation rule, the nominal maximum potential interest rate may rise by more or less than the rate of inflation. To see this, it is useful to consider the special case in which there is no depreciation. Equation 6 can then be written[15]

$$L_t - L_{t-1} = (1 - \tau)iL_{t-1} - (1 - \tau)(1 + \pi)^t x_t. \tag{7}$$

13. There is actually a second-order term: the internal rate of return rises from i without inflation to $(1 + i)(1 + \pi) - 1 = i + \pi + i\pi$ with inflation. But the $i\pi$ term vanishes if interest is compounded continuously.

14. These remarks are developed extensively in Feldstein, "Inflation, Income Taxes, and the Rate of Interest," and Feldstein, Green, and Sheshinski, "Inflation and Taxes."

15. Note that the asset appreciates in nominal value but there is no tax due on this appreciation as such.

This is exactly the same as 5 with the real project output replaced by an after-tax value, $(1 - \tau)x_t$, and the interest rate by its after-tax value, $(1 - \tau)i$. The effect of inflation is therefore to raise the *after-tax* potential rate of interest by exactly the rate of inflation: $d[(1 - \tau)i]/d\pi = 1$, or $di/d\pi = 1/(1 - \tau)$. With the U.S. marginal corporate tax rate of $\tau = 0.48$, this implies that the maximum potential interest rate rises by almost 2 percentage points for each 1 percent of inflation. If the supply of loanable funds were perfectly inelastic, the equilibrium interest rate would also rise by nearly 2 points.

The same relationship prevails if the asset depreciates and if the historic-cost basis of the depreciation is increased in proportion to the price level.[16] Although this degree of sensitivity of the interest rate may seem surprising at first, it is easily understood: each percentage point of inflation permits an increase of 2 points in the interest rate because the after-tax cost of this increase is only 1 point.[17] Moreover, this "excess adjustment" of the pretax interest rate is just sufficient to keep unchanged the after-tax return to a lender with the same marginal tax rate.[18]

The practice of allowing only historic-cost depreciation reduces the real value of depreciation allowances whenever the inflation rate increases. It is equivalent to levying a tax on the accruing increases in the nominal value of the asset. This extra tax implies that the real net-of-tax yield to lenders must be reduced by inflation and therefore that an increase in inflation raises the nominal pretax yield by less than $1/(1 - \tau)$. Explicit calculations of this effect will now be presented.[19]

Internal Rates of Return with Pure Debt Finance. Table 1 presents the calculated maximum potential interest rate with pure debt finance for our standard investment under seven tax regimes. The rates are calculated first on the assumption of no inflation and then on the assumption of a constant 6 percent rate of inflation.

16. See Feldstein, Green, and Sheshinski, "Inflation and Taxes."

17. Note that with price-indexed depreciation there is no capital-gains tax on the accruing increase in the nominal value of the assets or, equivalently, on the decreasing real value of the liabilities.

18. If borrowers were taxed on the *real* capital gains that resulted from the decreasing real value of their liabilities, the interest rate would rise only by the rate of inflation. To leave lenders with the same after-tax real return, the real capital losses that result from the decreasing real value of their liabilities would have to be a deductible expense.

19. The theory of this relation is discussed in Feldstein, Green, and Sheshinski, "Inflation and Taxes"; see in particular the appendix to that paper by Alan Auerbach.

Table 1. Maximum Potential Interest Rate with 100 Percent Marginal Debt Finance, Alternative Tax Regimes and Inflation Rates

Percent

Tax regime (corporate tax rate, depreciation method, and other provisions)	*Inflation rate*	
	0	*6 percent*
(A) No tax	12.0	18.0
(B) 52 percent; straight-line depreciation	12.4	21.6
(C) 52 percent; accelerated depreciation as of 1960	13.3	22.6
(D) 52 percent; investment tax credit of 5.6 percent; depreciation as of 1963:4 with Long amendment	14.0	23.7
(E) Same as D, except Long amendment repealed	14.2	23.8
(F) Same as E, except 48 percent	14.0	23.0
(G) Current law: 48 percent; investment tax credit of 9 percent;[a] asset depreciation range	14.9	24.3

Source: Derived by method described in text.
a. See text note 21.

Consider first the results corresponding to no inflation—column 1 of table 1. By construction, the maximum potential interest rate (MPIR) in the absence of both taxes and inflation is 12 percent for our standard investment. Imposing the tax regime that existed until 1954 (a 52 percent corporate tax rate and straight-line depreciation) leaves the MPIR essentially unchanged at 12.4 percent.[20] Successive tax regimes liberalized depreciation and raised the MPIR. The accelerated-depreciation options introduced in 1954 were adopted only gradually, but by 1960, the mix of depreciation patterns implied an MPIR of 13.3 percent. The introduction of the investment tax credit raised it further, to 14 percent in 1963. Currently, because of a 10 percent investment tax credit and the asset-depreciation-range (ADR) method of depreciation, the MPIR has reached 14.9 percent.[21] The tax changes since 1954 have thus raised the MPIR by one-fifth of its original value.[22]

20. The MPIR is increased in the shift from regime A (no tax) to regime B because straight-line depreciation is slightly more generous than true economic depreciation.

21. The effective rate of tax credit of 9 percent shown in the table differs from the statutory rate of 10 percent because of limitations on loss offset and carryover. Also, certain firms and types of investment are not eligible for the credit. In all our work, we use the effective rate.

22. Note that because interest is deductible, a lower tax rate actually lowers the MPIR, as illustrated by the tax cut in 1964 (switching from regime E to F).

Comparing the two columns of table 1 reveals the ways in which taxation changes the way inflation affects the rate of interest. With no tax, a 6 percent rate of inflation raises the MPIR by 6 percentage points—from 12.0 to 18.0. In contrast, with a 52 percent tax and straight-line depreciation (regime B), the 6 percent inflation raises the MPIR by 9.2 points (from 12.4 percent to 21.6 percent). Thus $di/d\pi = 1.53$ in this regime. Note that a lender (bondholder) thus experiences an increase in the real rate of return from 12.4 to 15.6 percent. However, since the personal tax is levied on the full nominal return, the lender will receive a reduced real return after tax unless his marginal tax rate is less than 35 percent. At a personal tax rate of 50 percent, for example, the real after-tax yield on bonds falls from 6.2 percent with no inflation to 4.8 percent with 6 percent inflation.

The same pattern can be followed with all of the other tax regimes of the postwar period. The figures in column 2 show that under every regime, a 6 percent inflation rate would raise the nominal rate of return by between 9.0 and 9.7 percentage points.

Although the assumption that marginal investments are financed completely by debt is a useful analytic simplification, the implied interest rates shown in columns 1 and 2 are clearly inconsistent with market experience. The real long-term interest rates are not (and never have been during the postwar period) even remotely close to the high values presented in table 1. We turn therefore to the more relevant case of investments financed by a mix of debt and equity.

THE INTEREST RATE WITH MIXED DEBT-EQUITY FINANCE

Our view of the role of debt and equity finance starts with the observation that issuing more debt increases the riskiness of both the bonds and the stocks of the firm.[23] Issuing additional debt thus raises the interest rate that the firm must pay and lowers the price of its shares. The firm therefore does not finance all incremental investment by debt but selects a debt-equity ratio that, given tax rules and investor preferences, minimizes the cost of its capital. If the firm is in equilibrium, the mix of debt and

23. This view is developed explicitly in Feldstein, Green, and Sheshinski, "Corporate Financial Policy and Taxation." The traditional Modigliani-Miller conclusion that the cost of capital is independent of the debt-equity ratio holds generally only in a world without taxation and bankruptcy.

equity used to finance an incremental investment is the same as its average debt-equity investment.[24] The interest rate that a firm can pay on a "standard investment" depends on this debt-equity ratio and on the relation between the equity yield and the debt yield that is consistent with the preferences of portfolio investors.

In our analysis, we assume that the ratio of debt to total capital is one to three, roughly the average ratio of nonfinancial corporate debt to the replacement value of that sector's capital during the past decade. Although it would clearly be desirable to extend our analysis to make the debt-equity ratio endogenous, this generalization must be postponed until later research.

Our basic assumption about the preference of portfolio investors is that, because equity investments are riskier than debt investments, portfolio equilibrium requires a higher yield on equity than on debt. We consider two variants of the yield differential. First, we assume that the real equity yield (denoted by e) must exceed the real interest rate $(i - \pi)$ by a constant risk premium, D.[25]

$$e = i - \pi + D. \tag{8}$$

We shall examine several different values of D. Our alternative specification relates the risk premium to the difference in real *after-tax* rates of return to an investor. Computational results analogous to table 1 are presented for both specifications and both are examined in the econometric analysis below.

If the portfolio investor has a marginal personal tax rate θ, the real after-tax return on a bond may be written $i_n = (1 - \theta)i - \pi$. Specifying the real after-tax yield on equity (e_n) is more complex. Let p be the fraction of the real equity yield that is paid out and $(1 - p)$ the fraction that is retained. The part that is paid out is taxed at rate θ while the retained earnings are subject only to an eventual tax at the capital-gains rate. We use θ_g to denote the "equivalent concurrent capital-gains tax rate"—that is, the present value of the future tax equivalent to taxing the retained earnings immediately at rate θ_g. In addition to these taxes on real equity earn-

24. If the firm issues no new equity, it establishes its desired debt-equity ratio by its dividend policy and its debt-issue policy.

25. Since we assume a constant debt-equity ratio, changes in the risk premium are not induced by changes in that ratio. Note also that e includes the real gains that accrue to equity investors at the expense of bondholders.

ings, the stock investor must also pay a tax on the *nominal* capital gains that occur solely because of inflation. With inflation at rate π, the resulting nominal capital gain at rate π is subject to capital-gains tax at effective rate θ_g. The real net return may therefore be written:

$$e_n = [p(1 - \theta) + (1 - p)(1 - \theta_g)]e - \theta_g\pi.$$

Our after-tax alternative to equation 8 is therefore

$$e_n = i_n + D, \tag{9}$$

or

$$[p(1 - \theta) + (1 - p)(1 - \theta_g)]e - \theta_g\pi = (1 - \theta)i - \pi + D. \tag{10}$$

For our numerical calculations, we assume the reasonable values $p = 0.5$, $\theta = 0.4$, and $\theta_g = 0.10$.

The method of calculating the maximum potential interest rate used in the pure-debt model (discussed above) can be applied to find the values of i and e that satisfy either equation 8 or 9 for our "standard investment." Note that a firm's net cost of funds (N) is a weighted average of the net-of-tax interest that it pays and the yield on its equity. In nominal terms,

$$N = b(1 - \tau)i + (1 - b)(e + \pi). \tag{11}$$

In the special case of pure-debt finance, $N = (1 - \tau)i$; the solution of the difference equation 6 provides a value for i and, since τ is known, for N as well. More generally, regardless of the mix of debt and equity finance, the solution of equation 6 can be interpreted as equal to $N/(1 - \tau)$; that is, it is equal to the cost of funds to the firm stated as if all these costs were deductible from the corporate income tax.

To calculate the value of i corresponding to any tax regime we therefore proceed in three steps. First, we solve equation 6 to obtain a value of $N/(1 - \tau)$. Second, we multiply this by $(1 - \tau)$ to obtain N. Finally, with this known value of N we can solve the two equations simultaneously (11 and 8 or 10) for i and e.

Table 2 presents the interest rates corresponding to the pretax portfolio-balance rule of equation 8. Separate results with and without inflation are presented for three risk premiums ($D = 0.06$, 0.08, and 0.04). Note first that the implied interest rates, especially those corresponding to

Table 2. Maximum Potential Interest Rate with One-Third Debt Finance and Selected Pretax Risk Differentials for Alternative Tax Regimes and Inflation Rates
Percent

Tax regime (corporate tax rate, depreciation method, and other provisions)	*Pretax risk differential (D)*					
	6 percent		*8 percent*		*4 percent*	
	Inflation rate		*Inflation rate*		*Inflation rate*	
	0 (1)	*6* (2)	*0* (3)	*6* (4)	*0* (5)	*6* (6)
(A) No tax	8.0	14.0	6.7	12.7	9.3	15.3
(B) 52 percent; straight-line depreciation	2.4	7.7	0.8	6.1	4.0	9.3
(C) 52 percent; accelerated depreciation as of 1960	2.9	8.3	1.3	6.7	4.5	9.9
(D) 52 percent; investment tax credit of 5.6 percent; depreciation as of 1963:4 with Long amendment	3.3	8.9	1.7	7.3	4.9	10.5
(E) Same as D, except Long amendment repealed	3.4	9.0	1.8	7.4	5.0	10.6
(F) Same as E, except 48 percent	3.8	9.4	2.2	7.8	5.4	11.0
(G) Current law: 48 percent; investment tax credit of 9 percent;[a] asset depreciation range	4.4	10.2	2.8	8.6	6.0	11.8

Source: Derived by method described in text.
a. See text note 21.

$D = 0.06$, are much closer to observed experience than the results based on complete debt finance in table 1.[26]

The numbers in column 1 (zero inflation rate) deserve comment for two reasons. First, unlike the results in the pure-debt model of table 1, the introduction of the corporate income tax significantly lowers the implied bond yield. This reflects the payment of a significant tax, which must reduce both the equity and debt yields. Similarly, in contrast to table 1, the reduced corporate tax rate in 1964 now causes an increase in the MPIR. Second, the various liberalizations of depreciation and the introduction

26. Note that in regimes B through G the values for $D = 0.08$ and $D = 0.04$ differ from the corresponding values for $D = 0.06$ by 0.016. This constant difference holds to the three-decimal-place accuracy of our table but is not an exact relation when the corporate tax rate τ changes.

of the investment tax credit raise the MPIR. The absolute increase is smaller than in the pure-debt case of table 1, but the proportional rise is substantially larger.

The effect of a 6 percent inflation rate is seen by comparing columns 1 and 2. With no tax, the MPIR rises by the full amount of the inflation; a 6 percent inflation raises it from 8.0 percent to 14.0 percent. The presence of taxes again changes this relation but the effect is very different with mixed debt-equity finance than in the pure-debt case. In each of the tax regimes, a 6 percent inflation rate raises the nominal interest rate by only about 5.5 percent: $di/d\pi = 0.92$. This implies that the real rate of return on debt falls even for the lender (bondholder) who is not subject to any personal tax. For a lender who pays a significant marginal tax rate, the equilibrium real net internal rate of return can easily be negative. Under regime C, the real net yield to a 50 percent taxpayer falls from 1.45 percent to −1.85 percent. With the most recent regime (G), the 6 percent inflation rate reduces the real net yield from 2.2 percent to −0.90 percent.

Table 3 presents the corresponding maximum potential interest rates for the net-of-tax portfolio-balance rule of equation 10. Again, the corporate income tax causes a substantial reduction in the real interest rate. The liberalized depreciation rules raise this interest rate substantially but, even in the absence of inflation, it remains significantly below the value without taxes. The most important difference between the results of tables 2 and 3 is the greater sensitivity of MPIR to inflation with the net-of-tax portfolio-balance rule of table 3. Comparing columns 1 and 2 shows that a 6 percent inflation rate would raise the nominal MPIR by 7.5 percent under regime B, implying $di/d\pi = 1.25$; this result is essentially independent of the differential (D) that is assumed. The faster writeoffs that are incorporated in the succeeding tax regimes reduce the extent to which inflation lowers the value of the tax depreciation. The smaller adverse effect on the value of depreciation raises $di/d\pi$; the value of 1.25 under regime B becomes 1.32 with regime D and 1.33 with the current regime (G).

The maximum potential interest rates shown in tables 2 and 3 have two very important implications. First, inflation severely depresses the real net rate of return (i_n) that can be paid to a bondholder on the basis of our standard investment project. Consider an investor whose marginal tax rate is 40 percent. Table 2 implies that with current law and a risk differential of $D = 0.06$, a 6 percent inflation raises the nominal before-

Table 3. Maximum Potential Interest Rate with One-Third Debt Finance and Selected Net-of-Tax Risk Differentials for Alternative Tax Regimes and Inflation Rates
Percent

Tax regime (corporate tax rate, depreciation method, and other provisions)	*Net-of-tax risk differential (D)*					
	6 percent		*4 percent*		*5 percent*	
	Inflation rate		*Inflation rate*		*Inflation rate*	
	0 (1)	*6* (2)	*0* (3)	*6* (4)	*0* (5)	*6* (6)
(A) No tax	8.0	14.0	9.3	15.3	8.6	14.3
(B) 52 percent; straight-line depreciation	0.9	8.4	3.4	10.9	2.2	9.6
(C) 52 percent; accelerated depreciation as of 1960	1.5	9.1	4.0	11.6	2.8	10.4
(D) 52 percent; investment tax credit of 5.6 percent; depreciation as of 1963:4 with Long amendment	2.0	9.9	4.5	12.4	3.2	11.2
(E) Same as D, except Long amendment repealed	2.1	9.9	4.6	12.4	3.4	11.2
(F) Same as E, except 48 percent	2.6	10.3	5.1	12.8	3.9	11.6
(G) Current law: 48 percent; investment tax credit of 9 percent;[a] asset depreciation range	3.3	11.3	5.8	13.8	4.6	12.6

Source: Derived by method described in text.
a. See text note 21.

tax return from 4.4 to 10.2 percent, but reduces the real net return from 2.6 percent to 0.1 percent. With the more favorable assumptions of table 3, a 6 percent inflation reduces the real return from 2.0 percent to 0.8 percent. This has obvious effects on the incentive to save and to make risky portfolio investments.

The second implication relates to the firm's incentive to invest. It is frequently argued that, because their real net borrowing rate has fallen, firms now have a greater incentive to invest than they did a few years ago. The calculations of tables 2 and 3 show that the inference is wrong because inflation also reduces the maximum real net borrowing rate that firms can afford to pay on any investment. Table 2 with $D = 0.06$ implies that in the absence of inflation a firm could afford to pay an after-tax in-

terest cost of 2.3 percent on the standard investment project.[27] Inflation at 6 percent reduces the maximum real after-tax interest rate for this project below zero to −0.7 percent![28] The real net cost of debt finance must thus fall by 3.0 percentage points to avoid reducing the incentive to invest. Similarly, with table 3, the firm could afford a net interest cost of 1.7 percent in the absence of inflation but only a negative cost, −0.1 percent, with 6 percent inflation. It is clear that the usual way of evaluating investment incentives in terms of the real net cost of finance is very misleading with the U.S. tax system when inflation is significant.[29]

THE EFFECT OF A VARIABLE SUPPLY OF INVESTABLE FUNDS

Until now, all of our calculations have referred to the same standard investment project and therefore implicitly to a fixed supply of investable funds. Moreover, we have assumed that inflation has no effect on the supply of loanable funds to the nonfinancial corporate sector. The econometric estimation of the actual effect of changes in the corporate tax requires attention to both of these issues.

Once again we begin by considering an economy in which there is no inflation and all marginal investment is financed by debt. The notion of a fixed supply of loanable funds (the vertical S line of the first diagram) rested on the assumption that our analysis relates to the entire economy and that the supply of saving is interest inelastic. It is important for subsequent empirical analysis to drop these two assumptions. Our econometric analysis will deal with the long-term corporate bond rate; but the demand for long-term credit comes not only from business firms, but also from investors in residential real estate, from state, local, and federal governments, and from abroad. These investment demands are not directly affected by the investment tax credit, accelerated depreciation, or changes in the corporate tax rate. This implies that the supply of loanable funds to the nonfinancial corporate sector is an increasing function of the long-term bond yield and that this supply function is not shifted by the changes in corporate tax rules. This supply elasticity would be increased by a posi-

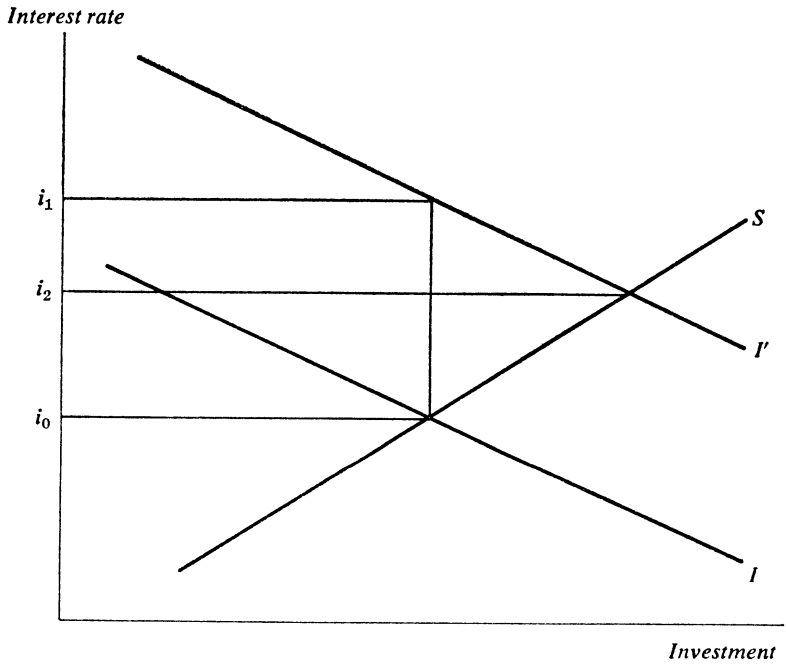
27. $(1-\tau)i = 0.52(0.044) = 0.0229$.

28. $(1-\tau)i - \pi = 0.52(0.102) - 0.06 = -0.0070$.

29. The empirical results of the next two sections suggest that the actual real net interest rate falls by about enough to keep incentives to invest unchanged despite the low maximum potential interest rate.

tive response of domestic saving and international capital flows to the net interest rate.

The diagram presented below is therefore a more appropriate representation than the first one. A more liberal depreciation policy (a shift from I to I') has a more limited effect on the long-term interest rate. The magnitude depends on the elasticity of the supply of loanable funds to the nonfinancial business sector and therefore on both the relative size of the rest of the debt market and the degree of substitutability in investors' portfolios.



The ratio of the actual change in the long-term interest rate $(i_2 - i_0)$ to the change that would have occurred $(i_1 - i_0)$ if investment and therefore the marginal product of capital had remained the same thus measures the extent to which the tax change is shifted from corporate capital to capital elsewhere and to labor.

Our empirical analysis below focuses on the extent of tax shifting in this general sense. We look at the tax changes as summarized by the

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change in the corporate maximum potential interest rate and ask what impact this potential change actually had on the yields available to portfolio investors with uncommitted funds. The ratio of $(i_2 - i_0)$ to $(i_1 - i_0)$ is analogous to the definition of the incidence of corporate tax changes used in previous empirical studies.[30] This measure of incidence should be distinguished from the more general concept of the fraction of the tax change borne by capital in *all* sectors. A change in the corporate tax might be borne solely by capital even though the corporate sector bore only a modest fraction.[31] Our estimate of the ratio of $(i_2 - i_0)$ to $(i_1 - i_0)$ therefore does not measure the shift of the tax change from capital to labor. We return later to consider how well our empirical analysis of the tax-induced change in the long-term bond rate measures the impact of the tax on the yield to capital in general and not just on the capital invested in the corporate sector.

To implement this approach, we could calculate the maximum potential interest rate for our hypothetical "standard investment" under the tax regime of each quarter during the sample period. This would yield the i_1 values of the second diagram corresponding to different tax rules. We could then estimate an equation relating the actual interest rate (i_2) to these values. In practice, however, it is necessary to allow also for changes in inflation that shift the supply of available funds.

The response of supply to changes in the rate of inflation depends on three basic factors: (1) the effect of nominal interest rates on the demand for money; (2) the effect of the real net interest rate on saving; and (3) the effect of inflation on the real yields available in other forms of investment open to portfolio investors. Our empirical analysis does not attempt to disentangle these aspects or to model explicitly the effect of inflation on yields of alternative assets.[32] Instead, we distinguish only between the

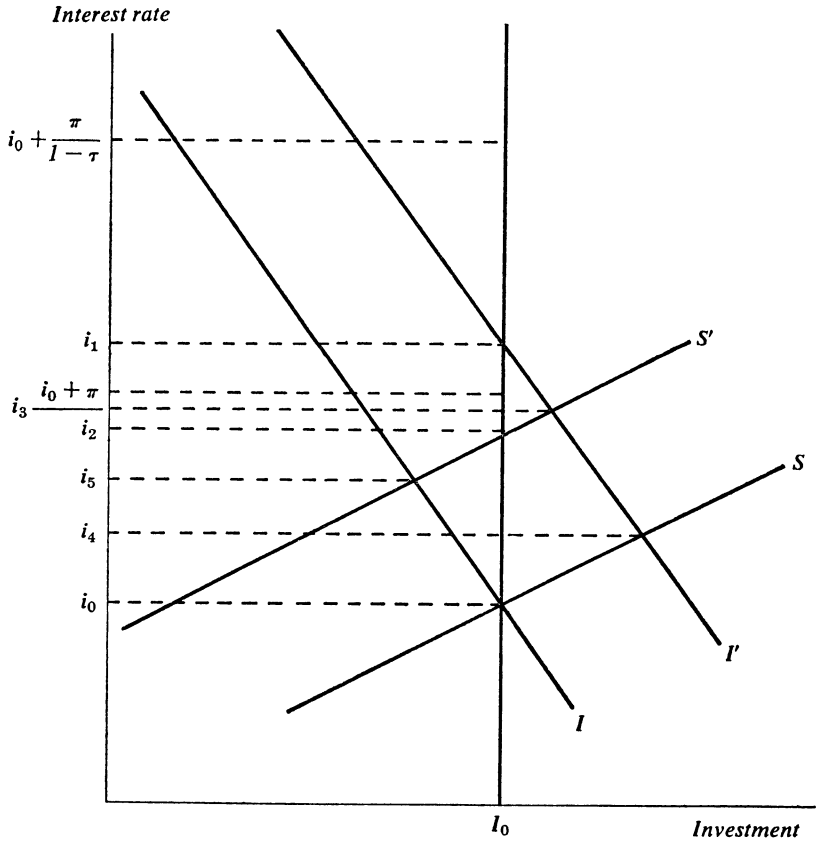
30. See, for example, Krzyzaniak and Musgrave, *Shifting of the Corporation Income Tax,* and Oakland, "Corporate Earnings and Tax Shifting." However, these authors analyzed the effect, not on uncommitted funds, but on the return of existing investments.

31. See, for example, Harberger, "Incidence of the Corporation Income Tax," for an explicit analysis of the incidence of a change in the corporate tax in an economy with more than one sector.

32. Benjamin Friedman's explicit modeling of the supply of and demand for corporate debt might usefully be extended in this direction. See, for example, Benjamin M. Friedman, "Financial Flow Variables and the Short-Run Determination of Long-Term Interest Rates," *Journal of Political Economy,* vol. 85 (August 1977), pp. 661–89.

changes in the rate of interest caused (1) by the inflation-induced rise in the nominal rate of return, and (2) by all other effects of inflation.

This distinction is illustrated in the third diagram. In the absence of inflation, the equilibrium interest rate is i_0 and investment is I_0. The effect of inflation at rate π is to raise the investment-demand schedule to I'. In a pure Fisherian economy, the vertical displacement of this schedule would equal the rate of inflation: $i_1 - i_0 = \pi$. But with taxes and historic-cost depreciation, this vertical shift is likely to be somewhere between π and $\pi/(1 - \tau)$, as it is in the diagram. Inflation will also shift the supply schedule of loanable funds from S to S'. In the pure Fisherian world, this vertical displacement would also equal the rate of inflation: $i_2 - i_0 = \pi$,



implying $i_2 = i_1$.[33] More realistically, the supply shift will depend on the three factors identified in the previous paragraph. The change in the equilibrium interest rate will depend on the shifts and the slopes of both the demand and supply schedules.

As this analysis indicates, an empirical study of the relation between inflation and the interest rate should *not* be construed as a test of Irving Fisher's theory. With a complex structure of taxes, Fisher's conclusion would not be expected to hold. The purpose of an empirical study should instead be to assess the response of nominal long-term interest rates to inflation and therefore the effect on real after-tax yields. The statistical analysis presented below therefore begins by trying to measure this response of the interest rate to expected inflation;[34] in terms of the third diagram, this coefficient equals $(i_3 - i_0)/\pi$. Our analysis can also go further and estimate how much of the increase in the interest rate would be due to a shift in the demand for funds with the supply schedule fixed $(i_4 - i_0)$ and how much to the shift in supply with a fixed demand schedule $(i_5 - i_0)$. With linear demand and supply schedules, this procedure provides an exact decomposition of the observed changes: $i_3 - i_0 = (i_4 - i_0) + (i_5 - i_0)$.

The current discussion of the effect of inflation when all marginal investments are financed by debt is extended and applied below to investments in which debt finance provides one-third of marginal capital and equity finance, two-thirds. Our analysis assumes that the debt-equity ratio is unaffected by the rate of inflation and that the *real* rates of return to debt and equity have a constant net or gross differential.

Estimating the Effect of Inflation

In this section we begin the empirical investigation of the impact of expected inflation on the long-term rate of interest. As we emphasized above, we do not regard this as a test of Fisher's conclusion since there is no reason to expect such a one-for-one impact of inflation on the interest rate in an economy in which taxes play such an important role. Instead, our aim is to estimate the net impact of expected inflation on the nominal rate of interest in order to assess the effect of inflation on the real

33. Note that if the supply is perfectly inelastic (that is, if the schedule is vertical), the Fisherian result can occur with no shift in supply.

34. The operational specification of expected inflation is discussed below.

cost of capital and the real return to investors. If the supply of loanable funds for the purchase of bonds were fixed, we would expect the equilibrium interest rate to rise in the same way as the maximum potential interest rate. In fact, however, the supply schedule is likely to be neither completely inelastic nor independent of the inflation rate. Without a much more detailed analysis, we must regard a wide range of inflation impacts as plausible a priori.

At this stage we focus on the relation between the interest rate and expected inflation. The next section introduces the effects of changes in tax and depreciation rules. Since adding the tax variable does not alter the conclusion about the effect of inflation, we prefer to start with the simple specification in which we can concentrate on making expected inflation an operational concept.

In all of our analyses, we measure the long-term interest rate by an average of yields on new issues of high-grade corporate bonds, adjusted to be comparable to the Aaa rate.[35] The use of new-issue yields is important because seasoned issues with lower coupon rates will also have lower market yields owing to the more favorable tax treatment of capital gains. The new-issue yield, however, is influenced by the call-protection feature, which may make it respond more to inflation rates than it would otherwise.

The expected rate of inflation is defined in terms of the price of consumer goods and services as measured by the deflator of personal consumption expenditures in GNP. In principle, our analysis should recognize that wage rates and the prices of consumption goods, of investment goods, and of the output of nonfinancial corporations do not move proportionately and would be expected to have different effects on the supply and demand for investment funds. In practice, it is not possible to include more than one inflation variable and the choice does not alter the results in an essential way. We use expectations of the consumption price for three reasons: (1) This is the price that should affect household decisions. (2) Although firms produce investment and intermediary goods, they also purchase these goods; the consumption price may therefore be a good approximation of the price of sales by the nonfinancial corporate sector to the rest of the economy. (3) The future movement of nominal wage rates may be approximated best by the expected movement in consumer prices.

35. Data Resources, Inc., made this series available to us.

This section develops two approaches to specifying the expected future rate of inflation. The first uses the familiar distributed lag on past inflation rates, with the identifying restriction that the weights on past inflation must sum to one. Recognizing that this restriction may be invalid, we explore an alternative approach based on a series of separate optimal forecasts of inflation. In practice, the two approaches lead to very similar results.

Consider first the distributed-lag approach that has been used ever since Irving Fisher's own pioneering work on this subject. We posit that the interest rate (i) is related to expected inflation (π^*) according to

$$i_t = \beta_0 + \beta_1 \pi_t^*, \tag{12}$$

where

$$\pi_t^* = \sum_{j=0}^{T} w_j \pi_{t-j}, \tag{13}$$

with

$$\sum_{j=0}^{T} w_j = 1. \tag{14}$$

Substituting equation 13 into equation 12 yields the estimable equation

$$i_t = \beta_0 + \beta_1 \sum_{j=0}^{T} w_j \pi_{t-j}. \tag{15}$$

The key coefficient β_1 is estimable only because of the identifying restriction of equation 14.

Equation 15 was estimated by assuming that the weights on lagged inflation (that is, $j > 0$) satisfy a second-order polynomial and that $T = 16$ quarters; the coefficient of the concurrent inflation rate ($j = 0$) was unconstrained. The basic parameter estimates are presented in equation 16. (The numbers in parentheses here and in the equations that follow are standard errors.)

$$i_t = \underset{(0.17)}{3.05} + \underset{(0.05)}{0.19}\, \pi_t + \beta_1 \sum_{j=1}^{16} w_j \pi_{t-j} \tag{16}$$

$$\beta_1 \sum_{j=1}^{16} w_j = \underset{(0.06)}{0.64}.$$

Sample period: 1954:1–1976:4; $\bar{R}^2 = 0.82$; Durbin-Watson = 0.21.

The identifying restriction that $\sum_{j=0}^{16} w_j = 1$ implies that $\beta_1 = 0.83$.[36] With no inflation, the interest rate would be 3.05 percent; with a sustained (and hence expected) inflation rate of 6 percent, the nominal interest rate would rise to 8.03 percent.

Sargent has rightly emphasized that the identifying restriction of equation 14 may be unwarranted.[37] The optimal weights (the w_j) depend on the nature of the process that is being forecast. If the π_t remain constant for a long time, it is clearly appropriate that the weights sum to unity and therefore predict that the same π_t will continue. But where the historic pattern of the π_t is more varied, a different set of weights will be optimal. Dropping the restriction of equation 14 leaves β_1 in 15 underidentified. This apparently led Sargent to abandon the estimation of β_1 and to attempt to test Fisher's conclusion indirectly by examining a rational-expectations model of unemployment.[38] We do not think that so circuitous a route is necessary, and propose instead to develop an explicit optimal forecast measure of expected inflation for use as a regressor to estimate equation 12 directly.

To derive forecasts of inflation rates, we use the optimal ARIMA forecasting procedure of Box and Jenkins.[39] We assume that the forecasts made at any time are to be based only on the information available at that time. This requires reestimating a separate Box-Jenkins equation for each quarter based on the observations available as of that quarter. To relax the assumption that inflation rates are generated by the same stochastic process over the entire postwar period, we specify that the ARIMA process estimated at each date is based only on the most recent ten years of data.[40] After some preliminary analysis of the data, we selected a first-

36. That is, 0.64 + 0.19, the latter being the coefficient of π_t.

37. See Thomas J. Sargent, "Rational Expectations, the Real Rate of Interest, and the Natural Rate of Unemployment," *BPEA, 2:1973,* pp. 429–72.

38. Sargent concludes that his indirect evidence was ambiguous. When taxes are recognized, even the theoretical link between Sargent's equation and the inflation-interest relation is unclear.

39. In principle, of course, the Box-Jenkins procedure is too restrictive and one should derive forecasts from a completely specified econometric model. Unfortunately, doing so requires projecting all of the exogenous variables. The more general procedure that requires estimates of monetary and fiscal policy for many years ahead would not necessarily yield better forecasts than the simpler Box-Jenkins procedure. See George E. P. Box and Gwilym M. Jenkins, *Time Series Analysis: Forecasting and Control* (Holden-Day, 1970).

40. Since our sample begins in the first quarter of 1954, it is not appropriate to use a ten-year history of inflation that stretches back into World War II. The earliest

order autoregressive and first-order moving-average process. With the inflation rates measured as deviations from the ten-year sample means, denoted by π, this ARIMA process can be written as

$$\pi_t = \phi\pi_{t-1} + \epsilon_t - \theta\epsilon_{t-1}, \tag{17}$$

where ϵ_t is a purely random disturbance. Equation 17 was estimated by the Box-Jenkins procedure for changing samples ending in each quarter from 1954:1 through 1976:4. The minimum mean-square-error forecast of the inflation rate in quarter $t + 1$ as of quarter t is

$$\hat{\pi}_{t+1} = \frac{\phi - \theta}{1 - \theta L}\pi_t, \tag{18}$$

where L is the lag operator.

A striking result of these estimates of the predicted inflation rate, shown in table 4, is the implied change in the sum of the optimal forecast weights on past inflation rates.[41] Because we assume that inflation rates follow a stationary process, our specification implies that the optimal weights always sum to less than one.[42] Until 1970, the implied sum of the weights was always between 0.30 and 0.40. During the 1970s, the sum of the weights has risen markedly, from 0.45 in 1970 to 0.55 in 1973 to 0.71 in 1976. Since the mean lag has remained almost constant, the rapidly rising weights imply an increased sensitivity of the optimal inflation forecast to recent experience.[43] This has potentially important implications for the changing evidence on the "accelerationist hypothesis" and other issues that we shall not explore in this paper.[44]

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inflation observation used is the first quarter of 1947; the sample is extended until a full ten years is available.

41. It follows from equation 18 that, when the process is represented as an autoregressive process, the sum of the weights is $(\phi - \theta)/(1 - \theta)$.

42. Recall that our estimates are based on deviations from the sample mean so that a constant inflation rate would eventually be predicted accurately.

43. The mean lag, $1/(1 - \theta)$, was approximately 1.4 quarters until 1970 and has since been between 1.5 and 1.6 quarters.

44. The coefficients of the distributed lag on past inflation have been regarded as a test of the accelerationist hypothesis that the long-run Phillips curve is vertical. This implicitly accepts an identifying restriction like our equation 14. The evidence of an increasing coefficient on lagged inflation might be better interpreted as a changing relation between past inflation and expected inflation. For evidence of the increasing coefficients on past inflation in this context, see Robert J. Gordon, "Inflation in Recession and Recovery," *BPEA, 1:1971*, pp. 105–58, and Otto Eckstein and Roger Brinner, *The Inflation Process in the United States*, A study prepared for the use of the Joint Economic Committee, 2:92 (Government Printing Office, 1972).

The expected inflation rate that affects the long-term interest rate involves a long horizon and not merely the next quarter. We can use equation 18 to calculate iteratively a sequence of inflation rates in future quarters. We define the expected inflation rate π_t^e as the weighted average of the quarterly predicted inflation rates during the subsequent ten years, where the weights reflect discounting of future inflation by the interest rate. Moderate changes in the averaging period would have no appreciable effect on our analysis.[45]

Equation 19 presents the estimated interest-rate equation based on the optimal inflation forecast:

$$i_t = 2.9 + 0.94\,\pi_t^e. \quad (19)$$
$$(0.09)$$

Sample period: 1954:1–1976:4; $\bar{R}^2 = 0.53$; Durbin-Watson = 0.13.

The estimate of 0.94 is very close to one and certainly not significantly different. Thus, this estimate, based on an optimal Box-Jenkins forecast of future inflation, is very similar to the traditional distributed-lag estimate of equation 16.

Forecasting inflation on the basis of past inflation is clearly more appropriate at some times than at others. If the reduction in inflation rates after the Korean War was properly anticipated, the estimates of expected inflation based on past inflation rates would be too high for the early years in table 4. We have therefore reestimated equations 16 and 19 for the period beginning in 1960. The results are quite similar to the estimates for the entire sample: the weights sum to 0.75 with the polynomial distributed lag, and the coefficient is 0.88 when the predicted-inflation variable (π_t^e) is used.

The very low Durbin-Watson statistics of our estimated equations indicate an extremely high first-order autocorrelation of the stochastic errors. This is just what we would expect in an efficient market for long-term bonds. The *change* in the long-term interest rate from quarter to quarter (and therefore the change in the price of the asset) would be expected to depend on *changes* in such fundamental determinants as the expected inflation rate with a stochastic disturbance that is serially uncorrelated and that therefore cannot be predicted. This serial independence

45. When we return to explicit analysis of the internal rate of return in the next section, the inflation forecasts can be incorporated directly into its calculation.

Table 4. The Long-Term Interest Rate and the Predicted Inflation Rate, 1954–76
Percent

Year	*Long-term interest rate* (i_t)	*Predicted inflation rate* (π_t^*)
1954	2.9	2.9
1955	3.2	2.7
1956	3.7	2.6
1957	4.4	2.6
1958	4.0	2.2
1959	4.8	2.3
1960	4.7	2.4
1961	4.4	1.9
1962	4.2	1.7
1963	4.2	1.7
1964	4.4	1.7
1965	4.5	1.8
1966	5.4	2.0
1967	5.8	1.9
1968	6.5	2.3
1969	7.7	3.1
1970	8.5	3.3
1971	7.4	3.6
1972	7.2	3.2
1973	7.7	4.3
1974	9.0	8.0
1975	9.0	5.2
1976	8.3	5.2

Sources: The long-term interest rate is an average of yields on new issues of high-grade corporate bonds adjusted to the comparable Aaa rate. The series was provided by Data Resources, Inc. The predicted inflation rate is the weighted (discounted) average of ten years of quarterly Box-Jenkins forecasts (see text).

in first differences corresponds to the observed high autocorrelation when the *level* of the interest rate is the dependent variable. The high autocorrelation of the residuals implies that our method of estimation is inefficient and that the standard errors are underestimated. We have not, however, followed the common statistical procedure of estimating the equation in first-difference form (or, more generally, after an autoregressive transformation) because we believe that doing so would introduce a substantial errors-in-variables bias. Specifically, we recognize that a variable like π_t^e is only an imperfect measure of expected inflation. Because inflation (and presumably expected inflation) has changed substantially during our sample period, most of the variance in the π_t^e series will reflect the

variance of the true (but unobserved) expected inflation. A relatively small amount of "noise" will cause a correspondingly small downward bias in the coefficient of the π_t^e variable. In contrast, taking the first differences of the π_t^e series would eliminate most of the systematic component of its variance while leaving the measurement error. The result would be a very substantial bias in the coefficient. In terms of the mean-square error of the estimated coefficient, it is better to accept the inefficiency of ordinary least-squares estimation of the untransformed equation than to subject the estimates to a much more serious bias.[46]

To explore this view, we did estimate equation 19 with a first-order autoregressive transformation. The maximum-likelihood procedure implied a serial correlation of 0.99 and parameter estimates as follows:

$$i_t = \underset{(1.8)}{5.0} + \underset{(0.08)}{0.14}\,\pi_t^e + 0.99u_{t-1}. \tag{20}$$

Sample period: 1954:1–1976:4; $\bar{R}^2 = 0.97$; Durbin-Watson = 1.8.

We regard the very low parameter estimate of 0.14 as an indication of the relative error variance in the quarterly changes in π_t^e rather than as evidence that the true coefficient of π_t^e is so low. This conclusion is supported by using an instrumental-variable procedure to estimate equation 19 in first-difference form:[47]

$$i_t - i_{t-1} = \underset{(0.04)}{0.04} + \underset{(0.22)}{0.66}\,(\pi_t^e - \pi_{t-1}^e). \tag{21}$$

Sample period: 1954:1–1976:4; Durbin-Watson = 1.86.

The estimated inflation coefficient of 0.66 (with a standard error of 0.22) is much closer to the basic parameter values of equations 16 and 19.

Although our evidence is thus roughly consistent with Irving Fisher's conclusion that the interest rate rises by the rate of inflation, both the mechanism and the implications are quite different. The rise in the nominal rate of interest reflects the impact of the tax and depreciation rules. Although the nominal interest rate rises by approximately the increase in expected inflation, the net result is far from neutral. For the individual lender, the rise in the nominal interest rate is sufficient to keep the real

46. As noted in the text, the substantial autocorrelation does, however, imply that our standard errors are underestimated.

47. The first-difference specification is essentially equivalent to the maximum-likelihood transformation of equation 20.

return *before tax* unchanged, but implies a sharp fall in the real return *after tax*. For example, a lender with a 50 percent marginal tax rate could find a real net yield of 3 percent in the absence of inflation reduced to zero by a 6 percent inflation.

Inflation is also not neutral from the firm's point of view. With an increase in the interest rate equal to the increase in inflation, the *real* net interest cost to the firm falls substantially. But, as tables 2 and 3 showed, the potential real net interest rate that the firm can pay also falls. There is neutrality with respect to the firm and therefore with respect to investment only if the actual rate falls by an equal amount. Equivalently, there is neutrality only if the actual and potential nominal interest rates rise by an equal amount. If the first rises by more than the second, the firm must adjust by reducing investment.

Changes in Tax Rules, Inflation, and Pretax Profitability

We return now to the method of analyzing the effects of changes in tax rules and inflation rates that was developed in the first section. We extend this method here to deal with forecasts of changing inflation rates and with fluctuations in the pretax rates of return.

Our analysis begins by deriving for each quarter between the first quarter of 1954 and the final quarter of 1976 the maximum potential interest rate that is compatible with our "standard investment" project. For this calculation we assume that debt finances one-third of the investment. One series of such internal rates of return is derived on the assumption of a constant 6 percent risk differential between the pretax yields on debt and equity. We refer to this variable as MPIR33G to denote a maximum potential interest rate based on 33 percent debt finance and a gross-of-tax risk differential. As table 2 showed, changing the risk differential from 6 percent to any other constant would change all of the internal rates of return only by a constant and would therefore not alter the regression results; in more formal language, the risk-differential parameter is not identifiable on the basis of available experience. A second series is derived on the assumption of a constant 6 percent risk differential between the net-of-tax yields on debt and equity; we denote this MPIR33N. The risk-differential parameter is again not identifiable.

Three factors determine the changes in the MPIR variable from quarter

to quarter: tax rules, inflation, and pretax profitability. For each quarter we use the tax rules that were appropriate for that quarter and assume that they would not be changed during the life of the project. We also use an optimal Box-Jenkins forecast equation to obtain quarterly forecasts of inflation rates on the basis of the information then available. The tax rules and inflation forecasts are combined using the method outlined in the first section to obtain an estimated internal rate of return.

In performing that operation, it is also appropriate to relax the assumption that the "standard investment" project has the same pretax profitability in every period. In practice, the actual pretax rates of profit have experienced substantial gyrations during the past twenty-five years.[48] A permanent rise or fall in the pretax profitability of investment would cause an equivalent shift in the demand for funds; even a temporary change could cause some shift. To allow for this possibility, we have also calculated an MPIR series based on the assumption that the pretax internal rate of return is not a constant 12 percent but varies from quarter to quarter.[49]

Our analysis of changing profitability is based on the series for the "net profit rate" developed in our previous paper. This rate is measured as the ratio of corporate profits before tax plus interest payments to the sum of fixed capital, inventories, and land. The data relate to nonfinancial corporations and are corrected for changes in the price level. Both profits and capital stock are net of the Commerce Department estimate of economic depreciation. We have interpolated the annual series to obtain quarterly figures.

It would be incorrect to assume that firms extrapolate short-run variations in profitability to the entire life of their investments. We posit instead that the demand for funds is based on a cyclically adjusted value of profitability. Specifically, we follow our earlier analysis of profitability and relate the profit rate to the concurrent rate of capacity utilization. We then use this equation to estimate the profit rate that would be expected in each quarter if the capacity utilization were a standard 83.1 percent, the average for the sample period. This cyclically adjusted profit rate is then used to recalibrate the maximum potential interest rate for each quarter. We use the suffix AP to denote a variable expressing the internal rate of return

48. See Feldstein and Summers, "Is the Rate of Profit Falling?"

49. This is equivalent to changing the parameter a_0 of equation 1 each quarter to recalibrate the pretax rate of return.

Table 5. Values of Maximum Potential Interest Rate for Standard Investment Project, 1954–76[a]

Percent

Year	*Constant pretax profitability*		*Varying pretax profitability*	
	MPIR33G	*MPIR33N*	*MPIR33GAP*	*MPIR33NAP*
1954	5.7	5.4	4.6	4.1
1955	5.9	5.6	5.3	4.9
1956	6.0	5.7	4.1	3.5
1957	5.5	5.9	4.0	3.3
1958	6.0	5.7	4.2	3.5
1959	6.1	5.8	5.0	4.5
1960	6.1	5.8	4.6	4.0
1961	6.0	5.6	4.9	4.3
1962	6.4	6.0	5.8	5.3
1963	6.5	6.2	6.1	5.7
1964	7.1	6.8	7.0	6.7
1965	7.3	7.2	7.4	7.2
1966	7.3	7.1	6.8	6.6
1967	7.2	7.1	6.2	5.9
1968	6.9	6.7	5.7	5.3
1969	6.5	6.4	4.2	3.7
1970	6.8	6.9	3.9	3.4
1971	7.4	7.6	4.9	4.6
1972	7.7	7.9	5.0	4.6
1973	7.9	8.3	3.8	3.5
1974	8.4	9.6	2.7	2.8
1975	8.3	9.0	5.2	5.2
1976	8.2	8.8	4.8	4.8

Source: Derived by method explained in the text.

a. All MPIR variables are based on debt financing for one-third of the investment and risk differentials of 6 percent. See text for definitions of the symbols.

that has been adjusted for variations in profitability; thus MPIR33NAP is the MPIR variable that is based on a risk differential net of tax and that has a varying profitability.

Table 5 shows the four MPIR variables corresponding to differentials gross of tax and net of tax and to fixed and varying profitability. Note that differences in the average level reflect the risk differential. Variations over time within each series are therefore more important than differences among the series.

These MPIR values can now be used to estimate how tax changes

affect the actual long-term rate of interest. If the supply of funds to the nonfinancial corporate sector were completely inelastic, the actual interest rate would be expected to rise by the same amount as the MPIR. In the traditional language of public finance, the full effect of changes in the tax rules would then be borne by capital in the corporate sector. More generally, however, the supply of capital to the nonfinancial corporate sector is not fixed but is an increasing function of the nominal rate of interest. The elasticity of the supply of funds to nonfinancial corporate business and the elasticity of the demand for funds by those firms together determine how much a tax-induced shift in the demand for funds raises the return to capital. For a given demand elasticity, the effect on the equilibrium interest rate of a shift in demand varies inversely with the elasticity of supply. The greater the supply elasticity, the greater will be the increase in corporate investment relative to that in the rate of interest.

Although an estimate of the elasticity of supply of funds to the nonfinancial corporate sector is not available, the relative magnitude of the funds raised by this sector is informative. Between 1970 and 1975, the funds raised in credit markets by all nonfinancial sectors totaled $1,029 billion.[50] Of this, corporate bonds accounted for only $107 billion. The total funds raised by corporations, including bank borrowing and mortgages as well as bonds, totaled $334 billion, or only about one-third of total funds raised. The obligations of state and local governments alone accounted for $89 billion; net borrowing for residential mortgages was $253 billion. It is clear that fluctuations in the demand for borrowed funds by corporations due to changes in tax rules and productivity may be small relative to the total flow of funds in credit markets. The potential supply of long-term lending from abroad and the elasticity of financial saving with respect to the real rate of interest strengthen this conclusion. Although a more extensive analysis of this issue would be desirable, these crude figures do suggest that the elasticity of supply of funds to the corporate sector may be substantial. If so, the effect of changes in MPIR on the actual interest rate will be correspondingly small.

In using the MPIR variable to estimate the effect on the interest rate of the shifts in the demand for funds induced by tax changes, it is important to adjust for the concurrent shifts in supply caused by changes in expected inflation. To control for such changes in the interest rate, our

50. The statistics in this paragraph are from the Flow of Funds Accounts of the Federal Reserve System.

regression equation relates the interest rate to the expected rate of inflation (π^*) as well as to the appropriate MPIR variable:[51]

$$i_t = \alpha_0 + \alpha_1 MPIR + \alpha_2 \pi^*. \tag{22}$$

The coefficient of the MPIR variable can therefore measure the net effect of tax changes; in terms of the last diagram, this net effect is $(i_4 - i_0)/(i_1 - i_0)$, or the ratio of the change in the interest rate that would occur with a fixed supply curve of funds $(i_4 - i_0)$ to the change that would occur if that supply were perfectly inelastic $(i_1 - i_0)$.[52] The total impact of an increase of 1 percentage point in the expected rate of inflation can be calculated as the sum of (1) the coefficient of the expected inflation variable, α_2, and (2) the product of the coefficient of the MPIR variable and the value of $dMPIR/d\pi$ implied by calculations leading to table 2.

Although time is required to change investment and thereby to alter the equilibrium return on investment, the prices of bonds and stocks can adjust very quickly to reflect this eventual long-run equilibrium. A failure to adjust quickly would otherwise provide opportunities for profitable speculation. We therefore specify that the interest rate adjusts to changes in MPIR within the quarter.

The estimated coefficients of equation 22 for each of the concepts of MPIR are presented in table 6. Note first that the evidence favors the less restricted polynomial distributed-lag specification of shifting inflation expectations (equations 6-1 to 6-4) over the Box-Jenkins forecast (equations 6-5 to 6-8).[53] We will therefore concentrate our comments on the results based on the former specification and return to the remaining equations afterward. It is not possible to choose between the gross-risk-dif-

51. Our analysis uses both the polynomial distributed-lag specification and the variable constructed from Box-Jenkins forecasts. Factors other than inflation also shift the supply of funds available to the nonfinancial corporate sector: (1) shifts in saving behavior; (2) shifts in liquidity preference; and (3) shifts in the demand for funds by governments, by the rest of the world, and by investors in residential real estate. Although none of these shifts is likely to be caused by the changes in the tax rates that shift the demand by nonfinancial corporate business, we cannot be certain that the shifts in supply that are not caused by inflation are uncorrelated with our explanatory variables.

52. This method assumes that the response of the interest rate to a change in the demand function is the same regardless of the cause of the shift—tax rules, inflation, and pretax profitability.

53. This may reflect the fact that the MPIR variable already contains the Box-Jenkins inflation forecast.

Table 6. Effects of Changes in Taxation and Inflation on the Long-Term Interest Rate[a]

Equation and concept of MPIR[b]	Independent variable: Constant	MPIR	Inflation rate π_t	$\sum_{1}^{16} \pi_{t-1}$	Predicted inflation rate π^e	Summary statistic: $\bar{R}^2$	Durbin-Watson	Implied inflation effect[c]
6-1 *MPIR33G*	0.53	0.43	0.15	0.54	...	0.83	0.24	1.11
	(0.84)	(0.14)	(0.05)	(0.07)				
6-2 *MPIR33GAP*	1.99	0.18	0.23	0.65	...	0.82	0.25	1.05
	(0.56)	(0.09)	(0.05)	(0.06)				
6-3 *MPIR33N*	1.38	0.32	0.14	0.53	...	0.82	0.19	1.10
	(0.79)	(0.14)	(0.06)	(0.08)				
6-4 *MPIR33NAP*	2.39	0.12	0.21	0.64	...	0.82	0.24	1.01
	(0.45)	(0.07)	(0.05)	(0.06)				
6-5 *MPIR33G*	−3.53	1.13	...	...	0.52	0.69	0.28	1.61
	(−0.96)	(0.16)			(0.10)			
6-6 *MPIR33GAP*	0.97	0.30	...	...	1.09	0.54	0.15	1.38
	(1.07)	(0.16)			(0.11)			
6-7 *MPIR33N*	−2.54	1.10	...	...	0.25	0.71	0.16	1.72
	(−0.76)	(0.14)			(0.12)			
6-8 *MPIR33NAP*	1.44	0.25	...	...	1.04	0.54	0.14	1.37
	(0.83)	(0.13)			(0.10)			

Source: Text equation 22.

a. The dependent variable in all equations is the long-term interest rate. All equations are estimated for 1954:1 to 1976:4. The numbers in parentheses are standard errors.

b. Defined in the text.

c. The implied inflation effect is the sum of (1) the inflation coefficients and (2) the product of the *MPIR* coefficient and $dMPIR/d\pi$ for regime G in tables 2 and 3.

ferential concept of MPIR (equations 6-1 and 6-2) and the net-risk-differential concept (6-3 and 6-4) on the basis of the goodness of fit of the equations.[54] Similarly, the evidence does not favor either the MPIR variable based on constant pretax profitability (6-1 and 6-3) or that based on changing profitability. Fortunately, the same basic conclusions are implied by all four specifications.

First, a shift in the demand for funds appears to raise the long-term interest rate by approximately one-fourth of the increase in the MPIR; a rise of 100 basis points in MPIR would thus raise the long-term interest rate by approximately 25 basis points.[55] This indicates that the supply of funds to the corporate sector is quite elastic. Apparently, investment incentives aimed at the corporate sector do raise investment rather than dissipating because of offsetting increases in the return to debt and equity capital. In terms of the third diagram, the estimate implies that $i_4 - i_0$ is only about one-fourth of $i_1 - i_0$ because the expansion of corporate investment reduces the pretax rate of return on investment.[56]

The extent to which the increase in corporate investment represents an increase in total national investment depends on the offsetting effect of the higher interest rate. If the total supply of investable funds were fixed, traditional investment incentives would succeed only in transferring investment to corporate business from other sectors, such as homebuilding. But the supply of investable funds is not fixed. Total investment can increase because savings rise, the net international capital flow to the United States increases, or the government reduces its deficit. Indeed, a principal rationale for investment incentives has been to maintain aggregate demand with a smaller government deficit. The effect of tax-induced changes in MPIR on total national investment requires an analysis that goes beyond the current framework.

The present study can also provide only partial information about the

54. The $\bar{R}^2$ values are extremely close; although this is not itself an accurate guide in the presence of high serial correlation, the Durbin-Watson statistic and the $\bar{R}^2$ together imply that the evidence offers little basis for choice between the models.

55. The point estimates vary between 0.12 with *MPIR33NAP* and 0.43 with *MPIR33G*.

56. Robert E. Hall and Dale W. Jorgenson are not far from the truth in their assumption that the interest rate remains constant when tax incentives vary; to the extent that their assumption is wrong, they overstate the tax-induced changes in the desired capital stock. See their "Tax Policy and Investment Behavior," *American Economic Review*, vol. 57 (June 1967), pp. 391–414.

incidence of changes in the corporate tax rules. The estimate that α_1 is approximately 0.25 suggests that only a small part of the increase in MPIR is shifted to the corporate bondholder. The more general question of the extent to which the incidence of the tax change is shifted from capital in general to labor cannot be answered accurately on the basis of current information. The answer depends on the change in the return to capital outside the corporate sector and on the share of the corporate sector in the total capital stock. Consider, for example, a change in the corporate tax that implies an increase of 100 basis points in MPIR and that causes a rise of 25 basis points in the long-term bond rate. If the return to all other forms of capital also increased by 25 basis points and if corporate capital accounted for one-third of the total privately owned capital stock, 75 percent of the benefit of the tax change would fall on capital and 25 percent on labor.[57] Since corporate bonds and other securities are not perfect substitutes, it would probably be more reasonable to assume that the average rise in the yield on capital is less than 25 basis points. This in turn would imply that capital as a whole bears less than 75 percent of the effect of stimulative changes in corporate tax rules. The remainder would be shifted to labor through the higher productivity and wages that result from increased investment. This estimate must be regarded as preliminary and subject to substantial error.

The estimated effect of changes in expected inflation support the conclusion of the second section that the long-term bond rate rises by approximately the same amount as the increase in inflation. Although the corporate MPIR variable rises by about one-fifth more than the increase in inflation, the effect of inflation on the supply of funds to the corporate sector implies that the net change is smaller than this. In terms of the last diagram, if the investment-demand schedule is shifted by inflation alone, $i_1 - i_0$ would exceed π. But $i_1 - i_0$ is found to be approximately equal to π, which implies that inflation substantially reduces the real net return to lenders.

We turn finally to the estimates of equations 6-5 to 6-8, which use the Box-Jenkins variable to indicate shifts in the supply of funds. These equations provide a less satisfactory explanation of variations in the interest

57. More generally, the share of a corporate tax change that is borne by capital in general equals the rise in the average return to capital (relative to the change in MPIR) divided by the corporate share of the capital stock.

rate. The results are also quite sensitive to whether MPIR is adjusted for changes in profitability. With no such adjustment, the results are quite unsatisfactory.[58] In contrast with the cyclically adjusted MPIR variable (equations 6-6 and 6-8), the results are very similar to the estimates based on the distributed-lag specification of inflation. Moreover, when these equations are estimated in first-difference form (using instrumental-variable estimation) the parameter values are quite stable. The coefficient of *MPIR33GAP* is 0.53 (with a standard error of 0.44) and the coefficient of π^e is 0.96 (0.57); with *MPIR33NAP,* the corresponding coefficients are 0.31 (0.27) and 0.91 (0.46).

To examine the possibility that the long-term interest rate responds to cyclical conditions directly, we reestimated the equations of table 6 with capacity utilization as an additional variable. In general, its coefficient was small and statistically insignificant. In one key specification, corresponding to equation 6-2, the capacity-utilization variable was significantly positive (implying that an increase of 1 percentage point in capacity utilization has the direct effect of raising the long-term interest rate by 5 basis points) and the coefficient of the MPIR variable was reduced to 0.07 with a standard error of 0.10. This suggests a further reason for caution in interpreting the point estimates of the coefficient of the MPIR variable but supports the conclusion that the actual interest rate is changed very little by tax-induced shifts in the maximum potential rate of interest.

Obviously, the estimates presented in this section must be treated as preliminary and regarded with caution. However, they offer no grounds for rejecting the conclusion of the second section that an increase in the rate of inflation causes an approximately equal increase in the nominal pretax interest rate. This conclusion supports the analytic results of the first section that the tax deductibility of interest payments just about offsets the historic-cost method of depreciation. Finally, the results of this section suggest that the supply of funds to the nonfinancial corporate sector is elastic enough to make a tax-induced change in the maximum potential interest rate cause a substantially smaller change in the actual interest rate.

58. The coefficients of the MPIR variables in equations 6-5 and 6-7 are both unreasonably high. When these equations are estimated in first-difference form (using instrumental-variable estimation) the MPIR coefficients become very small and statistically insignificant.

Conclusion

The primary emphasis of this paper has been on the interaction of taxes and inflation in determining the interest rate on long-term bonds. The current U.S. tax system makes the impact of inflation much more complex than it was in Irving Fisher's time. The basic Fisherian conclusion that anticipated inflation has no effect on real variables is no longer correct.

We began our analysis by calculating the interest rate that a firm can pay on a "standard investment" project if its investment is financed one-third by debt and two-thirds by equity. The deduction of interest payments in calculating taxable income implies that this maximum potential interest rate rises by more than the rate of inflation. Offsetting this is the use of historic-cost depreciation, which makes the MPIR rise less than the rate of inflation. On balance, we find that the maximum potential interest rate rises by approximately the same amount as the rate of inflation, with the sign of the difference depending on the assumption about the relation between debt and equity yields.

Our econometric estimates of the relation between inflation and the long-term interest rate confirm that the nominal rate rises by approximately the rate of inflation. This implies that the real interest rate net of tax available to investors is reduced dramatically by inflation. For example, an investor who pays a 50 percent marginal tax rate will find that a real net-of-tax return that is 2 percent in the absence of inflation vanishes when there is a 4 percent rate of inflation.

The fall in the real net rate of interest received by investors also corresponds to a fall in the real net cost of debt capital to firms. It is wrong, however, to regard this as a major stimulus to investment. The analysis of the first section shows that an inflation-induced fall in the real net-of-tax rate of interest at which firms can borrow is not a stimulus to investment because, given the tax and depreciation rules, inflation also reduces by about as much the maximum real net-of-tax interest rate that they can afford to pay on a standard investment.

Although our analysis has emphasized the interaction between taxes and inflation, we have also been interested in the effects of corporate tax changes themselves. The results of the first section showed that the changes in tax rates and depreciation rules during the past twenty-five

years would, in the absence of inflation, have increased the maximum interest rate that firms could afford by about 2 percentage points. Our econometric estimates in the third section suggest that the elasticity of the supply of funds to purchase corporate debt is great enough that the interest rate actually rises by only about one-fourth of the potential increase induced by changes in corporate rules. The tax changes that were designed to stimulate corporate investment were therefore not offset by the resulting increases in the interest rate.

We believe that we have a useful analytic method for studying the effect of alternative tax rules. By translating the changes in tax rules and inflation into corresponding changes in the maximum rate that firms can pay for capital, we can study the changes in investment incentives and in the response of market yields. We plan to extend our analysis to include a more general model of corporate finance and to study a wider range of problems.

Comments and Discussion

William J. Fellner: The paper before us has the merit of analyzing a problem that clearly deserves more attention than it has received: the dependence of Fisherian conclusions on Fisherian assumptions. We should appreciate the opportunity of giving consideration to this problem.

My comments on specific elements of the argument may turn out to be overly critical, because it is so much easier to express reservations about the results of this type of research than to perform it. The gist of my criticism is that, after carrying us through many combinations of a large number of individual assumptions, the paper never gets rid of assumptions that eliminate some of the most essential real-world properties of the problem.

To begin by accentuating the positive, I think the authors are quite right in stressing that, with a nonindexed tax structure and with deductible interest costs, we should reject the proposition that the money rate of interest will generally tend to rise by the number of basis points expressing the expected rate of inflation. This Fisherian relation depends, of course, on specific assumptions; for example, it does not take account of the shifting of part of the increased nominal interest cost from the borrower to the Treasury, through the deductibility of that cost from the borrower's taxable income. Nor is the Fisherian proposition intended to take account of various other complicating factors. Hence, as the authors rightly suggest, in our world the Fisherian relation can be expected to hold only when offsetting forces happen to be at work in the right proportions. We do need to think the problem through on modified assumptions.

However, to my mind, the minimum complexity that useful modified assumptions would have to accommodate to preserve essential aspects of the problem would reflect the recognition that expectations are not single-

valued. There is variance (dispersion) about the mean value of expectations concerning the inflation rate as well as concerning other variables. These characteristics of the expectational system are disregarded in the paper's conclusion that the bond rate borrowers feel they can afford to pay for an unchanging amount of loans will rise by twice the number of basis points expressing the expected rate of inflation. This is the conclusion of the authors for a 50 percent corporate income tax and deductible interest, and neglecting at this point the distorting effect of depreciation rules and of changing tax credits. As the authors realize, this conclusion implies that borrowers fail to react to the observed substantial variance about the actual inflation rates.

Let us be somewhat more specific and assume in a first step that, in accordance with the Fisherian relation, the bond rate does rise by precisely the equivalent of the expected inflation; and let us assume in the next analytical step that when this Fisherian-type relation holds the borrowers are paying less interest for a given amount of loans than they think they can afford to pay, because they are gaining back 50 percent of the increase in nominal interest cost through deductibility. Accepting the qualification Feldstein and Summers make concerning depreciation rules and changes in investment credits and the like, this reasoning should put us *on the way* to concluding along their lines that, for an unchanging amount of loans, the borrowers will turn out to bid up the nominal interest rate by *twice* the equivalent of the expected inflation rate.

But are we really on the way to that conclusion? In the first place, borrowers are apt to have nonlinear utility functions and to be strongly influenced by the possibility that the actual inflation rate may not be the same as its probabilistically "expected" value. Hence the "expected" inflation rate—or, with a 50 percent tax, twice the expected rate—is not the sole relevant determinant of the inflation-induced change in the bidding behavior of borrowers who are likely to be risk averse. Not only does the public know that the actual inflation rate may turn out to be different from the "expected" rate, but in inflationary circumstances the risk that other relevant variables will deviate from their probabilistically expected values would also be apt to increase, even if the debt-equity ratios of the borrower remained unchanged. Further, and equally important, by way of simplification the paper admittedly disregards the increase of the risks perceived by the borrowers when, as a result of a sufficiently elastic loan-supply function, the debt-equity ratios rise, as they typically do under in-

flationary conditions. My conclusion thus is that even aside from the authors' explicit qualifications concerning depreciation rules and changing tax incentives, we have no good reason to accept the hypothesis of a rise in money interest on a given amount of loans by about twice the expected inflation rate.

I would plead ignorance even about whether, quite aside from depreciation rules and changing tax incentives, the money rate would tend to rise *more* or *less* than is suggested by the "Fisherian" relation. In my appraisal, assuming away the problem of shifts between long- and short-term funds worsens the difficulties of relating the Feldstein-Summers analysis to reality. To become manageable, a problem of this complexity does, of course, have to be simplified; but I believe that the kind of conceptual simplification adopted in this analysis buries too much of what jumps to the eye in the real world.

As for the empirical tests performed and discussed by the authors, these are intended to demonstrate that influences tending to raise the money interest rate by more than the equivalent of expected inflation have been roughly offset by opposing influences. The Fisherian relation does therefore appear to hold by and large, but in our environment not for the reasons Fisher regarded as relevant on *his* assumptions. I must admit that I have remained unconvinced by the argument that these tests have come out reasonably well. This is only partly because my nontechnical (common-sense) judgment tells me that many of the residuals listed in the paper are disturbingly large. It is also partly because I do not follow the reasoning of the authors according to which we should acquiesce in the finding that one way of performing a test involves an error in variables, while other ways of performing it reveal other significant deficiencies of the results.

As a reader and a discussant who has expressed a number of reservations, I want to add that a paper as intriguing and thought-provoking as the one before us performs a very useful function.

Robert J. Gordon: The Feldstein-Summers paper deals with questions of great concern for policy. The United States is entering its third year of inflation at a relatively constant and well-predicted rate. Traditional economic analysis attaches quite small welfare costs to a steady and fully anticipated inflation, but this analysis is valid only in the absence of taxation, or in the special case of a tax system that is completely neutral with

respect to inflation. The paper attempts to quantify the degree of nonneutrality in the present U.S. tax system. It shows convincingly that a steady inflation, no matter how well anticipated, substantially reduces the real after-tax return to savers, distorts the incentives for both investment and saving, and results in a continuing redistribution of income from savers to the government.

In the absence of taxation, and with an inelastic supply of loanable funds, anticipated inflation would raise the nominal interest rate and leave the real interest rate unchanged. With neutral taxation, the real after-tax interest rate would remain unchanged while the nominal before-tax rate earned on investment projects would increase by the rate of inflation times $1/(1 - \tau)$. If the total tax on capital (τ) is 50 percent, then an acceleration of 5 percentage points in inflation, such as the United States has had since the early 1960s, would raise the nominal interest rate by 10 percentage points. That large a rise obviously has not occurred, and as a consequence real after-tax returns on bonds for savers have fallen substantially.

That would create only a minor problem if corporations were financed entirely by debt, due to the deductibility of interest payments. This is the case laid out in table 1. The source of the nonneutrality arises from the interaction of three features of the tax system: the corporation income tax levied on the nominal (rather than real) returns on equity; the double impact of the personal income tax, which further taxes nominal equity returns paid out as dividends; and the historical-cost basis for depreciation, which reduces the tax saving yielded by depreciation deductions as compared to replacement-cost accounting.

In the first section of their paper the authors have developed a potentially useful method for analyzing the effect of inflation and alternative tax systems on before-tax and after-tax returns. Unfortunately, as it stands, the paper provides only a preliminary application of the method. It devotes excessive attention to the second-order effects of minor changes in tax rules while ignoring the first-order effect introduced by the artificial assumption that the risk premium on equities is both large and fixed.

The risk premium, which inserts a large wedge between the real yields on equities and bonds, is the most important factor accounting for the low (and sometimes negative) after-tax real yields on bonds received by savers reported in tables 2 and 3. A paradox emerges: savers are willing to put up with a negative real rate of return on bonds, because bonds are so desirable! All an investor has to do to avoid a negative real after-tax

yield is to switch from bonds to a diversified portfolio of equities. In all the examples such a switch results in a positive after-tax real return. Can we really ignore the endogeneity of the risk premium between bonds and equities? Surely, the Feldstein-Summers story represents only the first stage of an adjustment process. Savers would react to a succession of negative real after-tax returns on bonds and substantial positive real after-tax returns on equities by reevaluating the exogenous and arbitrary equity-bond yield gap. In the standard mean-variance framework for portfolio analysis, the extra risk investors are willing to accept on the risky asset depends on the net mean return on the portfolio, which in this case is reduced by inflation when the tax system is nonneutral.

Not only should the risk differential properly be treated as endogenous, but a question can be raised about the large value assumed for the fixed risk differential in the paper. The yield gap between stock dividends and bond interest shifted from a premium to a discount in the 1960s. While the authors do not offer any empirical support for the values of the risk premium that they have assumed, any attempt to calculate a historical average would be extremely sensitive to the sample period used for the calculation (that is, the fractions of the sample made up of the premium years of the 1950s and the discount years of the 1960s).

Tables 2 and 3 present alternative results for a risk premium applied, respectively, to before-tax and after-tax yields. But no allowance is made for the shift in the composition of bondholders from those subject to high tax rates to those subject to low ones. As inflation raises taxable nominal yields, there is an increased incentive for taxpayers in high tax brackets to shift to tax-free municipal bonds, and thus for tax-free institutions to hold a higher fraction of corporate bonds. Nor is any explicit account taken of the loss-offset provisions that make the variance component of the equity yield essentially tax free.

The second section of the paper contains a number of regressions of the nominal interest rate on various estimates of the expected inflation rate, designed to test whether the response of the nominal interest rate to inflation has been unity, in which case the taxation of nominal yields would have caused a decline in real after-tax returns. This section is only weakly related to the first section of the paper, and in fact is contradicted by it.

After an extended demonstration of the impact of inflation on the real interest rate, the authors present regressions in which the real interest rate

is constrained to be constant, thus introducing a specification error. The influence of the balance of commodity and money demand on the real interest rate (the "IS-LM effect") is also neglected, despite its important role in earlier work by Feldstein in collaboration with Otto Eckstein and Gary Chamberlain. The first of these specification errors is corrected in the third section of the paper, but not the second error.

The alternative estimates of the expected inflation rate all neglect an important criticism previously directed at attempts to capture expectations by techniques that use only past values of the variable to be forecast. The purely autoregressive source of information in both the adaptive and ARIMA variants in the paper excludes additional information possessed by economic agents. As a particularly dramatic example, purely autoregressive expectations of inflation in 1947–48 would have yielded very high positive forecasts, whereas the Livingston survey (of academic, business, and labor economists) indicated that a substantial deflation was actually expected. Actual forecasts took account of the special information that a war had just concluded, and the experience of 1919–21 was regarded as more relevant than that of the immediately preceding years and quarters.[1]

The autoregressive method used by the authors overestimates expected inflation in the pre-1959 period by attaching weights estimated from the post-1959 era to the actual inflation experience of the Korean War and the 1956–57 period, both of which were treated at the time by the Livingston panel as unique and transitory. While the 1960s pose no problems, with the autoregressive and Livingston estimates in the same range, difficulties with "special knowledge" arise in the 1970s. The measured price indexes on which the authors base their autoregressive estimates contain major sources of variance that were clearly perceived at the time as transitory (particularly the wage-price controls and the food and oil shocks) and that would not have been incorporated into ten-year price forecasts. The result in table 4 that the expected rate of inflation over a ten-year horizon jumped from 3 percent in 1972 to 8 percent in 1974 is thus highly dubious.

1. I have previously pointed out that failure to make special allowances for World War I invalidates virtually all previous studies of the inflation-interest rate "Gibson paradox" for the pre-1930 period. See Robert J. Gordon, "Interest Rates and Prices in the Long Run: A Comment," *Journal of Money, Credit, and Banking*, vol. 5 (February 1973), pt. 2, pp. 460–63.

While the third section of the paper corrects one source of misspecification of the interest-rate equations, by allowing the nominal interest rate to depend on an internal-rate-of-return construct, the other sources of misspecification remain and help to explain why the Durbin-Watson statistics in table 6 are so poor. While specification problems may introduce several sources of bias into table 6, one particular bias is suggested by the discrepancy between the autoregressive and Livingston estimates of expected inflation in the 1950s. Imagine that the "true" expected inflation rate in the 1950s was close to zero, rather than in the 2.5 percent range estimated in table 4. Then the computer would not be forced to explain the increase in the nominal interest rate between the 1950s and 1960s by the rising *MPIR* variable (the *MPIR33G* and *MPIR33N* variants), and would be able to raise the coefficient on expected inflation and reduce the coefficient on *MPIR*. By this argument, the high *MPIR* coefficients for equations 6-1 and 6-3 of table 6 are probably biased upward, and the inflation coefficients are probably biased downward.

Two broader issues are suggested by the paper and deserve further discussion and research. Do savers really equate the after-tax real rate of return on bonds (and savings accounts) with the after-tax real return net of risk premium on equities? In recent years both of these have been negative, if the paper's assumptions about risk premiums are correct. Yet Feldstein elsewhere has made the standard classical economic assumption that "as a first approximation, everyone equates his rate of time discount to the net of tax rate of return that he receives." Who are these savers who currently have a negative rate of time discount? My own conjecture is that savers are currently willing to hold assets bearing a negative real net-of-tax return because unanticipated inflation has thrown their actual real wealth out of balance with their desired real wealth. In order to recover the desired level of real wealth needed to smooth lifetime consumption, wealth is still being accumulated. In fact, this positive response of saving to unanticipated inflation may help to explain why the personal saving rate was substantially higher in the first half of the 1970s than in the 1960s. And, since it is a disequilibrium phenomenon (which may persist for some time if people choose to regain their desired wealth level gradually), it does not rule out the equality of the rate of time discount with the net-of-tax real return as a condition of full steady-state equilibrium.

Finally, the nonneutrality of the tax system with respect to inflation points to crucial policy implications that go beyond the scope of the paper.

The United States is currently experiencing a steady inflation that is both well anticipated and highly resistant to deceleration (by either recession or jawboning). By failing to place any stress at all on tax reforms that would eliminate the nonneutral features of the present system (particularly the taxation of nominal rather than real yields), the administration is condemning the U.S. economy to continued distortion of investment and saving decisions. The paper strongly implies (even if it does not state outright) that a substantial portion of fiscal dividends over the next decade should be devoted to elimination of the overtaxation of the nominal yield on investment projects.

General Discussion

A number of discussants expressed reservations about the simplifying assumptions adopted by Feldstein and Summers. John Shoven was particularly concerned about the assumed fixity of the marginal debt-equity ratio. The analysis in the paper itself showed that inflation raises the cost of equity relative to debt; hence the proportion of debt financing should be expected to expand in an inflationary period.

Agreeing with Fellner's comments, Shoven also was critical of the assumption of a fixed risk premium between equity and debt securities. Thomas Juster elaborated on this point, arguing that higher inflation rates had increased variances, as people perceived them. The greater uncertainty led investors to pay a higher price not just for safety but for flexibility as well. Juster also cautioned R. J. Gordon to bear in mind that the price expectations of the Livingston panel registered the views of professional economic forecasters—which might be quite different from the inflation expectations of key investors.

Arthur Okun was concerned about the assumed constancy of the mix between equipment and structures. The net effects of the tax system's "underdepreciation" and "overdeduction of interest" during inflation are favorable for long-lived assets, as the analysis of the paper suggested. Judging by that element alone, a shift toward structures should have been expected in the seventies. In fact, corporate investment seems to have shifted toward equipment and away from structures, perhaps because of increased risk, an element ignored in the model in the paper.

R. A. Gordon sought some disaggregation of the nonfinancial corporate sector. He thought it important to distinguish, for example, between utilities, which rely primarily upon external debt financing, and manufacturing firms, which are financed principally by their retained earnings.

William Poole suggested that the careful analysis by the authors of considerations affecting corporate demands for funds should be replicated for the supply side. It would have to consider tax shelters, retirement saving, and the like. Benjamin Friedman elaborated on the need for a more detailed supply-side analysis. The suppliers of long-term debt capital to the corporate sector are primarily tax-exempt investors, such as pension funds, nonprofit organizations, and the reserve accounts of life insurance companies. The supply of equity finance, in contrast, comes from sources that are subject to income taxation. George von Furstenberg noted that the supply of funds to corporations depended on the interaction of taxation and inflation and on the returns to residential capital, consumer durables, and other noncorporate real assets.

Other comments focused on the econometric results in the latter sections of the paper. Christopher Sims insisted that the values near unity of the coefficients on expected inflation in the interest-rate equations of the second section should be considered descriptive, rather than structural. He considered it equally sensible to reverse the dependent and independent variables. He pointed to one equation in which such a reversal led to a coefficient of expected inflation on nominal interest rates of 2 rather than 1; moreover, with a correction for serial correlation, the implied coefficient would be 4. In light of these illustrative calculations, Sims saw a wide range of uncertainty surrounding this coefficient. He also doubted the structural character of the equations in the final section that included *MPIR*, since that variable might be endogenous.

Saul Hymans noted that the econometric analysis was conducted on the implicit assumption that the rate of inflation was the only systematic factor shifting the supply of funds to corporations. He regarded this as implausible and inappropriate, even for a first approximation of coefficient values.

Robert Hall was unconvinced by the authors' rationale for not correcting for serial correlation. He was also critical of the use of the fitted values from the regression equations on price expectations as variables in the interest-rate equations; he noted that such a procedure understated the standard errors.

While the participants had many reservations about specific aspects of the paper, several congratulated the authors for their pioneering efforts. Von Furstenberg predicted that the article would become a standard entry on the reading list of graduate courses in public finance. Okun felt that the introduction of the debt-equity constraint on corporate financing achieved an important qualitative improvement in the Fisherian analysis.

Feldstein responded to several issues raised in the discussion. In response to Fellner, he stressed that only under very special assumptions—historic-cost depreciation and full debt financing—would the interest rate be raised by twice the equivalent of the expected inflation rate. Under more realistic assumptions, as tables 2 and 3 demonstrated, inflation would raise interest rates about point for point. In general, he noted that the main flavor of the reservations expressed by participants was that the model in the paper had too many simplifying assumptions—in effect, it was not sufficiently complicated. He found this criticism somewhat ironic, since the paper did introduce substantially more complexity into the Fisherian framework by taking account of taxes in general and specific provisions of the tax law, by distinguishing between debt and equity financing, and by allowing for risk premiums. He hoped that the paper provided a framework for subsequent analysis and research to make the debt-equity ratio and the debt-equity yield differentials endogenous, to disaggregate demands by types of corporations and types of assets, and to deal with the supply of funds in a more sophisticated way.

Summers joined Feldstein in explaining that they viewed the initial set of simple regression equations relating the interest rate to expected inflation as a bridge from the traditional Fisherian equations to their more serious, subsequent equations that include the *MPIR* variable. Summers pointed out that survey data on inflationary expectations, such as those from the Livingston panel, are confined to a one-year horizon and hence cannot be used to explain the long-term interest rate. Thus the authors had been forced to rely on an autoregressive specification of the formation of price expectations, even though they recognized its severe limitations. Responding to Sims, Summers defended the use of expected inflation as an independent rather than dependent variable. He saw good theoretical reasons for believing that inflationary expectations affected interest rates, rather than vice versa. He also observed that a shift in the mix of investment toward equipment noted by Okun was probably the result of the investment tax credit, which applies only to equipment.

Senator BENTSEN. Thank you, Professor Feldstein.

Mr. Fromm, would you proceed with your statement, please.

STATEMENT OF GARY FROMM, DIRECTOR, SRI INTERNATIONAL [1]

Mr. FROMM. Thank you, Senator.

Like Mr. Feldstein, I would also like to comment on the previous testimony. It appears to me that some of the statements made, while they could be supported from one line of argument, could seriously be questioned from other avenues.

Just to cite one example before I enter into the body of my testimony, Mr. Feldstein makes the point that many individuals who realize capital gains in fact are making real capital losses in terms of their investments.

That applies not only to the area of capital gains, but it also extends to such mundane investments as putting money into commercial bank savings deposits. Under regulation Q, for example, at the moment, the maximum rate that commercial banks can pay on passbook savings is between 5 and 6 percent. Yet the rate of inflation is greater than that. So, even before taxes, individuals are realizing capital losses on current savings.

Senator BENTSEN. I think he made that same point.

Mr. FROMM. Yes; that is the same point.

So one should not focus entirely on capital gains as if there were some aberration in the tax code. The difficulty extends across the board. The problem is that inflation is taking place and is eroding real capital values which then, as has already been indicated, makes matters worse because nominal gains already are taxed. So, instead of looking only at the taxation of gains, this is a situation that should be examined more broadly.

Let me now turn to the body of my prepared statement.

As always, it is a privilege and pleasure to appear before this committee to participate in a discussion of problems confronting the U.S. economy and particularly this morning, that of capital formation.

It seems likely that other panelists will cite the relatively weak performance of business fixed investment during the recovery from the 1974–75 recession and the significant probability that another recession will occur beginning late this or early next year. Notwithstanding strong second quarter 1978 growth, current stringent monetary conditions coupled with high inflation could lead to marked erosion in real spending and an inventory decumulation reaction.

Senator BENTSEN. Pardon me, Mr. Fromm. There are people in the audience who I am sure want to hear what you have to say.

Can you hear back there? [The audience responds in the negative.] I didn't think so. Is the speaker system working?

I think, then, if you would move your microphone closer to you, Mr. Fromm, it would be helpful.

Mr. FROMM. Thank you.

Both this and the less-than-ideal U.S. foreign trade and exchange situation are subjects that deserve extensive exploration by this com-

[1] The views expressed herein are those of the author and do not necessarily reflect those of officers, directors, or other staff members of SRI International (formerly Stanford Research Institute. Research underlying this statement was, in part, supported by the National Science Foundation.

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mittee. The causes are complex and the cures will not be easy. A wide variety of measures is indicated.

One set of those, and the subject on which I was requested to comment this morning, are specific measures that might be adopted by the Federal Government to spur a higher level of capital spending. Increased investment in plant and equipment not only would contribute to economic growth, but should help to increase productivity, lower inflation, and raise the competitiveness of the U.S. economy within the international arena.

As is well and widely recognized, the greatest Government-induced spur to capital spending would come from the pursuit of policies that would create conditions conducive to high and stable growth without inflation. No single measure can be effective in that regard. It requires complementary fiscal and monetary policies together with other policies which largely impinge on the supply side. The latter include policies targeted to increase labor skills and reduce structural unemployment, policies directed toward relieving bottlenecks in critical nonlabor inputs—selected materials, services, and energy—regulatory and other policies.

Unfortunately, while pursuit of goals of enhanced environmental protection, greater occupational safety and health, and lower discrimination in employment is laudable, the degree of regulation of business appears to be rising daily. In some fields regulation already appears excessively to be limiting replacement of outmoded facilities and inhibiting expansion of productive capacity. No matter how favorable are the general economic conditions and climate for investment that might be created by sound fiscal and monetary policies, specific regulatory constraints and overall regulatory deterrents could prevent their realization. Substitution of general for specific regulations, greater use of performance incentives, including Government procurement from suppliers who more nearly satisfy national goals, and more reliance on competition than price-quantity regulation could all be favorable for higher levels of capital spending.

Such spending, too, would clearly be enhanced by measures that raise after tax rates of return and funds available for investment. During 1976 and 1977, subcommittees of the U.S. Senate Committee on Finance held hearings on incentives for economic growth and capital formation effects of tax policy. In my testimony of June of last year in those hearings, I summarized results of predictions of 1978–85 growth by 22 forecasters, implications for savings and investment, and the revenue and fixed investment impacts of selected Federal tax revisions. The conclusions, I believe, are still valid.

One, the economy has the ability to generate sufficient savings to meet investment needs of the next decade, including increased outlays for energy conversion, pollution abatement, and capacity expansion.

Two, to make this possible, Federal expenditures should be restrained so that current high deficits are reduced and Government saving is raised.

Three, individual income tax cuts will be needed to offset a progressive tax rate schedule and limit reductions in real consumer purchasing power arising from inflation.

Four, monetary policy should be accommodating and should not foster but seek to prevent episodes of highly restrictive credit availability.

Five, the principal problem is financing increased investment in a highly uncertain inflationary setting when business exposure to working capital needs are swollen, historical depreciation falls short of replacement costs, growth in nominal retained earnings is insufficient to fund much higher capital outlays, and relative rates of return are too low and risk too high to attract much greater equity funding.

Various proposals have been made during the past few years to modify the Federal Tax Code so as to reduce tax burdens, stimulate the economy, inject a degree of reform in selected inequities and inefficiencies—such as "double taxation" of gross income from corporate business—and to stimulate investment outlays. While virtually any tax reduction would tend to increase investment to some extent, there are large disparities in impacts on capital spending of different alternatives.

Per dollar of lost Federal revenue—and here I clearly disagree with Mr. Evans—the most effective investment stimulus, assuming the economy is not at full employment, is the investment tax credit. Next in effectiveness are revisions in depreciation provisions. This is hardly surprising since both measures are tied directly to capital outlays. Given the structure of the present Tax Code, lesser impacts on investment result from various schemes to integrate corporate and individual taxes, reduce corporate profits taxes, or lower capital gains tax rates. If investment stimulus is the only goal, preference for changes in the tax structure is roughly as shown in the table I provided for the record.

[The table referred to follows:]

	Relative superiority
1. Increase investment tax credit or liberalize depreciation allowances	10
2. Lower corporate taxes via rate reductions, dividend deductions, surtax exemptions	5
3. Lower personal taxes via dividend integration, capital gains tax reduction	4
4. Special provisions, increase percentage depletion, DISC, etc	1

Mr. FROMM. In that table the investment tax credit is preferred by 2 to 1 over other reductions of tax liabilities. The reason for this is that, when taxes are reduced for corporations in general, or for individuals, part of the proceeds on the corporate side are used for dividends, which in turn creates a leakage, because individuals use some of the revenues reviewed as dividends for consumption.

The same effects would occur if capital gains taxes were lowered.

Reduced general corporate and individual tax levies may still be preferred for other, including relative equity, reasons, but then the principal justification should not be the effectiveness of such policy changes in stimulating investment.

There are other possibilities for tax code revisions that would stimulate savings and investment. Incentives for broadening and deepening equity ownership by individuals in small and large business probably would lead to greater capital and output growth. Another measure that should be considered is a basic overhaul of accounting practices together with fundamental changes in the tax treatment of capital gains and losses and depreciation allowances. This is especially important in an inflationary setting when historical cost accounting, the present standard for corporate reporting to the IRS and SEC, yields biased and inconsistent conclusions about profitability and returns on

investment. LIFO has long been accepted by the Congress as appropriate for inventory accounting and revenue determination for income tax purposes. Similar current value accounting principles ought to be extended to returns from use and sales of fixed assets, with appropiate changes in the Federal income tax code.

Here Mr. Feldstein and I are clearly in agreement. This is a long-neglected area, one that the Congress should have turned to some time ago.

Unfortunately, research on taxation under inflationary conditions, on the impact of tax incentives on savings and investment, and on many other related economic stabilization and growth issues, has been extremely limited.

Estimates, such as those presented here, are highly tentative and subject to large error. This committee is to be commended for holding these hearings and for its interest in the subject. However, it should also be urged to examine the adequacy of research funding in this area and to exert efforts to assure more substantial support.

Thank you, Senator Bentsen.

Senator BENTSEN. Thank you very much, Mr. Fromm.

Next, we will hear from Mr. Charles D. Kuehner, director of security analysis and investor relations, American Telephone & Telegraph.

STATEMENT OF CHARLES D. KUEHNER, DIRECTOR, SECURITY ANALYSIS AND INVESTOR RELATIONS, AMERICAN TELEPHONE & TELEGRAPH CO.

Mr. KUEHNER. Thank you, Senator Bentsen.

It is an honor to accept this committee's invitation to state my views on capital formation—with special emphasis as to how it relates to reducing inflation and creating new jobs. The views I express are my own as an economist and editor of a recent book, "Capital and Job Formation: Our Nation's Third Century Challenge," which presented essays on many facets of the subject by 23 business, academic, and Government leaders.

Capital formation, as I use the term, means the process of stimulating savings and converting them into new plant and equipment.

The American people seem particularly concerned at this time with continuing inflation, disturbing unemployment levels, and ongoing Government policies to alleviate them.

As I will endeavor to show today, increased capital formation can serve to do three things:

One, reduce inflation.

Two, expand job opportunities.

Three, reduce the burden carried by the American taxpayer.

In my view, the process of capital formation ranks as America's most unrecognized and misunderstood problem. It is a national need neglected.

Public awareness of capital formation as a national problem, unfortunately, is similar to awareness of high blood pressure as a personal problem: Both involve millions of people who don't know they are affected.

If high blood pressure goes undiagnosed, its debilitating effects weaken other parts of the body, heart, liver, kidneys, and so on.

Likewise, if capital formation disease is not recognized as a threat to our Nation's economic health—then the impact spreads throughout the economy in a regressive chain of events, of people becoming unemployed or underemployed relative to their training and skills. Demands are then made for greater Government spending, and without a corresponding expansion in private industry, inflation weakens the economy as we have seen in recent years.

American industry also loses ground in domestic and world markets as inflation weakens the dollar and saps our ability to compete.

A weakened industrial base triggers less spending for research, and development and technology lags. Industry then suffers from a slowdown in productivity and is able to offer fewer choices of products and services to consumers.

Industry also becomes less able to solve such basic problems as energy and pollution.

At the end of the line, the consumer sees the cost of living moving up still higher and demands still more Government intervention, controls and spending. Also at a disadvantage are women and minority groups—especially recent graduates of high school and college—who are penalized doubly; that is, both as consumers and as seekers of nonexistent job opportunities.

I have included in my prepared statement a number of charts that I would like to turn to.

Chart 1 shows that from 1970 to 1976 capital formation was about 17 percent of the gross national product in the United States, almost 24 percent of the GNP in West Germany, and 33 percent in Japan.

Looking only at individual savers, some economists in the United States get quite concerned when our citizens save more than 6 percent of their disposable personal income, but we find that individuals save and invest 15 percent of their disposable personal income in West Germany and 25 percent in Japan.

As to the average annual growth in productivity, chart 2 shows that in the 1970's the 1970–77 period, the United States has been able to average only a 1-percent increase in productivity, while in West Germany the increase has been almost 4 percent, and in Japan over 3 percent.

The impact of increasing productivity in reducing inflation is pointed up in chart 3, which shows the trend of inflation in the United States, West Germany, and Japan. Despite their almost total reliance on high-cost imported oil, the Japanese—and the West Germans, as well—have been reducing inflation. Both nations are expected to end 1978 with inflation significantly below that of the United States.

By doing a better job of increasing productivity, the West Germans and Japanese have both been able to reverse the upward climb of inflation.

I might add, Mr. Vice Chairman, that I just checked on Friday, with Mr. Lawrence Veit, international economist of Brown Bros., Harriman & Co., who is responsible for the forecasts shown in chart 4. His most recent thinking is that the Japanese inflation rate will in 1978 be somewhat lower than that shown on chart No. 3, and he also expects a slight decline in inflation in West Germany—below that shown on chart 3.

If the United States—with only about a 1-percent gain in productivity—could match the Japanese 5-percent average rate, we would have inflation far below the 7 percent envisioned recently for 1978 by Chairman Miller of the Federal Reserve Board.

Comparing the unemployment rate of these three nations, that is shown in chart 5, which links up the earlier charts and reflects the end result in human terms.

After all, we are really talking about people. The countries which invest more in plant and equipment, and which have been improving productivity the most, have the lowest unemployment.

From 1970 to 1977, the U.S. unemployment rate averaged 6.3 percent. In West Germany, it was 2 percent, and in Japan only 1.6 percent.

In the final analysis, unemployment and inflation are human problems.

A citizenry beset by these problems is ready to try almost any solution offered. All too often the proposed "solution" is, "Let's spend our way to prosperity." But that has been tried and not worked. As James Callahan, Labor Party Prime Minister of Great Britain, said:

> We used to think you could just spend your way out of a recession and increase employment by cutting taxes and boosting Government spending. I tell you in all candor that that option no longer exists and that insofar as it ever did exist, it worked by injecting inflation into the economy. The long-term cure for unemployment is to create a healthy manufacturing industry that can hold its own overseas and in doing so will be able to hold its own in the domestic market.

Please look for a moment at chart 6.

Chart 6 suggests strong linkage between capital formation and job growth. The 10 companies in the Dow Jones 30 Industrial Index with the highest rates of capital formations had some 895,000 employees in 1960. They increased their employment by 836,000 jobs in the period. This was an amazing 93-percent increase!

Conversely, the 10 companies with the lowest rate of capital formation had 898,000 employees in 1960, but they added only 29,000 new jobs since then. This was only a 3-percent increase in employment. At this point I would like to correct a typo in the prepared statement. A sentence was omitted after the words "the 3-percent increase in employment." The omission was, "but 6 of those 10 companies actually reduced employment. They had fewer workers on the payroll at the end of the period than they did in 1960."

In my view, another important impediment to capital formation is the U.S. tax structure.

In all candor, it can only be described as a system that discourages investment. As noted in chart 1, in West Germany and Japan there is investment of a greater percentage of their GNP in new plant and equipment. Chart 9 suggests why.

As to the tax burden on individual investors, there are wide differences between the United States, Japan, and West Germany. As the chart shows, dividends in the United States are taxed up to 70 percent, while Japan's rate in the very top bracket is just half as much, 35 percent. As to taxes on capital gains, the U.S. tax rate goes up to 49.9 percent, including preference items. There are no capital gains taxes in West Germany, and for all practical purposes, there are no

capital gains taxes in Japan; that is, it begins only after you sell over 200,000 shares of stock in a given year.

In fact, just 3 months ago, the Japanese took another quantum leap to encourage still more capital formation. Effective April 1, 1978, the Japanese eliminated all income tax on the first $60,000—assuming a family of four—of capital invested in yen-denominated bonds or notes.

Let's turn now to our Nation's future need for new capital investment.

Since 1960, there has been a sharp increase in plant and equipment per worker.

Senator BENTSEN. I have to ask you to summarize, because we have to vote at 11:30. If you could summarize, we will include your entire prepared statement in the record.

Mr. KUEHNER. Yes, sir.

I would like to close with chart 10. I try to show that greater capital formation would benefit every American citizen through more and better jobs, less inflation, and a higher standard of living. I have summarized on chart 12 some of the arguments and my reaction to them in my prepared statement. I won't go into them in detail, except to touch on the very last argument, which we have numbered No. 9:

"You're right but we can't stand the revenue loss." This argument has been heard as long as I can remember, and it was usually heard when all others fail. The short answer is that our Nation can't stand the consequences of neglecting capital formation.

The crisis is here and it is building. Let's not forget that President Kennedy, for one, recognized that reduced taxes on American industry and investors would create more jobs, and history has proven him correct.

Thank you, Senator Bentsen.

[The prepared statement of Mr. Kuehner follows:]

PREPARED STATEMENT OF CHARLES D. KUEHNER

Capital Formation—Inflation and Jobs

It is an honor to accept the Committee's invitation to state my views on capital formation—with special emphasis as to how it relates to reducing inflation and creating new jobs. The views I express are my own as an economist and editor of a recent book, "Capital and Job Formation: Our Nation's 3rd Century Challenge," which presented essays on many facets of the subject by 23 business, academic and government leaders.

The Joint Economic Committee's current focus on this vital issue is most timely, indeed. There are numerous signs that the American people—perhaps looking toward the November elections—are becoming increasingly dissatisfied with the current economic environment. They seem particularly concerned with continuing inflation, disturbing unemployment levels and on-going government policies to alleviate them. As I will endeavor to show today, increased capital formation can serve to:

1. Reduce inflation.
2. Expand job opportunities.
3. Reduce the burden carried by the American taxpayer.

Capital formation: America's most unrecognized and misunderstood problem

Of all important public concerns, none is more basic to the well-being of Americans than how we can best continue to build the productive capacity of our nation. It seems obvious that only a productive and growing economy can finance the costs of finding enduring solutions to the multitude of other social concerns—ranging from shortfalls in employment and energy to excesses in environmental pollution, inflation, crime and so on.

But as clear as the need for a solid economic foundation may be in our drive to achieve such high-priority national goals, the fact remains that increased economic growth depends absolutely on the sufficiency of capital investment. And that, the record shows, is too often viewed as a corporate concern rather than as a public interest problem of national scope.

In my view, the process of capital formation ranks as America's most unrecognized and misunderstood problem. It is a national need neglected. However, as former Federal Reserve Board Chairman Arthur Burns said earlier this year[1] about the capital formation challenge: "If we have the good sense to create hospitable conditions for savings and investing, I truly believe ours could become an age of sustained progress in employment and well-being."

As an economist entirely in agreement with Dr. Burns' comment, I might add that public awareness of capital formation as a national problem, unfortunately, is similar to awareness of high blood pressure as a personal problem: both involve millions of people who don't know they are affected.

If high blood pressure goes undiagnosed, its debilitating effects weaken other parts of the body: heart, liver, kidneys, and so on. Likewise, if the capital formation disease is not recognized as a threat to our nation's economic health—and treatment is limited to some of the observed effects—then the impact spreads throughout the economy in a regressive chain of events:

Inadequate capital formation leads to large numbers of people becoming unemployed, or underemployed relative to their training and skills. This occurs first in the construction and capital goods industries and then in consumer goods and services.

Demands are then made for greater government intervention and spending "to create jobs and income."

With increased government spending—based on a large budget deficit—and without a corresponding expansion in private industry, inflation weakens the economy as we have seen in recent years.

American industry also loses ground in domestic and world markets as inflation weakens the dollar and saps our ability to compete.

A weakened industrial base triggers less spending for Research & Development and technology lags.

Industry suffers from a slowdown in productivity and is able to offer fewer choices of products and services to consumers; industry also becomes less able to solve such basic problems as energy and pollution.

At the end of the line, the consumer sees the cost of living moving up still higher and demands still more government intervention, controls and spending. Also at a disadvantage are women and minority groups—especially recent graduates of high school and college—who are penalized doubly, that is, both as consumers and as seekers of nonexistent job opportunities.

In short, I believe capital formation is the crucial economic problem facing our nation today because it has been too long a victim of public neglect.

Neglect of capital formation

Neglect is obvious in a number of areas.

News media.—Neglect of this subject by the nation's news media has been almost total. Of the thousands of articles published during 1977 by the nation's leading magazines and newspapers, only seventeen[2] dealt with the subject of "Capital Formation." (Although it is getting a bit more press recently . . . thanks to discussions such as this.)

However, while there were only seventeen articles published on "Capital Formation," there were over ninety articles published on "Unemployment" and "Public Welfare". I would suggest that this is a classic case of paying heed to symptoms of the disease, rather than the basic disease itself.

Labor leaders.—At the local level, labor leaders seem most concerned with seeking the largest possible increase in wages and fringe benefits for union members. Consequently, there appears to be little concern for the long-run impact of wage agreements on corporate earnings and how this may impinge on capital and job formation. At the national level, AFL–CIO President George Meany was recently reported to strongly support capital formation as essential for job formation.[3]

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[1] National Press Club, January 30, 1978.
[2] "Reader's Guide to Periodical Literature," New York: The H. W. Wilson Co. January–December 1977.
[3] Time magazine, June 12, 1978, p. 74.

Political leaders.—Opinion surveys show that, until recently at least, most political leaders and their staffs do not regard capital formation as a high priority item. But they have long been concerned about the problem of unemployment. In my view, this indicates a failure to recognize that capital formation is needed to create new jobs and improve income in real terms.

Regulatory agencies.—Under political pressure to keep rates low, public utility regulatory agencies have largely neglected capital formation. Under the doctrine of "Deference," the courts have been reluctant to override regulatory decisions on required equity earnings, capital structure and the like. They have tended to defer to the agencies' "expertise." As a result, many regulated utilities have had their credit ratings downgraded and have been forced to sell new common stock below the nominal book value per share—and far below the actual value of the assets per share in dollars of constant purchasing power. Equally important, many utilities—unable to sell common stock—have been forced to excessive debt levels. This has triggered higher interest costs and a higher burden on consumers.

Business schools.—Even the nation's graduate schools of business have virtually ignored capital formation in their course offerings. This may explain the findings of a recent survey of MBA's who failed to mention capital formation as one of America's most important problems. This seems to reflect the Keynesian orientation of the business school curriculum: There was no shortage of capital back in the 1930's. Hence, in the Keynesian System, it is assumed that capital will always be readily available. Unfortunately, however, there has been a shortage of investment capital for many years.

At this point, I would like to review a few charts which may help to sharpen up the scope of the problem.

Percent of GNP saved and invested

Chart 1 shows capital formation as a percent of Gross National Product in U.S., West Germany and Japan.

Admittedly, we are focusing on three different societies with three different life-styles. I would not assert that West Germany and Japan are exact models for the United States to emulate. They are both more disciplined societies.

I think it fair to say that most Germans are "scared to death" of inflation. This stems from the German inflationary disaster of the 1920's. An extreme fear of inflation has been built into the national psyche. Dr. Ottmar Emminger, Chairman of the Bundesbank, the German Federal Reserve, discussed that point in a speech in Chicago. He has said—only partly in jest—that the government controls TV and—to heighten the citizens' awareness of inflation—each evening on the 7:00 P.M. news, the first ten minutes are devoted to scenes of labor strife and inflation occurring that day in England.

In Japan, most people are educated to appreciate the importance of being more efficient producers of goods: their jobs depend on it. And they invest over one third of the GNP in capital goods. I'm sure you all heard the story that every school boy and school girl has a plaque over the bed with the admonition "The survival of Japan as a nation depends on capital formation and excellence in technology—especially electronics."

Looking only at individual savers, some U.S. economists get quite concerned when American citizens save more than 6 percent of their disposable personal income. But we find that individuals save and invest 15 percent of their disposable personal income in West Germany and 25 percent in Japan. This naturally gives a strong push to capital formation in those countries.

Average annual growth in productivity

One impact of greater plant and equipment spending on productivity is shown in Chart 2. In the 1970–77 period, the U.S. has been able to average only 1 percent annual increase in productivity, while in West Germany the increase has been almost 4 percent and in Japan over 5 percent.

And our country's situation is not improving: in the first quarter of 1978, U.S. productivity actually dropped. This was in part attributable to the coal strike and to the weather. But it was also attributable to the generally low level of productivity in the U.S. We are too close to the zero line. Hence, we have no "cushion" to absorb a slowdown, such as that caused by the strike and bad weather.

Studies indicate that some two-thirds of U.S. industrial capacity is over ten years old. This helps explain why so many goods produced in the U.S. have

trouble competing both in the domestic market and in the world market. As a result, instead of exporting goods, the U.S. has been exporting jobs.

Let's remind ourselves that, in looking at the economic growth rate in West Germany and Japan, we are not talking about undeveloped nations starting from ground zero. We are focusing on the leading economic nations in the free world.

The impact of increasing productivity to reduce inflation is pointed up by Chart 3 showing the trend of inflation in the United States, West Germany and Japan.

Despite their almost total reliance on high cost imported oil, both the Japanese—and the West Germans as well—have been reducing inflation. Both nations are expected to end 1978 with inflation significantly below that of the United States. By doing a better job of increasing productivity, the Japanese and West Germans have both been able to reverse the upward climb of inflation.

The problem in the United States is shown in Chart 4. Productivity, as reflected by output per hour, is far below the cost as measured by compensation per hour. The increasing gap between output and compensation is the inflationary impact. Let me stress that higher compensation is not the sole cause of inflation. However, at the present time it seems to be making the task of reducing inflation substantially more difficult.

If the U.S.—with only about 1 percent productivity gain—could match Japan's 5 percent average rate, we would have inflation far below the 7 percent envisioned recently for 1978 by Chairman Miller of the Federal Reserve Board.

Unemployment rate

Chart 5 links up Charts 1 and 2 and reflects the end result in human terms. After all, we are really talking about people. The countries which invest more in plant and equipment, and which are improving productivity the most, have the lowest unemployment.

In the final analysis, unemployment and inflation are human problems. A citizenry beset by these problems is ready to try almost any solution offered. And too often the proposed "solution" is "let's spend our way to prosperity." But that has been tried and has not worked. As James Callaghan, Labour Party Prime Minister of Great Britain, has said:

"We used to think that you could just spend your way out of a recession and increase employment by cutting taxes and boosting government spending. I tell you in all candor that that option no longer exists—and that insofar as it ever did exist, it worked by injecting inflation into the economy . . . The long-term cure for unemployment is to create a healthy manufacturing industry that can hold its own overseas and in doing so will certainly be able to hold its own in the domestic market."

Does government spending really lead to less unemployment? In recent years there has been growing disenchantment with that point of view.

Let's spiral back to the bottom of the depression, when John Maynard Keynes—perhaps the most brilliant and certainly the most influential economist in this century—began to write his thesis calling for more government spending.

What was the economic and social milieu in 1933?

Unemployment was in the 20 percent range.

Some industries, such as steel or autos, were almost entirely shut down.

Housing starts were minimal.

Deflation, not inflation, was a major problem.

Farmers were selling corn in Iowa for 10 cents a bushel.

Above all else, total government spending—federal, state and local—was only $10 billion or about the same as it was in 1929, the year of the crash. At that time, government spending was only 10 percent of the G.N.P.

In this environment, Keynes rightly saw increased government spending as a substitute for almost non-existent private spending. He clearly did not envision goevrnment "crowding out" private spending. When Keynes wrote his general theory, government spending was merely putting to work idle dollars lying in banks and earning only 1 or 1½ percent interest. That is not true today. Today government spending is drawing dollars away from the productive private sector, that is, "crowding out."

Capital formation and jobs

Chart 6 suggests the strong linkage between capital formation and job growth.

The 10 companies in the Dow Jones 30 Industrial Index with the highest rate of capital formation had some 895,000 employees in 1960. They increased their

employment by 836,000 jobs in the 1960–76 period. This was an amazing 93 percent increase!

Conversely, the 10 companies with the lowest rate of capital formation had 898,000 employees in 1960. But they added only 29,000 new jobs since then. This was only a 3 percent increase in employment.

From this data we can only conclude that if we want more jobs, we've got to have more capital formation.

Chart 7 reflects government spending as a percentage of the GNP. As I said, back in 1929 government consumed about 10 percent of the GNP. By 1950, while fighting a war in Korea, government spending accounted for 21 percent of the GNP. By 1977, government spending had zoomed up to 33 percent of the Gross National Product. As you know, these data include all transfer payments, such as unemployment payments, and interest on the public debt.

As a one time Keynesian, I find it interesting that a growing number of people in the productive private sector of the economy—as well as in the academic world—are coming to the view that government spending is "part of the problem"—not "part of the solution."

Perhaps this was what Lord Keynes had in mind when, in his final days, he expressed the hope that his followers would not blindly apply his theory in times when it was no longer applicable.

It would appear that with government spending 33 percent of the Gross National Product, we have a choice of two evils:

1. One evil is that government can run at a deficit, issue government bonds, and thus "crowd out" private enterprises from the securities markets. For example, Chart 8 shows that of all bonds issued in the past four years, 47 percent were government: Federal, state and local. By way of contrast, in the early 1960's, government took less than 20 percent of the total supply of credit. A basic danger of government borrowing is that it is largely used to finance current consumption. It is not spent for plant and equipment needed to produce goods or services for the consumer on a more efficient basis.

2. The second evil is that goevrnment can raise taxes to balance the budget. But this places an even heavier burden on industry and consumers. Milton Friedman, for one, has stated that the advocates of a balanced budget via higher taxes have contributed to the problem. In his view, they should have called for less government spending.

The debate on taxation has concentrated heavily on *who* should pay taxes. Only rarely does the debate center on the basic question "Is our level of spending absolutely necessary?"

Taxes on capital

In my view, another important impediment to capital formation is the U.S. tax structure. In all candor, it can only be described as a system that discourages investment. Let's look briefly at the incentive, or lack of it, to invest in modern, highly productive plant and equipment in the free world's three leading nations.

As noted in Chart 1, West Germany and Japan are investing a greater percentage of their Gross National Product in new plant and equipment and Chart 9 suggests why.

First, we should note that taxes on corporate earnings in all three nations are about the same. But in light of our nation's lagging economic progress in recent years, a good case can be made for reducing U.S. corporate taxes below either West Germany or Japan.

As to the tax burden on individual investors, there are wide differences.

Dividends in the U.S. are taxed up to 70 percent—while Japan's rate in the very top bracket is just half as much, 35 percent.

As to taxes on capital gains, the U.S. tax rate goes up to 49.9 percent including preference items. There is no capital gains tax in West Germany. And, for all practical purposes, there is no capital gains tax in Japan; that is, it begins only after you sell over 200,000 shares of stock per year.

In fact, just three months ago the Japanese took another quantum leap to encourage still more capital formation. Effective April 1, 1978 they eliminated all income tax on the first $60,000 (assuming a family of four) of capital invested in Yen denominated bonds or notes.

In light of our nation's capital formation needs, it's bad enough that U.S. capital gains are taxed at all. It's doubly so when you realize that much, or all, of the gain is illusory—merely reflecting inflation and capital "gains" from the sale

of stock in dollars of far less purchasing power. Thus, the capital "gains" tax is really a tax on capital—it is not a tax on gains.

This is reflected in Harvard Professor Martin Feldstein's recent study which showed that individual U.S. tax payers paid taxes of $1 billion on "phantom" capital gains of $4½ billion a year. But when the "gains" are adjusted for the declining value of the dollar, these investors really suffered a capital loss of about $1 billion.

In short, they paid $1 billion of Federal income taxes on a $1 billion loss.

Plant and equipment per worker

So much for the general environment of capital formation in the U.S. and our chief industrial competitors, West Germany and Japan. Let's now turn to our nation's future need for new capital investment.

Chart 10 shows the sharp increase in plant and equipment per worker since 1960. Judging from the obsolescence of America's existing plant and equipment, even these numbers obviously understate the problem. If, over the years, American industry had been able to build the kind of modern facilities really needed to compete effectively in world markets, the investment per worker clearly would be higher.

For example, in the paper industry the average investment per worker is now about $42,000. However, it would require an investment of about $81,000 per worker on the basis of today's cost. The airline industry affords another example. Airlines require an investment of $90,000 per seat in existing jet airplines. Looking to the next decade and the new generation of jets, industry experts estimate that the investment per seat will soar to $200,000. The unanswered question is: "Where is all the money coming from?"

Growth in population by age groups

Let's turn now to the supply of capital available.

Chart 11 shows the growth in population by age groups in the current decade. In general, people over 65 years of age are not major contributors to the nation's supply of savings. Rather they are primarily concerned with spending the savings of a lifetime.

The largest group of savers are people in the 50–64 year-old group. They are in the years of peak earning power. Their children have generally been educated and the parents are in a position to devote substantial amounts of their current income to investment. The bad news is that the 50–64 year age group will be increasing only 600,000 people in the current decade. More bad news: the biggest increase is in the 20–34 year old age group. Unfortunately, these people are what economists call "net dissavers." They look to other people to provide savings for their house and their job.

It is quite clear that population trends will aggravate the problem of capital formation in the years ahead. This, too, suggests extraordinary efforts must be made to turn the situation around.

Arguments against increased capital formation

I have tried to show how greater capital formation would benefit every American citizen through more and better jobs, less inflation, and a higher standard of living. But, to be fair, I should tell you that this view is not unanimous. There have been some differences of opinion about increased capital formation. Chart 12 summarizes some of these arguments which we might briefly review.

1. Supply must be identical to demand.—This argument holds that "by definition supply must be identical to demand." On a theoretical basis this is true; that is, at the end of each year the supply of capital made available was identically equal to the demand that was actually satisfied.

But the short answer to this argument is that it's like saying "Last year the supply of food in India was identically equal to the demand for food—but unfortunately 10 million people starved to death."

2. Stimulate consumption first.—As noted earlier, this theory stems from economic thinking of the depression years. As Prime Minister Callaghan noted, this approach has been tried but it failed in Great Britain, the land where the theory originated.

The short answer is that this argument neglects the supply side of the picture which, as we've seen in the charts, is why we're in the situation we're in today. West Germany and Japan, which have strongly encouraged capital investment, enjoy both more supply and more demand.

3. Free market will allocate resources efficiently".—This argument, advanced by such leading economists as Paul Samuelson, asserts that a "free market" will ration capital efficiently among the many demanders of capital.

The short answer, in my view, is that this free market theory isn't based on fact. We do not have a free market for capital in the U.S. Rather, we have a market where capital investment is penalized by heavy corporate taxes, by double taxes on dividends, as well as by taxes on capital gains which are often not true gains at all. Investment also is discouraged by burdensome government regulations.

4. Plant is now operating below capacity.—This argument notes correctly that U.S. industrial plant is operating at about 82 percent of capacity. It therefore asserts that there is no need for more investment.

The short answer is "look at England." The British steel industry, for example, is operating at only 67 percent of capacity because it is even more antiquated than the American steel industry. Much of America's idle plant in many industries is simply too old to produce efficiently for world markets.

5. U.S. is becoming a service economy, i.e., industry is declining.—This argument holds that industry has been declining and that service businesses are becoming a bigger part of the total American economic picture.

The short answer is that, despite the growth of service industries, the investment per worker has increased sharply. Let's not forget that even service industries require substantial increases in investment. The clerk with a 10 cent pencil has been replaced by a $6 million computer. Equally important, if today we had more productive plant and equipment, the investment per worker would be still higher.

6. Other factors, such as health, education and R. & D. are important.—The short answer is that even if we had the best educated workers in the world all in perfect health and with the best R. & D., but still didn't have the tools, we would not have the output of goods and services our citizens require. I should note, however, that there are warning signs on the horizon. For example, research and development expenditures in the U.S. have been falling behind just as has our American plant and equipment spending.

7. Brookings Institution model (1975) forecast no shortage.—As you may recall, the Brookings Model was widely accepted in academic and in some government circles as "proof" that we had no capital formation problem in the U.S.

The short answer is that the Brookings Model was based on certain crucial assumptions. Today, these assumptions have been proven incorrect in light of what has happened since 1975. For example, Brookings assumed that: (1) inflation would subside—they did not expect the double digit inflation that we've seen recently, (2) government would balance its budget—they did not contemplate the $60 billion deficit the Federal government has been running recently, (3) corporate profits would rise and permit increased reinvestment of corporate earnings to build new plant and equipment—they did not contemplate the drop in *real* corporate earnings of the last few years.

8. You're right . . . but a tax cut for investors is not politically palatable.—The short answer is that medicine doesn't always taste good. The facts somehow must be made politically palatable. I don't subscribe to the notion that the American people want to live in a dream world. Rather, I sincerely believe that given the facts, the American people and their leaders will recognize that capital formation must become a top national priority.

9. You're right . . . but we can't stand the revenue loss.—This argument has been heard as long as I can remember and is usually heard when all others fail.

The short answer is that our nation can't stand the consequences of continuing neglect of capital formation. The crisis is here and is building. Let's not forget that President Kennedy, for one, recognized that reduced taxes on American industry and investors would lead to more jobs—and history has proven him correct.

Conclusion

I have reviewed the nature of the capital formation problem and I understand that others will focus on possible solutions. Hence, I'll touch only lightly on the four possible remedies listed on Chart 13.

1. Get C. F. out of the closet.—Substantially more capital formation is crucial to our national well-being. It needs to be discussed and debated in more public forums such as this.

All of us—we in the private sector and you in government—face a real challenge to bring the capital formation message to all the nation's thought leaders.

Especially, we face the real challenge of encouraging the media to focus attention on this issue. Until recently, it has been virtually ignored, as was New York City's impending financial crisis a few years ago.

How do we do it? Perhaps we might abbreviate "Capital Formation" to "C.F." and make it a household word. Look what happened when "Transcendental Meditation" was abbreviated to T.M.: It was put in paperback and sold millions of copies!

2. Rethink national priorities.—Everyone agrees that the priorities prevailing during our nation's first century were inadequate for our nation's second century. Are the national priorities for our nation's second century adequate today as we move into the third century? The facts say "No."

Perhaps what is needed is a statement of national policy on capital formation similar to "The Employment Act of 1946." How about "The Capital Formation Act of 1978?" It could do—through private enterprise—what others would try to do by more government spending.

3. Rethink Government spending and inflation.—In recent weeks several authorities, including Chairman Miller of the Federal Reserve Board, have called for less government spending, pointing to the inflationary impact of our present course.

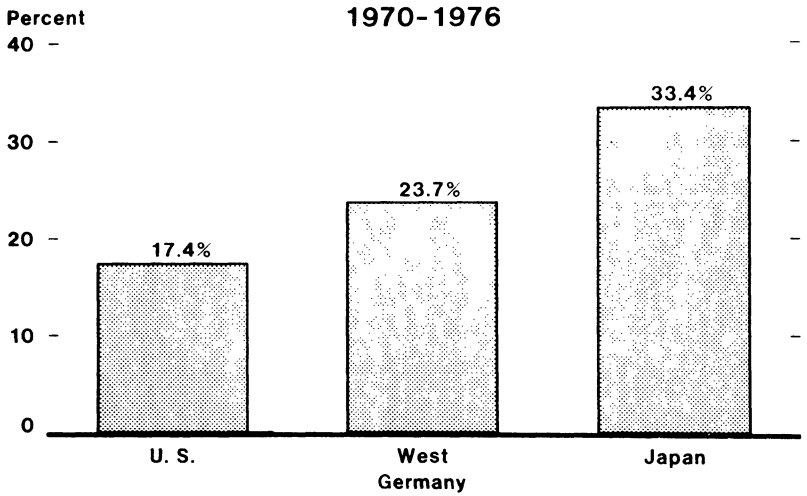
Many astute observers of the political scene have concluded that the landslide victory of "Proposition 13" in California indicates that the American people are ready "to march to a different drummer." In my view, capital formation can be that drummer. It is "the economic Moses" to lead the American people out of the wilderness of high inflation and unemployment. With stepped-up capital formation, greater economic growth would materially reduce demands for more government spending.

4. Encourage investment.—Also on that same score, I would opine that present taxation of investment, as well as government regulatory policies in many industries, serves to retard capital formation. And with it, of course, economic growth—including the creation of new jobs and the battle against inflation—is retarded.

It might be a good idea to follow the lead of the environmentalists. Perhaps each new legislative proposal should be accompanied by a "Capital Formation—Inflation and Jobs Impact Statement".

Chart 1

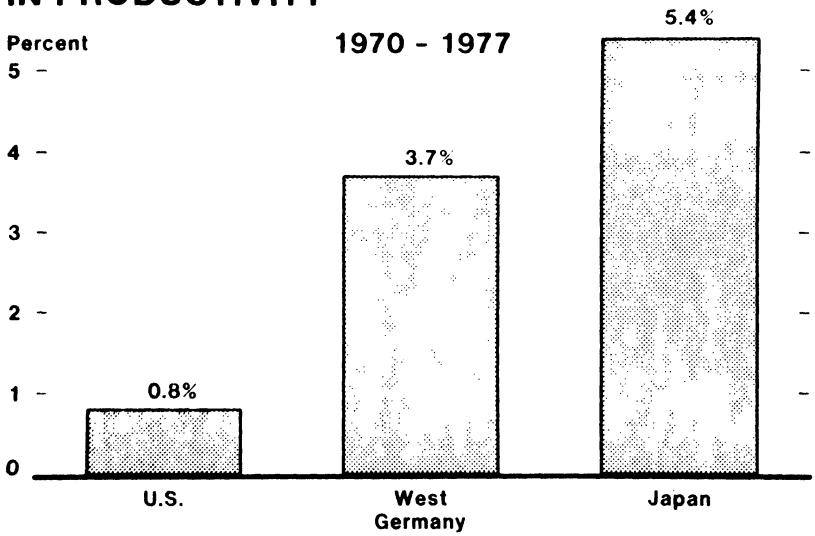
FIXED CAPITAL FORMATION AS A PERCENT OF G.N.P.



Source: United Nations

Chart 2

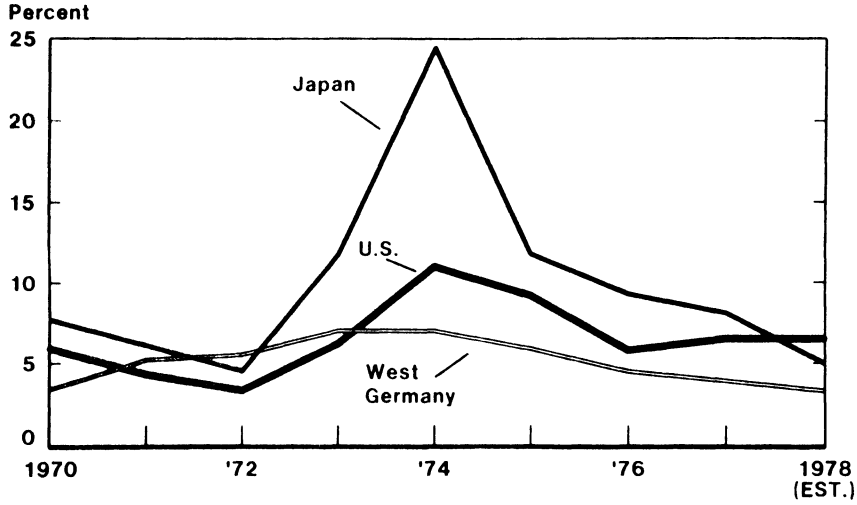
AVERAGE ANNUAL GROWTH IN PRODUCTIVITY



Source: U.S. Dept. Of Labor, Bureau Of Labor Statistics

Chart 3

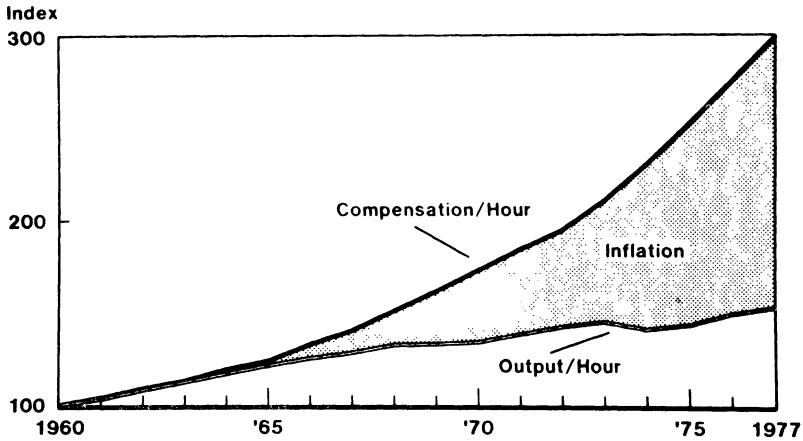
INFLATION RATE



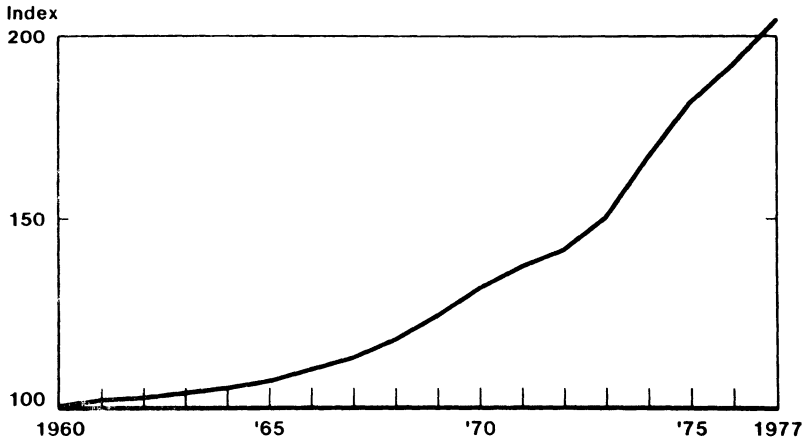
Source: International Monetary Fund
Organization For Economic Cooperation & Development
Brown Brothers Harriman & Co.

Chart 4

COMPENSATION VS. OUTPUT PER HOUR



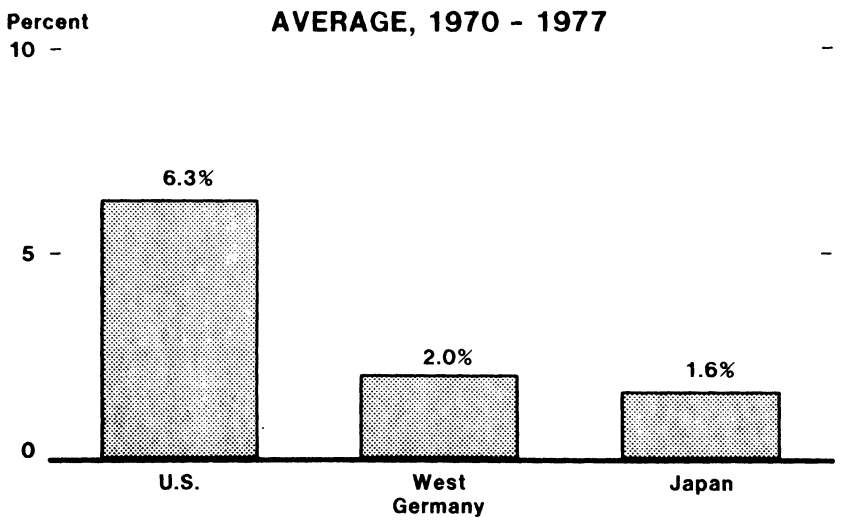
CONSUMER PRICE INDEX



Source: Economic Report Of The President, 1978

Chart 5

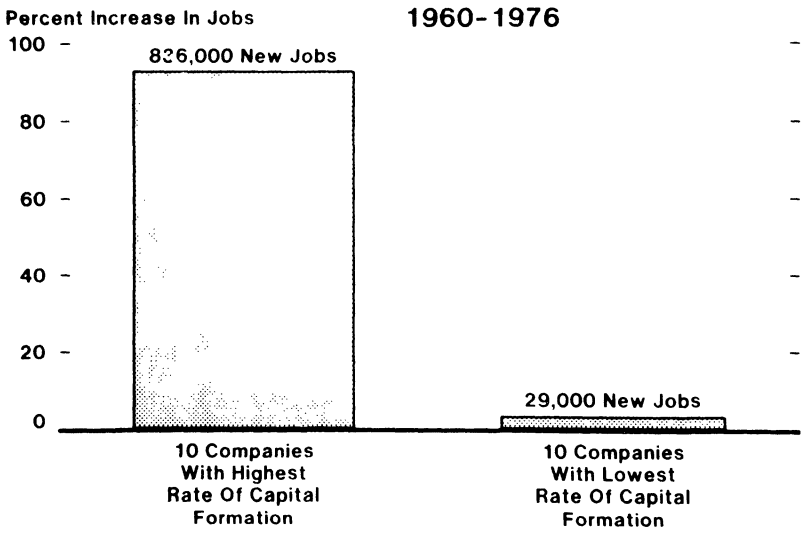
UNEMPLOYMENT RATE



Source: Monthly Labor Review

Chart 6

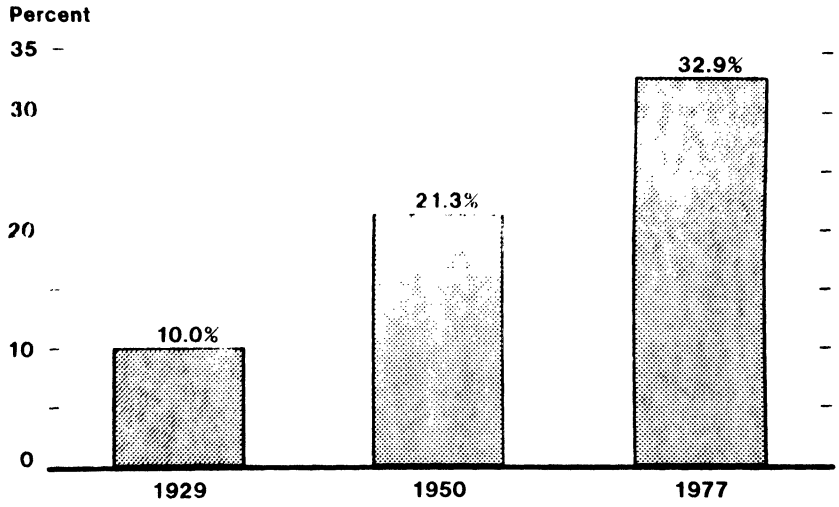
NEW JOBS AND CAPITAL FORMATION
DOW JONES INDUSTRIALS



Source: Standard & Poor's Compustat Service

Chart 7

TOTAL GOVERNMENT EXPENDITURES AS A PERCENT OF GROSS NATIONAL PRODUCT



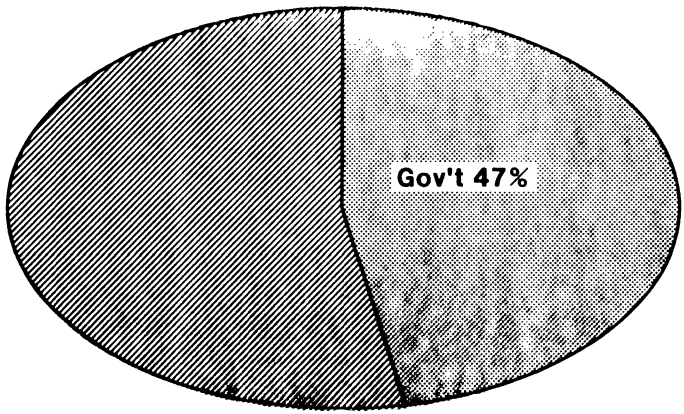
Source: Economic Report Of The President, 1978

Chart 8

"CROWDING OUT"

TOTAL SUPPLY OF CREDIT

(Excluding Refundings)



1975-1978 Average

Source: "Supply & Demand For Credit In 1978", Salomon Bros.

Chart 9

TAXES ON INDIVIDUAL INVESTORS

(MAXIMUM)

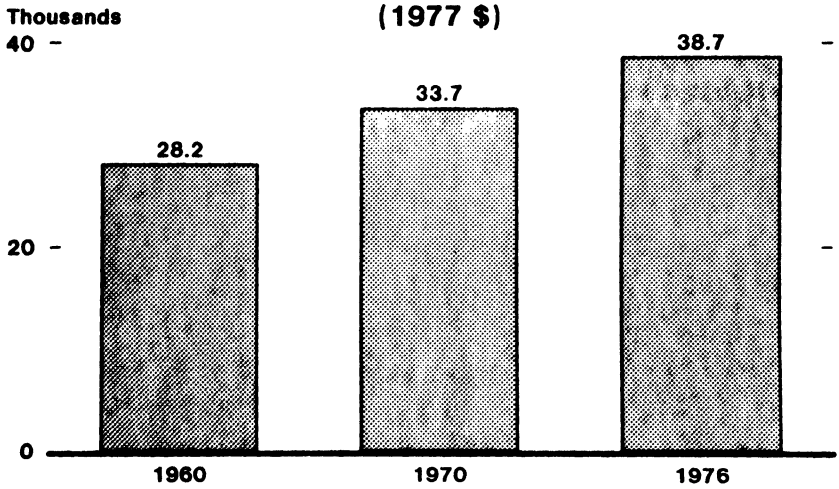
	Dividends	Capital Gains
U.S.	70%	49.9%*
W. Germany	56	0
Japan	35	0

* Includes 15% Minimum On Tax Preference Items

Source: Coopers & Lybrand

Chart 10

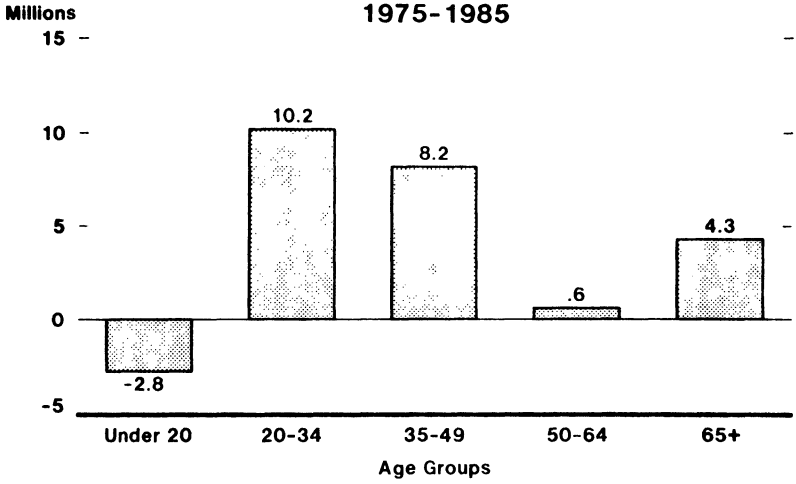
PLANT & EQUIPMENT PER WORKER



Source: Survey Of Current Business

Chart 11

GROWTH IN POPULATION BY AGE GROUPS



Source: U.S. Dept. Of Commerce, Bureau Of The Census

Chart 12

ARGUMENTS AGAINST INCREASED CAPITAL FORMATION

1. "Supply must be identical to demand"
2. "Stimulate consumption first"
3. "Free market will allocate resources efficiently"
4. "Plant is now operating below capacity"
5. "U.S. is becoming a service economy, i.e., industry is declining"
6. "Other factors, such as health, education,and R&D are more important"
7. "Brookings Institution model (1975) forecast no shortage"
8. "You're right . . . but a tax cut for investors is not politically palatable"
9. "You're right . . . but we can't stand the revenue loss"

Chart 13

FOUR POSSIBLE REMEDIES TO THE CAPITAL FORMATION PROBLEM

1. Get C.F. Out Of The Closet.
2. Rethink National Priorities.
3. Rethink Government Spending And Inflation.
4. Encourage Investment.

Senator BENTSEN. Thank you very much.

A comment was made on public relations. The problem we run into is that we have competing objectives. We want to clean up the water and the air, and sometimes we do it at any price.

Now we understand that that adds to inflation, and makes us less competitive. We have to have some cost-benefit ratios involved. There was a story yesterday in the Washington Star on the point some of you made. A memorandum from Barry Bosworth said that in the next 12 to 18 months regulatory agencies will make regulatory decisions which will increase compliance costs to the private sector by $35 billion annually. That is very much along the point that you are speaking to.

I would like to hear a little more about why Mr. Evans thinks that the investment tax credit is the last of the priorities in accomplishing these objectives and why Mr. Fromm thinks it is first.

I would like to get a little bit of practical decisionmaking—how much you fellows have actually talked to people who make decisions on whether they will go ahead and buy a piece of machinery or make an investment, because the investment tax credit was factored into the return they will receive.

I understand all businessmen want all business tax credits, and all want them at least doubled. We will start with that premise. I want to see how much you know and how much this has influenced decisions.

Mr. EVANS. My answer may surprise you a little bit. I have talked to 100 businessmen. I would say 2 percent have made investments because of investment tax credits.

Senator BENTSEN. About 2 percent?

Mr. EVANS. Yes. They don't consider that in their planning. They try to figure out what the rate of return is, and they try to determine whether it will be a useful investment, but they don't consider the investment tax credit to be very important.

Mr. FROMM. That is clearly the case. It is not the sole determining factor, whether an investment is made or not, but it must enter into the calculation of the rate of return, just as the tax rates must enter into that computation as well.

If you ask a businessman, "Does the difference between a 48- and a 45-percent corporate tax rate enter importantly into whether a particular decision is made or not," of course he is going to say "no." That is a small change.

Businessmen must consider the entire complex of factors that influence the rate of return. But, the most important one is the state of demand for the products or services that will be produced with the investment.

Senator BENTSEN. I had an argument with a banker once. I was arguing on half of 1 percent interest on the loan. He finally said, "It either is a good deal or it isn't, and what you are really arguing about now is your pride." I am not sure I buy that. [Laughter.] Go ahead, Mr. Evans.

Mr. EVANS. I used to think the investment tax credit was more important, as a matter of fact, and when I first started asking this question, I was surprised at the answer I got. I used to argue back with them. But I found this was a very large majority of people who

said that of all the factors, the tax factors they considered, the investment tax credit really had less of an effect.

After that, then I went back and tried to estimate on an econometric basis which of the five factors that I have listed there were important, and what the order of importance was, and on an empirical basis I also found the investment tax credit came out last. So there appears to be some correlation between what businessmen were telling me and what I found out in my own research.

So I think that the businessmen have viewed the investment tax credit as a toy of Congress. It comes on one year and come off another year. I think in the business community it has received negative connotations as sort of a plaything instead of a long-term commitment to increase capital formation.

Senator BENTSEN. Mr. Evans, do you argue that capital investments will be reduced by companies when the stock market is down, when stock prices are down?

Mr. EVANS. Yes.

Senator BENTSEN. I suppose, then, you also argue, if I recall, that when stock prices are down, they will buy small companies, and they buy them for cash.

Mr. EVANS. Yes.

Senator BENTSEN. But when their stock prices are up, they either sell equity or they use their high multiples to try to buy companies at lower multiples and end up with an increased rate of return?

Mr. EVANS. Yes. Over the years there has been a strong negative correlation between stock prices and mergers and acquisition activities. In the last six quarters, mergers and acquisitions have been extremely high. When the stock market takes off, you see acquisitions and mergers drop off. The spirit is still there, but it is not intensive.

Senator BENTSEN. Senator Hatch, why don't you use the next 7 minutes?

Senator HATCH. Thank you, Senator Bentsen.

It is my understanding that if we cut the corporate rate by, say, $10 billion, which is about the cost of the investment tax credit, it would raise the return on investments more than the investment tax credit because we, under those circumstances, could lower the corporate rate down to 39 percent and be better off.

Would you agree or disagree with that?

Mr. EVANS. I basically agree with that.

Senator HATCH. Mr. Evans, one of the hot economic proposals is the Roth-Kemp bill, which would, among other things, reduce individual income taxes by about 33 percent. One of the big questions concerning the bill is the size of the deficits that may occur and the effect of these possible deficits on inflation. Have you put the Roth-Kemp bill through the Chase models, and what were your results concerning the deficits and inflation?

Mr. EVANS. I did make a number of runs like that. If you take the Roth-Kemp bill at face value, it does increase the deficit and does increase inflation. I made two modifications to it in the computer runs and one thing that I did was to hold the rate of Government spending constant in real terms. In other words, Government spending still increases, but only at the rate of inflation. There was no real increase.

Also, I lowered the corporate tax rate to 40 percent instead of 45

percent in order to provide more capital formation, and when I made those two modifications to Kemp-Roth, we found the budget deficit disappeared over a 10-year period, and that the rate of inflation was virtually the same as it would be without any of these changes.

So for what it was worth, our calculations showed that with these two modifications, lower rate of spending growth and greater cut in corporate tax rates, that the overall tone of the economy would be improved much more.

Senator HATCH. How much did saving increase in your model run?

Mr. EVANS. Personal savings?

Senator HATCH. Yes. And how much of the deficit was covered by it?

Mr. EVANS. Let's see. We got rid of a $60 billion deficit. About two-thirds was covered by personal savings and one-third by additional corporate savings, more or less.

Senator HATCH. If it weren't for higher social security taxes, inflation's impact on our progressive tax system and proposed energy taxes, would we need a general tax cut to stimulate the economy?

Mr. EVANS. Yes, as long as inflation goes on, because it places people into higher brackets.

There are really two problems, the fact that taxes keep increasing in proportion to income, and the question of indexation. If we were to go to an indexation scheme, I would say we would need a general tax cut, but that doesn't seem to be likely at the present.

Senator HATCH. Does the Chase model, or any of the major models, take account of supply-side incentive effects of tax cuts, and the resulting tax revenue feedback?

Mr. EVANS. Our model takes that into account a little bit. I think all the econometric models I know about are seriously deficient in the sense that they don't take into account supply-side effects.

Senator HATCH. Do the leading forecasting models lose any predictive power by leaving out the disincentive effects of higher marginal tax rates on people's unwillingness to save and work?

Mr. EVANS. Well, we don't know for sure, but my opinion is that they probably do, and we probably underestimate the effect of tax cuts. As I said, we are trying to move in that direction.

Senator HATCH. I have a lot of questions for all of you, but we are running out of time. Let me ask Mr. Feldstein a couple of questions.

Would you recommend making savings into a tax deduction or providing some form of tax credit for saving?

Mr. FELDSTEIN. I do think savings should be increased. I think we can't work just on the investment side of the equation. We can't simply look to ways of stimulating investment demand. We also have to find ways of stimulating individuals to save more.

I think the idea of allowing deductions for savings seems radical when you first think of it, but when you look at our tax system in detail, it is clear we already do that to some extent. Most savings now is done through the pension system where individuals don't pay tax on that savings, or through individual retirement accounts, Keogh accounts, or through accrued capital gains in which individuals don't pay taxes, rollovers on their own homes, et cetera.

We are far along that route, but we have done it in a haphazard way rather than having a general policy of allowing people substantial reductions for savings, something other countries have done.

The Canadians recently began a program of what in our terms would be individual retirements accounts, but independent of whether people were under corporate pensions, allowing people to deduct that from their taxable income.

Senator HATCH. How are savings, growth, and social security related? Can we pay the benefits we have promised without first providing a substantial increase in GNP?

Mr. FELDSTEIN. I am glad you asked that.

In my view, social security is a major force depressing savings in the United States. For most American families now, social security has become the major asset. A typical person who retires now, who has had average earnings over his entire life, who has a dependent spouse, gets benefits which replace 70 percent of his peak earnings on a pretax basis.

If you think about those as replacing aftertax dollars, that is about 85 percent. So there is really no incentive for people with middle incomes and below to do any private saving at all, given the current social security system. I think the financial mess social security is in provides an opportunity to rethink the growth of benefits that Congress enacted a few years ago, while maintaining benefits for people today and not cutting benefits at all in the future, reducing the rate of growth of those benefits, causing individuals, therefore, to depend more upon private pensions and direct savings as a way of accumulating for their retirement.

If we did that, we would have much more capital in our own economy.

Senator BENTSEN. I am afraid that is it.

Thank you very much, gentlemen. We will stand in recess.

[Whereupon, at 11:40 a.m., the committee recessed, to reconvene at 9:30 a.m., Wednesday, July 12, 1978.]

[The following information was subsequently supplied for the record:]

AMERICAN TELEPHONE & TELEGRAPH CO.,
New York, N.Y., July 19, 1978.

Hon. RICHARD BOLLING,
House of Representatives,
Rayburn House Office Bldg.,
Washington, D.C.

DEAR CHAIRMAN BOLLING: I appreciated the opportunity to testify at your invitation before The Joint Economic Committee on July 11th on the subject of Capital Formation—Jobs and Inflation. The high priority you and your Committee have accorded to capital formation is most encouraging.

Time did not permit me to respond to a question Senator Bentsen asked at the conclusion of the testimony. He asked whether the Investment Tax Credit, in fact, influenced business decisions to make investments in new plant and equipment.

I believe it does. The Investment Tax Credit, also referred to as the Job Development Investment Credit, is a major consideration in making business investment decisions in the capital intensive industries that are at the heart of the American economy. These include such industries as oil, steel, chemicals and aluminum, and regulated industries such as the airlines, electric utilities and telecommunications.

For example, in the telecommunications business, decisions to undertake and implement technological development and to modernize facilities are to an important extent economic decisions. Assurance of the continued availability of funds generated by the investment credit and by accelerated depreciation tax deferrals is essential to business investment planning, especially in projects with long lead times requiring substantial capital commitments. Loss of the Investment Tax Credit would dramatically decrease demands upon the nation's capital

markets and serve to increase the cost of capital, risk slowing modernization projects and impede productivity, with the adverse effects on consumer prices and employment which I described in my written and oral testimony before the Committee.

I would also like to comment that the "off-again, on-again" use of the Investment Tax Credit (ITC) for "fine-tuning" that has occurred in the past has tended to create uncertainty and that, to be effective, the ITC must be made a permanent feature of the tax law.

Because this issue is so important, I would appreciate it if this could be included in the Committee's record of the July 11th hearing as my response to Senator Bentsen's question.

Sincerely yours,

CHARLES D. KUEHNER, Ph. D.