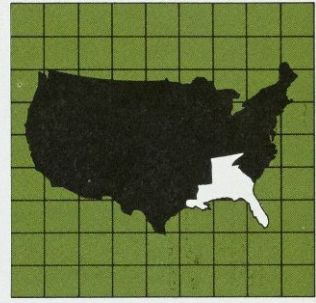


L.H.

Economic Review



FEDERAL RESERVE BANK OF ATLANTA

SEPTEMBER 1981

REAGAN Recovery Program's Rationale

STATE TAX Projecting Georgia Revenues

VOLCKER 1981 Monetary Policy

DROUGHT Impact on Southeast

FUTURE Financial Services Conference



Economic Review



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The purpose of the *Economic Review* is to inform the public about Federal Reserve policies and the economic environment and, in particular, to narrow the gap between specialists and concerned laymen.



The Reagan Program for Economic Recovery: Economic Rationale (A Primer on Supply-Side Economics) . . . 4

Critics of President Reagan's economic program argue that it will only produce more inflation and sluggish growth. Exactly how is the program supposed to work and how persuasive is the evidence that it *will* work?

The Income Elasticity of the Georgia Income Tax 15

State planners need accurate forecasts of how tax revenues will respond to changes in personal income. But as more taxpayers reach higher tax brackets, will revenues continue to increase? Are past estimates reliable guides for projecting future state income tax revenues?

1981 Monetary Policy 22

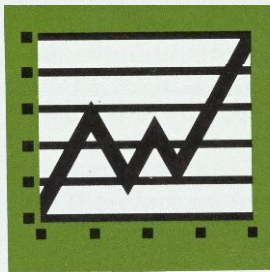
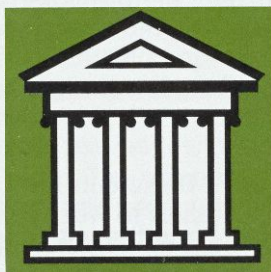
Excerpts from testimony by Federal Reserve Chairman Paul A. Volcker before the House Banking Committee July 21, 1981.

The Impact of Drought 26

The continuation of 1980's nationwide drought into the 1981 season caused agricultural producers grave concern. How has the drought affected the Southeast, and does increased irrigation represent a realistic solution in the long run?

The Future of the Financial Services Industry 32

What forces will shape the financial services industry of the future? On June 3-4, 1981, the Federal Reserve Bank of Atlanta brought together industry leaders for a major conference on the industry's future. In this issue, we present excerpts from the first session, "The Changing Role of Financial Institutions."



The Reagan Program For Economic Recovery: Economic Rationale

(A Primer on Supply-Side Economics)

The Reagan administration has proposed a four-part economic program to spur economic growth while simultaneously reducing inflation. The specific parts of this program are reductions in marginal tax rates, cuts in the growth in government spending, a slow and

steady growth in the money supply, and regulatory reform. Critics of President Reagan's Economic Recovery Program contend that it is very unlikely that this program will achieve its twin goals of lower inflation and greater economic growth. They argue instead that the proposed program will more likely result in continued inflation and sluggish growth.

To judge whether or not the economic program proposed by President Reagan will be successful requires an understanding of the program's economic rationale. Although most people now know that the rationale is "supply-side" economics, that is about all they know about it. What exactly encompasses this particular approach to economic policy still remains largely a mystery. This article attempts to eliminate the mystery by explaining the administration's program in terms of supply-side economics.¹

- 1 Reduce marginal tax rates
- 2 Cut growth in Federal spending
- 3 Restrain money growth
- 4 Reform regulatory system

Tax Cuts

The centerpiece of the administration's economic program is the recently enacted cuts in personal tax rates and business taxes. The personal part of the tax package calls for a 25 percent across-the-board three-year reduc-

tion in marginal tax rates.² These cuts are intended to provide incentives to work harder and save more. The cuts are in marginal rather than average tax rates because it is believed that it is at the "margin" where people make decisions. "Marginal tax rates" are the rates paid on a dollar of additional income.

According to supply-side economics, such tax reductions first and foremost affect relative

The author wishes to acknowledge the helpful comments of: Joseph Cordes, William Cox, Manuel Johnson, Michael Marlow, Frederick Ribe, Stephen Sheffrin and especially George Iden.

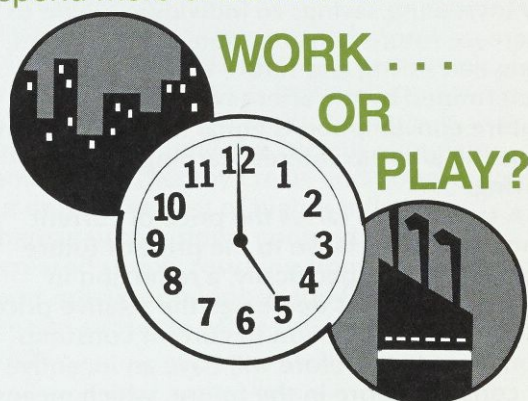
Both supporters and critics of the Reagan economic program have marshalled theoretical justifications and empirical evidence for their positions. James R. Barth of George Washington University (and visiting scholar at the Federal Reserve Bank of Atlanta) analyzes the evidence and evaluates the arguments of both sides.

prices. Specifically, tax cuts alter the relative price of work versus leisure as well as the relative price of saving versus consumption. Supply-side proponents argue that an individual chooses between working an additional hour or devoting the hour to leisure based upon the after-tax real wage for that hour. If marginal tax rates are reduced, the after-tax real wage for working an additional hour rises. In other words, the price of work relative to leisure falls. Individuals are therefore induced to trade-off leisure for work at the margin.

This relative price effect is supposed to provide an incentive for those persons currently working to increase hours worked and/or reduce absenteeism. Persons not currently working presumably will have a greater incentive to seek employment, while persons currently working in the "underground economy" (to reduce their tax burden) will be induced to reenter the regular economy.³ Of course, if the tax cuts do result in an expansion in total employment, then the economy should grow faster.

The predicted impact of marginal tax reductions on work effort, however, is theoretically questionable. As a result of an increase in after-tax real wages, people may work less, not more. The reason is that with higher after-tax real wages an individual may be able to work fewer hours, while still maintaining or

AFTER TAX CUTS: Will the worker spend more of his time at



even improving upon his real income or standard of living. This means that although the tax rate cut will change the relative price of work vis-a-vis leisure and thus induce a "substitution effect" of work for leisure, this may be more than offset by the "income effect" that induces people to work less and devote more time to leisure.

Whether or not a cut in marginal tax rates will therefore increase employment is an empirical issue. The empirical evidence, unfortunately, is mixed. Some studies find that tax cuts significantly increase the supply of labor, while others do not. The more recent studies, however, seem to find almost unanimously a positive employment effect resulting from tax cuts, at least for secondary workers⁴.

¹For additional information about supply-side economics, the reader is urged to consult the references cited at the end of this article.

²The tax package has been referred to as the Kemp-Roth tax cut because the "Tax Reduction Act of 1978" (the Kemp-Roth bill) also represented a commitment to a very large tax cut over a period of three years.

³It is also assumed that the incentive to avoid taxes through "tax-shelters" will diminish with cuts in marginal tax rates. This is considered important because it is believed that tax shelters siphon off funds from investment in productive plant and equipment. More generally, the tax cuts are across-the-board so as to avoid the distortions generally associated with targeted or selective cuts.

⁴Secondary workers are to be distinguished from primary or head-of-household wage earners.

There thus seems to be an emerging empirical consensus that tax cuts do stimulate employment. But even though one may find a significant positive impact on employment resulting from tax rate reductions, it is not clear that the resulting employment is sufficient to contribute substantially to the growth in output.

Regarding the impact of reductions in marginal tax rates on the decision to save or consume, the story is somewhat similar. An individual uses his after-tax income to consume and/or save. The decision to save today, however, is simply the decision to consume tomorrow. The more one consumes today, therefore, the less one consumes tomorrow. By increasing saving, an individual is able to increase future consumption. The exact link between saving and future consumption is determined by the after-tax rate of interest. Future consumption is equal to current saving plus the after-tax interest earnings on that saving.

A tax cut thus raises the price of current consumption relative to the price of future consumption. Specifically, a reduction in marginal tax rates decreases the relative price of future consumption to current consumption. People therefore will have an incentive to consume more in the future, which means to save more today. In short, the tax cut increases the after-tax rate of return to saving and thus provides an incentive to save more and to consume less.

Once again, there are theoretical reasons to question this predicted result. As the after-tax rate of return rises due to a tax cut, an individual may save less and yet still maintain or even increase future consumption. The reason should be clear. Higher after-tax rates of interest applied to a lower level of saving may still lead to an increase in total interest earnings, meaning that future consumption need not fall. Although tax cuts provide people with an incentive to save more and to consume less, this substitution effect may be more than offset by the income effect resulting from increased after-tax interest earnings. Whether or not people save more or less as a result of a tax cut, therefore, cannot be determined on theoretical grounds alone.

The issue is instead an empirical one and empirical results, again, are mixed. Some studies find that reductions in after-tax rates of return significantly increase saving, while

others do not. Furthermore, even in those cases in which there are statistically significant positive saving effects, it is unclear whether the enacted reductions in marginal tax rates provide enough of an incentive to increase saving substantially.

The increase in private saving, which as a share of income is at an historically low level, is a crucial component of supply-side economics because presumably most, if not all, of the increase would be channeled directly and indirectly through financial institutions into corporate securities, both bonds and stocks.⁵ Business firms thus would be provided with the funds necessary to finance the acquisition of new plant and equipment. To stimulate capital formation further, the Reagan program also provides investment incentives in the form of greater depreciation allowances. More specifically, the business part of the tax package calls for more rapid write-offs of investments in newly acquired plant and equipment.⁶

Although it is generally agreed that this action will stimulate investment, there is some concern that there may be distortions in the type of investment stimulated. Critics contend, for example, that industries (such as the automobile and steel industries) already employing rapid depreciation write-offs and/or experiencing losses will gain little from these tax actions. Administration officials expect increased saving and investment resulting from the tax cuts to generate the additions to the capital stock necessary for improved productivity and greater economic growth. Presumably, of course, the federal tax cuts would not be offset by tax increases at the state and local level, over which the administration has little control.⁷

Thus, according to supply-side economics, the tax cuts will change two important relative prices and thereby provide the necessary

⁵It should also be pointed out that the tax cuts should reduce consumer borrowing, which represents negative saving, because the benefits of deducting the interest expense from taxable income are reduced. Such a reduction in consumer borrowing should channel more funds into the business sector of the economy.

⁶Specifically, business tax relief includes faster write-off of capital expenditure over 3, 5, and 10 years for various kinds of equipment, rather than over the so-called useful life of an asset. Most buildings could be written off over 15 years.

⁷Since the U.S. tax system is not indexed, inflation has tended to push people into higher tax brackets over time. The cuts in marginal tax rates will contribute to offsetting "bracket creep." Furthermore, starting in 1985, annual adjustments will eliminate "bracket creep." Nevertheless, questions still remain about the duration and magnitude of any incentive effects resulting from the tax cuts.

SUPPLY-SIDE

Tax cuts will increase work effort, saving and investment, thus improving productivity.



KEYNESIAN

Tax cuts increase demand and therefore inflation

incentives for people to work and to save more and for business firms to invest more. This additional work, saving and investment will improve productivity and increase the supply of goods and services in the U.S. economy, though the exact timing of these effects is not known with any degree of certainty. Hence the term supply-side economics. The increase in supply, moreover, gives rise to the income to create the necessary increase in the demand for goods and services.

This approach to economic policy is in contrast to demand-side or Keynesian economics. According to traditional Keynesians, the first and foremost effect of tax cuts is to increase consumption and thus the demand for goods and services, due to the increase in after-tax or disposable income. The resulting increase in demand, in turn, creates the necessary increase in supply. For supply-

siders, therefore, supply creates its own demand and for demand-siders or Keynesians demand creates its own supply. This, at least, appears to be the view of administration advocates of supply-side economics.

In sum, supply-side economics emphasizes the longer-run aspects of fiscal policy (the increased supply due to tax rate cuts), whereas Keynesian economics emphasizes the shorter-run stabilization aspects of fiscal policy (the use of tax-rate cuts to increase demand when supply is below its potential). A more important distinction, perhaps, is that Keynesians contend the tax cuts stimulate demand and thereby create additional output but only at the cost of higher inflation, whereas supply-siders contend that the increased supply resulting from tax cuts will lower inflation so long as the Federal Reserve behaves properly. More will be said about this below.

2

Spending Cuts

Another important element in the administration's economic program is a reduction in the rate of growth in government spending. To understand the importance of spending reductions, it is important to realize that government spending must be financed by taxes, by borrowing from the public and/or by printing money. Given that cuts in tax rates have been enacted, unless government spending is correspondingly reduced, a deficit may arise.⁸ A deficit arises when government spending exceeds tax revenues. If tax revenues fall as a result of tax cuts, then a deficit

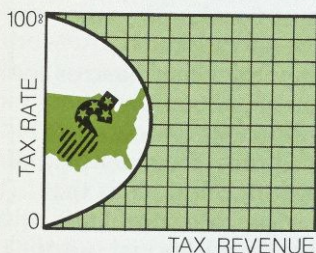
will be created so long as government spending remains unchanged.

It is, however, theoretically possible for tax revenues to rise as a result of tax rate cuts. According to the "Laffer Curve," there is some range over which tax rate reductions will increase tax revenues, not decrease them. This is perhaps more fully grasped by realizing that when the tax rate is zero, so too are revenues. Similarly, when the tax rate is 100 percent, the incentive to earn income disappears and tax revenues are again zero. As the tax rate rises, in other words, revenues will rise until at some tax rate they finally begin to fall toward zero as the disincentive effect of the higher tax rate causes income to fall faster than the rate rises.

Having said this, however, there is no clear evidence that the U.S. economy currently is operating in the perverse tax rate range. If not, then tax cuts will reduce tax revenues and thus create a deficit (or increase an existing

⁸The size and persistence of any deficit depends upon the exact timing and magnitude of any positive supply-side effects. Unfortunately, however, there is no direct evidence pertaining to the length of the lags associated with stimulating the economy as the supply-siders propose going about it.

deficit). Since the administration predicts a deficit, the full Laffer effect (tax cuts that finance themselves) does not appear to be an integral part of the administration's economic program. In other words, supply-side economics as being interpreted and implemented by the administration does not depend upon the specific positioning of the economy on the Laffer curve. However, although the administration does anticipate a deficit in the shorter-term, it expects that the predicted growth in the economy will produce a balanced budget within three years.



Supply-side economics, as being interpreted by the administration, does not depend upon specific positioning of the U.S. economy on the Laffer curve.

Given the government budget restraint, any deficit created by tax cuts must be financed by printing money and/or borrowing from the public. Under the administration's program, the deficit is intended to be bond-financed, not money-financed. Administration planners believe that financing the deficit in this manner will not be inflationary. Due to the tax cuts, disposable income will rise, providing people with the additional funds with which to purchase the U.S. government securities being sold. According to that premise, people will use their increase in disposable income to save rather than to consume so that demand does not increase. As a result, the predicted deficit will not be inflationary.

Keynesians, however, contend that even a bond-financed deficit will be inflationary because U.S. government securities are considered to be part of private wealth. An increase in the amount of these securities outstanding resulting from the financing of the deficit therefore leads to an increase in private wealth. According to traditional Keynesian economics, as people become wealthier they will increase their spending or

consumption. But if consumption increases, so too does aggregate demand. And the increased demand for goods and services will put upward pressure on prices.^{9 10}

If the supply-siders believe that deficits resulting from tax cuts are not inflationary when bond-financed, then why were spending cuts proposed? Actually, the administration proposed changes in the mix of government spending. The question therefore should be, more specifically, why are social expenditures being cut while defense expenditures are being increased substantially?

The answer seems to be that this change in the mix of government spending toward defense and away from social programs is broadly consistent with the administration's goal to provide work incentives. Some claim, for example, that the current level of government expenditure on welfare benefits, unemployment benefits and public-service jobs deters individuals from obtaining productive work. Reductions in government spending, furthermore, reduce the size of the deficit and thus the amount of borrowing from the public, thus providing more funds for private investment (i.e., the amount of "crowding out" is lessened). More generally, the spending cuts probably reflect a belief that federal expenditures are simply too high: that goods and services are being provided that could be provided more efficiently by the private sector if such goods and services are actually desired.¹¹

⁹Keynesians do contend, however, that in periods of substantial unemployment increases in demand are only moderately inflationary, if at all.

¹⁰There is a more subtle argument, based upon "ultra-rational" behavior by taxpayers, that bond-financed deficits do not add to demand and thus are not inflationary. According to that argument, the government bonds that are issued to finance the deficit impose a liability on the federal government. To pay the future interest on these bonds, future taxes must also be higher. This implies that the present discounted value of the bonds is offset by the present discounted value of the tax liability. As a result, there is no "wealth effect" to stimulate demand; people will not view government bonds as a component of their wealth because of the offsetting tax liability. The asserted equivalence of debt and taxes is usually referred to as the "Ricardian equivalence theorem." It should be noted that there are both theoretical and empirical objections to this "theorem." Many simply find the degree of foresight and rationality required by this argument "hard to swallow." More seriously, it is contended that either people do not fully discount the future tax liability or do not expect the government ever to redeem its securities. In the latter case, government bond-financed and money-financed deficits are essentially the same, and both are inflationary. Less than full tax discounting implies a wealth effect and thus an inflationary increase in demand.

¹¹Interestingly enough, the government spending cuts may also moderate the inflationary fears of those concerned about the size of the tax cuts.

Slow and Steady Money Growth

Another key part of the Reagan Economic Program is a slow and steady rate of growth in the money supply. The administration looks to the Federal Reserve to implement this part of the program. Although many contend the Federal Reserve has been unable and/or unwilling to pursue such a strategy, the administration assumes in its planning that this will no longer be the case. If the Federal Reserve is unsuccessful, some would argue that the time has finally arrived for a return to the gold or some other commodity standard to provide discipline over the money supply.

Under the proposed economic program, the Federal Reserve is assigned the responsibility of reducing money growth to a slow and steady rate. Such a policy is expected to bring the inflation rate quickly down, but not by producing sluggish growth in the economy. The administration believes that a publicly announced commitment by the Federal Reserve to this policy will generate the credibility necessary to alter the "inflationary psychology" that currently exists. This should lead to lowered "inflationary expectations." Lowered inflationary expectations, in turn, should reduce the rate of wage increases and thus price increases. A reduction in the expected inflation rate should also lead to a decline in the nominal interest rate.

All of this occurs, contrary to the belief of Keynesians, without slowing output growth. The reason is that as long as the Federal Reserve fulfills its commitment, people's expectations about inflation coming down will be realized. Without any surprises, the slower money growth should affect only prices and wages. Keynesians, however, believe that wage rigidities will upset this process. Slower money growth will drive up real wages and thus reduce employment, producing slower growth.

The administration's confidence in its expected result is based upon the belief that the Federal Reserve will be better able to pursue a policy independent of fiscal actions. Until now, it is argued, the Federal Reserve has responded to ever larger budget deficits by monetizing ever larger parts of them to moderate upward pressure on interest rates or government borrowing costs. As budget deficits grew under the old regime, ever larger

amounts of government securities had to be sold to the public to finance the deficits. To borrow such increasingly larger amounts, it was assumed that interest rates had to rise to induce the public to part with its funds.

It was believed that, historically, the Federal Reserve moderated the rise in interest rates by monetizing a portion of the deficit. But this required ever larger expansions in the money supply and thus put continual upward pressure on prices. The resulting inflation, it is argued, generated inflationary expectations



The Federal Reserve will be better able to pursue a policy independent of fiscal activities.

which only led eventually to higher, not lower, interest rates. The administration proposes to put a halt to this process, relying on the Federal Reserve to bring the money supply under control, so that it grows at a slow and steady rate.¹² It is not expected to monetize budgetary deficits or to attempt to hold interest rates down. If it accomplishes its assigned task, the result should be a decline in both the inflation rate and interest rate.

The historic record of the Federal Reserve's ability and/or willingness to control the money supply is considered by many to be mixed. Some contend that the Federal Reserve has exacerbated fluctuations in interest rates and contributed to inflation, while others, though probably far fewer in number, contend just the opposite. Whether the Federal Reserve will accomplish its task to the administration's satisfaction is debatable. Whether or not the administration's inflation forecast will be achieved in any event, depends largely upon what happens to future money growth.

¹²Steady growth is considered to be important so as not to convey false signals about the intentions of the Federal Reserve. Steady growth, in other words, contributes to credibility of the monetary authorities. The time frame during which these events are expected to take place is a matter of considerable conjecture.

The last important part of the administration's economic program is regulatory reform. On February 17, 1981, President Reagan issued Executive Order No. 12291 on regulatory reform calling for a cost-benefit analysis before issuing any new federal rule or regulation. By comparing the economic and social benefits and costs of individual rules, the administration aims to make the regulatory process more cost-effective, thereby reducing the "hidden tax" (including paperwork requirements) of complying with federal rules which do not contribute to the public welfare.

More generally, regulatory reform is intended to curtail government intervention into the economy, thereby placing more reliance on the workings of the market for the pricing and allocation of resources. This view assumes that in many cases the profit motive is more likely to generate the desired outcome than existing regulations. Some Reagan advisors believe that an insufficient use of cost-benefit analysis in the past has led to excessive regulation that has contributed unnecessarily to a misallocation of resources and to inflation.

An Historical Comparison

As we have seen, there are both theoretical and empirical reasons for questioning to some degree the predicted outcome of President Reagan's Economic Program. Tax cuts (even if sufficient to initially offset and to eventually eliminate bracket-creep and social security tax hikes) may actually reduce employment and saving, or at least not increase them very much. If this were to happen, it might not be possible for the administration to simultaneously reduce inflation and increase economic growth. Furthermore, interest rates may not come down significantly and productivity may not show much improvement. But, of course, the opposite scenario cannot be dismissed out of hand.

Given the substantial skepticism toward its economic program, the administration has been under constant pressure to provide evidence that its program will work. Thus far, the main evidence supporting supply-side

economics has taken the form of a retrospective look at what happened after the Kennedy tax cuts of February 1964. It is claimed that the recent tax cuts are quite similar to the earlier cuts and therefore should have essentially the same effect. According to the administration, the economic events which followed the Kennedy tax cuts provide evidence bearing on the likelihood of the supply-side effects. As a result, it is worthwhile examining this historical period.¹³

When examining the effect of the Kennedy tax cuts, it is useful to concentrate on what happened to saving. The reason is that the claim that the tax cuts will raise saving enough to more than offset any resulting deficits has received the most skepticism. This is because Keynesian theory maintains that a tax cut will increase after-tax income and thereby increase both consumption and saving. But the tax cut will also produce a deficit which will more than offset the increase in saving, unless government spending is sufficiently reduced and/or enough new tax revenues are produced. According to Keynesian theory, it is very unlikely that the economy will grow fast enough as a result of the tax cuts for this to happen.

The administration view, however, is quite different. The tax cuts will increase the after-tax rate of return to saving, thus causing saving to increase. This increase is in addition to the increase in saving resulting from the rise in after-tax income. In other words, the tax cuts will produce an increase in saving even if income were held constant. Correspondingly, of course, these across-the-board cuts will produce a decrease in consumption at each and every level of income. If the after-tax rate of return effect is strong enough, tax cuts can even cause a net reduction in consumption. In this case, a \$1 cut in taxes will cause more than a \$1 increase in saving since after-tax income goes up by \$1 and consumption actually declines. This increase in saving is expected to more than offset the deficit resulting from the tax cuts, especially given the reductions in government spending.

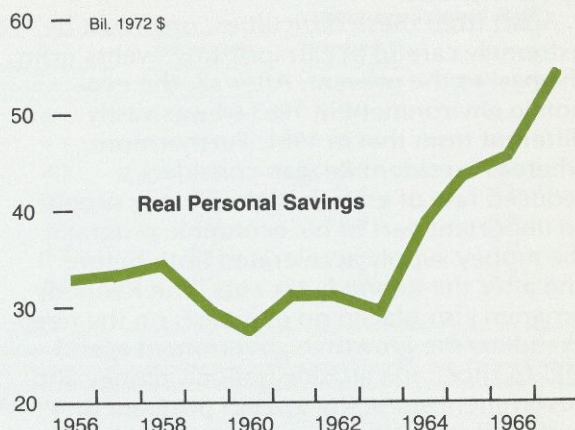
¹³This raises the issue regarding not just this administration's forecast, but any forecast, which is by how much and for how long does reality have to fall short of expectations before one declares a program unsuccessful.

What actually happened to saving following the Kennedy tax cuts, the purpose of which, interestingly enough, was "not to create a deficit but to increase investment, employment, and the prospects for a balanced budget?"¹⁴ As Chart 1 shows, if one considers the entire 1963-64 period to be the relevant point of departure rather than simply late February 1964 when the tax reduction bill was passed, personal saving did indeed rise markedly following the tax cuts. Furthermore, as has been pointed out by the Reagan administration, real consumer spending actually declined as a percentage of income while the real saving rate rose markedly.¹⁵ From 1963 to 1969, business capital spending in real terms also grew at a 7.6 percent rate, up from 4.2 percent between 1959 and 1963. Chart 2 provides information as to why the budget position was close to balance in 1965 despite the tax cut. As may be seen, in real terms, federal revenues increased markedly and were substantially above the trend of the years prior to the tax cut.

Certainly, all of these figures are consistent with supply-side economics. But they are also consistent with other views about how the economy operates, including Keynesianism. The reason is that relative to the four-year period preceding enactment of the Kennedy tax cuts, real output growth increased more than 37 percent in the subsequent period. Such rapid cyclical output growth, according to Keynesian theory, should lead to substantial increases in the level of real saving, a rise in the real saving rate and a fall in the real consumption rate.¹⁶ Increases in investment spending are also not unexpected under Keynesian theory, given the magnitude of the output growth. The same applies to the increases in real federal receipts.

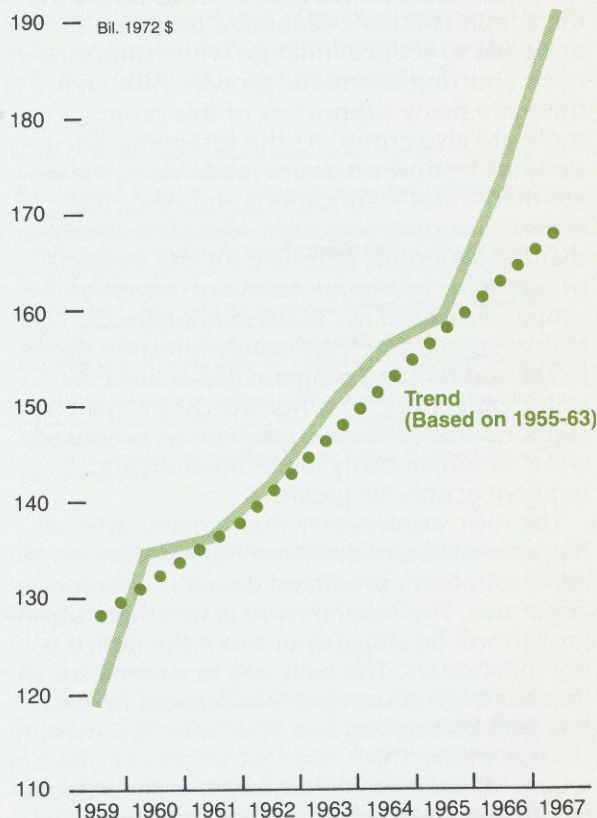
The problem with simply examining growth rates in various key variables visually (as has been frequently done) is that the variables incorporate many different effects. As a result, it is not possible to identify the separate effects. But until this is done, one can only conclude that the Kennedy tax cut episode is

Chart 1
Personal Saving Before and After Kennedy Tax Cuts



Source: U.S. Treasury Department.

Chart 2
Real Federal Receipts in the Kennedy Tax-Cut Years



Source: U.S. Treasury Department.

¹⁴President Kennedy, Special Message to Congress on Tax Reduction and Reform, January 24, 1963.

¹⁵The figures and charts which follow are based upon Paul Craig Roberts, "Reagan's Tax-Cut Program: The Evidence," *The Wall Street Journal*, Thursday, May 12, 1981, p. 6.

¹⁶If the real consumption function is written as $c = a + by$, it is easy to show that consumer spending (c) as a percentage of income (y) will fall as income rises (which also implies that the saving rate increases).

evidence that is not inconsistent with Keynesian theory. Such evidence for supply-side economics must therefore be viewed as circumstantial.

Apart from these difficulties, one must be extremely careful in extrapolating events from the past to the present. After all, the economic environment in 1963-64 was vastly different from that in 1981. Furthermore, whereas President Reagan considers a reduced rate of growth in the money supply an important part of his economic program, the money supply accelerated both before and after the Kennedy tax cuts. The Kennedy program also placed no emphasis on the need to reduce the growth in government spending. In short, the administration's money and government spending growth program is quite different from those prevailing during the Kennedy period.

The Major Controversy

At the outset of this article it was noted that the administration's economic program is designed to reduce inflation while simultaneously spurring economic growth. Although there are many supporters of this program, there are also critics. As the foregoing discussion has by now no doubt made clear, there are theoretical justifications and empirical evidence supporting both sides. This means that the economic rationale for the Reagan program for economic recovery cannot be simply dismissed as "voodoo economics." However, one can legitimately question the likelihood that the program will achieve its stated objectives. In other words, even if one supports the economic program as proposed, will it simultaneously lower inflation and improve economic growth?

The main controversy that remains after all has been said and done is whether the administration's predicted deficit is inflationary or not. The related issue is whether output growth will be sluggish or not if the deficit is not inflationary. The best way to summarize all that has been discussed thus far is as follows. It is well known that

$$(1) MV = PY,$$

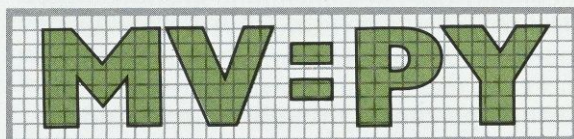
where M is the money supply, V is the velocity or turnover rate of money, P is the price level, and Y is real income or output. It therefore follows that

$$(2) \% \Delta M + \% \Delta V = \% \Delta P + \% \Delta Y.$$

This equation states that the growth rate in the money supply plus the growth rate in velocity equals the rate of inflation plus the growth rate of output.

Now the tax and spending cuts as well as the regulatory reform parts of the administration's program are designed to stimulate supply or to increase output growth, $\% \Delta Y$, without increasing demand, $\% \Delta M + \% \Delta V$. This growth in output should contribute to a reduction in inflation, $\% \Delta P$. The remaining part of the program calls for a reduction in money growth, $\% \Delta M$. This reduction in $\% \Delta M$ should further contribute to a reduction in inflation, $\% \Delta P$. The actual administration scenario is shown in Table 1. As may be seen, according to the administration, between 1980 and 1986 the inflation rate will decline to 4.9 percent from 9.0 percent, while simultaneously real output growth rises to 4.2 percent from -0.1 percent.

What concerns the skeptics of this forecast is the implied increase in velocity that must take place. As may be seen, velocity must increase to a growth rate of 5.7 percent from a rate of 2.5 percent. Not only is such an



increase considered unlikely based upon the historical record, but even more unlikely given the forecast that interest rates will be falling during this period (see Table 1).¹⁷ This concern is perhaps best reflected in the following quote: "More troublesome (than the administration's predicted rise in velocity), the rapid rise in money velocity is assumed to occur simultaneously with a substantial drop in interest rates."¹⁸ However, this concern is based upon the unadjusted nominal interest rate.

But the more appropriate interest rate is the after-tax rate. As Table 1 shows, when one examines the after-tax interest rates (those reported should only be considered suggestive), depending upon whether one is referring to individuals or businesses, interest

¹⁷ Lower interest rates are thought to increase the demand for money, thereby reducing, not increasing, velocity.

¹⁸ See Congressional Budget Office, *Economic Policy and the Outlook for the Economy*, March 1981, p. 71.

**Table 1. Actual and Forecast Growth Rates in Selected Economic Variables
1980-1986**

(Percent change, except for the interest rate)

	Administration's Forecast					After-tax Interest Rate	
	%ΔM (money supply M1B)	%ΔV (velocity)	%ΔP (GNP deflator)	%ΔY (real growth na- tional product)	Interest Rate (3 month U.S. Treasury Bill)	Individuals in 70% marginal tax bracket	Corporations
1980	6.4	2.5	9.0	-0.1	11.5	3.5	8.4
1981	5.9	5.1	9.9	1.1	11.1	3.7	8.1
1982	5.4	7.1	8.3	4.2	8.9	3.6	6.9
1983	4.9	7.1	7.0	5.0	7.8	3.7	6.2
1984	4.4	6.1	6.0	4.5	7.0	3.5	5.6
1985	3.9	5.7	5.4	4.2	6.0	3.0	5.0
1986	3.4	5.7	4.9	4.2	5.6	2.8	4.7

NOTE: The money growth rate figures are based upon the administration's economic scenario which "assumes that the growth rates of money and credit are steadily reduced from the 1980 levels to one-half of those levels by 1986." (See **A Program for Economic Recovery**, February 18, 1981, p. II-23.) The choice of M1B is based upon the following statements by David Stockman: "During the past 4 years, the growth of M1B, the basic money supply measure, has averaged nearly 8%. Over the next 5 years, however, the administration expects the rate of money growth to decline by approximately one-half." (See Statement of David Stockman before the House Committee on the Budget, March 26, 1981, p. 9.) Also, it is reported that the reduction in the rate of growth is expected to take place in one-half percentage point steps.

rates fall by only 0.7 percentage points or 3.7 percentage points. These declines are in sharp contrast to a decline in the before-tax interest rate of 5.9 percentage points. Since the quoted statement is based upon the before-tax rather than the after-tax interest rate, what is "substantial" may be only modest and therefore what is "more" troublesome may be only slightly troublesome. But if velocity does not grow or grows more slowly than expected, something has to give. In other words, if the increase in %ΔV falls short of the administration's expectations, one would expect inflation to be reduced less and/or output growth to be smaller. Most skeptics contend that the most likely result will be less of a reduction in inflation and more sluggish growth than advertised.

The administration's response appears to be that the historical record for velocity is not a good guide for the current period and that there have been periods in which velocity has

risen while interest rates fell. Perhaps more importantly, they argue that there is no theoretical reason that velocity cannot grow more rapidly while interest rates decline simultaneously.¹⁹ Finally, the administration seems to contend that if the forecast for velocity growth is too optimistic, then the inflation forecast is too pessimistic.²⁰

¹⁹If the demand for money function is written as $M = a_0 r^{-a_1} Y^{a_2}$, where M is money demand, Y is income and r is the rate of interest, it follows that velocity, V , is given by $V = 1/a_0 r^{a_1} Y^{(1-a_2)}$. Appropriate manipulation can show that even though the interest declines, velocity need not fall.

²⁰Some claim that large-scale macroeconomic models show that the administration's economic program will not lower inflation and spur economic growth as much as predicted. However, it should be pointed out that these models, apart from not being truly supply-side models, are subject to the "Lucas critique." This means that the users of these models use historically estimated relationships to predict what will happen if the administration's program is implemented. But the use of historical or fixed relationships to predict the impact of a new policy can produce inaccurate predictions (as the evidence amply demonstrates), since economic behavior will *change* as a result of the new policy. The administration is therefore skeptical about criticisms of its policies based upon forecasts obtained from the large-scale macroeconomic models. Whether or not the administration bases its forecast on a model not subject to this criticism and/or instead "informed judgment" is not publicly known.

Conclusions

The Reagan Program for Economic Recovery consists of four inter-related parts: (1) tax cuts, (2) spending cuts, (3) slow and steady money growth, and (4) regulatory reform. The economic rationale for this four-part package is supply-side economics. If fully implemented, the President contends that this program will reduce inflation while simultane-

ously providing the incentives necessary for improved productivity and faster economic growth. Given the fact that the theoretical and empirical support for supply-side economics is not beyond dispute, it is not surprising that people have been and are still opposed to implementing the entire package and/or skeptical about the predicted outcome.

Although Congress has recently enacted, with modifications, the spending and tax cuts requested by the President, many members of Congress, like the Wall Street bond traders, are still concerned that the tax and spending cuts will create inflationary deficits, despite the administration's claims to the contrary.

This concern already seems to have put the administration on the defensive, as many, including administration officials, now talk openly about larger deficits than originally predicted and thus the necessity for additional budget cuts. If a much larger deficit actually materializes, will it be a crippling blow to supply-side economics and thus the economic forecast? Furthermore, would such a deficit lead to a movement away from supply-side economics and toward Keynesian economics (which supply-siders blame for our progressively worsening economic performance during the past fifteen years or so), or perhaps

closer to Monetarism, thereby implying a new and different economic forecast? Alternatively, are the spending cuts being mentioned meant to mollify those concerned about the possibility that the deficits resulting from the tax cuts will be inflationary?

The answers to these questions are, of course, not known at this time. Recent economic news further clouds the picture. On the one hand, a recent report that the economy grew by an annual rate of 8.4 percent in the first quarter of 1981 doesn't help the administration's contention that broad tax cuts are essential to speed up economic growth. On the other hand, reports that the rate of growth in consumer prices has dropped below 10 percent in recent months could mute the fears that the tax cuts will have a substantial inflationary impact. BR

—James R. Barth

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The Income Elasticity of the Georgia State Income Tax

In states like Georgia where state spending is tied to anticipated tax revenues, accurate estimates of tax revenues are especially important. Although revenue elasticity of Georgia state income taxes is high (1.626), evidence shows that tax revenues will not remain as responsive as incomes continue to increase.

When incomes of Georgia taxpayers rise, their state income tax obligations rise by an even larger percentage. The higher income moves the taxpayer into a higher tax bracket. For instance, while total personal income rose 12.6 percent in 1980, personal income tax receipts increased 19.7 percent. The implied income elasticity (the responsiveness of tax revenues to changes in income), therefore, was 1.563 ($19.7/12.6$). In other words, a 10-percent increase in 1980 personal income would actually produce 15.63 percent more in state income tax revenues. This finding is not surprising, given the progressive structure of the tax. (A progressive tax extracts more as income rises.) Georgia state planners need accurate forecasts of revenue because, by law, Georgia spending is limited to its receipts. (The state cannot operate on a deficit.) But, can state planners continue to expect such high revenue responses from future increases in incomes? Can most recent elasticity estimates be a useful guide in projecting state income tax revenues?

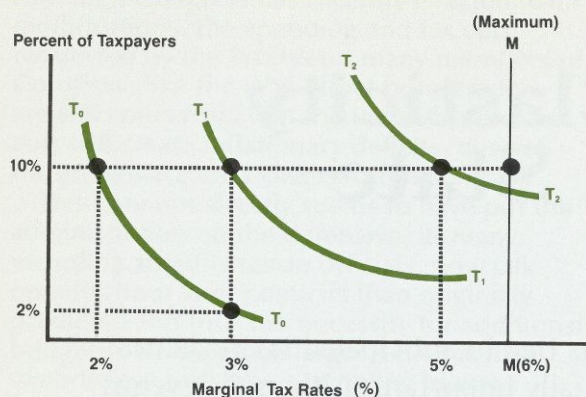
As we point out in this article, use of last year's elasticity to forecast next year's income tax receipts can become increasingly inaccurate due to problems inherent in the basic structure of the tax. Dividing changes in tax rates by changes in incomes fails to capture the complexities of the problem. In this article, we focus on the factors behind the elasticity. More specifically, we find that state

tax revenue will become less responsive to future increases in income.

Elasticity: Constant or Declining?

High elasticity of the federal income tax is well known. What happens to state revenues as incomes rise, however, has been largely ignored. Projections of state income tax revenues are usually based on the elasticity of revenues with respect to income, together with forecasts of aggregate income. In forecasts of state income tax revenue, income elasticity is generally assumed to remain constant over a wide range of income. Singer (1970), however, disputes this claim and argues the case for a declining income elasticity of state income taxes.

Singer's argument involves "base" and "rate" elasticities. Rate elasticity refers to the fact that, under a progressive tax regime, effective marginal, as well as average, tax rates will rise more rapidly than taxable incomes over time as long as taxpayers' incomes are distributed over the broad spectrum of progressive tax rates. However, as taxpayers' incomes increase, more taxpayers become subject to the maximum marginal tax rates, and state revenue will become less responsive to increases in taxable incomes. In other words, the contribution of progressive rates to increases in state revenue is lowered or eliminated.



Perhaps, the rate effect can best be illustrated in the graph above, which shows the relationship (hypothetical) between the distribution of taxpayers' incomes (vertical scale) and marginal tax rates (horizontal scale). The concavity of TT about the origin shows the static distribution of taxpayers' incomes over the marginal income tax rates. In the initial period, for instance, the income distribution curve (T_0T_0) indicates that 10 percent of taxpayers' incomes was subject to a 2-percent marginal tax rate. T_1T_1 , however, shows the static distribution of taxpayers' incomes at a later period. In this year, 10 percent of taxpayers' incomes was subject to the 3-percent marginal tax rate. As inflation-induced increases in nominal taxpayers' incomes continue, at some point, all taxpayers' incomes will become subject to the maximum marginal tax rate. Indeed, the tax effect becomes zero when the income distribution curve (TT) has shifted completely to the right of the vertical maximum marginal tax rate line (MM).

The implication of the declining rate effect is very important. A tax structure that is legally intended to be progressive could become effectively proportional (levied at the same rate for all income levels). But as long as the range of marginal tax rates is large — as is the federal income tax — the rate effect will continue to generate revenue increases. The rate elasticity of the federal income tax would therefore remain significant over a longer time period than it would for state income taxes, since state taxes are levied over a narrow range of marginal tax rates (state taxes are levied over a much narrower range than federal taxes). So, at the state level, taxpayers will reach maximum marginal tax rates much sooner than at the national level.

Base elasticity, on the other hand, refers to the fact that at low income levels, small increases in adjusted gross income will be accompanied by larger percentage increases

in taxable incomes. However, the rate of growth of taxable income that accompanies increases in total incomes will decline as more taxpayers' incomes exceed the amount of allowable exemptions. The base elasticity eventually becomes unity at the point when all taxpayers' incomes exceed the amount of allowable exemptions.

A declining elasticity would mean a decline in the degree of progressivity and therefore in the overall structure of the tax. Moreover, a declining elasticity would imply successively lower rates of revenue growth and total revenue per dollar of income. If lower rates of revenue growth prove inadequate for the state's budgetary purposes, then the shortfall in the state's revenues would have to be offset by either reduced expenditures and/or revenue-increasing alterations to the present structure of the income tax. An advantage of a declining elasticity is that revenue yields would be more stable over the business cycle. Therefore, the state's fiscal position would be somewhat more insulated from recession-induced reductions in tax revenues.

Income elasticities of state income taxes have been estimated elsewhere. Wasylenko (1975) developed a method for estimating income elasticity of state income taxes and used the procedure to estimate income elasticity of the New York state personal income tax. Greytak and Thursby (1979 and 1980) evaluated tax revenue-income relationships and concluded that, "contrary to widely accepted suppositions, base and rate effects alone were not sufficient to produce declining elasticities." In both Maryland and New York state income taxes, the relation most likely to be affected by base and rate effects (i.e., the revenue elasticity with respect to adjusted gross incomes) was found to conform to the constant elasticity function. Greytak-Thursby (1980), however, rejects the constant elasticity revenue-personal income relation and provides evidence for the declining revenue-personal income elasticities. The implication is that expectations of declining revenue elasticities of state income taxes may be warranted but that such expectations should be based on a consideration of the "source effects." The source effects adjust personal income by deleting transfer payments, interest, and dividends.

Since transfer payments have increased more rapidly than wage income, the proportion of personal income that is taxable has

Table 1. Georgia Becoming More Reliant on Income Tax

(dollar amount in millions)

Fiscal Year	Total Revenue	Individual Income Tax	Percent	Sales Tax	Percent
1969	827	212	25.6	308	37.2
1970	942	267	28.3	336	35.7
1971	990	265	26.8	361	36.5
1972	1,198	329	27.5	425	35.5
1973	1,357	398	29.3	477	35.2
1974	1,512	473	31.3	537	35.5
1975	1,545	493	31.9	564	36.5
1976	1,672	546	32.7	619	37.0
1977	1,901	673	35.4	686	36.1
1978	2,179	807	37.0	791	36.3
1979	2,443	955	39.1	892	36.5
1980	2,721	1,112	40.9	1,006	37.0

Source: Statistical Report: State of Georgia, Georgia Department of Revenue, 1980.

declined. This lowers the responsiveness of revenues to changes in personal income.

However, these inquiries were limited to two states — New York and Maryland, and other researchers disagree on the question of declining or constant elasticity. We propose to broaden those inquiries by applying the methodology to estimate the income elasticity of the Georgia state income tax. Moreover, studying the Georgia tax may help to reconcile these opposing views. The object of the current study is four-fold. First, we estimate the income elasticity of the Georgia state personal income tax using the methodology developed by Wasylenko (1970) and compare our results with his findings for New York. Second, we estimate the income elasticity using an alternative approach and compare our results to those of New York and Maryland. Third, we explain the differences between our results and other estimates. Finally, we draw implications of our findings for future revenues from the Georgia income tax. The study covers the period from 1965 to 1978, while other studies examined the period from 1960 to 1973.

The increased reliance of state and local governments on the income tax accentuates the need to develop analytical techniques to forecast income tax revenues. State and local government revenue from individual income taxes grew from 12 percent of total state and local revenues in 1969 to 19 percent of revenue in 1980. State and local revenue from

individual income taxes rose from 66 percent of revenue from general sales and gross receipts taxes in 1969 to 82 percent of sales tax revenues in 1980. This uptrend in reliance of state governments on individual income taxes stems from the progressive structure of state and local income taxes and the high inflation that has boosted individuals into higher tax brackets.

The income elasticity of the Georgia tax is particularly important because, like other states, Georgia is becoming more and more dependent on its income tax as a source of state revenue. In 1969, 37.2 percent of Georgia's total revenue came from general sales and use taxes, while only 25.6 percent was derived from the income tax. In contrast, 37 percent of total state revenue came from the sales tax and a staggering 40.9 percent came from the income tax in 1980 (see Table 1). Thus, over the period, the income tax became the most important source of revenue for the state.

Empirical Results

Our study covers the period 1965-78 and 16 income classes. Tables 2 and 3 show the basic variables used in the analysis and Tables 4 and 5 summarize the empirical results. The rate elasticity estimate, 1.247, suggests that the progressive rate structure of the Georgia tax produces a 12.5-percent increase in tax revenues for a 10-percent increase in incomes.

Table 2. Rate Elasticity of Georgia Income Tax
(dollar amount in thousands)

Year (k)	Simulated Tax Base STB(j,k)	Simulated Taxes ST(j,k)	lnSTB(j,k)	lnST(j,k)
1965	1,979,893	54,462	14.499	10.905
1966	2,201,324	60,697	14.605	11.014
1967	2,549,577	71,515	14.751	11.178
1968	3,052,645	86,952	14.932	11.373
1969	3,593,680	103,252	15.095	11.545
1970	3,838,967	102,168	15.158	11.534
1971	4,993,031	160,231	15.424	11.984
1972	6,207,506	380,338	15.641	12.849
1973	6,667,308	226,194	15.713	12.329
1974	7,749,407	271,382	15.863	12.511
1975	N/A	N/A	N/A	N/A
1976	8,563,151	306,144	15.963	12.632
1977	10,575,379	402,525	16.174	12.906
1978	12,162,721	477,104	16.314	13.076

Source: **Statistical Report: State of Georgia**, Georgia Department of Revenue, Atlanta, Georgia (1965-80).

N/A = Data not readily available.

Variables were estimated using the method described in text:

$$\ln ST(j,k) = c_1 \ln STB(j,k) + e$$

$$\ln ST(j,k) = -7.204 + 1.246 \ln STB(j,k)$$

$$(1.331) \quad (0.180)$$

$$R^2 = 0.975$$

(The numbers in parentheses are standard errors of regression coefficients.)

This estimate is surprisingly close to Wasylenko's and Greytak-Thursby's separate estimates for New York, 1.249. Apparently, Georgia's taxpayers were fairly widely distributed over the income classes examined in this study and not clustered at the maximum marginal tax rate.

Table 3 shows summary measures used in estimating the base elasticity. Our statistical analysis implies a base elasticity of 1.304, 20 percent higher than that estimated by Wasylenko for New York, 1.038. This suggests that the base effect is more pronounced in Georgia than in New York. The greater concentration of Georgia taxpayers in the lower end of the earnings distribution is likely to be responsible for the difference in results. The total elasticity of the tax is 1.626 (1.2466 x 1.304), which is 25 percent higher than the New York case of 1.296, reflecting the much larger base elasticity. This larger elasticity figure means that state revenue in Georgia is more responsive to business cycles than it is in either New York or Maryland.

The empirical results of estimating the alternative functional forms are shown in Table 5. Figures in parentheses below coefficients are standard errors. The findings are generally supportive of the constant base elasticity hypothesis. In both the taxable-total income and revenue-total income relations, the time variable, *t*, is not significant at any reasonable level of confidence. However, the time index is significant in the revenue-taxable income relation and therefore is consistent with the declining rate elasticity hypothesis.

Conclusions and Implications

When maximum marginal tax rates apply at low income levels, an inevitable consequence as inflation continually boosts taxpayers into higher marginal tax brackets, income elasticity of state income tax revenues will be substantially reduced. The sensitivity of revenue to changes in incomes will remain high only if tax rates are increased. However, raising tax

Table 3. Base Elasticity of the Georgia Income Tax

Year	Y(j,k)	STB(j,k)	lnSTB(j,k)	lnY(j,k)
1965	5,208,319	1,979,893	14.499	15.466
1966	5,779,056	2,201,324	14.605	15.670
1967	6,535,946	2,549,577	14.751	15.693
1968	7,656,154	3,052,645	14.932	15.851
1969	8,826,986	3,593,680	15.095	15.993
1970	9,755,991	3,838,967	15.158	16.093
1971	11,273,577	4,993,031	15.424	16.238
1972	13,020,709	6,207,506	15.641	16.382
1973	13,675,745	6,667,308	15.713	16.431
1974	15,502,077	7,749,407	15.863	16.557
1975	N/A	N/A	N/A	N/A
1976	16,845,341	8,563,151	15.936	16.640
1977	19,779,883	10,575,379	16.174	16.800
1978	22,218,548	12,162,721	16.314	16.916

Source: **Statistical Report: State of Georgia**, Georgia Department of Revenue, Atlanta, Georgia (1965-80).

N/A = Data not readily available.

The notation is described in the text:

$$\ln STB = -5.738 + 1.304 \ln Y(j,k)$$

(0.2998) (0.057)

(The numbers in parentheses are standard errors of regression coefficients.)

Table 4. Summary of Least Squares Regression Results

(1) Simulated Tax Base-Total Income Relation

$$\ln STB(j,k) = -5.738 + 1.304 \ln Y(j,k)$$

(0.548) (0.057)

(2) Simulated Tax Revenues-Simulated Tax Base Relation

$$\ln ST(j,k) = -7.204 + 1.247 \ln STB(j,k)$$

(1.331) (0.180)

(3) Simulated Tax Revenues-Total Income Relation

$$\ln ST(j,k) = -14.326 + 1.623 \ln Y(j,k)$$

(2.242) (0.2293)

The numbers in parentheses are standard errors of regression coefficients. In all cases, elasticity estimates are significant at the .0001 level.

Table 5. Estimating Alternative Specifications

(1) Taxable Income-Total Income Relation

$$\ln STB(j,k) = -2.852 + 1.117 \ln Y(j,k) + .0012t$$

(3.601) (0.233) (0.002)

$$D-W = 2.234 \quad R^2 = .994$$

(2) Revenue-Total Income Relation

$$\ln ST(j,k) = -17.1113 + 1.8034 \ln Y(j,k) - 0.00122t$$

(14.016) (0.906) (.0058)

$$D-W = 2.24 \quad R^2 = 0.918$$

(3) Revenue-Taxable Income Relation


$$\ln ST(j,k) = -24.994 + 2.482 \ln STB(j,k) - .012t$$

(8.718) (0.605) (0.0058)

$$D-W = 2.396 \quad R^2 = 0.958$$

The figures in parentheses are standard errors of the respective regression coefficients.

rates in an effort to stave off revenue shortfalls can be politically unacceptable. Therefore, income taxation, recommended by many to be a panacea for states and municipalities experiencing revenue needs, may not be warranted unless tax rates can be continually adjusted upward to preserve some degree of progressivity. In the absence of raising tax rates or originally designing the tax with a sharply progressive rate structure similar to the federal income tax, increasing levels of taxpayers' incomes are likely to make most state income taxes proportional. While Wasylenko rejects this view in a study of the New York income tax, our empirical analysis of Georgia tax supports Singer's declining elasticity thesis. Although our statistical analysis indicates that base elasticity is constant over time, declining rate elasticity was evident and therefore overall elasticity of the tax is declining.

The implication of this study is obvious. Georgia revenue from this increasingly important source will become less responsive to changes in economic activity. On the other hand, revenue will not continue to grow in the same proportions to growth of incomes as in the past. To the degree that this occurs, alternative sources of state financing — issuance of debt, federal revenue sharing, etc. — will become more important if the state is to continue to perform its historical public sector role. While our analysis was limited to one state, we believe that our findings can be generalized to other states since most state income taxes are structurally similar to the Georgia tax. 

—Charlie Carter

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Appendix: Methodology

Wasylenko's method of determining the nondiscretionary effects (those not due to changes in legal definition of income or adjustments in tax rates) of changes in income involves several computational steps. First, a base year must be specified. If the elasticity estimate is to be used for forecasting purposes, the base year should be the latest year for which data are available. For the Georgia study, the base year was 1978, the latest year for which complete data were available. Second, the "effective base ratio" has to be calculated by income class for the base year. The effective base ratio is the percent of total income in each income class that was taxable. The effective tax rate is the percent of taxable income going to taxes in each income class for the base year. Third, using these rates and ratios, we estimate the tax base and tax revenues that would have occurred in each year if the income had been subject to the same structure of the tax during the base year. The "rate elasticity" is estimated by regressing the logarithm of simulated taxes (the sum of the product of the effective base ratio, effective tax rates, and adjusted gross income) on the simulated tax base. The following equations describe the method of analysis:

$$\begin{aligned} \text{EBR}(j) &= \text{TB}(j,0)/Y(j,0) \\ j &= 1, 2, \dots, n \end{aligned} \quad (1)$$

where EBR(j) is the effective base ratio in the j th income class; TB(j,0) is taxable income (tax base) in the j th income class; Y(j,0) is adjusted gross income in the j th income class; and $n = 16$ is the number of income class intervals for which useful data are available.

The "effective tax rate" is the ratio of tax revenues in each income class to the taxable base in that income class. More formally,

$$\begin{aligned} \text{ETR}(j) &= T(j,0)/\text{TB}(j,0) \\ j &= 1, 2, \dots, n \end{aligned} \quad (2)$$

where $ETR(j)$ is the effective tax rate; $T(j,0)$ is tax revenue in each income class, j , in the base year; and $TB(j,0)$ is as previously defined.

The simulated taxable income for each income class, j , for each year, k , was estimated as the product of the effective base ratio in each income class and total income in the income class in year, k . This may be stated algebraically as:

$$STB(j,k) = EBR(j) \cdot Y(j,k)$$

$$k = 1, 2, 3, \dots, t \quad (3)$$

where $STB(j,k)$ is the simulated tax base in each income class, j , for each year, k .

Total simulated taxable income for each year, k , is determined by aggregating the simulated tax base over each of the income classes, j . This step may be more formally written as:

$$TSTB(k) = \sum_{j=1}^n STB(j,k) \quad (4)$$

where $TSTB(k)$ is total simulated tax base for each year, k .

Simulated tax revenues, $ST(j,k)$, are the product of the effective tax rate, $ETR(j)$, and the simulated tax base, $STB(j,k)$, for each year of study. That is:

$$ST(j,k) = ETR(j) \sum_{j=1}^n STB(j,k) \quad (5)$$

Finally, simulated total tax revenue for each year, $TST(k)$, is calculated by summing overall income classes:

$$TST(k) = \sum_{j=1}^n ST(j,k) \quad (6)$$

The rate elasticity is determined by regressing the logarithm of simulated tax revenue on a constant, plus the logarithm of the simulated tax base. The functional form of this equation is as follows:

$$ST(j,k) = e^{c_1} STB^{a_1}$$

Then, the base elasticity is determined by regressing the simulated tax base on a constant, plus the logarithm of income, or $STB(j,k) = e^{c_2} Y(j,k)^{a_2}$. The product of the rate elasticity and the base elasticity is the total elasticity of the tax.

The appropriateness of linear-in-the-logs restrictions on base, rate, and total elasticity can be tested by evaluating alternative functional specifications of the relationships. These alternative forms may be written as follows:

$$\ln STB(j,k) = a_0 + (a_1 + a_2 t) \ln Y(j,k) + e_1$$

$$\ln ST(j,k) = b_0 + (b_1 + b_2 t) \ln STB(j,k) + e_2$$

$$\ln ST(j,k) = c_0 + (c_1 + c_2 t) \ln Y(j,k) + e_2$$

where t is an index of time with $1965 = 1$, $1966 = 2$, etc., $1978 = 14$; $e_i (i = 1, 2, 3)$, a random disturbance term that assumes a mean of zero and has constant variance. The remaining terms are as defined earlier.

The assumption of constant, increasing, or declining elasticity can be determined by examining the importance of the time variable. If the time variable is significant, a nonlinear specification is more appropriate as opposed to the linear form. A negative and significant time coefficient would imply declining revenue elasticity. If the time index is not significant, constant elasticity is the conclusion that follows. **ER**

Monetary Policy in 1981-1982

Excerpts from testimony by
Federal Reserve Chairman Paul A. Volcker
before the House Banking Committee,
July 21, 1981.

I do not need to belabor the point that the current economic situation is far from satisfactory. But we see some encouraging signs that we are beginning to make progress against inflation. I realize the evidence in the recent price data is not, by itself, conclusive. However, I strongly believe that we now have the clear opportunity and responsibility to achieve and sustain further progress on the price front.

High interest rates undeniably place a heavy burden on housing, the auto industry, small business, and other sectors especially dependent upon credit. The thrift industry, in particular, has come under heavy stress as its costs of funds exceed returns on fixed rate assets acquired when interest rates were much lower. The high level of U.S. interest rates also has repercussions internationally, complicating already difficult economic policy decisions of some of our major economic partners.

The surprisingly strong growth in national output last winter has

given way to a much more sluggish picture. With continuing sizable increases in the labor force, unemployment has not declined from higher levels reached last year. The trend of both productivity and savings remain low.

Amidst these difficulties, we must not lose sight of the fundamental point that so many of the accumulated distortions and pressures in the economy can be traced

to our high and stubborn inflation.

As I noted, we have begun to see some tentative signs of a relaxation of price pressures. To be sure, much of the recent improvement in various prices indicators is accounted for by some reversal of "special" factors that drove the inflation rate higher in 1979 and part of 1980. Energy prices have stabilized, some oil prices have even declined, retail food prices have risen at rates of less than 1% this year, commodity prices generally have been weak, and despite sharply rising mortgage costs, the recorded overall cost of homeownership has been rising less rapidly.

Moreover, turning back the inflationary tide, as we can see, is not a simple, painless process, free from risks and strains of its own. All that I would claim is that the risks of not carrying through on the effort to restore price stability would be much greater. Dealing with inflation is essential to our future well-being as a nation, and the Federal Reserve means to do its part.

An effective program to restore price stability requires reducing growth in money and credit over time to rates consistent with the growth of output and employment at stable prices. That is the basic premise of our policies, and I believe consistent with the philosophy of the Humphrey-Hawkins Act mandating our report today on our monetary growth ranges.

Table 1. Ranges and Actual Growth in Money and Credit

(All data percent at annual rates)

	<u>Growth Range 1980-Q4 to 1981-Q4</u>	<u>Actual 1980-Q4 to 1981-Q2</u>	<u>Actual 1980-Q4 to latest</u>
M-1B	3½ to 6	2.2	2.6 (July 8)
M2	6 to 9	9.5	8.7 (June)
M3	6½ to 9½	11.5	11.1 (June)
Bank Credit	6 to 9	8.9	8.7 (June)

M-1B data is adjusted for shifts into NOW accounts. The range for recorded M-1B associated with the "shift-adjusted" M-1B range at the start of the year was 6% to 8½%. Actual growth in that measure from 1980-Q4 to 1981-Q2 was 6.8% at an annual rate. With NOW account growth larger than anticipated at the beginning of the year, the divergence between the recorded and shift-adjusted data should be slightly greater than anticipated at the start of the year.

First Half Trends. In approaching its mid-year review of the monetary and credit targets within this framework, the Federal Open Market Committee was faced with rather sharply divergent trends in the several aggregates during the first half of the year.

The basic measures of transaction balances — "narrow money" or M1 — have risen relatively slowly after adjusting for the effects of the one-time shifts of funds into interest-bearing NOW accounts; those accounts were available for the first time nationwide, and have been aggressively marketed by banks and thrift institutions.

To a degree that cannot be precisely measured, individuals and businesses, spurred by high interest rates, appear to have intensified cash management practices designed to minimize the use of traditional transaction balances, tending to speed up the "velocity" relationship between M1 and GNP during early 1981. For example, to some limited degree, needs for "M1" transaction accounts may have been reduced by the growing popularity of money market funds — not included in the definition of M1 — which can be used as a substitute for demand deposits or NOW accounts.

At the same time, as shown on Table 1, the broader aggregates, M2 and M3 (which do include money market funds and some other close money substitutes) have been rising at or above the upper end of the target ranges. You may recall I suggested to the committee in presenting the targets for 1981, that these broader aggregates might well be expected to rise toward the upper part of their ranges.

Second Half Targets. In the light of this situation, the committee considered the possibility of making small adjustments in the 1981 ranges to account for the impact of institutional change. However, it seems probable that the strongest impact of the introduction of NOW accounts and of adjustments of cash management practices to high interest rates may be behind us. Therefore, the committee did not

Table 2. Growth Ranges and Actual Growth of Monetary and Credit Aggregates

(Percent changes, fourth quarter to fourth quarter)

	<u>M-1A</u>	<u>M-1B</u>	<u>M2</u>	<u>M3</u>	<u>Bank Credit</u>
Growth Range for 1980	3½ to 6	4 to 6½	6 to 9	6½ to 9½	6 to 9
Actual 1980	6¼ (1)	6¾ (1)	9.6	10.2	8.0
Growth Range for 1981	3 to 5½ (2)	3½ to 6 (2)	6 to 9	6½ to 9½	6 to 9
Growth Range for 1982	n.a.	2½ to 5½ (3)	6 to 9	6½ to 9½	6 to 9

(1) Adjusted for unanticipated transfers into ATS and other similar accounts from other assets.

(2) Adjusted for shifts into NOW accounts.

(3) Assumes negligible impact of shifting into NOW accounts.

feel that changes in the growth ranges for 1981 were justified. (All targets for 1981 and 1982 are shown in Table 2).

However, given developments during the first half of the year and the need to avoid excessive growth in coming months, the committee agreed that growth in M-1B near the lower end of its range for the year as a whole (3½% to 6%, after adjusting for NOW account shifts) would be acceptable and desirable, particularly should relatively strong growth in the other aggregates continue. As indicated at the start of the year, the committee does feel it acceptable that growth in M2 and M3 be toward the upper part of their ranges (6-9% and 6½% to 9½%, respectively). Growth of bank credit, while often fluctuating considerably from month to month, is expected to remain within its specified range of 6% to 9%.

In its tentative consideration of the targets for 1982, the committee decided to plan for targeting and publishing a single M1 figure, equivalent in coverage to the present M-1B. Assuming that further "structural" shifts into NOW accounts from non-transaction accounts are by that time minimal,

"shift-adjusted" targets and data should not be necessary. The tentative range for M1 in 1982 was set at 2½% to 5½%, the midpoint of 4% is three-quarter percent below the midpoint of the closely comparable current range for M-1B "shift adjusted."

The tentative ranges for the broader aggregates in 1982 were left unchanged at 6% to 9% and 6½% to 9½% for M2 and M3, respectively. However, we would anticipate actual growth closer to the midpoint in 1982, consistent with the desired reduction over time.

Long-Term Trends. I have often emphasized that money supply data — like many other financial and economic data — have some inherent instability in the short run. The trend over time is what counts, both as a measure of monetary policy and in terms of economic effect.

More fundamentally, what recent experience also confirms is that demands for money and credit growing out of an expanding and inflating economy, pressing against a restrained supply, will be reflected in strong pressures on interest rates and credit markets — pressures that in turn restrain the growth in business activity. Some important sectors of the economy are relatively impervious for one reason or another to direct financial restraint — energy, high technology, many services, and defense. Those sectors have been strong sustaining forces in the economy generally, and particularly in some geographic areas.

The brunt of the restraint falls on other credit-dependent sectors, and, as the dollar has sharply appreciated, increasingly on exporters faced with a less favorable competitive position. Should interest rates decline in response to weakness in the economy, many of those sectors would likely, and rather promptly, rebound.

Differences of opinion about these matters help to account for the relatively wide range of forecasts now characteristic for the period ahead, including those set forth by members of the FOMC. (Table 3 sets forth the range of those projections.)

Table 3. FOMC Members' Economic Forecast

	Actual 1980	Projected 1981	Projected 1982
% change, 4th qtr. to 4th qtr.			
Nominal GNP	9.4	10 to 11½	9½ to 12¼
Real GNP	-.3	1 to 3½	1 to 4
Implicit GNP deflator	9.8	7½ to 9	6½ to 8½
Average level in 4th qtr.			
Unemployment rate (percent)	7.5	7½ to 8¼	7 to 8½

Skepticism Unwarranted. I cannot fully resolve all those uncertainties in the outlook for you this morning. What does seem clear to me is that progress on inflation is a prerequisite for lasting improvement in financial markets, and for sustained, balanced growth.

As I have already indicated, curbing inflation will require persistent restraint on the growth of money and credit. An attempt to escape from high interest rates and strains on financial markets and institutions by abandoning that restraint would be self-defeating. By encouraging expectations of more inflation, that approach would soon stimulate even more borrowing, further reduce incentives to save, and ultimately result in still higher interest rates and more economic difficulty.

You and I know that, after a decade and more of disappointment, there is persisting skepticism and

doubt about the ability of the nation to persevere in an anti-inflation program. I believe that skepticism is unwarranted, but we must make that claim good by our actions. Indeed, sustained monetary restraint, by encouraging greater confidence in the price outlook, will in time help bring interest rates lower.

A Critical Juncture. In these circumstances, there is a compelling logic, from an overall economic view, in looking toward a sense of greater caution and restraint in both wage and pricing behavior. What is at issue is the extent to which that need will seem equally compelling, viewed from the specific shop floor or the individual executive suite. These decisions are, of course, made continuously in the non-union sector of the economy, but a crucially important round of union wage bargaining begins next January, potentially setting a pattern for several years ahead.

That is one reason why we need to be clear and convincing in specifying our monetary and fiscal policy intentions, and their

implications for the economic and inflation environment. Without room for financing both high levels of inflation and strong growth, inflationary behavior by individual firms can jeopardize markets, jobs, and profits.

On the Right Track. We see the first stirrings of progress in the recent data.

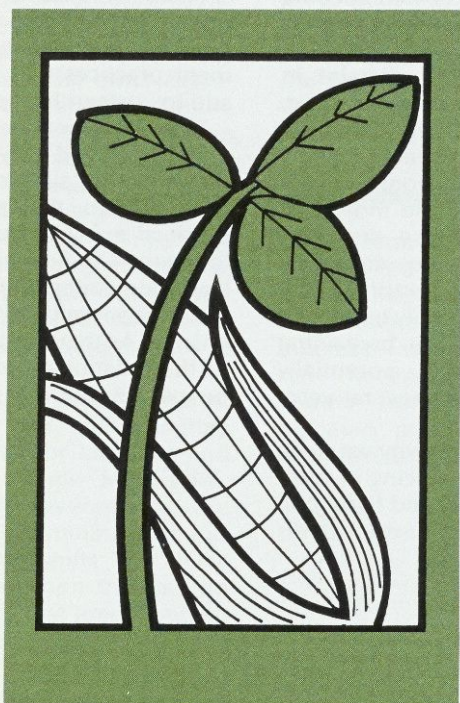
With enormous effort, the administration and the Congress are moving together to attain control of spending. We all know much remains to be done for future years, but the unparalleled effort bodes well for the future. With a full measure of success, the most urgently needed tax reduction can be responsibly reconciled with reduced deficits.

We in the Federal Reserve are committed to reducing growth in money and credit.

There is, I believe, a genuine urge to let the competitive marketplace work, and to review government practices that unnecessarily add to costs or limit competition.

These policies can and will be effective. But if they are to work, they must be sustained with conviction. Then, the apparent reluctance of many to bet on reduced inflation — in financial markets, in wage bargaining, in pricing, and in other economic decisions — will change. As they do, the unwinding of the inflationary process should be much easier. ER

Virtually all of the Southeast suffered a drought during 1980 and into 1981. Some crop prices rise when drought cuts production, but often not enough to offset the production decline. Irrigation offers short-term benefits but may severely deplete future water resources.



The Impact of Drought

The fortunes of most of the country are largely dependent upon precipitation. In the Southeast, especially, rainfall is the virtual life-blood of agricultural production during each growing season. Over the long run, nearly all economic activity is dependent upon water supplies originating as rainfall. When rainfall drops below normal or virtually ceases as it did during the summer of 1980, practically every sector of the economy feels the impact of restricted water supplies.

Drought typically results in increased use of water at the very time when supplies are restricted. In the elevated temperatures that



FINANCE

STATISTICAL SUPPLEMENT

	JUL 1981	JUN (R) 1981	DEC 1980	ANN. RATE OF CHG.		JUL 1981	JUN (R) 1981	DEC 1980	ANN. RATE OF CHG.
\$ millions									
UNITED STATES									
Commercial Bank Deposits	1,064,232	1,061,073	1,017,065	9	Savings & Loans				
Demand	303,056	305,128	331,555	-17	Total Deposits	511,030	510,240	501,551	4
NOW	42,125	41,777	0		NOW	5,910	5,752	0	
Savings	155,358	156,032	166,347	-13	Savings	98,349	98,062	104,686	-12
Time	596,282	592,451	525,805	27	Time	406,011	406,159	394,296	6
Credit Union Deposits	37,295	37,133	34,472	16	MAY		APR	DEC	
Share Drafts	2,043	2,148	1,631	51	Mortgages Outstanding	503,036	500,822	494,179	4
Savings & Time	33,017	32,950	30,692	15	Mortgage Commitments	18,635	18,448	16,021	39
SOUTHEAST									
Commercial Bank Deposits	108,333	108,454	104,499	7	Savings & Loans				
Demand	33,050	33,854	38,692	-29	Total Deposits	74,957	74,648	72,348	7
NOW	5,298	5,273	0		NOW	915	892	0	
Savings	14,944	15,041	16,343	-17	Savings	12,301	12,445	13,148	-13
Time	57,885	57,585	51,519	25	Time	61,524	61,149	58,669	10
Credit Union Deposits	3,444	3,392	3,209	15	MAY		APR	DEC	
Share Drafts	231	242	192	36	Mortgages Outstanding	73,761	72,845	71,065	9
Savings & Time	2,969	2,895	2,797	12	Mortgage Commitments	3,918	3,952	3,656	17
ALABAMA									
Commercial Bank Deposits	12,605	12,601	12,262	6	Savings & Loans				
Demand	3,312	3,374	3,954	-32	Total Deposits	4,386	4,391	4,262	6
NOW	475	476	0		NOW	49	48	0	
Savings	1,629	1,637	1,745	-13	Savings	630	637	691	-18
Time	7,460	7,453	6,754	21	Time	3,715	3,716	3,572	8
Credit Union Deposits	554	553	521	13	MAY		APR	DEC	
Share Drafts	49	51	41	39	Mortgages Outstanding	4,004	3,985	3,947	3
Savings & Time	496	495	479	7	Mortgage Commitments	123	125	136	-23
FLORIDA									
Commercial Bank Deposits	34,933	35,088	35,061	-1	Savings & Loans				
Demand	11,819	12,205	14,216	-34	Total Deposits	45,452	45,366	43,964	7
NOW	2,308	2,309	0		NOW	645	632	0	
Savings	6,224	6,304	7,092	-24	Savings	8,157	8,314	8,766	-14
Time	15,455	15,310	13,996	21	Time	36,407	36,209	34,672	10
Credit Union Deposits	1,588	1,573	1,491	13	MAY		APR	DEC	
Share Drafts	129	137	106	43	Mortgages Outstanding	44,532	44,178	42,742	10
Savings & Time	1,232	1,200	1,177	9	Mortgage Commitments	3,245	3,273	2,984	21
GEORGIA									
Commercial Bank Deposits	14,724	14,744	14,179	8	Savings & Loans				
Demand	5,797	5,943	6,652	-26	Total Deposits	9,542	9,522	9,259	6
NOW	766	758	0		NOW	92	90	0	
Savings	1,613	1,613	1,645	-4	Savings	1,290	1,323	1,435	-20
Time	7,479	7,414	6,832	19	Time	8,168	8,133	7,817	9
Credit Union Deposits	608	572	543	24	MAY		APR	DEC	
Share Drafts	17	18	12	83	Mortgages Outstanding	9,469	9,442	9,332	4
Savings & Time	580	541	517	24	Mortgage Commitments	171	184	183	-16
LOUISIANA									
Commercial Bank Deposits	19,726	19,672	18,696	12	Savings & Loans				
Demand	5,814	5,937	6,541	-22	Total Deposits	7,118	7,076	6,851	8
NOW	715	709	0		NOW	54	50	0	
Savings	2,475	2,476	2,538	-4	Savings	1,239	1,214	1,253	-2
Time	11,133	11,077	10,089	20	Time	5,838	5,828	5,599	9
Credit Union Deposits	84	86	57	95	MAY		APR	DEC	
Share Drafts	5	5	4	5	Mortgages Outstanding	6,951	6,923	6,777	6
Savings & Time	78	80	52	100	Mortgage Commitments	242	225	221	23
MISSISSIPPI									
Commercial Bank Deposits	9,093	9,056	8,662	10	Savings & Loans				
Demand	2,245	2,281	2,620	-29	Total Deposits	1,845	1,830	1,794	6
NOW	393	394	0		NOW	18	17	0	
Savings	767	767	861	-22	Savings	195	192	210	-14
Time	5,884	5,847	5,364	20	Time	1,639	1,628	1,587	7
Credit Union Deposits	N.A.	N.A.	N.A.		MAY		APR	DEC	
Share Drafts	N.A.	N.A.	N.A.		Mortgages Outstanding	2,201	2,192	2,182	2
Savings & Time	N.A.	N.A.	N.A.		Mortgage Commitments	43	50	58	-62
TENNESSEE									
Commercial Bank Deposits	17,252	17,293	15,639	21	Savings & Loans				
Demand	4,063	4,114	4,709	-27	Total Deposits	6,614	6,463	6,218	13
NOW	641	627	0		NOW	57	55	0	
Savings	2,236	2,244	2,462	-18	Savings	790	765	793	-1
Time	10,474	10,484	8,484	47	Time	5,757	5,635	5,422	12
Credit Union Deposits	610	608	597	4	MAY		APR	DEC	
Share Drafts	31	31	29	14	Mortgages Outstanding	6,604	6,125	6,085	20
Savings & Time	583	579	572	4	Mortgage Commitments	94	95	70	82

Notes: All deposit data are extracted from the Federal Reserve Report of Transaction Accounts, other Deposits and Vault Cash (FR2900), and are reported for the average of the week ending the 1st Wednesday of the month. This data, reported by institutions with over \$15 million in deposits as of December 31, 1979, represents 95% of deposits in the six state area. The annual rate of change is based on most recent data over December 31, 1980 base, annualized. Savings and loan mortgage data are from the Federal Home Loan Bank Board Selected Balance Sheet Data. The Southeast data represent the total of the six states. Subcategories were chosen on a selective basis and do not add to total. N.A. = fewer than four institutions reporting.

R = revised.



EMPLOYMENT

	JUN 1981	MAY (R) 1981	JUN (R) 1980	ANN. % CHG.		JUN 1981	MAY (R) 1981	JUN (R) 1980	ANN. % CHG.
UNITED STATES									
Civilian Labor Force - thous.	107,621	106,347	106,067	1	Nonfarm Employment- thous.	92,378	91,816	90,955	2
Total Employed - thous.	99,341	98,803	97,776	2	Manufacturing	20,508	20,343	20,146	2
Total Unemployed - thous.	8,279	7,545	8,291	0	Construction	4,455	4,344	4,545	-2
Unemployment Rate - % SA	7.3	7.6	7.5	-3	Trade	20,759	20,672	20,347	2
Insured Unemployment - thous.	2,592	2,702	3,448	-25	Government	16,180	16,410	16,477	-2
Insured Unempl. Rate - %	3.0	3.1	4.0	-25	Services	18,752	18,629	18,013	4
Mfg. Avg. Wkly. Hours	40.1	40.1	39.3	2	Fin., Ins., & Real Est.	5,382	5,322	5,206	3
Mfg. Avg. Wkly. Earn. - \$	319	318	283	13	Trans. Com. & Pub. Util.	5,214	5,141	5,177	1
SOUTHEAST									
Civilian Labor Force - thous.	13,112	13,023	12,868	2	Nonfarm Employment- thous.	11,418	11,429	11,163	2
Total Employed - thous.	12,117	12,108	11,888	2	Manufacturing	2,307	2,298	2,248	3
Total Unemployed - thous.	995	916	981	1	Construction	720	714	705	2
Unemployment Rate - % SA	7.2	7.5	7.4	-3	Trade	2,620	2,623	2,564	2
Insured Unemployment - thous.	262	252	325	-19	Government	2,160	2,204	2,156	0
Insured Unempl. Rate - %	2.8	2.7	3.5	-20	Services	2,142	2,138	2,047	5
Mfg. Avg. Wkly. Hours	40.6	40.4	39.9	2	Fin., Ins., & Real Est.	630	626	609	3
Mfg. Avg. Wkly. Earn. - \$	277	274	246	13	Trans. Com. & Pub. Util.	688	687	682	1
ALABAMA									
Civilian Labor Force - thous.	1,640	1,646	1,653	-1	Nonfarm Employment- thous.	1,343	1,345	1,358	-1
Total Employed - thous.	1,481	1,502	1,496	-1	Manufacturing	358	357	364	-2
Total Unemployed - thous.	160	144	157	2	Construction	71	71	73	-3
Unemployment Rate - % SA	9.2	9.3	9.0	2	Trade	270	270	273	-1
Insured Unemployment - thous.	45	44	57	-21	Government	289	301	296	-2
Insured Unempl. Rate - %	3.6	3.5	4.5	-20	Services	207	208	204	1
Mfg. Avg. Wkly. Hours	40.5	40.3	39.6	2	Fin., Ins., & Real Est.	59	59	59	0
Mfg. Avg. Wkly. Earn. - \$	284	281	254	12	Trans. Com. & Pub. Util.	71	72	72	-1
FLORIDA									
Civilian Labor Force - thous.	4,145	4,133	3,997	4	Nonfarm Employment- thous.	3,737	3,735	3,551	5
Total Employed - thous.	3,882	3,857	3,734	4	Manufacturing	471	471	450	5
Total Unemployed - thous.	263	276	263	0	Construction	283	282	263	8
Unemployment Rate - % SA	6.0	7.3	6.3	-5	Trade	969	973	915	6
Insured Unemployment - thous.	53	49	60	-12	Government	634	633	630	1
Insured Unempl. Rate - %	1.5	1.4	1.8	-17	Services	876	873	811	8
Mfg. Avg. Wkly. Hours	41.0	40.6	40.6	1	Fin., Ins., & Real Est.	270	268	252	7
Mfg. Avg. Wkly. Earn. - \$	266	263	241	10	Trans. Com. & Pub. Util.	225	225	220	2
GEORGIA									
Civilian Labor Force - thous.	2,442	2,425	2,407	1	Nonfarm Employment- thous.	2,164	2,168	2,135	1
Total Employed - thous.	2,290	2,293	2,224	3	Manufacturing	522	520	509	3
Total Unemployed - thous.	152	132	184	-17	Construction	99	99	104	-5
Unemployment Rate - % SA	5.8	5.7	7.2	-19	Trade	486	486	491	-1
Insured Unemployment - thous.	42	42	57	-26	Government	436	443	430	1
Insured Unempl. Rate - %	2.1	2.1	2.9	-28	Services	358	357	345	4
Mfg. Avg. Wkly. Hours	40.7	40.4	40.1	1	Fin., Ins., & Real Est.	114	114	112	2
Mfg. Avg. Wkly. Earn. - \$	256	254	225	14	Trans. Com. & Pub. Util.	141	141	137	3
LOUISIANA									
Civilian Labor Force - thous.	1,798	1,774	1,730	4	Nonfarm Employment- thous.	1,629	1,623	1,564	4
Total Employed - thous.	1,644	1,641	1,607	2	Manufacturing	217	215	212	2
Total Unemployed - thous.	154	133	123	25	Construction	152	151	140	9
Unemployment Rate - % SA	7.7	7.6	6.2	24	Trade	363	362	354	3
Insured Unemployment - thous.	40	38	44	-9	Government	315	319	301	5
Insured Unempl. Rate - %	2.7	2.5	3.0	-10	Services	282	280	270	4
Mfg. Avg. Wkly. Hours	41.1	40.9	41.1	0	Fin., Ins., & Real Est.	76	76	75	1
Mfg. Avg. Wkly. Earn. - \$	350	345	314	11	Trans. Com. & Pub. Util.	128	127	125	2
MISSISSIPPI									
Civilian Labor Force - thous.	1,022	1,024	1,044	-2	Nonfarm Employment- thous.	820	829	826	0
Total Employed - thous.	934	946	950	-2	Manufacturing	221	221	217	2
Total Unemployed - thous.	87	78	93	-6	Construction	42	41	46	-9
Unemployment Rate - % SA	7.8	8.1	8.1	-4	Trade	166	166	164	1
Insured Unemployment - thous.	30	26	36	-17	Government	185	193	191	-3
Insured Unempl. Rate - %	3.8	3.4	4.7	-19	Services	121	123	122	-1
Mfg. Avg. Wkly. Hours	39.8	39.7	38.8	3	Fin., Ins., & Real Est.	33	33	33	0
Mfg. Avg. Wkly. Earn. - \$	237	237	208	14	Trans. Com. & Pub. Util.	41	41	42	-2
TENNESSEE									
Civilian Labor Force - thous.	2,065	2,022	2,038	1	Nonfarm Employment- thous.	1,725	1,729	1,728	0
Total Employed - thous.	1,887	1,868	1,877	1	Manufacturing	517	514	496	4
Total Unemployed - thous.	178	153	161	11	Construction	73	69	79	-8
Unemployment Rate - % SA	8.6	8.0	7.9	9	Trade	366	365	376	-3
Insured Unemployment - thous.	52	53	71	-27	Government	302	316	308	-2
Insured Unempl. Rate - %	3.1	3.2	4.3	-28	Services	298	296	294	1
Mfg. Avg. Wkly. Hours	40.5	40.3	39.3	3	Fin., Ins., & Real Est.	77	77	79	-3
Mfg. Avg. Wkly. Earn. - \$	269	266	237	14	Trans. Com. & Pub. Util.	82	82	86	-5

Notes: All labor force data are from Bureau of Labor Statistics reports supplied by state agencies.
Only the unemployment rate data are seasonally adjusted.
The Southeast data represent the total of the six states.
The annual percent change calculation is based on the most recent data over prior year.
R = revised.



CONSTRUCTION

	JUN 1981	MAY 1981	JUN 1980	ANN. % CHG.		JUN 1981	MAY 1981	JUN 1980	ANN. % CHG.
12-Month Cumulative Rate									
UNITED STATES									
Total Construction Contracts					Residential Contracts				
Value - \$ mil.	156,290	154,835	147,173	6	Value - \$ mil.	69,015	68,428	62,803	10
Nonresidential Contracts					Number of Units - Thous.	1,378.1	1,378.5	1,400.5	-2
Value - \$ mil.	56,235	55,955	50,443	11	Residential Permits - Thous.				
Sq. Ft. - mil.	1,215.6	1,213.2	1,279.5	-5	Number single-family	733.8	737.8	748.3	-2
Nonbuilding Contracts					Number multi-family	498.9	501.1	488.7	2
Value - \$ mil.	31,040	30,451	33,927	-9					
SOUTHEAST									
Total Construction Contracts					Residential Contracts				
Value - \$ mil.	28,330	28,129	23,991	18	Value - \$ mil.	14,191	14,084	12,035	18
Nonresidential Contracts					Number of Units - Thous.	321.6	323.8	303.9	6
Value - \$ mil.	8,338	8,226	7,032	19	Residential Permits - Thous.				
Sq. Ft. - mil.	196.0	194.8	192.0	2	Number single-family	159.7	160.8	149.9	7
Nonbuilding Contracts					Number multi-family	128.7	132.4	103.3	25
Value - \$ mil.	5,835	5,818	4,924	19					
ALABAMA									
Total Construction Contracts					Residential Contracts				
Value - \$ mil.	1,955	1,978	1,739	12	Value - \$ mil.	991	998	793	25
Nonresidential Contracts					Number of Units - Thous.	26.6	27.3	23.4	14
Value - \$ mil.	539	537	573	-6	Residential Permits - Thous.				
Sq. Ft. - mil.	12.7	13.2	16.3	-22	Number single-family	8.6	8.9	8.4	2
Nonbuilding Contracts					Number multi-family	7.4	8.1	5.9	25
Value - \$ mil.	425	443	373	14					
FLORIDA									
Total Construction Contracts					Residential Contracts				
Value - \$ mil.	14,071	13,841	11,452	23	Value - \$ mil.	7,967	7,899	6,875	16
Nonresidential Contracts					Number of Units - Thous.	179.6	180.2	171.9	4
Value - \$ mil.	3,552	3,435	2,791	27	Residential Permits - Thous.				
Sq. Ft. - mil.	90.4	89.2	83.1	9	Number single-family	94.7	93.8	85.9	10
Nonbuilding Contracts					Number multi-family	90.4	92.1	73.1	24
Value - \$ mil.	2,552	2,506	1,786	43					
GEORGIA									
Total Construction Contracts					Residential Contracts				
Value - \$ mil.	3,925	3,951	3,708	6	Value - \$ mil.	1,958	1,982	1,656	18
Nonresidential Contracts					Number of Units - Thous.	46.3	46.7	41.6	11
Value - \$ mil.	1,246	1,214	1,211	3	Residential Permits - Thous.				
Sq. Ft. - mil.	35.5	34.6	37.3	-5	Number single-family	27.5	28.4	26.4	4
Nonbuilding Contracts					Number multi-family	10.8	11.0	6.8	59
Value - \$ mil.	720	755	841	-14					
LOUISIANA									
Total Construction Contracts					Residential Contracts				
Value - \$ mil.	3,683	3,567	3,135	17	Value - \$ mil.	1,383	1,318	1,033	34
Nonresidential Contracts					Number of Units - Thous.	27.1	26.6	24.3	12
Value - \$ mil.	1,255	1,250	1,270	-1	Residential Permits - Thous.				
Sq. Ft. - mil.	22.5	22.0	20.9	8	Number single-family	12.2	12.3	11.7	4
Nonbuilding Contracts					Number multi-family	9.3	9.2	6.3	48
Value - \$ mil.	1,045	999	831	26					
MISSISSIPPI									
Total Construction Contracts					Residential Contracts				
Value - \$ mil.	1,786	1,820	1,246	43	Value - \$ mil.	679	652	540	26
Nonresidential Contracts					Number of Units - Thous.	15.4	15.8	14.3	8
Value - \$ mil.	614	631	285	115	Residential Permits - Thous.				
Sq. Ft. - mil.	8.4	8.7	8.2	2	Number single-family	4.9	5.1	4.6	7
Nonbuilding Contracts					Number multi-family	4.0	4.9	4.1	-2
Value - \$ mil.	528	538	421	25					
TENNESSEE									
Total Construction Contracts					Residential Contracts				
Value - \$ mil.	2,909	2,971	2,712	7	Value - \$ mil.	1,213	1,235	1,137	7
Nonresidential Contracts					Number of Units - Thous.	26.7	27.1	28.5	-6
Value - \$ mil.	1,131	1,158	902	25	Residential Permits - Thous.				
Sq. Ft. - mil.	26.6	27.0	26.2	2	Number single-family	11.8	12.2	13.0	-9
Nonbuilding Contracts					Number multi-family	6.9	7.1	7.1	-3
Value - \$ mil.	565	578	673	-16					

Notes: Contracts are calculated from the F. W. Dodge Construction Potentials. Permits are calculated from the Bureau of the Census, Housing Units Authorized By Building Permits and Public Contracts. The Southeast data represent the total of the six states. The annual percent change calculation is based on the most recent month over prior year.



GENERAL

	JUN 1981	MAY 1981	JUN 1980	ANN. % CHG.		JUN 1981	MAY 1981	JUN 1980	ANN. % CHG.
UNITED STATES					Agriculture				
Personal Income-\$ bil. SAAR (Dates: 1Q, 4Q, 1Q)	2,292.5	2,228.3	2,062.8	11	Prices Rec'd by Farmers Index (1967=100)	258	260	232	11
Retail Sales - \$ bil.- SA	86.4	85.3	77.8	11	Broiler Placements (thous.)	84,702	85,570	81,919	3
Plane Passenger Arrivals (thous.)	N.A.	N.A.	N.A.		Calf Prices (\$ per cwt.)	68.20	68.80	59.10	15
Petroleum Prod. (thous. bls.)	8,633.6	8,564.2	8,733.9	-1	Broiler Prices (\$ per lb.)	29.2	28.2	24.4	20
Consumer Price Index 1967=100	271.5	269.0	247.6	10	Soybean Prices (\$ per bu.)	6.99	7.42	5.76	21
					Broiler Feed Cost (\$ per ton)	234	235	190	23
SOUTHEAST					Agriculture				
Personal Income-\$ bil. SAAR (Dates: 1Q, 4Q, 1Q)	266.8	258.6	235.0	14	Prices Rec'd by Farmers Index (1967=100)	270	267	233	16
Taxable Sales - \$ bil.	N.A.	N.A.	N.A.		Broiler Placements (thous.)	33,468	33,714	31,917	5
Plane Passenger Arrivals (thous.)	N.A.	N.A.	N.A.		Calf Prices (\$ per cwt.)	60.21	61.13	70.91	-15
Petroleum Prod. (thous. bls.)	1,444.9	1,442.3	1,546.9	-7	Broiler Prices (\$ per lb.)	27.6	26.6	23.5	17
Consumer Price Index 1967=100	N.A.	N.A.	N.A.		Soybean Prices (\$ per bu.)	7.14	7.36	5.87	22
					Broiler Feed Cost (\$ per ton)	228	228	184	24
ALABAMA					Agriculture				
Personal Income-\$ bil. SAAR (Dates: 1Q, 4Q, 1Q)	31.1	30.3	28.2	10	Farm Cash Receipts - \$ mil. (Dates: JUN, JUN)	801		710	13
Taxable Sales - \$ bil.	N.A.	N.A.	N.A.		Broiler Placements (thous.)	10,684	10,884	10,693	-0
Plane Passenger Arrivals (thous.)	119.6	120.0	127.8	-6	Calf Prices (\$ per cwt.)	57.70	61.00	68.00	-15
Petroleum Prod. (thous. bls.)	63.0	63.4	59.5	6	Broiler Prices (\$ per lb.)	27.5	26.5	23.0	20
Consumer Price Index 1967=100	N.A.	N.A.	N.A.		Soybean Prices (\$ per bu.)	7.06	7.24	5.86	20
					Broiler Feed Cost (\$ per ton)	250	240	184	36
FLORIDA					Agriculture				
Personal Income-\$ bil. SAAR (Dates: 1Q, 4Q, 1Q)	95.3	92.2	82.0	16	Farm Cash Receipts - \$ mil. (Dates: JUN, JUN)	2,779		2,478	12
Taxable Sales - \$ bil.	62,836	61,529	54,958	14	Broiler Placements (thous.)	1,993	1,917	1,639	22
Plane Passenger Arrivals (thous.)	N.A.	1,826.2	1,898.0		Calf Prices (\$ per cwt.)	67.10	64.90	79.60	-16
Petroleum Prod. (thous. bls.)	114.4	114.0	115.0	-1	Broiler Prices (\$ per lb.)	26.0	26.0	22.5	16
Consumer Price Index - Miami Nov. 1977 = 100	MAY 143.2	MAR 140.0	MAY 129.7	10	Soybean Prices (\$ per bu.)	7.06	7.24	5.86	20
					Broiler Feed Cost (\$ per ton)	240	240	205	17
GEORGIA					Agriculture				
Personal Income-\$ bil. SAAR (Dates: 1Q, 4Q, 1Q)	46.8	45.4	41.7	12	Farm Cash Receipts - \$ mil. (Dates: JUN, JUN)	1,145		1,028	11
Taxable Sales - \$ bil.	N.A.	N.A.	N.A.		Broiler Placements (thous.)	13,040	13,098	12,147	7
Plane Passenger Arrivals (thous.)	1,682.9	1,778.3	1,810.5	-7	Calf Prices (\$ per cwt.)	57.10	58.50	68.00	-16
Petroleum Prod. (thous. bls.)	N.A.	N.A.	N.A.		Broiler Prices (\$ per lb.)	26.5	26.0	23.5	13
Consumer Price Index - Atlanta 1967 = 100	JUN 269.2	APR 265.9	JUN 242.2	11	Soybean Prices (\$ per bu.)	7.07	7.33	5.89	20
					Broiler Feed Cost (\$ per ton)	210	220	186	13
LOUISIANA					Agriculture				
Personal Income-\$ bil. SAAR (Dates: 1Q, 4Q, 1Q)	38.1	36.7	33.2	15	Farm Cash Receipts - \$ mil. (Dates: JUN, JUN)	595		542	10
Taxable Sales - \$ bil.	N.A.	N.A.	N.A.		Broiler Placements (thous.)	N.A.	N.A.	N.A.	
Plane Passenger Arrivals (thous.)	N.A.	N.A.	N.A.		Calf Prices (\$ per cwt.)	57.00	61.00	66.50	-14
Petroleum Prod. (thous. bls.)	0	0	0	0	Broiler Prices (\$ per lb.)	28.0	28.0	24.0	17
Consumer Price Index 1967 = 100	N.A.	N.A.	N.A.		Soybean Prices (\$ per bu.)	7.41	7.59	5.96	24
					Broiler Feed Cost (\$ per ton)	245	245	190	29
MISSISSIPPI					Agriculture				
Personal Income-\$ bil. SAAR (Dates: 1Q, 4Q, 1Q)	17.4	17.0	15.9	9	Farm Cash Receipts - \$ mil. (Dates: JUN, JUN)	788		785	0
Taxable Sales - \$ bil.	N.A.	N.A.	N.A.		Broiler Placements (thous.)	6,428	6,443	6,090	6
Plane Passenger Arrivals (thous.)	N.A.	N.A.	N.A.		Calf Prices (\$ per cwt.)	62.20	60.10	71.10	-13
Petroleum Prod. (thous. bls.)	95.0	96.0	105.4	-10	Broiler Prices (\$ per lb.)	29.5	27.0	24.5	20
Consumer Price Index 1967 = 100	N.A.	N.A.	N.A.		Soybean Prices (\$ per bu.)	7.01	7.35	5.81	21
					Broiler Feed Cost (\$ per ton)	220	220	175	26
TENNESSEE					Agriculture				
Personal Income-\$ bil. SAAR (Dates: 1Q, 4Q, 1Q)	38.1	37.0	34.0	12	Farm Cash Receipts - \$ mil. (Dates: JUN, JUN)	699		647	8
Taxable Sales - \$ bil.	N.A.	N.A.	N.A.		Broiler Placements (thous.)	1,323	1,373	1,348	-2
Plane Passenger Arrivals (thous.)	176.2	173.5	187.3	-6	Calf Prices (\$ per cwt.)	60.00	62.00	75.20	-20
Petroleum Prod. (thous. bls.)	N.A.	N.A.	N.A.		Broiler Prices (\$ per lb.)	29.5	29.0	22.5	31
Consumer Price Index 1967 = 100	N.A.	N.A.	N.A.		Soybean Prices (\$ per bu.)	7.12	7.20	5.87	21
					Broiler Feed Cost (\$ per ton)	225	215	178	26

Notes:

Personal Income data supplied by U. S. Department of Commerce. Taxable Sales are reported as a 12-month cumulative total. Plane Passenger Arrivals are collected from 26 airports. Petroleum Production data supplied by U. S. Bureau of Mines. Consumer Price Index data supplied by Bureau of Labor Statistics. Agriculture data supplied by U. S. Department of Agriculture. Farm Cash Receipts data are reported as cumulative for the calendar year through the month shown. Broiler placements are an average weekly rate. The Southeast data represent the total of the six states. N.A. = not available. The annual percent change calculation is based on most recent data over prior year.

R = revised

accompany summertime drought, city residents tend to drink more water, take more baths, step up the pace of watering lawns and gardens, and use more water in swimming pools as efforts to restore physical comfort increase. Water consumption by government, industrial, and business users increases for many of the same reasons. Agricultural producers equipped for irrigation compound use mightily in efforts to supplement dwindling moisture supplies of growing crops. All in all, reserve water supplies, such as lakes, reservoirs, and underground aquifers, diminish rapidly as use multiplies. Streams recede not only from increased withdrawal rates but because they are not recharged with rainfall. A continuation of this situation for several months in succession and from one growing season to another could bring disaster of wide dimensions to the affected areas.

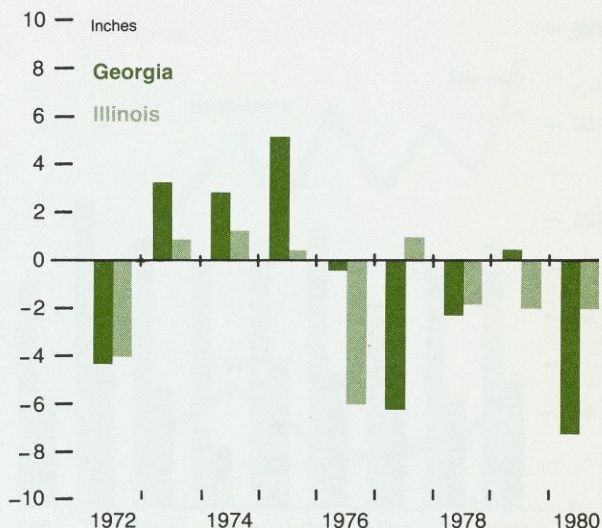
It was just such a continuation of 1980's drought into the 1981 season that was causing grave concern as the spring progressed without rainfall having yet been restored to its normal level. By the end of May of 1981, most weather stations across the nation were reporting below-normal precipitation since January 1 and virtually all of the stations in states within the Sixth Federal Reserve District reported deficit rainfall. The south Florida area had one of the nation's most serious rainfall deficits, with rainfall totaling less than 50 percent of its normal level in several locations during the first five months of 1981. Rainfall levels at 75 percent or less of normal were common for much of the rest of the District. However, rainfall frequencies were increasing toward the end of May, renewing hope that water supplies might reach adequate levels as summer arrived.

Effects of Drought on Agricultural Production

Crop yields vary from year to year for a number of reasons, but the most serious variations are usually caused by drought. Weather records indicate that the Southeast experienced serious deficits of rainfall during the primary crop-growing season (April through August) in four of the nine years since 1971 (see Figure 1). The most serious droughts occurred in 1977 and 1980 when

Chart 1
Departure From Normal Precipitation

April through August



rainfall fell six and seven inches respectively below the normal level during that period. Other shortages of consequence occurred in 1972 and 1978 when rainfall lagged normal levels by four inches and two inches, respectively.

Average yields of corn and soybeans reflected the moisture shortages by falling sharply in 1977 and 1980. In 1977, corn yields fell 61 percent from the year-earlier level (see Figure 2). In 1980, yields again dropped by 35 percent from 1979's level.

The decline undoubtedly would have been greater had the drought not become most serious in mid-to-late summer when some corn was well on its way to maturity. Also, more southeastern farmers were irrigating corn in 1980 than ever before.

Soybean yields showed the most severe drought effects in 1972, 1978 and 1980 (see Figure 3). The impact of variations in April to August rainfall is different for corn and soybeans because soybeans are typically planted later than corn and they mature later in the season. Thus, soybeans are more seriously affected by late summer drought because the crop enters a critical fruiting stage in late July and August. Rainfall deficits were more severe in July and August than in earlier

Chart 2
Average Corn Yields

Bushels Per Acre

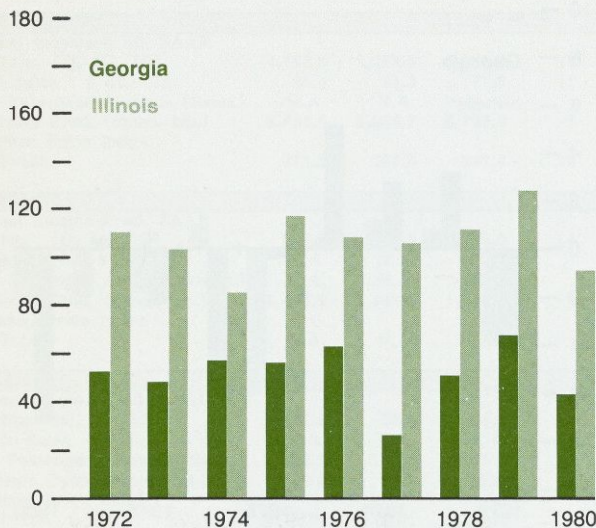
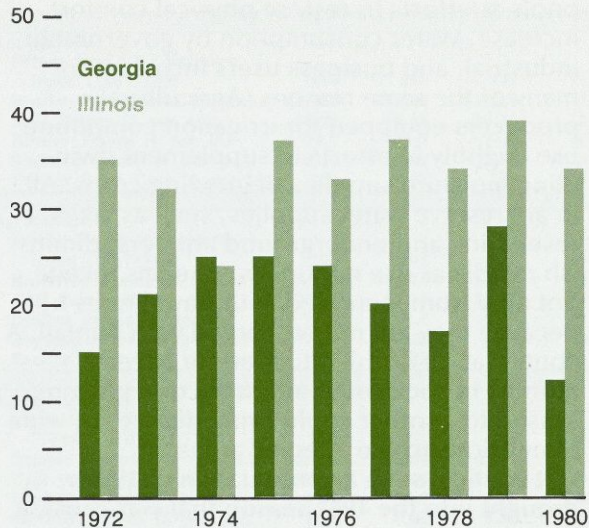


Chart 3
Average Soybean Yields

Bushels Per Acre



months during 1972, 1978, and 1980, accounting for the more serious declines in average soybean yields during those years. In 1980, three-fourths of Georgia's rainfall shortage occurred in July and August and soybean yields dropped 57 percent from the year-earlier level.

Because droughts do not usually occur uniformly across the country, some regions may be receiving relatively abundant rainfall at the same time that another region is exceedingly dry. Thus, it is possible that national crop production is good at the same time severe problems are experienced in the Southeast. Conversely, the Southeast can harvest bumper crops at the same time other sections of the nation have severe problems.

Cumulative rainfall in the April through August period in Illinois, a centrally located state in the midwestern region, was compared with Georgia's rainfall (see Figure 1). In 1974 and 1976, the Midwest experienced severe droughts that the Southeast largely escaped.¹ On the other hand, the Midwest did not share in the Southeast's drought in 1977 and the Midwest's rainfall shortage was much less severe than the Southeast's in 1980. Only in 1972 and 1978 were rainfall deficits approximately similar in the two regions.

Neither corn nor soybean yields declined from the year earlier in Illinois in 1972, but soybean yields did drop almost 10 percent in 1978 when they also fell about 12 percent in Georgia. During the Midwest's most severe recent droughts in 1974 and 1976, yields of both corn and soybeans declined by about 20 percent and eight percent, respectively, from the year earlier levels.

Effects on Incomes

Droughts cut agricultural production because of the reduction in yields, but they may or may not result in income reductions to farmers. If a significant proportion of total national production has been lost, prices of affected commodities may increase by a larger percentage than production has been reduced, resulting in an actual increase in total revenue to farmers. Frequently, however, production is cut sharply in the region where the drought occurs but, because production is

¹ Although cumulative rainfall for the growing season did not reflect a drought in 1974 because very little rainfall was received in Illinois during the crucial period in July, crop production was reduced severely.

normal or sometimes above normal in other areas, total production may decline only slightly or not at all. Prices then do not rise, and producers suffer income losses to the full extent of the reduction in production. Because the Southeast accounts for relatively small shares of most crops produced nationwide, the decline in southeastern production does not have a sufficient impact on total output of such crops as corn and soybeans to cause prices to increase.

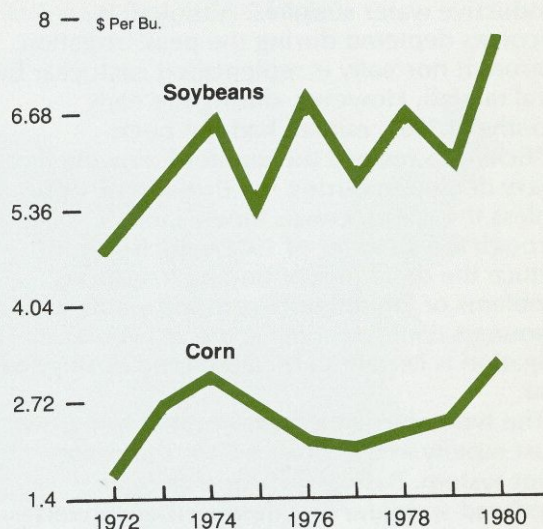
Income losses from droughts in the Southeast are usually heavy. In 1977, for example, the sharp declines in the Southeast's output of corn and soybeans were accompanied by price declines since national output increased at the same time (see Figure 4). In 1980, the drought, though most severe in the Southeast, was also felt in the important midwestern area of production. Total production declined along with southeastern production, and commodity prices rose. Price increases were greater than production declines for the U.S. as a whole, indicating that the drought may have actually increased the nation's farm income in 1980. In the Southeast, however, the average corn price rose just enough to offset the production decline. In the case of soybeans, the largest single source of southeastern crop income, yields declined 57 percent while the season-average price rose 23 percent, leaving farmers with a large income loss. Income from several other crops declined as well, compounding the disaster of 1980's rainfall deficit for southeastern farmers.

Use of Irrigation

Significant moisture shortages during four of the past nine years, coupled with even more frequent periods of unevenly distributed rainfall during the growing season, have sharpened the interest of southeastern farmers in irrigation. During seven of the past nine years, moisture dropped below the normal level during July. In addition, there are usually several periods during the growing season when crops can benefit from supplemental moisture because plants can suffer from moisture stress even though a heavy rainstorm is received in time to bring monthly precipitation up to its normal level.

Chart 4
Season Average Prices Received By Farmers

United States



An annual survey of crop irrigation practices in Georgia conducted by the Agricultural Extension Service shows that irrigated acreage increased five-fold from 1973 to 1980, with the total irrigated area reaching just under one million acres in 1980.² Corn, peanuts, and soybeans were the crops receiving most of the irrigation, with corn alone accounting for 40 percent of the total acreage.

Irrigation's rapid growth continued in 1980, with acreage expanding by 23 percent in one year. About 1,200 new irrigation systems were installed in 1980 alone, and 450 new irrigation wells were added. Although most irrigation systems were pumping water from ponds, wells have been the most rapidly increasing water source for irrigation since 1973. Fewer than 1,000 wells were in use in 1973, but the number had reached 3,387 by 1980. The capacity of most newer wells has been increasing, too, constituting an increasingly heavy drain on Georgia's underground water resources. Three-fourths of Georgia's irrigated acreage is within the Southwest District where most of the wells are fed from the principal

²K.A. Harrison and R.F. Skinner, "Irrigation Surveys," Cooperative Extension Service, University of Georgia, College of Agriculture, Athens, Georgia, 1973-80.

Artesian-Limestone Aquifer that underlies most of the Georgia Coastal Plain. This aquifer reportedly is one of the world's most productive water supplies. Although it becomes depleted during the peak irrigation season, it normally is replenished each year by local rainfall. However, during the early months of 1981, rainfall had not been sufficient to restock the aquifer following its heavy depletion during the drought of 1980. Unless the area receives timely rainfall through the summer of 1981, which would reduce the need for continuing irrigation, problems of limited underground water resources could become acute as even more irrigation is certain to be attempted during the year.

The type of irrigation system that has grown most rapidly in use since 1973 is the center pivot system. Basically, it consists of an overhead sprinkler line mounted on wheels which facilitates continuous rotation around a pivot point in the center of a field that contains no upright obstructions. A single system is capable of watering 200 acres or more from one pivot point. Although the initial costs of these systems are high — over \$100,000 for a 150-acre unit — operating costs are relatively low because of the small labor requirement once the system is set up. The total annual cost of operating such a system making five applications of water is about \$120 per acre.³ If corn yields are raised from 50 to 100 bushels per acre through the use of such a system, the added yield of 50 bushels at a price of \$3 would more than cover the cost of irrigating. Reports from the 1980 crop year indicate that benefits to irrigation were considerably greater than indicated above because irrigation made the difference between yields as high as 130 bushels per acre and little or no yield on unirrigated production in many locations.

Consequences of Increased Irrigation

Clearly, southeastern farmers are benefiting from the use of supplemental irrigation on cropland and that is the reason the practice is

growing so rapidly. However, many are asking questions as to whether all the costs of irrigation are being adequately measured and whether the benefits to agriculture are sufficient to defray these costs once they are totally realized.

Water supplies can be seriously depleted in areas where irrigation is growing rapidly. The public has long tended to think of water as a free good of unlimited quantity, with the only cost to the user being that of transporting it or moving it to its place of use. Southeastern users are now realizing that water is not unlimited in quantity and that serious problems can arise when there is not enough water to go around. It is generally recognized that water use from streams and lakes cannot exceed the point where supplies of other users from the same sources would be threatened. It is also generally felt that individuals have full ownership rights to all water collected in ponds and reservoirs built on private property. Also, it is generally felt that landowners have ownership rights to all water accessed by wells on their own property. When those supplies grow short, however, it is unclear who has the rights to what remains. Is it the individual with the most wells? The largest wells? The deepest wells? As water tables fall and leave shallower wells high and dry and as excessive pumping from huge wells exhausts the water supplies under the lands of adjacent property owners, disputes are certain to arise that will require a change in the ideas of ownership of underground water resources.

Water needed for human consumption and other urban uses can be threatened by growing utilization of supplies for irrigation and for manufacturing plants. Governments must somehow deal with a myriad of new problems brought about by a scarcity of underground water resources. Allocation schemes to serve the needs of competing users undoubtedly will be costly and cumbersome to administer and enforce.

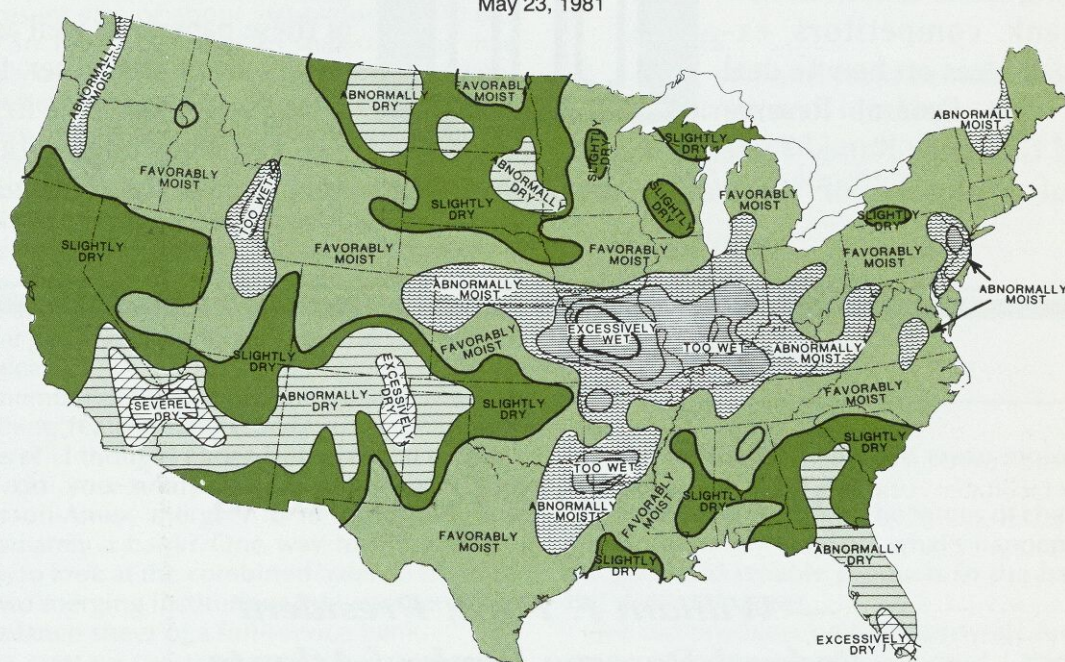
Unlimited pumping from underground water resources can bring other problems as well. When fresh water supplies are removed near seacoast areas, salt water seeps in to replace the fresh water removed and water supplies then undergo serious permanent damage. In some localities, water becomes

³R.E. Brown and R.E. Skinner, *Economic Analysis of Sprinkler Irrigation Systems*, Cooperative Extension Service, University of Georgia, College of Agriculture, Athens, Georgia, 1980.

Crop Moisture

(Short Term, Crop Needs vs. Available Water in 5-ft. Soil Profile)

May 23, 1981



Source: Weekly Weather and Crop Bulletin, May 27, 1981.

too saline for drinking or to be applied to growing plants. In some cases, the potential for irrigated crop production in whole regions is destroyed.

When aquifers near the surface are depleted and remain empty, cave-ins sometimes occur that cause large areas of land surface to sink. Recent events in Florida demonstrate that serious permanent damage results to property and perhaps even human lives from such occurrences, popularly known as sink holes. The short-run benefits gained from irrigation may be small indeed when measured against the serious costs of salt-water incursion, land cave-ins and perhaps other serious consequences as yet unrecognized.

Rigorous measures of water conservation may offer the least costly means of contending with periods of rainfall shortage. In most cases, water is used as a free good

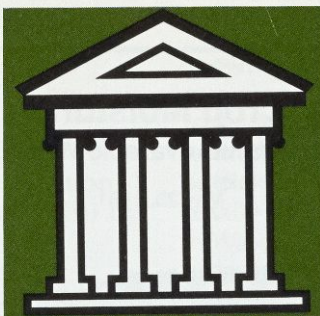
because costs associated with its use are so low. Urban areas could effect vast economy measures in residential water consumption that would impose little real human hardship. Conservation practices, including reduced water use and reuse of household water, could be encouraged by setting prices of water at a sufficiently high level.

Agricultural users would be encouraged to limit irrigation to its most profitable uses if costs were assessed for water taken from nonprivate (underground) sources. Likewise, industrial users would be likely to adopt more ingenious practices to reuse water if costs were higher. All of these measures could serve to extend water supplies during periods of below-normal rainfall when water supplies are insufficient to meet all of the normal demands.

ER

—Gene D. Sullivan

Leaders of the financial industry gathered in Atlanta June 3-4 to discuss the future of financial services. Long-standing rivals as well as new nonbank competitors exchanged ideas on how to deal with what Federal Reserve Board Governor Nancy Teeters called "a virtual explosion of innovation and



change." Edited selections from the first of the four sessions, "The Changing Role of Financial Institutions," are presented here. The full texts of these papers, as well as the papers from the other three sessions, are available in *Proceedings* form. Ordering information is included in this issue of the *Review*.

Welcoming Remarks

— *William F. Ford, President
Federal Reserve Bank of Atlanta*

I want to welcome all of you here to our first conference on the future of the financial services industry. I'm sure that you're as surprised as I am to see this large turnout, over 400 executives. We had expected to draw only about 100 people. But when we sent out the brochure we suddenly found ourselves bombarded and overwhelmed with applications. This indicates that we're on to a hot subject, and perhaps, that we set the price too low.

Less than half the people registered here are commercial bank chief executives. We are very pleased to see that about a fourth of the audience consists of top leaders of the thrift industry and of other financial industries.

It's important that we understand just how different the perspectives are of the various groups represented here.

For example, in the room we have a few dozen thrift industry leaders. Also present are some of the perpetrators of the Money Market Mutual Funds. I use the word "perpetrators"

advisedly, of course, trying to reflect the feelings of some of the bankers and thrift executives in the audience.

There are also people here from various brokerage houses, some involved in exciting things like the Shearson-Amex merger. That merger — and the marketing success story of the MMFs — I'm sure, will make some of you nervous, some of you mad, and some of you overjoyed. Obviously, these developments also make most of us wonder where all these exciting changes will lead us. That's why we're here. To compare notes, and to learn.

I'm not going to tell you that I think we'll have the mysteries of our collective future all solved by this afternoon, or by tomorrow afternoon. But I will say that even though you've heard the old cliché about "the winds of change" a thousand times, I think those winds really are swirling around us right now.

We have before us a whole new industry, as noted earlier, called the money market funds.

They currently hold right around \$120 billion in assets. This industry had just a few hundred million dollars in it five or six years ago.

To put that in perspective, the MMF industry is *roughly* twice the size of the credit union industry, which took over 100 years to evolve to its present size of about \$60 billion to \$70 billion. So here you have an industry that has literally come from nowhere, in a period of only about five years, and has already reached twice the size of a major financial industry that is over a century old.

You have also seen in recent days, the Shearson-Amex merger. I'm told that if you put those two firms together and viewed them as a bank, they would be in the top 20 on the day their merger goes through. Right off the bat, you've got one of the biggest global "banks" in America.

A member of the press asked me recently, "Is this thing really a bank? Does it have banking powers?" I thought about it, and asked myself, how do you analyze something like the Shearson-Amex merger? Is it potentially or immediately a bank? One way to think about that is to look at the combined balance sheet of the two merging institutions and compare it to the balance sheet of a full-service bank.

Let's start on the asset side, does Shearson-Amex buy, sell and hold bonds? Clearly, it does.

Next, let's look into their "loan portfolio." For instance, do they operate in the international lending area? Well, American Express, I'm told, has international banking offices in about three dozen countries. So it does make international loans.

Does it make commercial loans? One of the main things you find in their portfolio of managed assets is commercial paper of major industrial corporations. As I see it, that's a form of commercial lending.

Do they deal with consumers and lend money to them? You know they do that in servicing their individual brokerage accounts.

Now let's examine their liabilities. Do they offer savings products, a broad line of savings products, like a bank? Of course they do.

Do they gather funds through debentures and by issuing equity stock? You know they do.

So, without getting into all the details, I think it's fair to say that the Shearson-Amex merger will result in a firm that has many of the earmarks and services of a full-service international bank. Bankers and thrift executives are

"Is Shearson-Amex a bank?"

Assets

- buy, sell and hold bonds
- international lending
- commercial lending
- consumer lending

Liabilities

- savings products
- debentures
- equity stock

right in sensing that this will mean more competition facing them.

Another way to look at the forces of change in our environment is to ask what's happening to the good old reliable products in the banking and thrift industries.

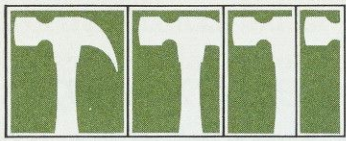
Are old products being destroyed? Are new products making a splashy entry? I think the answer again is clearly yes. In the first few weeks that NOW accounts were permitted nationwide, during 1981, over a million households opened them.

How about old products dying? Here's one to consider. Does anybody here think the *conventional fixed-rate mortgage loan* isn't dead right now? Deader than a doornail? That product that had been the main asset of the savings and loan industry for more than a generation — high inflation and volatile interest rates clearly did it in. And in a relatively short period of time.

So it seems that we are in a very turbulent period of change — one in which old products are disappearing, and new products are popping up and succeeding very rapidly.

So the bottom line of this introduction is a tried but true one. You are indeed gathering here during a time when things are changing rapidly in all of the financial industries.

We've assembled what we think is an all-star lineup of thoughtful speakers who are on the forefront of making change happen in many of these areas. So, without any further ado . . . let's open Session I. ■



Hammers of Change: Banking's Response to the New Environment

—*John F. Fisher, Senior Vice President
Banc One Corporation, Columbus, Ohio*

I think commercial banking is being hammered by four forces, the first having to do with inflation. The conditions of inflation really begin to change the kinds of products and delivery systems my industry is providing in the marketplace.

We see new forms of competition also being one of the hammers of change. Decreased regulatory restraint is also a hammer for change. And, finally, the fourth is the acceptance in the marketplace of advanced technology.

In other words, the old, nice, comfortable ways of providing business no longer work.

As a marketing man, what I've detected is that the marketplace really is beginning to respond differently to the four basic appeals: convenience, liquidity, cost, and the basic service itself.

Banking's Four Appeals

Let me review these four basic appeals and determine how I believe the marketplace is responding differently today.

I believe convenience will continue to be the major appeal in the marketplace, but it's giving way as these other appeals become more popular.

On the horizon there are delivery systems arising that will eventually — through shared delivery systems such as home banking — begin to neutralize even the competitive forces of convenience. In the future, convenience will slowly diminish as a gross appeal.

Liquidity, on the other hand, which has not been the broad appeal in the commercial banking industry, has certainly become the force for major change within the last couple of years. The marketplace has begun to accept the requirements of accessing all assets in a liquid manner as one of the genuine benefits of any financial product offering.

Rate (cost) has always been important in my business, but it's becoming even more important today as a way in which the marketplace must contend with inflation. We'll soon, I believe, produce — at least from a commercial bank standpoint — a demand account truly paying money market account rates.

Obviously, the plain Jane checking account is a dead service. We haven't quite buried it yet. I would hope before the year is out we'll be paying money funds on our demand balances. If we're unable to do that either through loopholing or finally tearing down the halls of Congress, then, obviously, we're going to continue to bleed as we are today and see our funds erode.

Finally, the fourth appeal in the marketplace has to do with service. Customers are switching to waiting on themselves rather than requiring us to wait on them.

They accepted in the decade of the '70s the introduction of self-service banking, and we'll see considerably more of that as this decade matures.

The Gee-Whiz World

The marketplace changes in this new environment force the commercial banking industry to hammer out new kinds of delivery systems. I want you to picture the last half of the 20th Century. Start with 1950, and project yourself forward to the year 2000.

As you remember 1950 with me, you will recall the principal delivery system from a commercial banking standpoint was the main office. Virtually all of our transactions were handled there.

As branching and drive-in banking began to mature in the marketplace, the transaction load carried by the main office began to decrease. Branching and the drive-in facilities, I believe,

are peaking today, and as we head now into year 2000 they will become less important.

They are being replaced by the new marvels, the gee-whiz world of electronics. We look back only 10 years to see the beginnings of the new electronic delivery systems, and the marketplace acceptance of technology. Today we have 25,000 self-service machines in the United States.

We're headed on into a peaking of the automatic teller machine popularity around 1990, and then I see that tailing off as we head into the year 2000.

It will begin to be replaced by home delivery systems in just the next few years.

We see such systems by year 2000 being the principal method of delivering services.

We also see a unique new entity arriving around 1990, what we are choosing to call shared facilities.

Anyone contemplating putting in a full service branch today has to consider who you're going to sell or lease a part of it to when 1990 arrives. Clearly, as these delivery systems begin to change how we wait on customers, most of

"Liquidity . . . has certainly become the force for major change within the last couple of years."

the bricks and mortar delivery system we have in place today will no longer be needed.

The old service station site changed when you no longer had to have your car lubed and the oil changed every four or six thousand miles.

I see the opportunity to lease off half of the lobby to the real estate broker, the insurance broker, the Merrill Lynch broker, and begin to provide a total financial supermarket capability.

The Self-Service Future

The self-service future that I predict for our industry really began with the credit card in the 1960s. While the credit aspects of that delivery system have matured, the plastic cards still have

many more features and much life in the product, many more features that can be added to it.

We anticipate, however, that the plastic card that the commercial banking industry has invented will be available not just to commercial banking, not just to the depository organizations, but really to the financial industry.

The best demonstration of that is the Merrill Lynch cash management account. Seven brokers now are under contract to provide that kind of service, two of them with American Express — Shearson was mentioned — but then in addition to that, as I'm sure you know, they have signed Bache. My organization, which put together the CMA service with Merrill, has also announced Dean Witter, and we have three others that will announce before this month ends.

The brokerage industry, quite obviously, has committed to being able to liquefy the investable funds through the transaction service that commercial banking provides.

But there are other industries standing at the edge, waiting to invent their products that will be similar to the CMA service. For instance, the real estate industry is panting right now, ready to introduce this new capability for their customers. We are talking today with both a national real estate company and also a mortgage processor.

It was the automatic teller machine in the 1970s — if it was credit cards in the '60s — that really began to signal the marketplace change and the willingness for the customer to accept self-service banking. The automatic teller machine is on the threshold of some dynamic announcements as our two national systems get ready to introduce a dual interchange program allowing a customer from Atlanta to access their bank account from a machine in Columbus, Ohio.

That type of capability will be put up in pilot in the fourth quarter of this year, and I believe over the next couple of years our industry will commit major resources to providing a national cash availability system.

The ATM, I think, is headed for a position where it will handle half of the transactions in the banking industry by the end of the decade of the '80s.

The New Technology

It is the oncoming new technology that is most dynamic of all — the opportunities to

introduce potentially by the mid-80's a unique new delivery system.

The introduction of services via VIDEOTEX that will link together a screen in the home, potentially the existing TV set, and the basic telephone system that's in place today — either the basic telephone systems or in some cases the two-way cable systems that are going into our country.

This new interactive capability has been an experiment; a Channel 2000 project we conducted the fourth quarter of last year indicated to us that in fact this technology was usable in the future and that clearly our industry would move in this direction.

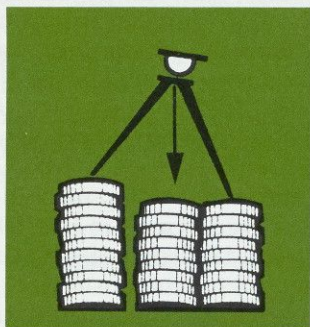
Our society clearly will arrive in a home information period and the commercial banking industry will have an opportunity to play an important role in providing that delivery sys-

tem. The technology is under experimentation — not just in this country — but worldwide.

We can anticipate three important developments in just the next year or so: Banking, number one, will rely more and more on self-service delivery of its products to remain competitive and to return the profits that are necessary.

Second, transactional services will be made available through the commercial banking industry to the entire financial industry at fees and, therefore, retain the profit requirements that we have. We will see more and more of the profit contribution to commercial banking coming from other users rather than from the customer.

And, thirdly, banking will either provide this service or relinquish it to other users. ■



S&Ls and the “Level Playing Field”

—*J. Robin Harris, President
Decatur Federal Savings and Loan Association*

The predictions of the early demise of the savings and loan industry are erroneous. And although this is the case, and I've tried as hard as I could to bring myself to say it's a pleasure to be here, the situation that the thrifts find themselves in nationwide causes me to believe that what we have on this panel is a modern day revival of the “Christians and lions game.”

On March 31st, 1980, the Congress sent a signal to the country that housing no longer had a national priority. This signal took the form of the passage of the 1980 Depository Institu-

tions Deregulatory and Monetary Control Act.

This signal was endorsed the next day by the administration, and President Carter signed it.

In pressing for the elimination of Regulation Q and the differential, the commercial banking industry's support was based on their announced desire simply to “play on a level playing field.” This has got to be one of the finest slogans ever devised in support of a position.

It was as effective in getting the message across as the slogan I saw on the side of a

plumbing truck driving down here today. It said, "In our business a flush beats a full house."

Pressures for More Housing

From 1980 through 1989 the different projections have the need for housing standing at between 20 and 22 million units, ranging from 1.8 to 2.2 million units per year.

In 1980, 1.3 million came onstream. Projections for 1981 are for a similar amount. The demographics indicate that during this 10-year period the greatest number of young Americans ever will be entering the home buying field. Although the elected officials have decreed housing no longer to be a national priority to be encouraged, and although noted economists have declared that housing has received too much of the nation's capital, none of this is going to affect or change the American public's belief that home ownership is a right to which it is entitled.

Policy decisions are not going to affect individual expectations. As these expectations and the enjoyment of this right are denied because of a lack of capital, the political pressures that will be brought will be enormous. Viewed from today's environment, it is my opinion that the thrift industry will not be able to furnish the capital for housing that it has in the past.

Now, while the industry as a whole will remain committed to housing, both because of history and because of Internal Revenue regulations, the loan window will not again be as wide open in the future as it has been for most of the past 36 years.

Heretofore the welcome mat was broad and wide, and the savings and loan industry welcomed all applicants for mortgage loan financing. In looking at a loan application, in addition to credit and income we only looked to see if the

applicant had the necessary down payment. It mattered not where it was located.

In my considered judgment this will change. In the future when an applicant's financial statement shows that a majority of his liquid assets are invested in a Merrill Lynch cash management account or commercial bank certificates of deposit, we are likely to say, "Go to Merrill Lynch; go to your commercial bank and apply for your 30-year mortgage."

Frustrated Desires

It is not beyond the realm of possibility — and this frightens me — that by the end of the 1980s the political pressures I referred to that will be generated by the frustrated desires of the American public will cause the federal government to have to become the major lender for housing. In addition, the program will likely include subsidized interest.

Having observed the Congress closely over the past several years I can almost imagine what it will propose. There will be a maximum square foot limitation, an overkill on insulation, an elimination of central air conditioning, and a requirement that a borrower have an income of between 150 and 200 percent of the median income in his locale.

That borrower will then receive a mortgage with an interest rate of between 6 and 9 percent. Anyone wanting a larger house or having a higher income will have to go to the private market for financing.

Interstate branching will receive formal approval before the end of the '80s, and, as is often the case, will represent a pronouncement by the Congress of that which is in fact already taking place.

By the end of 1981 it is projected that seven of the ten largest banks will have a presence in metropolitan Atlanta. Citibank already has almost as many employees in Atlanta as does Decatur Federal.

The service corporations of several non-Georgia savings and loans have mortgage origination offices in Atlanta. Within the past couple of years the Federal Home Loan Bank approved for a Georgia savings institution a branch in Alabama.

The debate on the formal repeal of the McFadden will go on and on and on, but in the end it will be phased out. Banks will own savings and loan associations, and thrifts will be acquiring commercial banks.

"The predictions of the early demise of the savings and loan industry are erroneous."

"The public perception is the banks are making record profits and are now engaged in a program of gouging the public to make those records even higher."

There will be a substantial decline in the number of commercial banks and savings and loan associations as separate entities. Most of these will not be the result of supervisory mergers, but will come from strong institutions joining hands in order to be competitive in broader marketplaces.

Maintaining good public relations will be a constant challenge to all financial institutions.

In the second week of April 1981 many banks reported record profits. A week later many of these same banks raised their prime rate. Within the next couple of weeks they raised the prime rate again. It was followed by a third increase the first week in May, a fourth the next week, a fifth the next week, and a sixth the next week.

Now, the fact that there may have been sound business reasons for these increases is of little import to the public. The public perception is the banks are making record profits and are now engaged in a program of gouging the public to make those records even higher.

The perspective is important, and the public's perspective is getting to be bad, and public relations is a necessity for financial institutions in the future.

The "Level Playing Field"

It's interesting to me that several respected members of the banking community are pushing for a quicker termination of Regulation Q and the differential prior to April 1, 1986, since to them the playing field is not yet quite level.

It's likewise interesting to me that Secretary of the Treasury Regan, who came to government service from the executive offices of Merrill Lynch, and former Comptroller of the Currency John Heimann, who came to government service from outer space, both testified before a Senate committee in April that the best solution to the problems plaguing the thrift industry was to accelerate the deregulation of interest rate ceilings.

Now, either they don't understand today's problem or they don't care. To be effective, deregulation has got to go far beyond the elimination of interest rate ceilings.

Savings and loan associations are required by law to pay interest on transaction accounts. Corporations are prohibited by law from receiving interest on transaction accounts. Obviously, the effect of these two legal pronouncements is to deny savings and loan associations the opportunity to compete for the high-balance, low-cost corporate accounts.

We're precluded from making short-term loans to business and using a six-above-prime or whatever to let the cost to the borrower pay for the cost of money.

My regular Saturday morning golf partner is a dentist. He operates as a professional corporation. He can't have a NOW account with us. The dentist in the next suite to him operates as an individual, and he can have a NOW account. Madness.

And on top of that, to remain qualified as a domestic building and loan association under Internal Revenue regulations we must have 82 percent of our assets invested in residential mortgages.

Now, don't talk to me about a level playing field. When Regulation Q expires and the infinitesimal differential disappears, the commercial banking industry can very easily say to the savings and loan, whatever you have left after the inroads by the mutual funds we are going to gather.

Therefore, I have to presume that to the American Bankers Association the concept of a level playing field is one that is tilted at a substantial angle to help deposits slide from thrifts to the banks. In a speech to the New York Financial Writer's Association in April, Secretary Regan addressed the issue of money market mutual funds, and in effect said, don't touch

the money market mutual funds. Deregulate the banks and savings and loans so that we can all — guess what — play on a level playing field.

Regan's apparent concept of a level playing field is one where the banks and thrifts are required to maintain reserves and the mutual funds are not; where security houses can branch indiscriminately across state lines and nationwide, and banks and thrifts cannot; where banks and thrifts have to wrestle with the Community Reinvestment Act, RESPA, HMDA, TIL, equal credit, non-discrimination in lending, and maintain an exhaustive loan application register, while mutual funds are burdened with none of these.

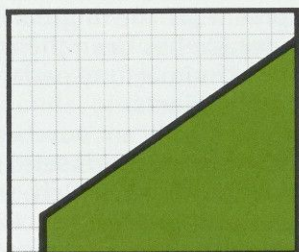
It is obvious that when a playing field is deemed to be level depends on whose eye is looking at the bubble. At the same time Secretary Regan was saying let us play on a level

playing field, the Securities and Exchange Commission was filing a brief in a lawsuit brought by a securities house against the Federal Reserve Board to have declared illegal the Board's grant to a commercial bank the power of underwriting commercial paper.

The situation all of us find ourselves in, and the way we say a level playing field is, let me do everything everybody else can do but don't let them do anything I can do.

Thrifts will gravitate toward serving the needs of the non-corporate consumer. It's coming; it's the road down which most of us will travel. I'm not sure we really want the corporate business. I just wanted to point out the inequity about the level playing field thing.

And in spite of the current difficulties and the future non-competitive status, the thrift industry will survive. ■



The Significant Changes in the Mutual Funds Industry: 1967-1981

—*Howard P. Colhoun, Chairman of the Board
T. Rowe Price New Era Fund*

The fact that the mutual fund industry is represented on your agenda today is certainly a sign of the times. The dramatic growth of the mutual fund industry, particularly the money market sector, has attracted the attention of not only investors but other financial institutions.

It's rather clear to me, anyway, that the restructuring of the financial services industry that is taking place today will include the mutual fund industry in a more significant way than would have been the case 10 years ago.

During the last 10 years inflation has created a variety of forces that have combined to produce significant changes in the public's demand for stocks, bonds, savings accounts, real estate, and other forms of investment.

These changes have caused most financial institutions to modify their operations to some degree and to respond to this change with new products, new services, and new affiliations.

The mutual fund industry has experienced enormous change and literally transformed

itself to adapt to this new environment. There have been major changes in the funds industry's image, asset mix, breadth of product line, growth rate, primary method of distribution, types of shareholders, and marketing requirements.

A Watershed Year

To identify these major structural changes and their major implications for the mutual fund industry, I think the place one always must start is with the environment. The environment for investors really changed in 1967 because that's when inflation in this country began to accelerate.

In the 10 years before 1967, as you all know, the annual rate of inflation, at least measured by the CPI, was about 2 percent.

In the 14 years since then the average change in the CPI has been about seven and a half. Inflation has persisted so long that investors have future expectations of high rates of inflation, and this has dramatically affected their attitude towards different investment vehicles.

Investors have reduced their savings rates, increased their debt, become more risk averse, and managed their money more carefully.

Inflation has also had a major impact on the pricing of financial assets. Tangible goods like oil, gold, silver, real estate, have increased substantially, and as many people know the value of bonds have declined substantially.

The development of high short-term rates in money market instruments provided investors with unprecedented yields which they found very attractive. And the existence of this high short-term rate environment created a new product opportunity for the mutual fund industry which, as I will tell you, before it was discovered was in decline.

In 1970, 83 percent of the mutual funds industry assets were in stock funds with the remainder in balanced or fixed income funds. By the

end of last year the mutual fund industry had grown to 132 billion with almost all of the growth having come from the money fund sector.

Equity assets last year remained at about the same level as they were in 1970, that is, 40 billion. Fixed income mutual funds had grown in the last decade from 3 billion to 15 billion, certainly modest compared to this money fund growth.

I think the significant fact here in terms of growth of the mutual fund industry is that it took the mutual fund industry about 30 years to accumulate about 60 billion in assets, but it has acquired 118 billion in a new product in the last five years.

Major Changes in the Product

The money fund, I think, also introduced the mutual fund industry to the average person much sooner in his investment or savings cycle. . . .

In the past the mutual fund industry didn't enter that cycle until rather late. But with the money fund he's been introduced much earlier at the savings end.

A major development in the mutual fund industry in the last decade has been the movement away from what in mutual fund parlance is called load to no load products.

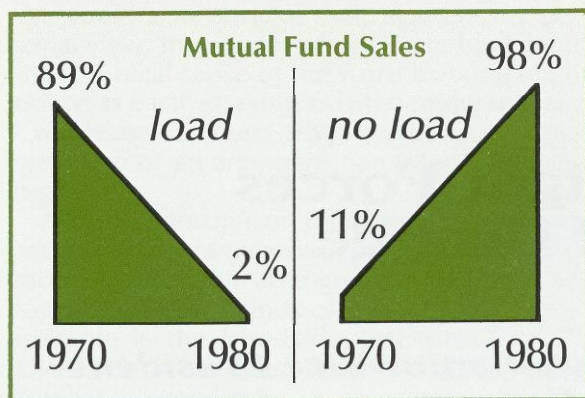
Let me give you some significant numbers. In 1970, 89 percent of the mutual funds sales were represented by load products which represented a commission and a salesman. Eleven percent were no load where the customer made the investment himself, i.e., self-service.

Last year these numbers were completely reversed. Ninety-eight percent of sales were sold on a no load basis; two percent representing products involving commission. That's a dramatic change.

Computer capacity, adequate telephone facilities, and courteous shareholder representatives have become critical to the mutual fund industry. As you probably could guess, the money fund shareholder is much more active in his account than a stock fund shareholder.

To give you just some idea of the telephone traffic — which, I might add, our company had very little of in the past — last year our company, which is a modest participant in the mutual fund industry, received 750,000 phone calls from shareholders. We could not handle

*"Last year our company
... received 750,000
phone calls from
shareholders."*



that volume without specialized computers, routing equipment, and many more shareholder correspondents.

Another important development in the fund industry has been what I will term product line proliferation. The mutual fund industry historically offered only stock and bond funds.

In the last decade, fund complexes have introduced what we call a "family of funds" with a wide variety of investor needs being satisfied.

Following the interest in reducing taxes, the industry has introduced tax-exempt long-term funds, tax-exempt short-term funds, international funds, options funds, et cetera. These are all quite new.

The increased variety of specialized funds has attracted a new type of investor to the mutual fund industry, the institutional investor.

Historically the fund industry was what I would call the poor man's entry to professional financial management. That isn't the case anymore.

Institutions have availed themselves of specialized mutual fund products. Certain money funds have been developed to cater to the needs of short-term investors at sophisticated institutions. Other institutions have utilized international money funds to satisfy special needs.

Of course, an increasing number of corporations are using mutual funds in their pension plans. . . .

A More Sophisticated Consumer

All types of media told the public that money funds were unique and offered them very

attractive returns. It is clear to me that in the last decade the average investor has become a lot better educated and more sophisticated.

The average investor wants to maximize his return and is more aware of the differences between a money market instrument and a bond. He knows what liquidity and redemption fees are. He is certainly more aware of his investment options, and he's willing to make trade-offs between cost, quality, and convenience.

Supplementing the activities of the press, fund organizations were able to obtain certain regulatory relaxations in the type of advertising copy they could use.

In the last few years new regulations or deregulations have allowed mutual funds to place ads that attract attention and have made readers more aware of the unique features of mutual funds including the current yield available.

The number of shareholders in the fund industry just about doubled from 5.8 million in 1960 to 11.3 million in 1970. This has been a period of very rapid growth, and one where the image of the fund industry changed dramatically for the better.

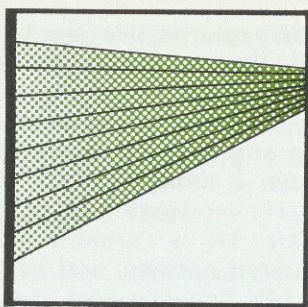
Unfortunately, in hindsight the largest number of investors came into the mutual fund industry in the late '60's, just before the substantial stock market decline of '73 and '74, and most of the products they were buying were equities.

Until the introduction of money market funds in 1977, the number of mutual fund shareholders was declining rapidly from the peak I talked about in 1970. The industry was in net redemptions for years. Mutual funds had a poor image and were viewed as very risky vehicles.

However, money funds were introduced, and a high, relatively assured rate of return was offered, and the entire image of the industry began to change.

The attractive return offered by the money fund was so great that the investor was willing to take the initiative to mail his money away to an institution far from where he lived.

One of the key questions now is whether the six and a half million shareholders who own money funds will consider using an equity fund when they feel that stocks or equities are attractive to own. It's an unanswered question but one that is quite important for the fund industry and perhaps other financial institutions. ■



Eight Forces of Change

—*Harry L. Freeman Corporate Senior Vice President
American Express*

I think the current debate has been too much focused on new products, governmental regulations, and apparent new institutional combinations for the delivery of financial services.

My own view is there are at least eight major environmental determinants, all broad in nature, which I will address all too briefly.

The first is that *consumer demand and consumer preference* expressed in the marketplace remain and will continue to remain the most important determinant. The future is in the hands of a new breed of consumer. That consumer today is as different from yesterday as the computer differs from the slide rule, and this trend is irreversible.

These consumers are more affluent, more sophisticated, more interest rate sensitive,

more inflation and risk sensitive, the product of materially changing demographics, and probably less loyal to institutions than in the past. The relatively high interest rates combined with recent marketing techniques have made these consumers permanently interest rate sensitive.

Second, I would rate *technological developments* as one of the most important determinants.

For example, last week I read of Citibank's announcement of a 4-inch screen on a home terminal accessed by Citibank's proprietary card (Citicard), an alphanumeric key pad, GTE telephone connections and card readers. This comes to the home via ATT lines.

According to the spokesman from Citibank, and I quote, "Essentially, this terminal allows our customers to perform every banking function except make deposits and withdraw cash; plus, it goes beyond the services offered by the ATM. It allows access to all the customer's Citibank accounts." And this is only one of many examples.

A third determinant of future financial services is *regulatory uncertainty*. It is the uncertainty, I believe, rather than the various merits of the limitless proposals now floating around, that is a strong determinant. Given our federal system of regulation and independence within that federal system of various institutions such as the Fed, the FDIC and the SEC, I suggest that regulatory uncertainty itself will continue to plague advance planning and capital commitments.

*"... I suggest that
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I would also observe that, again in my personal view, the advent of interstate banking in the technical sense of the word banking might not be as earth-shaking as often projected, and I will leave to others whether that is an argument pro or an argument con interstate banking.

A fourth determinant of the future lies in *new institutional arrangements*. We are seeing more mutually profitable arrangements between historically different kinds of institutions. A good example is the Visa-Banc One-Merrill Lynch CMA, which has been described today and is familiar to everybody.

A fifth determinant is the *increase in competition*. I won't dwell on the obvious examples. A major competitive factor that gets insufficient attention is that many firms, now not thought to be competitive factors in financial services have or are developing the technologies to become major players in future financial services.

While I do not think ATT will become a major competitor in this area, they certainly have many of the pieces; as does IBM, as does Exxon. As financial institutions redefine their self image to information companies and communication companies, it makes just as good sense for communication companies to redefine their self image as consumer companies.

Put another way, the next several years could see a lot of big players on the financial field not presently there nor in our minds today as competitors.

A sixth determinant is the *increasing global orientation* of the financial services market. Technology, growing per capita wealth around the world, and economic volatility have combined to make the world the marketplace for many products.

This same universality has bred a few problems. One is the increasing sentiment, now formally expressed in many laws in Europe, to restrict the flow of data across national boundaries. The argument is that information industries are big bucks, and we are seeing economic nationalism becoming a strategy-shaping force.

A seventh determinant of future financial services is the *increasing diversity of products*. Put another way, the trend to one-stop or one-institution shopping and transaction centers is

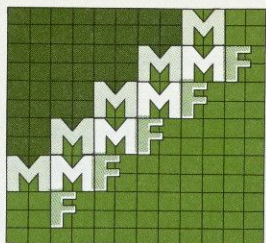
"... the next several years could see a lot of big players on the financial field not presently there nor in our minds today as competitors."

increasing and will continue. SRI International states that the typical affluent American household deals with 20 different financial vendors and purchases 38 different products and services from the financial community, ranging through stock brokers, various kinds of insurance, the full range of depository institutions, tax consultants, financial advisers, realtors, and so on.

My eighth determinant factor today — and there are certainly more — is the *increasing volatility of economic events* we are living with and which most of us assume we will have as a lifetime companion.

The rate of change in economic events — the changing interest rates, money supply reporting, CPI, ups and downs in the GNP, to name a few — have made fast fact junkies out of all of us. We all hang on the Friday afternoon Fed M report, a practice my company and I would like discontinued, and we filed with the Fed, pursuant to its invitation last week, the arguments for doing away with the Friday afternoon weekly reporting.

The key determinants of the winning companies in financial services will be those who can deal best with inflation, who can best utilize the new technologies in data processing and communications, and who can best compete. It is these general principles, and the big picture that I have attempted to describe, which will guide not only my company but also our competitors as well, whomever they may be. Thank you. ■



The Future of the Money Market Funds

—Alfred P. Johnson

*Vice President and Chief Economist
Investment Company Institute*

It is not correct that money market funds have a chronic advantage over six-month money market certificates. If you look at the monthly record, they've had a favorable differential about 50 percent of the time from January 1974 to the present.

The money funds in the four weeks of May have lost deposits and assets. Most of this decline really reflects the activities of our institutional shareholders who have been attracted to higher rates directly in the market for securities.

Now, I think that tells you something about the nature of our customer base. Of the roughly \$117 billion of assets that we have presently, roughly \$47 billion of those assets are owned by institutions, either small or medium sized bank trusts, relatively small businesses, foundations, and the like.

The remaining \$70 billion are owned by individuals, and the distribution of the amounts owned covers a wide range. Surprisingly, 35 percent of the value of all assets — individuals and institutions — are in accounts of \$100,000 or more. Roughly 55 percent fall in the ten thousand to a hundred thousand range, and only 10 to 12 percent are below the \$10,000 range. . . .

Why the Growth?

Reasons why people buy money funds also vary substantially. Roughly half of the individuals say that it's part of their permanent savings program. Another quarter say it's "safe harbor" money in between security transactions; and another quarter use it as a cash management vehicle, they say. So funds, then, have appealed

to a very broad base of customers, really supplying vastly different needs.

Now, what are some of the primary forces behind the growth of money funds from about a hundred million dollars in 1974 to a hundred seventeen billion dollars presently? Some of them have already been covered, and I'll try to play off these in order to conserve time.

Clearly inflation and high interest rates and the expectations of more to come are close to the top of the list. Regulation Q, which put deposit rates out of phase with market rates, provides another part of the answer.

Computer technology and 800 numbers enable the funds to handle transactions and inquiries. In short, the special features of the funds, the diverse nature of their customers, and the public's recognition of its need to cope with inflation, have all been factors in the expansion of money market assets.

"It seems to me that one should not expect the kind of growth rates that we've enjoyed in the last several years to continue indefinitely."

Explosive Growth Will Moderate

Trying to look into the future is an extremely difficult task. It seems to me that one should not expect the kind of growth rates that we've enjoyed in the last several years to continue indefinitely. It just never happens. It seems to me we should concentrate on possible changes in the regulatory and economic financial environment, both of which will change the nature of the competition in the years ahead. . . .

Reserves on Funds Not Appropriate

What about reserve requirements on money funds, and what are the prospects that we will be subjected to them? The shareholders of money funds do write checks. But the position we have taken is that they are different in kind and different in quantity than regular checking accounts.

Our customers write roughly two checks per account per year. The average sized check is something like \$6,000. The appropriate numbers in a checking account are something like 240 checks written per year at roughly \$25 per transaction.

So both in quality and kind we're different. In terms of turnover there's also a very basic difference. The money funds turn over roughly three times a year, and in a characteristic sense look very much like a time and savings account. It's partly for that reason that the Federal Reserve has placed money funds in M-2 of their monetary aggregates. So our position on money funds and reserves is clear. They are not appropriate for money market funds.

The extension of reserve requirements beyond deposit institutions would be precedent-shattering, and would mix the control of money stock and control of the payment systems with uncertain results. I've seen no analysis yet which suggests that such an extension would be worth the economic costs.

If inflation and high interest rates persist, the process of financial innovation will create an ever increasing number of holes in the dike that the Fed would have to seek to plug. The Fed's role as a regulator would increase enormously, something that the administration, the Congress, and the public should soberly ponder.

"The extension of reserve requirements beyond deposit institutions would be precedent-shattering, and would mix the control of money stock and control of the payment systems with uncertain results."

I'm personally convinced that the present weapons available to the Fed can achieve desired policy objectives if they are used effectively. If reserve requirements were imposed on money market funds, I presume that we would also be given the FDIC insurance, the ability to borrow from the Fed at very attractive rates, and certain other services.

Again, if the funds were to be reserve required, I suspect some organizations would develop two sets of funds, one which would go after investment savings money and the other which would go after NOW account money.

If we had to place reserve requirements on funds, the \$500 check limitation that we now have would probably be scrapped. Some of the funds at least would get the software and the technology to go ahead and compete in the check processing area and deposit institutions would be facing a 12 to 13 percent NOW account. So we'd have two different types of funds performing different types of functions. . . .

Without getting into details, I bet that the Fed really means to get control over the growth of money and credit. This effort by the monetary authorities, combined with whatever comes out of the current administration's fiscal policy, will produce lower yields. In that environment money market funds will still be a competitive threat. You better believe it. ■



Geographic Restrictions on Financial Institutions

—Paul M. Horvitz

Professor of Finance, University of Houston

Over the past year I was part of a team working on three projects for the ABA related to the issue of nonlocal competition. One of our major tasks was to document the extent of existing interstate competition in banking, and to project the growth of such activity under alternative legal and regulatory scenarios.

We found that in attractive markets there is already a considerable amount of activity by out-of-state banks, utilizing a variety of devices. These include loan production offices, Edge Act corporations, holding company subsidiaries (particularly finance companies, leasing companies, and mortgage companies), in addition to foreign bank representative offices, agencies and branches. While these operating units can not do everything that a bank or bank branch can do, they are effective competitors for many types of business. This activity is growing, and will continue to grow, even without any change in the law in the direction of liberalization of barriers to interstate banking.

Commercial Banking

In analyzing the extent and impact of interstate banking, we found it convenient to consider separately commercial and consumer business, and within the commercial category to separate wholesale, middle market, and small business. The wholesale market is now and has always been a national (or international) market. It does not make much difference whether those large customers are serviced by a travelling loan officer, as in the 1950's, or by personnel based in a local loan production office. Also, since the small local banks do not have much or any of this business,

any growth in activity in this market by large out-of-state banks has little impact on the local banks.

The middle market is the area in which the growth of interstate banking activity will have the greatest impact. With the narrowing of spreads in the wholesale market, the middle market business is now most attractive to the money center banks and to foreign banks. (It is interesting to note that several analysts attribute the growth in sub-prime lending to the greater participation by foreign banks). These middle market firms represent the most prized customers of the local and regional banks, and hence this is the area in which the conflict between out-of-state and local banks is most intense. The loan production office and the Edge Act are fairly effective devices for going after that business. They are not totally effective, however. In many cases, to be successful in gaining such customers a deposit-taking facility (i.e., a branch or bank sub) is necessary. That becomes more and more true the farther down we go in the size of business being sought.

Small firms are not now subject to significant interstate competition. Loan production offices are not an economical device for going after the business of small firms. As we have noted, a deposit-taking facility is necessary to provide service to the small firm. Making a loan to a small firm without obtaining the deposit account that goes with it is of limited profitability. Also, the high-priced talent with which a loan production office is staffed means that it is not cost-effective to be going after small business lending. Not only has this market so far been unaffected by interstate banking, we

believe that there will not be a great impact on this market even if the law regarding interstate banking is changed. The local banks will have an advantage in servicing the small local firm, even if out-of-state banks have a significant presence in the market. This conclusion depends, to some extent, on the nature of any change in the law.

Legislative Change

The Carter Administration study of the McFadden Act concluded that a change in the Douglas Amendment would be preferable to a change in the McFadden Act. Such a change would allow bank holding companies to establish or acquire bank subsidiaries across state lines, but would not allow interstate branching. Most large banks would prefer to expand by branching rather than by operation of a subsidiary. There are operating diseconomies of the holding company route, and each subsidiary needs its own capital, with loan limits based on that capital. More importantly, a branch can be limited in function, oriented towards wholesale and middle market business rather than small business and consumer accounts. The Carter Administration preference for Douglas Amendment change was based on the view that interstate holding company activity would be less disruptive to the local banking market than interstate branching. This may be incorrect. The subsidiary bank, capitalized as a bank, is going to go after small business and consumers, as well as wholesale business. This may have a greater competitive impact on existing small banks than would entry by wholesale-oriented branches of money center banks.

Constraints on Interstate Banking

Although the pace of interstate banking activity will be stepped up if the law is liberalized, I believe that the change will be less dramatic than many observers seem to think. There are several factors that will limit the extent of such activity. One such factor is the profitability of interstate banking. It may appear profitable for a large money center bank to establish a branch or subsidiary in Denver or Miami or Atlanta. But if 10 other banks establish branches, that market is not going to appear very profitable to the eleventh. In fact, it may not look too attractive to the sixth or eighth. There are limits to the

attractiveness of even the most desirable markets.

Another limiting factor is capital. Very few of the large banks that might be expected to be in the forefront of interstate banking activity have more capital than their regulators feel is marginally adequate. They are going to have to come up with additional capital to margin their growth on an interstate basis. In the case of acquisitions, they will need funds to buy banks selling at higher price-earnings ratios than they are. Issuing new stock at less than book value to buy banks selling at 1½ to 2 times book is going to appear unattractive to many banks. The Federal Reserve's concern about double-leveraging at the parent holding company level is going to restrict the use of debt to finance acquisitions. One important exception to this may be the case of foreign banks. Many of them operate with lower levels of capital than domestic banks. While the U.S. supervisory authorities are concerned about the capitalization of the U.S. banks that are controlled by foreign banks or individuals, the U.S. authorities cannot be expected to exercise control over the capital of the foreign parent. Unless the U.S. authorities clean up their act with respect to capital requirements, the foreign banks will have a significant advantage when interstate banking is allowed.

Regulatory Barriers

In addition to these economic and financial constraints on interstate banking, there will be some regulatory barriers which will retard the pace of such activity. Under present conditions the Federal Reserve and the Comptroller resolve applications at a glacial pace. If we imagine 100 or 200 additional applications for interstate acquisitions — cases that involve

"There are limits to the attractiveness of even the most desirable markets."

novel issues not faced before — it is clear that the pace of regulatory approvals will be very slow. This will result in a slower pace of interstate activity than some expect.

A more substantive regulatory problem concerns the antitrust laws. Interstate mergers or acquisitions involve “market extension” or “potential competition” cases. We have little guidance from the courts as to how such cases might be decided. We know Citibank would probably not be allowed to merge with Bank of America, but could Citibank merge with First National of Atlanta? Could Wachovia? It is going to take a long time to get the answers to these questions, unless Congress deals with it explicitly when liberalizing the interstate banking barriers. In previous discussions of this issue I have argued that it would be appropriate public policy for Congress to set the ground-rules for such mergers, but I have received almost unanimous rejection of that argument by officers of large banks. Apparently their attitude is that they are more willing to risk the costs and delays and uncertainty of the legal process rather than depend on Congress to resolve the issue in a rational way. They may well be right. Congress may handle the issue with a lot of rhetoric about preserving competition that will only obfuscate the issue and make the legal process even more uncertain.

Consumer Banking

In our ABA study, one of the major difficulties we had in projecting the future growth of interstate banking had to do with foreseeing the future of consumer banking. It is possible that consumer banking will not be attractive to banks in the future, particularly in the light of the new services being offered by the brokerage firms, insurance companies, and potentially by large retailers, and the Deregulation Act's grant of full consumer banking powers for the savings and loans. The combination of Glass-Steagall restrictions on the banks, interest rate ceilings, and the pricing policies adopted by most banks, may lead to a situation in which the large consumer accounts are lost to the Cash Management Account and the like and the small accounts are lost to the savings and loans.

One thing is clear about the future of consumer banking — the means by which consumer services are delivered in the future will

“The independent bankers may win their battle of preventing interstate branching, but lose the war.”

be different. Brick-and-mortar branches will not be cost-effective. I do not know whether the ultimate winner will be the telephone, TV, the home computer, or some kind of magic card. I do know that if interstate branching is allowed, Bank of America is not going to put branches on every street corner in Georgia or Florida or Iowa, as they have in California. Yet, interestingly enough, this is what small banks seem to be most fearful of. One way or another, banks will enable customers to maintain deposits, make payments, and obtain credit without the need for a visit to the bank. Usury laws will ultimately be changed and this business will ultimately become profitable again. Many large banks will want to compete for this business.

However, this competition may take a different form in the future. Nonlocal banks may seek to sign up *banks* rather than consumers. The local bank would be provided with a system by which it can offer service to its depositors and others in its market, and the local bank will pay processing fees to the nonlocal originator of the service. The local bank will need this capability in order to match the large in-state banks which will be competing for the local bank's customers. A number of large banks will be offering such service at competitive rates, but it is likely that over time, a substantial portion of the profits from consumer business will be flowing to the nonlocal provider of the service.

There is a great likelihood* that the smaller bank will become the “captive” of the nonlocal service provider. It will be very difficult for the local bank to change services — any change of card or ground rules is likely to upset customers and lead to a loss of existing business. If this

occurs, we will have seen a substantial reduction in the independence of many of our "independent" banks and a *de facto* interstate consumer banking business. The independent bankers may win their battle of preventing interstate branching, but lose the war. This scenario could occur with or without any change in the laws on interstate banking.


Bank-Thrift Mergers

There is one very good prospect for a more rapid expansion of consumer banking on an interstate basis: the possibility of commercial bank mergers with thrift institutions. If some action is necessary to save the thrift industry (and I am not sure that it is), the simplest and least costly approach would be to allow commercial banks or bank holding companies to acquire savings and loan associations and mutual savings banks. The federal banking agencies are supporting legislation that would allow commercial bank-thrift mergers on an emergency basis — that is, if necessary to avert a failure. I disagree with that criterion. It is going to prove to be administratively difficult, and will tend to reward the institutions that have done the worst job of dealing with their economic problems. And if commercial-bank thrift combinations are acceptable among failing institutions, why are they not acceptable among healthy ones?

Savings institutions now have all the consumer banking powers of commercial banks.

There is no logical reason to prohibit bank holding companies from acquiring thrifts. The Federal Reserve clearly has the authority to approve such acquisitions, and has been told so by the Justice Department. The Fed's reluctance to approve the savings and loan business as an allowable activity for bank holding companies has simply been a matter of fear of political repercussions — an unseemly attitude for an agency that prides itself on its "independence."

The crucial aspect of bank holding company operation of savings institutions is that it would allow acquisitions on an interstate basis. This is why their approval would help solve the thrift problem: expansion-minded banks would pay substantial premiums to acquire the right to operate consumer banking activities on an interstate basis.

In summary, we already have a great deal of interstate banking activity. Interstate banking operations are growing, and will continue to grow, even in the absence of any liberalization of the law. If there is change in McFadden or Douglas, the pace of interstate activity will be increased, but, because of a number of inhibiting factors, by less than many observers seem to think. The other changes in the financial services business that we have been hearing about today, particularly the increasing bank-like activity of non-bank institutions, promise to have a more profound effect on the nature of the banking business in the foreseeable future than does the growth of interstate banking. 

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