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Rising Farm Exports and International Trade Policies

CLIFTON B. LUTTRELL

EXPORTS of farm commodities in 1978 totaled \$29.4 billion, almost 27 percent of the value of all cash farm receipts, and a further increase in farm exports is expected this year. Farm exports have increased rapidly and consistently during the past decade both in nominal value and as a percent of cash farm receipts. The nominal value of such exports last year was more than five times that of 1969 and such exports, as a percent of cash farm receipts, more than doubled over the period. Despite this sharp increase, however, farm exports as a percent of cash farm receipts have only recently regained the levels that existed in the early 1920s.

This article suggests that much of the increase in the proportion of farm products exported in recent years is a result of major changes in U.S. and other nations' foreign trade policies. The restrictive trade legislation of the 1920s and 1930s sharply reduced imports which, coupled with retaliatory restrictions imposed by other nations, also reduced U.S. exports. This reduction hurt the farm sector severely (see box). This article further demonstrates that despite the damage to farmers caused by restrictive trade policies such as

those of the 1920s and early 1930s, many farm groups have supported such restrictive policies in the past and continue to support them today.

FARM EXPORTS ASSOCIATED WITH TOTAL IMPORTS

Farm exports tend to move in the same direction as total exports, and both tend to move in the same direction as total imports. Chart 1 shows that, aside from World War II and the immediate post-war years when foreign aid was a major portion of total exports, exports and imports as a percent of GNP generally have moved in the same direction. Chart 2 shows the same general movements for exports of

The impact of rising demand for U.S. farm exports on the price and production of U.S. farm products is demonstrated in the following diagram: S=supply curve for U.S. farm products, D_1 = demand curve of domestic consumers for such products, D_2 =domestic plus export demand for U.S. farm products, and $D_2 - D_1$ = export demand. The price and production of farm products without exports is P_1 and Q_1 , respectively. With exports and higher overall demand (D_2), price and production of farm products is P_2 and Q_2 , respectively, and any increase in foreign demand will increase total demand (D_2), and price and production.

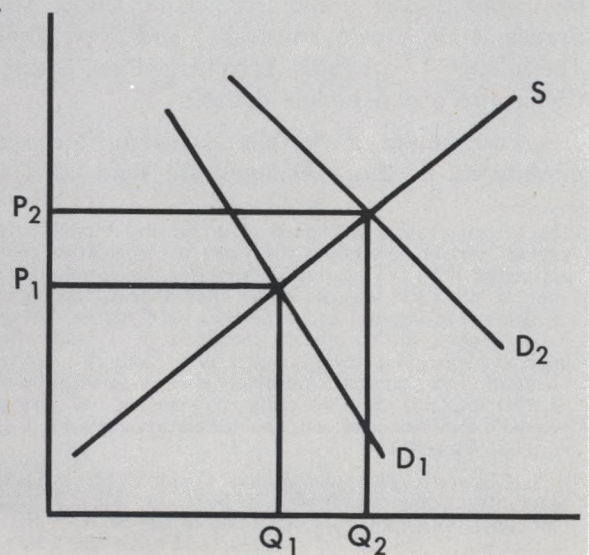
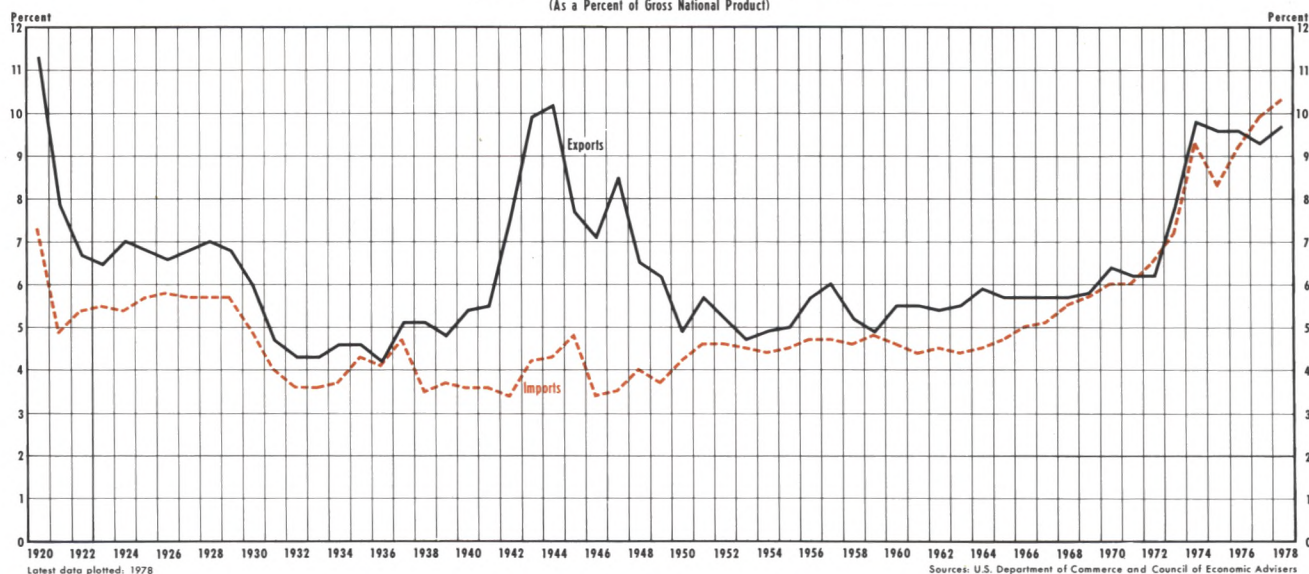


Chart I
Exports and Imports of Goods and Services
(As a Percent of Gross National Product)



farm products as a percent of cash farm receipts. Statistical analysis confirms these relationships; the changes in imports and exports are highly positively correlated as are the changes in farm exports and total imports.¹

Given constant levels of real income in the trading nations, two factors tend to produce similar movements in exports and imports of goods and services. First, tariff changes by one nation usually are reciprocated by other nations. For example, following the enactment of the Smoot-Hawley Tariff Act of 1930, higher U.S. duties on imports were quickly followed by higher import duties in Canada, Cuba, Mexico, France, Italy, Spain, Australia, and New Zealand. The following year India, Peru, Argentina, Brazil, and China also levied higher duties.²

Second, under a flexible exchange rate system, movements in the exchange rate tend to balance

trade over an extended period of time even without reciprocity of tariff rate changes. The exchange rate — the value of the dollar in terms of other currencies — like the price of any other good, is determined by the supply and demand for dollars. Over a period of time, changes in the supply of dollars in foreign exchange markets reflect the value of U.S. imports plus U.S. investments abroad. When such imports and investments rise relative to U.S. exports plus foreign investments in the United States, the supply of dollars in foreign exchange markets increases relative to the demand for dollars and the exchange value of the dollar falls. Conversely, when exports of U.S. commodities and foreign investments in the United States rise, the quantity of dollars supplied to foreign exchange markets decreases and the exchange value of the dollar in these markets rises.

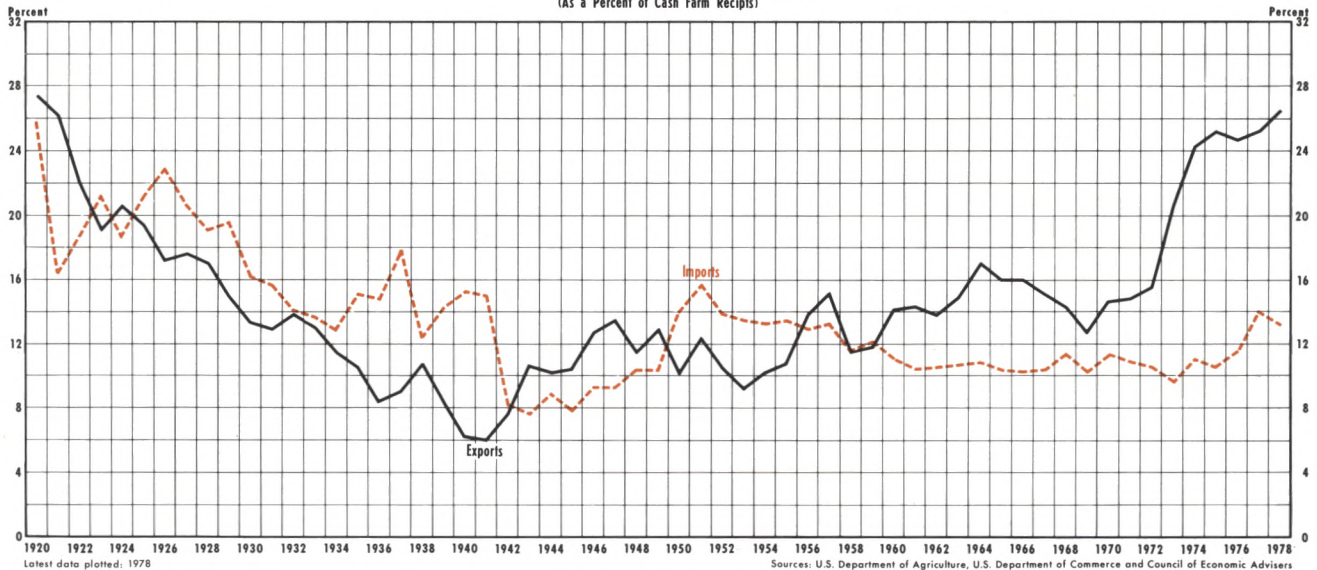
These fluctuations in the value of the dollar tend to equate the dollar value of U.S. exports and imports through the domestic currency prices of internationally traded goods.³ For example, if the value of the dollar

¹The annual change in exports of goods and services over the period 1901-78, excluding the years of 1939-50, is positively correlated with the change in imports; the correlation coefficient is .88. Over periods longer than a year, the correlation of changes in imports and exports is even higher. Using two-year averages, the correlation coefficient is .93 and with five-year averages, the correlation is .99. Similarly, the annual change in farm exports is positively correlated with the change in total imports; the correlation coefficient is .69. Using two-year and five-year averages, the correlation coefficients are .77 and .93, respectively.

²P. T. Ellsworth, *The International Economy* (New York: The Macmillan Company, 1950), p. 501, and Allan H. Meltzer, "Monetary and Other Explanations of the Start of the Great Depression," *Journal of Monetary Economics* (November 1976), p. 460.

³In contrast to the current method in which trade plus net investment flows are balanced between nations, under the gold and gold exchange standards, the flows were balanced through gold specie or gold bullion transfers. During those periods in which the stock of money in a nation was influenced by the quantity of gold held, the flow of specie or bullion out of a nation in payment for excess imports led to a reduction in domestic prices relative to world prices and thereby to a reversal in trade and the balance of payments. During much of the gold exchange standard period following 1933, revisions in the exchange rates were made by governments in response to unequal rates of inflation in the various nations. Such revisions often served to reverse imbalances in trade.

Chart II
Exports and Imports of Farm Products
(As a Percent of Cash Farm Receipts)



falls relative to the value of the Japanese yen, prices of Japanese television sets to U.S. consumers will rise; consequently, fewer Japanese television sets will be purchased. But the Japanese, finding that U.S. wheat and soybeans can be purchased for fewer yen, will import more of these products. Similarly, if the value of the U.S. dollar falls relative to all foreign currencies, foreign residents will find U.S. goods cheaper than before, and U.S. exports will increase. Conversely, if the value of the dollar rises relative to other currencies, U.S. citizens will find that the dollar prices of foreign goods have fallen relative to U.S. goods, and imports will increase.⁴ Given the tendency for the exchange rate mechanism to equate the dollar value of exports and imports, attempts to reduce imports will have a similar effect on the demand for exports including exports of farm products.

RESTRICTIVE IMPORT POLICIES LED TO DECLINES IN TOTAL IMPORTS, FARM EXPORTS, AND FARM INCOME

As shown in Chart 2, exports as a percent of cash farm receipts declined throughout most of the twenties

⁴While Kravis and Lipsey found sizable differences in the dollar prices of foreign traded goods in various countries for an extended period of time, exports rose at the highest rate in those nations where prices were lowest. I. B. Kravis and R. E. Lipsey, "Price Behavior in the Light of Balance of Payment

and thirties from an average of 25.2 percent in 1920-22, to 13.4 percent in 1930-32, to 8.4 percent in 1938-40. This decline in exports followed the adoption of more restrictive trade policies by the United States and other countries. The sharp decline in farm commodity prices in 1921, which followed the domestic business recession and the European agricultural recovery from World War I, prompted Congress to attempt to "protect" farmers with an emergency tariff on farm products. The duties on wheat, corn, meat, wool and sugar were raised. In 1922 the Fordney-McCumber Tariff Bill was enacted, raising the average *ad valorem* (percent of value) rates on dutiable imports to about 40 percent—back to the levels of 1913. Duties were increased on numerous farm products including wheat, corn, beef, eggs, reindeer meat, peanuts, beet and cane sugar, wool, and acorns. Additional "concessions" to farmers were the removal of duties on agricultural implements such as plows, harrows, reapers, cotton gins, etc. The Smoot-Hawley Tariff Act of 1930, initiated as another measure for "protecting" agriculture from foreign competition, raised import duties to the highest levels in the nation's his-

Theories," *Journal of International Economics* (May 1978), p. 230. Henry Goldstein found that relative domestic price levels have a substantial and significant impact on the exchange rate. See "Floating Exchange Rates and Modified Purchasing Power Parity: Evidence from Recent Experience Using an Index of Effective Exchange Rates" published in *West Coast Academic/Federal Reserve Economic Research*, Federal Reserve Bank of San Francisco, 1978, p. 174.

demanded and generally received greater protection than the nonfarm sector. Farm exports declined from 22 percent of cash farm receipts in 1922 to 8.4 percent in 1936.

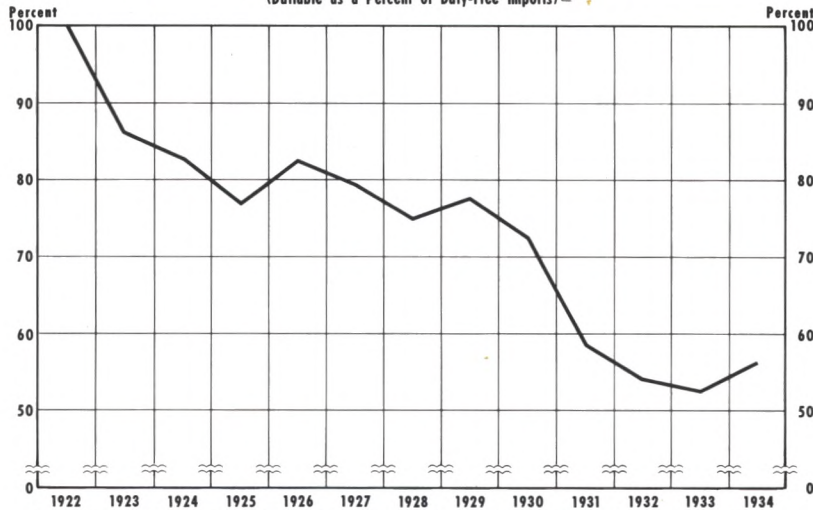
One statistical study of U.S. demand for imports found evidence that the tariffs were a major factor in the decline of imports during the 1920s and early 1930s. The study demonstrated that the tariffs caused a greater reduction in dutiable imports (imports on which tariffs were levied) than in duty-free imports. After eliminating the effects of shifts in imports from duty-free to dutiable, and vice versa, the study found that dutiable imports as a percent of duty-free imports declined sharply following the higher duties in both 1922 and 1930 (Chart 3). During the three years following the 1922 Act, the index of the quantity of dutiable imports declined to 77 percent of the index of duty-free imports, and in the three years following the 1930

Act, the index of dutiable imports declined further to 53 percent of the duty-free imports.⁶ Since exports are closely associated with imports, the tariffs were indirectly a major factor in the decline of farm exports.

Since exports accounted for such a large portion of U.S. farm commodity sales (15 percent in 1929), the decline in farm exports had a greater impact on farm income than the decline in nonfarm exports had on income in the nonfarm sector. Hence, farm incomes declined more dramatically than did nonfarm income. For example, farm income declined at an average annual rate of 31 percent during the 1929-32 period, compared with a 17 percent rate for total personal income.

If the tariff accounted for the difference between the percentage decline in total personal income and farm income during the period, about 40 percent of the decline in farm income during 1929-32 can be attributed to it. If farm income had declined only at the rate of the national aggregates, net farm income in 1932 would have totaled about \$3.6 billion instead of \$2.0 billion.

Chart III
Decline in Imports Following Tariff Acts of 1922 and 1930
(Dutiable as a Percent of Duty-Free Imports)¹



Source: J. Hans Adler, "United States Import Demand During the Interwar Period," *American Economic Review* (June 1945).
¹ Dutiable imports are commodities on which a tariff is levied. All other imports are classified duty-free.
 Latest data plotted: 1934

tory. Although already high by historical standards, rates were further increased on more than 800 items.⁵

The initial 1921 emergency tariff had little effect on the volume of foreign trade or on farm commodity exports. The United States was a net exporter of most of the commodities being protected and remained so. Hence, the protective features of the act were largely illusory. The Fordney-McCumber Tariff Act in 1922 and the Smoot-Hawley Act in 1930, however, significantly reduced import growth, thereby setting in motion forces that reduced exports of farm products.

Imports as a percent of GNP declined from 7.3 percent in 1920 to about 5.4 percent in 1922. They remained near that level until 1930 when they declined even further as a result of the Smoot-Hawley Tariff and the Great Depression. They dropped to 3.6 percent of GNP in 1932 and remained near this level throughout the remainder of the decade (Chart 1). Total exports followed the same general pattern. Exports of farm products, however, declined faster than exports of nonfarm products as farmers in other nations

⁵F. W. Taussig, *The Tariff History of the United States* (New York: Augustus M. Kelley, 1967), pp. 452, 455, 504-11. Rates were increased on numerous farm products including sugar, cotton, cattle, beef, sheep, mutton, swine, corn, milk, cream, eggs, live poultry, hides, leather, onions, tomatoes, cabbages, turnips, and blueberries.

⁶J. Hans Adler, "United States Import Demand During the Interwar Period," *American Economic Review* (June 1945), pp. 418-30.

RIISING FARM EXPORTS AND INCOMES FOLLOWED FREER TRADE POLICIES

Much of the increase in farm exports since the mid-1950s can be attributed to a gradual reduction in foreign trade restrictions.⁷ Beginning with the Reciprocal Trade Agreements Act of 1934, a series of tariff-reducing acts and negotiations have led to major reductions in international trade barriers. Initially, these bilateral reductions achieved only limited success since duties on most dutiable imports were well above the minimum levels that provided incentives for trade.

Since the war and the General Agreement on Tariffs and Trade (GATT) in 1947, a number of major reductions in average *ad valorem* rates have been negotiated. The permissible reductions and average duties on dutiable imports are listed in Tables I and II.

Studies indicate that these reductions have had a major impact on U.S. imports. Kreinin analyzed the effect of the tariff reductions granted in the 1955 negotiations (which resulted in a 28 percent reduction in the 1954 rates on the covered group of commodities) and found that the volume of imports of commodities on which tariffs were reduced rose 59 percent, whereas imports of the nonreduced group rose only 17 percent. Similarly, following the 1956 negotiations (which resulted in a 15 percent reduction in rates for the affected group), imports of the reduced group increased 12 percentage points more than the nonreduced group.⁸

A study by Stern, based on the import demand for 226 commodity groups, concluded that total imports in 1960 would have been \$4.1 billion (about 25 percent) more than the actual level had no tariffs or quotas existed.⁹ A study in 1965 by Balassa found

Table I

Tariff Cuts Authorized by the Various Trade Acts

Trade Agreements Acts	Maximum Permissible Reduction
Act of 1934	50 percent of July 1, 1934 rate
Act of 1945	50 percent of January 1, 1945 rate
Act of 1955	15 percent of January 1, 1955 rate
Act of 1958	20 percent of July 1, 1958 rate
Act of 1962	50 percent of July 1, 1962 rate
Act of 1974	60 percent of existing rate

SOURCE: United States Tariff Commission.

Table II

Average Level of Tariffs on Imports

Period	Ratio of Duties Collected to:	
	Dutiable Imports	All Imports
1919-28	33.2%	12.3%
1929-38	41.9	16.9
1944-53	18.7	7.2
1950-53	12.6	5.6
1955-59	11.7	6.3
1960	12.2	7.3
1962	12.3	7.6
1964	11.9	7.4
1966	10.7	6.8
1968	11.3	7.1
1970	10.0	6.5
1971	9.2	6.1
1972	9.0*	n.a.

*excludes petroleum.

SOURCE: United States Tariff Commission.

that effective duties (the degree of protection for the manufacturing process) in the United States were generally higher than nominal rates, and with potentially higher supply elasticities in the United States than in other industrial countries, imports would rise faster here with the elimination of tariff duties. He concluded that, if such elasticities are 50 percent higher here than elsewhere, imports would rise by 54 percent with the elimination of duties.¹⁰

Reductions in tariff duties do not effectively increase trade immediately. The effect of such actions lag, and in some cases the reductions do not result in any change in trade. Many of the rates in the mid-

¹⁰Bela Balassa, "Tariff Protection in Industrial Countries," *Journal of Political Economy* (December 1965), p. 593.

⁷Domestic price support programs and crop production controls, which caused the prices of some products to rise above free market levels, were factors that tended to reduce exports of some crops, especially wheat, cotton, and tobacco. These supports and controls, however, had little impact on the prices of such major export crops as feed grain and soybeans, indicating that the removal of trade restrictions was a major factor in the rise in exports of these products. U.S. Government holdings of feed grain and soybeans through price support operations did not exceed 15 percent and 30 percent of production, respectively, at the close of any year following 1963. Furthermore, the holdings of both were almost as large in the recent years of rising exports as in the early 1960s.

⁸Mordechai E. Kreinin, "Effect of Tariff Changes on the Value and Volume of Imports," *American Economic Review* (June 1961), pp. 314-16.

⁹Robert M. Stern, "The U.S. Tariff and the Efficiency of the U.S. Economy," *American Economic Review* (May 1964), p. 464.

Table III

Congressional Vote on the Smoot-Hawley Tariff Act of 1930

Section of Nation	Percent of Workers		Representatives		Senators	
	In Agriculture	In Manufacturing	For	Against	For	Against
New England	6.2%	43.1%	27	3	11	1
Middle Atlantic	5.3	36.3	64	27	4	2
East North Central	14.4	35.7	60	21	8	2
West North Central	33.6	19.8	33	23	3	11
South Atlantic	32.5	24.2	14	39	7	9
East South Central	47.8	16.9	8	30	1	7
West South Central	40.5	16.9	11	30	2	6
Mountain	30.8	18.3	11	2	8	8
Pacific	14.5	26.1	18	1	5	1
United States	21.4	28.9	246	176	49	47

SOURCE: U.S., Congress, *Congressional Record*, and U.S. Department of Commerce.

1950s were well above the minimum prohibitive trade level (the tariff level at which no trade will occur) and the reductions only reduced the excess protection. Furthermore, as lower rates provided incentives for trade, foreign producers still needed time to arrange for merchandising and distributing facilities in the United States. Exporters of goods to the United States had been effectively shut out of the U.S. market for about 25 years — in the 1930s because of the Smoot-Hawley Tariff, in the 1940s because of the war, and in the early 1950s because of the time required to prepare for increased exports.¹¹

By the mid-1950s, U.S. tariff rates on a large number of commodities had been reduced to a level which provided incentives for trade, and several international organizations were established to increase exports to the United States. Imports of goods and services as a percent of GNP increased moderately in the early 1960s from 4.5 percent to 6 percent in 1970 and to 10 percent in 1978 (Chart 1). By 1978, imports as a percent of GNP were the largest for any year since the turn of the century.

Total exports and farm commodity exports followed the pattern of total imports. As a percent of GNP and of farm cash receipts, respectively, they started up in the 1950s, continued moderately up through the 1960s, and rose at a sharply higher rate in the 1970s. Exports of farm products rose from about 10 percent of cash receipts in the early 1950s, to about

15 percent in the 1960s, to about 25 percent since the mid-1970s.

The sharp increase in farm exports had a favorable effect on farm income. Gross farm income rose at an 8.4 percent rate from 1969 to 1978, about the same rate as GNP growth. In contrast, during the previous 10 years when farm exports were rising more slowly, gross farm income rose only 4.0 percent per year compared with a 6.8 percent rate of GNP growth.

THE FARM SECTOR HAS NOT CONSISTENTLY OPPOSED RESTRICTIVE TRADE POLICIES

Despite the fact that protective tariffs have generally harmed the well-being of farmers, elected representatives from major farming states have in some cases supported highly protective tariff legislation. Such support apparently was obtained by imposing duties on imports of farm products that would not have been imported even without tariffs and exempting farm implement imports from tariffs even though none were imported anyway. The Secretary of Agriculture's report to the President in late 1930 pointed out these "favorable" aspects of the Smoot-Hawley Tariff Act. He showed that the schedule for farm products was increased an average of 69 percent, whereas all schedules were increased an average of only 20 percent. He argued that a protective tariff must become a more integral part of our national agricultural policy.¹² Such arguments apparently gained support for the Act.

¹¹Kreinin, "Effect of Tariff Changes," p. 319; also William P. Travis in "Production, Trade and Protection When There Are Many Commodities and Two Factors," *American Economic Review* (March 1972), pp. 100-02.

¹²U.S. Department of Agriculture, *Yearbook of Agriculture 1931* (Government Printing Office, 1931), p. 42-44.

The voting record in Congress indicates that sizable support for this highly protectionist measure came from some of the leading farm states. The House of Representatives opposed the act in only three of the nine major sections of the nation, and the Senate opposed it in only four. The vote in the Senate, however, was close (Table III). Support for the act was strongest in New England and the Middle Atlantic states, where the percentage of workers in agriculture was relatively small and the percentage in manufacturing relatively large. The proportion of workers in agriculture averaged 6.2 and 5.3 percent, respectively, in the two regions. On the other hand, a majority of representatives supported the act in such agricultural areas as the West North Central and Mountain states, and large majorities supported it in both the House and Senate in the Pacific states.

RESTRICTIVE POLICIES STILL RECEIVE MUCH FARM SUPPORT

Despite the major shrinkage both in the market for U.S. farm products and in farm income resulting from the ill-advised tariff of 1930, and despite the expansion of exports following the reduced tariffs in the 1950s and 1960s, recent actions of farm groups are not unequivocally opposed to protectionist policies. Evidence indicates that farmers still are sensitive to possible increases in agricultural imports. Organized and highly articulate groups of farmers, while largely interested in the protection of specific farm products, still support foreign trade policies which would result in high tariffs for farm products in general.

Sugar cane and sugar beet producers, for example, still insist on legislation to maintain domestic prices above world prices and to protect growers from "low-price" foreign sugar.¹³ The National Livestock Feeders Association has gone on record against the "ivory tower" free trade philosophy that has characterized U.S. trade policy for the past several years. The executive vice president of the association, in hearings before the Senate Committee on Finance in 1974, argued that our free trade policy has brought irreparable harm to U.S. agriculture and industry and opposed proposed legislation to "wipe out" any duty of not more than 5 percent *ad valorem*, since this would permit the free entry of a number of meat products.¹⁴ Despite his contention that the U.S. dairy

industry is, as a whole, among the most efficient industries in the world, the secretary of the National Milk Producers Federation argued strongly against free trade. He stated in the above hearings: "Despite all the fine sounds of free trade and expanded international cooperation we must first take stock of our own national interests."¹⁵ While reaffirming the National Farmers Union's traditional position in support of expanding foreign trade, its national secretary in the same hearings opposed any further reduction of tariff and nontariff barriers. He contended that further reductions in trade restrictions would undermine farm prices in both the United States and the European Economic Community.¹⁶ The American Farm Bureau Federation, although making a strong statement for free trade in general, recommended at the hearings that Title II of the act be amended so that farmers could more readily obtain relief from injury caused by import competition.¹⁷

The Agricultural Adjustment Act is indicative of the strong support for protection for specific farm products, delegating sufficient authority to limit the imports of almost any product that is competitive with U.S. farm products. The act directs the Secretary of Agriculture to advise the President when he believes that any farm commodity or product is being imported in quantities that will interfere with farm price support or other USDA programs. The President may then direct the International Trade Commission to conduct an investigation, after which he may proclaim new duties or quantitative restrictions on the imports.¹⁸

The maintenance of such a pattern of protection for farm commodities places this nation in an unfavorable bargaining position for free trade in farm commodities. The United States has just concluded the Tokyo Round of negotiations which will take effect starting in January 1980. In these negotiations, the United States obtained a broad range of tariff and nontariff concessions that are expected to significantly increase agricultural exports over the next decade. Among those products on which trade barriers were reduced are beef, pork, poultry, tobacco, fruit, vegetables, oilseeds, and nuts.¹⁹ Nevertheless, agricultural trade barriers are perhaps the most diffi-

¹⁵Ibid., pp. 964-89.

¹⁶Ibid., pp. 1030-31.

¹⁷Ibid., p. 1011.

¹⁸United States International Trade Commission, "Operation of the Trade Agreements Program," 26th Report, 1974, p. 32.

¹⁹U.S. Department of Agriculture, *Agricultural Outlook* (May 1979), p. 10.

¹³See John Valentine, "President's Sugar Price-Support Plan Welcomed as End to a Key Uncertainty," *The Wall Street Journal*, February 21, 1979.

¹⁴U.S., Congress, Senate, Committee on Finance, *The Trade Reform Act of 1973*, 93rd Cong., 2nd sess., March 25, 1974, pp. 947-64.

cult of all restrictions to remove. For this reason, a positive view toward free trade in farm products by this nation is highly desirable.

The argument often given in support of farm commodity protection is that this country has lower duties on farm products than most other nations. This argument, however, is meaningless in view of our comparative advantage in production. A more appropriate way of measuring relative duties is to compare this nation's duties on farm products with other nations' duties on products in which they have a comparative advantage. In only a few farm commodities, such as sugar and wool where we do not have a comparative advantage, is such a comparison with other nations meaningful. Significantly, our policies with respect to sugar cannot be considered liberal by either foreign producers or domestic consumers. Apparently the farm sector is willing to accept free trade policies only if "reasonable" restraints are established on imports of competitive products. Such a posture, if all nations maintained it at the bargaining table, would not permit the resource adjustments necessary for trade or for the attainment of the potential gains to U.S. agriculture from exports.

Given the U.S.'s comparative advantage in the production of farm products, most farmers have little to fear from imports. The alleged protection for crops such as wheat, rice, corn, cotton, soybeans, tobacco, and livestock products, where net exports are realized, is actually little protection. Such products are generally more valuable when exported and when the proceeds are exchanged for foreign goods than when sold on the domestic market; hence, these products will not be imported except possibly along the Canadian or Mexican borders which have special transportation advantages.

Protection for other major products that may experience minor competition from imports (such as beef, other processed and frozen meats, and dairy products) could be self-defeating, especially if such regulations trigger retaliatory protective measures abroad. Any loss of foreign markets for the major exported crops, such as cotton, tobacco, wheat, feed grain, soybeans, and rice, will lead to lower domestic prices for such products and eventually will result in a shift of farm resources from these products into the production of tariff-protected products such as beef, other meats, and dairy products. In other words, those sectors which experience minor competition from imports under free trade practices would realize more competition from domestic farmers whose products can no longer be sold in the export market.

Another argument often made for protection is that, given a protected market for industrial goods, we will have more workers employed by nonfarm industries and an expanded domestic market for farm products.²⁰ With such policies, however, gains from international specialization of labor and resource use would be lost. In other words, each nation without trade must depend upon its own resources for the production of each good even though it may be relatively inefficient in producing some goods. The total quantity of goods available for consumption will thus be less for both farm and nonfarm sectors without trade than with trade. Consequently, it is inconsistent with the general well-being of the farm sector, as well as the nation at large, for farm groups to pursue protectionist policies.

SUMMARY

The U.S. farm sector potentially has more to gain from free international trade than virtually any other sector of the economy. Exports of farm products constitute about 30 percent of the market for U.S. farm products. In contrast, exports account for less than 10 percent of the value of manufactured goods. Nevertheless, many farm groups have left a record of confusion with respect to their position on foreign trade policies.

They have failed to recognize the link between imports and exports. Changes in imports are closely associated with changes in total U.S. exports. Consequently, they are closely associated with the level of farm exports given the comparative advantage of the United States in farm production. U.S. imports provide foreigners with income to purchase U.S. farm products. Free trade policies, therefore, tend to directly increase imports and thereby enhance farm commodity exports. In addition, they induce other nations to adopt similar policies which further enhance trade.

²⁰If domestic price supports and production controls were a major factor in the current levels of farm incomes, it could be argued that farmers are making rational decisions in trading some of their foreign market exports for the short-run gains from domestic price supports. Such supports, however, have been much smaller in recent years relative to farm income, and losses in the export market from protectionist policies would not likely be offset. Only relatively small sectors of the agricultural industry (largely sugar and tobacco producers) have received major benefits from the price supports and production controls in recent years. Furthermore, prior to 1933, when farm support for protective tariffs was perhaps as great or greater than today, the nation had no farm production controls and no price supports for most farm products.

Government Debt Financing – Its Effects in View of Tax Discounting

NEIL A. STEVENS

THE virtues of a balanced government budget have long been a subject of controversy among economists, politicians, and the general public. Debate on this subject again has heated up in view of the persistence of inflation and what some consider the inadequate growth of private investment and the excessive growth of government. Recently, a widespread movement has developed to institutionalize the balanced budget doctrine via a constitutional amendment.¹

The current debate provides an opportunity to examine the issue of debt- versus tax-financed government expenditures. The discussion centers on the differential economic effects of debt versus tax financing of a *given* level of government expenditures.² In particular, this article will show that the difference between public debt financing and current taxes depends upon whether taxpayers correctly anticipate the future taxes that debt issuance implies. This dis-

cussion has important implications for the presumed evils of debt issuance including reduced investment and economic growth, debt burden on future generations, increased inflation, and greater growth of the government sector, as well as the efficacy of fiscal policy actions. In addition, to the extent that movements in interest rates are related to changes in government borrowing, the issue of debt financing versus current taxation has important implications for the conduct of monetary policy due to the use of interest rate targeting by the Federal Reserve.

The Rise in Federal Debt

The amount of government debt outstanding is the total of past expenditures financed by the issuance of government debt instead of current taxes. Outstanding gross Federal debt at the end of 1978 stood at about \$750 billion.

Until World War II, there was a marked tendency to incur deficits during wartime and to run surpluses following wars to reduce the size of the outstanding debt. Following World War II, little attempt was made to reduce the debt; in fact, debt issuance became a standard means for the Federal government to finance

¹Many supporters of the constitutional amendment to require a balanced Federal budget are interested in reducing the level of government expenditures rather than simply eliminating the possible adverse effects of debt financing.

²The assumption of a given level of government expenditures allows the discussion to center solely on the differential impacts of taxes and debt, and thus, to avoid the possible effects of changes in the composition or level of government expenditures on the economy.

part of its budget outlays.³ For example, the Federal budget on a unified basis has been in surplus only twice in the past 20 years and, since 1970, the amount of Federal debt has more than doubled.⁴

TRADITIONAL VIEWS ON GOVERNMENT DEBT VERSUS TAXES

Government can finance a given amount of outlays by either levying taxes in the current period or by issuing interest-bearing debt.⁵ Virtually all economists consider the choice of debt versus taxes to have different economic effects, although differing views have developed about the specific economic consequences.

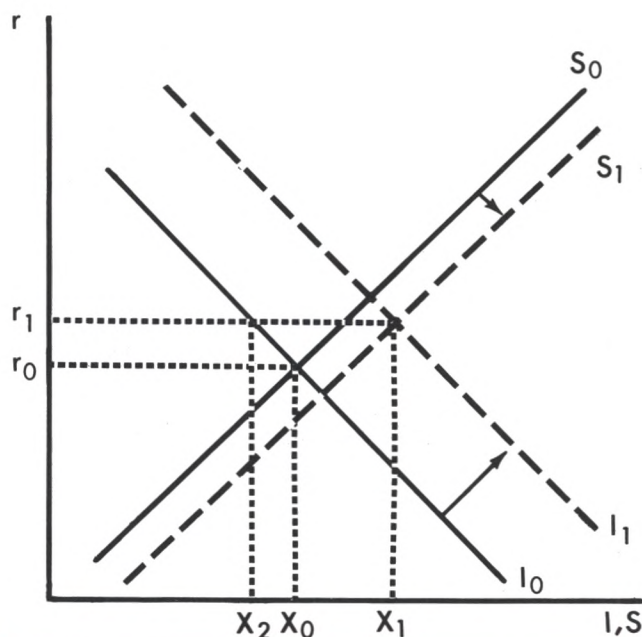
Investment and Economic Growth

Some economists have emphasized the negative effects of deficit financing on private investment.⁶ In their view, debt issued by the public sector adds to and competes with the private sector (investment) demands for saving. As a consequence, interest rates are bid up and some crowding out of productive private investment occurs.

This scenario is demonstrated by the saving and investment diagram in Figure I. Investment is assumed to be negatively related to interest rates, whereas saving is assumed to be positively related to both the interest rate and the level of disposable income. The initial saving and investment schedules (S_0 and I_0) are drawn under the assumption that government expenditures are tax-financed and that the economy is at full employment.

When debt is substituted for taxes to finance a given level of government expenditures, the increased government demand for funds is added to that of the private sector, as shown by the shift in the investment schedule from I_0 to I_1 . In addition, as a result of the

Figure I



substitution of debt for currently levied taxes, current disposable income in the private sector is increased. If the private sector perceives this change to represent solely an increase in current disposable income, saving will increase by only a small percentage of the increase in disposable income. As a result, the shift in the saving schedule, shown by the movement from S_0 to S_1 , will not be as large as the shift in the investment schedule.

The effects of a substitution of debt for taxes are an increase in interest rates (from r_0 to r_1) and a reduction in private investment (from X_0 to X_2). With a given level of total income, as assumed in this example, private consumption will be increased (by the amount X_2X_0). Thus, private capital formation is lower in the debt-financed government expenditure case than in the tax-financed one and the growth rate of the economy is reduced.⁷

Unlike the classical views described above, Keynesian economists have argued that the economy does not automatically self-adjust to full employment. These economists stress the short-run impact of government budgetary policies and deemphasize the potentially adverse longer-run effects of debt financing on investment and economic growth.

⁷If saving is responsive to interest rate changes, but investment completely unresponsive, debt financing results in a reduction in consumption and no change in investment.

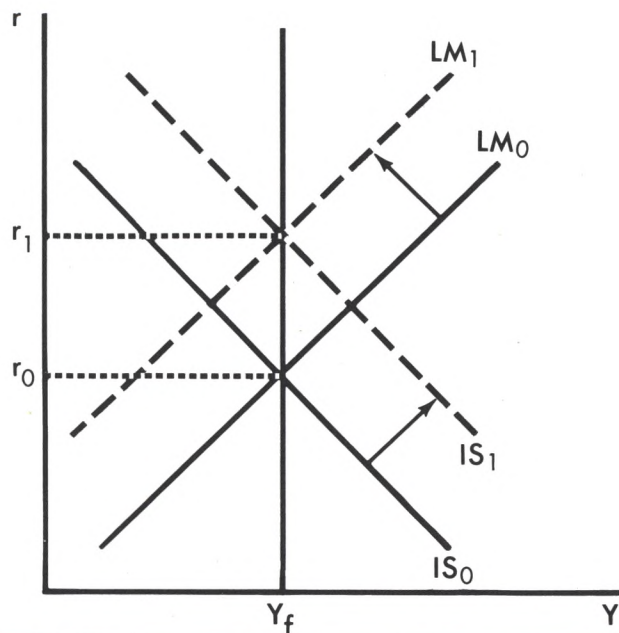
³Some analysts blame the views of Keynes and his followers on deficit financing as the key ingredient in changing the traditional approach of reducing government debt outstanding following periods of wars. See J. M. Buchanan and R. Wagner, *Democracy in Deficit: The Political Legacy of Lord Keynes* (Academic Press, New York, 1977).

⁴Although the Federal debt has grown rapidly in recent years, Federal debt when measured relative to Gross National Product (GNP) has not grown. In fact, the Federal debt outstanding as a percent of GNP has generally fallen since World War II. In 1978 Federal debt was about 36 percent of GNP, down slightly from 1970, and down substantially from 62 percent in 1958 and 98 percent in 1948.

⁵A third alternative, money creation, is not discussed here.

⁶For a presentation of the classical theory of public debt, see Richard A. Musgrave, *The Theory of Public Finance* (New York: McGraw-Hill Book Company, Inc., 1959), Chapter 23.

Figure II



In the context of an *underemployed* economy with rigidity in wage rates, for example, Keynesians view debt-financed government expenditures as an important tool for achieving a level of aggregate demand consistent with full employment and price stability. When debt is substituted for taxes, they argue, consumer incomes will be increased by the amount of the tax cut and, since resources are not fully employed, crowding out of private expenditures by higher interest rates would not occur.

In the case of *full* employment, of course, the effects of substituting debt for taxes are similar to those of classical analysis, except that Keynesians view this substitution as inflationary unless accompanied by a reduction in the money stock. This can be shown by the standard IS-LM analysis used in most economic textbooks.⁸ Assuming a given level of government expenditures, a tax decrease results in an increase in disposable income and, in terms of the IS-LM model, the IS curve shifts to the right (to IS_1 in Figure II). If, by assumption, Y_f represents full employment, then income has been increased beyond a level consistent with stable prices. In order to keep

⁸For a standard treatment of the IS-LM model, see Colin Campbell and Rosemary Campbell, *An Introduction to Money and Banking* (Holt, Rinehart, and Winston, 3rd Edition, 1978) Chapters 18 and 19. For a more sophisticated presentation of the IS-LM model, see Thomas M. Havrilesky and John T. Boorman, *Monetary Macroeconomics* (AHM Publishing Corporation, 1978), Chapters 11-13.

prices from rising, the money stock must be reduced, which results in a shift of the LM curve to the left. If a reduction in the money stock shifts the LM curve precisely to LM_1 , income is reduced to a level consistent with full employment, Y_f . However, interest rates would be raised from r_0 to r_1 and the mix between private consumption and investment is altered in a fashion similar to that described by classical analysis.

Inflation

Classical economists viewed the choice between debt and taxes as unimportant in determining inflation. Since debt financing, in their view, results in the crowding out of private investment, no additional demands are created with debt-financed over tax-financed expenditures. Inflation, in their analysis, is directly related to the growth rate of the money stock. So long as this growth in money is not altered, inflation is not affected by the debt/tax choice.⁹

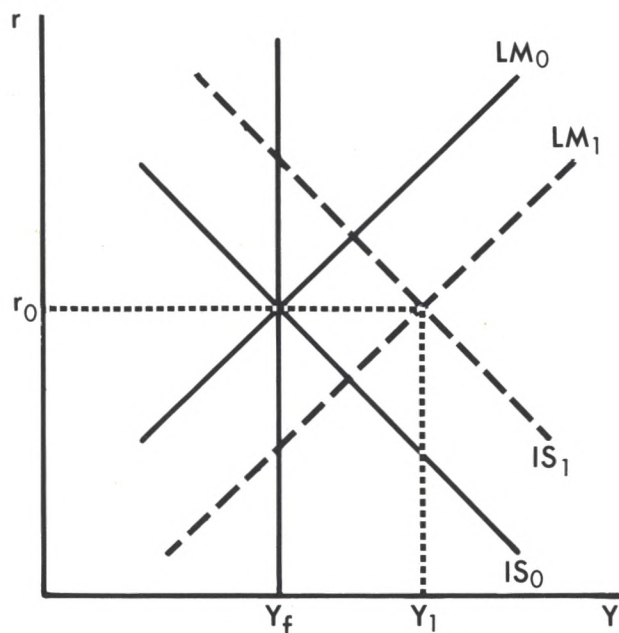
Both modern-day Keynesians and modern-day followers of the classical school (sometimes known as monetarists) often connect deficit spending with inflation—for entirely different reasons, however. Keynesian analysis, as noted earlier, implies an increase in aggregate demand when substituting debt-financing for current tax-financing of government expenditures. If resources are fully employed, this increase in demand tends to raise nominal income and prices.

Some monetarists, on the other hand, have noted an indirect mechanism relating an increase in deficit financing to inflation.¹⁰ To the extent that deficit spending leads to an increase in credit demands, upward pressure on interest rates results. If the central bank operates with an interest rate target and is reluctant to raise this target when credit demands increase, the increased deficit will become financed in

⁹An assumption often made in the classical framework is that the velocity of money (or the demand for money) is constant and, in particular, is not responsive to changes in interest rates. In terms of the IS-LM model shown above, the classical assumption can be shown by a vertical LM curve.

¹⁰"Federal deficits tend to produce pressure for monetary expansion. Increased Federal borrowing when added to the credit demands of the private sector, places upward pressure on interest rates. The monetary authority, however, can resist these pressures for a short period of time by buying government securities. Thus, to the extent that 'low' interest rates assume a role as an objective of the monetary authorities, deficit financing tends to accelerate the rate of monetary expansion." Keith Carlson, "Large Federal Budget Deficits: Perspective and Prosperity," this *Review* (October 1976), pp. 2-7.

Figure III



part by monetary creation. As shown in Figure III when debt rather than current taxes is used to finance government expenditures, the IS curve shifts to IS_1 and, as a result, the interest rate will rise. If the central bank attempts to maintain interest rates at r_0 , it will expand bank reserves and, hence, the nation's money supply. The LM curve, which represents equilibrium points in the monetary sector, will shift to LM_1 . This results in upward pressure on prices as aggregate demand expands above the level consistent with full employment at stable prices, Y_f .

Burden of the Debt

Deficit financing, it has often been suggested, imposes a burden upon future generations. Other economists, primarily Keynesian, have argued that domestically-held debt imposes no such burden. These economists argued that government expenditures, whether debt- or tax-financed, result in a withdrawal of real resources in the period in which expenditures are made and that interest payments on domestically-held debt simply result in income transfers between taxpayers and debt holders rather than transfers from one generation to another.¹¹

¹¹E. J. Mishan, "The National Debt is a Burden," *Twenty-one Popular Economic Fallacies*, 2nd ed. (New York: Praeger Publishers, 1973), pp. 61-73.

This view of debt burden prevailed until 1958 when James Buchanan's book, *Public Principles of Public Debt*, was published. In the series of articles that followed the publication of this book, the view emerged that a burden on future generations could result from debt financing.¹² The "burden of the debt" literature revealed that, although the withdrawal of resources by government must occur in the period in which the expenditures are made, the method of financing government expenditures affects the level of income that future generations inherit. Thus, to the extent that deficit financing reduces private investment and, consequently, inherited capital, a burden is placed on future generations in the form of a lower capital stock (and a smaller income stream).

THE CRITICAL ISSUE OF TAX DISCOUNTING

Recent economic literature has focused on the critical assumptions which give rise to the differential economic effects of debt versus tax financing. In the preceding discussion, it was assumed that disposable income rises by the amount of the reduction in taxes whenever debt is substituted for taxes. This occurs only if consumers treat this increase in income like any other increase in income. Recent discussion, however, centers upon whether and under what circumstances taxpayers would fully anticipate the future taxes implicit when the government issues interest-bearing debt. This issue, sometimes referred to as tax discounting, is critically important for the differential effects of debt versus taxes. As Bailey pointed out, "If indeed households foresee their own and their heirs future taxes, then given government expenditures have the same effect on private consumption whether they are financed by taxes or borrowing."¹³

Private Versus Government Debt

The essence of the tax discounting issue can be demonstrated by contrasting private and public debt. Debt instruments are a mechanism for transferring saving (current income not spent on consumption goods) from one individual or organization to another. In the case of privately issued debt, the borrower

¹²A number of these articles are contained in J. M. Ferguson's book, *Public Debt and Future Generations* (Chapel Hill, North Carolina: University of North Carolina Press, 1964).

¹³Martin J. Bailey, "The Optimal Full-Employment Surplus," *Journal of Political Economy* (July/August 1972), p. 652.

gains purchasing power over currently produced goods and services, but at the same time incurs an obligation to pay back the loan to the lender in the future. Thus, on net, private debt creation does not result in the perception of increased wealth in the aggregate.

The partial t-accounts in Exhibit I demonstrate these statements. Suppose a large corporation decides to borrow \$1 million by issuing short-term notes, such as commercial paper, which promise to pay \$1 million plus interest to the lender. The lender, for instance, may exchange demand deposits for another asset, the commercial paper certificate. The borrower, on the other hand, receives \$1 million in bank deposits, but at the same time incurs a liability to pay back the borrowed funds. Thus, on balance, the owners of the corporation feel no wealthier than before.

The bottom of Exhibit I illustrates the case where government issues debt whose proceeds are redistributed in some manner back to the private sector. As in the case of private debt creation, the private lenders feel as wealthy as they did initially since the government promises to pay interest and principal to the private debt holders. Whether taxpayers foresee the *future* taxes that must be levied in order to service the debt, however, is unclear. In the case of private debt, the borrower feels no wealthier since an obligation to pay interest and principal of the loan is recognized. However, if taxpayers do not anticipate any of (part of) the future tax liability associated with the issuance of government debt, then all (part of) government debt is perceived as an addition to wealth.

Are Government Bonds Perceived As Net Wealth?

Since David Ricardo, economists have recognized that, if taxpayers perfectly anticipate the future taxes associated with government debt issuance, tax financing and debt financing are essentially equivalent; that is, taxpayers would consider a tax levy of \$1 million today equivalent to the issuance of \$1 million in perpetual bonds. Taxpayers would recognize that, with the issuance of the \$1 million in bonds (at an assumed interest rate of 10 percent), they have incurred an obligation to pay \$100,000 per year in taxes — the present value of which is $\$100,000 / .10$, or \$1 million — the equivalent of the present value of \$1 million of taxes levied currently.

While economists have recognized the possible equivalence between debt and taxes, many economists

Exhibit I			
Private Debt Creation			
Lender		Borrower	
-\$1 million Bank Deposits		+\$1 million Bank Deposits	+\$1 million Commercial Paper Outstanding
+\$1 million Commercial Paper			
Net Worth — unchanged		Net Worth — unchanged	

Government Debt Creation			
Private Sector (Lender)		Government Sector (Borrower)	
-\$1 million Bank Deposits		+\$1 million Bank Deposits	+\$1 million Treasury Bonds
+\$1 million Treasury bonds		-\$1 million Bank Deposits	
+\$1 million Government Transfer Payments			Liabilities — up \$1 million
Net Worth — up \$1 million			

have assumed that the conditions under which complete discounting of the tax liability would take place are not likely to hold. For example, even if taxpayers correctly anticipate their share of the tax, complete discounting requires that they not be able to escape this liability either by dying or moving from the government's jurisdiction.¹⁴

In the case of a tax on property income, the tax most often used by local governments, this possibility is less of a problem since the levy of a tax on property income is likely to result in a decline in property values equal to the issuance of government bonds. Since the value of an asset is the discounted value of its future income stream, a tax upon that stream

¹⁴In the case of taxes on human income, the possibility exists that current taxpayers can avoid their share of future government taxes by moving from a government's jurisdiction. This option is extremely limited for citizens of a nation but less so for local government jurisdictions. The clearest case is that where currently produced government services are debt-financed. Current taxpayers will benefit from the currently provided government services but will bear little of the cost in terms of future taxes if they move from the area. In the case of deficit-financed capital expenditures, current taxpayers cannot necessarily shift the cost to other taxpayers, since the future taxes associated with debt finance will likely be incorporated into property values. The possibility that the cost of debt-financed government expenditures for current services can be shifted to others by moving out of the taxing jurisdiction of the government helps to explain why local governments often avoid deficit financing of current budget expenses. Local governments, instead, often use deficit financing for capital expenditures and rely on taxes from property income, both of which reduce the possibility that tax burden will be shifted disproportionately to others.

reduces its market value. For example, a perpetual asset that is expected to yield \$100 a year and for which the going interest rate is 10 percent has a market value of \$1,000 ($\$100/.10$). A tax of 5 percent on the expected yearly income would reduce that income stream to \$95 a year, and the market value would fall to \$950 ($\$95/.10$). For the economy as a whole, increasing government debt by \$1 million accompanied by an increase in property taxes of \$100,000 per year to pay the 10 percent interest rate on the increased debt would immediately reduce the value of this property by approximately \$1 million ($\$100,000/.10$). In this case, the increase in government debt does not result in a perception of increased wealth; taxation and debt are equivalent.

It is less clear that full discounting of future tax liability of debt issuance occurs in the case of taxes levied on labor income, even when a taxpayer correctly anticipates his share of the tax liability. The individual taxpayer will not fully discount his tax liability to the extent that future tax payments lie beyond his life expectancy. He also will not fully take into account the welfare of his descendants. In this case, an individual taxpayer will perceive that his lifetime income has risen more (i.e. that he is wealthier) with debt financing than tax financing of government expenditures.

Suppose, for instance, that an individual's share of the government expenditure is \$1,000. The taxpayer is faced with the choice of a once-and-for-all tax of \$1,000 in the current period or \$100 a year to service interest on a \$1,000 government debt (at the assumed current interest rate of 10 percent). Under the tax-financed case, the individual meets the tax burden of \$1,000 by reducing his assets by \$1,000 (which are also assumed to yield 10 percent, the going interest rate). The taxpayer must forego an income of \$100 a year, as in the debt-financing option. But suppose that the individual expects to pay taxes for only 10 years. Under the debt-financed case, the present value of the tax claim for 10 years is only \$614; thus, the individual taxpayer perceives his wealth to be \$386 greater than in the tax-financed case. As a matter of arithmetic, the greater the life expectancy, the smaller the perceived wealth effect. For example, with a life expectancy of 20 years, the debt financing option results in a \$149 increase in wealth while a 30-year life expectancy yields a \$57 increase in wealth. In effect, wealth is created with debt issuance because some of the tax liabilities needed to pay future interest payments are shifted to members of later generations. To the extent that this increases the taxpayer's per-

ceived wealth or lifetime income stream, greater current expenditures result from debt financing than from tax financing.

This wealth effect from debt financing will disappear, however, if the tax liabilities shifted to future generations are taken into account when current taxpayers plan their bequests and other wealth transfers. Barro has demonstrated that "finite lives will not be relevant to the capitalization of future tax liabilities so long as current generations are connected to future generations by a chain of operative intergenerational transfers (either in the direction from old to young or in the direction from young to old)."¹⁵ This is a complicated way of saying that parents and children can make wealth transfers at times other than death. For example, parents make transfers to their children in the form of education, living expenses, and bequests, and children sometimes provide support for their aged parents. In effect, these transfers between generations allow current taxpayers to act as if they are immortal. Barro argues that these intergenerational wealth shifts are sufficient to restore the balance of wealth across generations that would have been deemed optimal if all government expenditures had been financed by current taxes.¹⁶

EMPIRICAL EVIDENCE FOR TAX DISCOUNTING

The issue of tax discounting cannot be settled solely by theoretical arguments. Recently, several empirical studies have attempted to discover the extent to which tax discounting actually occurs. Existing evidence is immense since each economic model that contains fiscal variables also generates implications for tax discounting. Several large models of the economy have found, for example, that tax reductions financed by debt issue have significant effects on income. This provides indirect evidence that less than complete tax discounting occurs. Evidence from some reduced-form models, such as the St. Louis model, shows that fiscal policy actions, as measured by the high-employment

¹⁵Robert J. Barro, "Are Government Bonds Net Wealth?" *Journal of Political Economy*, November/December 1974, pp. 1095.

¹⁶Other complications can result in the nonequivalence of debt and taxes including uncertainty about future taxes and imperfect capital markets. Barro analyzes these possibilities and concludes that "there is no pervasive theoretical case for treating government debt, at the margin, as a net component of perceived household wealth. The argument for a negative wealth effect seems, a priori, to be as convincing as the argument for a positive effect." *Ibid.*, p. 1116.

budget deficit, have no lasting effect on aggregate demand and income. This tends to provide indirect evidence in favor of full tax discounting.¹⁷ This evidence, however, is inconclusive since fiscal effects can be washed out through such other mechanisms as the crowding out of private expenditures by higher interest rates.¹⁸

Recently, several studies have directly tested the extent of tax discounting by specifying consumption functions where such variables as the government deficit and outstanding government debt are tested for their effects upon consumption. One of the first of these was by Kochin.¹⁹ His study was motivated by the casual observation that the saving rate as measured by National Income Accounts (NIA) data and the level of the deficit are positively correlated—an observation consistent with the notion of tax discounting. For example, when a deficit results from a tax cut, *measured* disposable income rises. In the case of full tax discounting, consumers realize that the debt issued to finance the deficit implies future taxes for themselves or their heirs and, accordingly, that their lifetime income or wealth is unaltered. Thus, consumption expenditures are unchanged and measured NIA personal saving, defined as disposable income minus consumption expenditures, rises.

Kochin specified consumption of nondurables and services as a function of disposable income, the Federal deficit, and lagged consumption. Using an equation estimated in first differences over the period, 1952-71, he found that a \$100 increase in the Federal deficit results in approximately an \$11 decline in consumption. Kochin interpreted this as an indication that consumers have at least partially taken into account the future taxes associated with government deficits.

Kochin's study generated several criticisms. Yawitz and Meyer criticized Kochin's study for misspecification because it did not directly include a government wealth variable.²⁰ Using a life-cycle model in which consumption is specified as a function of disposable

income, the market value of private sector holdings of government securities, and household net worth (other than government securities), Yawitz and Meyer observed small positive coefficients on the private wealth and U.S. Government debt variables which were not significantly different from each other. They interpreted these results to indicate that no discounting occurred since government debt outstanding appeared to have an effect on consumption similar to that of other private wealth. They pointed out that their results were "inconclusive," however, "because of the extremely narrow variability of the Government debt series."²¹

A review of the existing evidence on tax discounting (or, as they call it, debt neutrality) by Buiter and Tobin also criticized the Kochin study.²² First, the authors noted that the negative coefficient on the deficit variable was not as large as the value on the disposable income variable, and thus the equation did not support complete discounting. They also objected to Kochin's equation because of the simultaneity problems with some of the variables used and the inclusion of the Federal deficit rather than the total government deficit. When they reran Kochin's equation, adding data for 1972-76, they found the results substantially changed; the coefficient on the deficit variable, although negative, was not significantly different from zero. When Buiter and Tobin made several refinements to Kochin's equation, transforming the variables into per capita terms and introducing the deficit of the public sector in addition to that of the Federal government, they found again that the deficit variable had the correct sign (–) but was insignificantly different from zero.

In another recent study, Tanner utilized a consumption function of the life-cycle type which also included a number of variables not specified in the Yawitz and Meyer study.²³ The unemployment rate was included to adjust disposable income for cyclical variation; the stock of consumer durable goods was added because it was expected to have a negative relationship with current consumption expenditures. Additional variables included were corporate retained earnings, pri-

¹⁷See Leonall C. Andersen and Keith M. Carlson, "A Monetarist Model for Economic Stabilization," this *Review* (April 1970), pp. 7-25, and Keith M. Carlson, "Does the St. Louis Equation Now Believe in Fiscal Policy?" this *Review* (February 1978), pp. 13-19.

¹⁸Keith M. Carlson and Roger W. Spencer, "Crowding Out and Its Critics," this *Review* (December 1975), pp. 2-17.

¹⁹Lewis A. Kochin, "Are Future Taxes Anticipated by Consumers?" *Journal of Money, Credit and Banking* (August 1974), pp. 385-94.

²⁰Jess B. Yawitz and Laurence H. Meyer, "An Empirical Investigation of Tax Discounting," *Journal of Money, Credit and Banking* (May 1976), pp. 247-54.

²¹With only small changes in the real value of Government debt held by the private sector and given the low propensity to consume out of wealth, only minor effects on aggregate consumption could have been expected. *Ibid.*, p. 253.

²²William Buiter and James Tobin, "Debt Neutrality: A Brief Review of Doctrine and Evidence" (Cowles Foundation Discussion Paper No. 497, Cowles Foundation for Research in Economics, September 15, 1978).

²³J. Ernest Tanner, "An Empirical Investigation of Tax Discounting," *Journal of Money, Credit and Banking* (May 1979), pp. 214-18.

vate wealth as measured by the net stock of fixed non-residential business capital and residential housing, the total government surplus (or deficit), and the market value of government debt.

Again, the reasoning behind this equation, similar to that of Kochin's, is that "current Government deficits may depress current expenditures because these deficits imply higher future taxes. This hypothesis implies that current taxpayers will not consume at the expense of their heirs but rather will increase their personal savings so that their bequests, inclusive of the Government debt, would be the same as if the Government deficit had not occurred."²⁴ The hypothesis that full tax discounting occurs, or alternatively, that government debt is not perceived as net wealth implies a zero coefficient on outstanding government debt and a positive (negative) coefficient on the current government surplus (deficit). The coefficients for Tanner's equation estimated for U.S. data over the period 1947-74 are consistent with the complete discounting hypothesis. The coefficient on the government surplus variable was positive and significant; the coefficient on the Government debt variable was quite small and not significantly different from zero.

Tanner's study is subject to criticism, however, since the private wealth variable also does not have a coefficient significantly different from zero. This outcome is doubtful given the large amount of evidence that has found private wealth to influence current consumption expenditures. Tanner's result, however, may have resulted from the inclusion of retained earnings in his equation. Since retained earnings are a major source of change to the capital stock, this variable could well reduce the significance of the private wealth variable. Similarly, the inclusion of both the government surplus (or deficit) and the outstanding stock of government debt is a doubtful specification since the surplus or deficit largely represents the change in the government debt series.

IMPLICATIONS OF TAX DISCOUNTING

The implications of full tax discounting as suggested in Tanner's equation are quite important to the way economists have traditionally viewed a number of macroeconomic issues. Most basic is the effect of government debt upon the consumption/saving mix. As discussed earlier, with a given level of government expenditures, both classical and Keynesian economists thought that government debt financing dis-

couraged private investment relative to the alternative of current taxation. But, if taxpayers view government debt and taxes as equivalent, consumption is not altered from the tax-financed case, and private investment and economic growth is not hindered.

With full discounting, the effects of fiscal actions also disappear. In terms of the IS-LM model shown in Figure III, fiscal actions, such as a tax cut with government outlays unchanged, do not shift the IS curve to IS_1 as standard analysis shows. Rather, with full discounting, the subsequent increase in disposable income is not viewed by the public as an increase in net wealth, and therefore, demand for current consumption is not stimulated. On the other hand, less than full discounting of future taxes leaves open the possibility that fiscal actions have economic effects. Even in this case, fiscal policies do not necessarily have effects on aggregate demand. Various arguments other than tax discounting have shown how fiscal policies may be impotent in stimulating aggregate demand.²⁵

The connection between government deficits and inflation is also questionable if the issuance of government debt is neutral. One connection between deficits and inflation relies on the premise that government-issued debt places upward pressure on market interest rates. When the Federal Reserve conducts monetary policy by targeting an interest rate, any upward pressure on interest rates will induce the Federal Reserve to make open-market purchases of government securities in order to maintain its target. As a result, undesirable increases in the money stock can result and eventually inflation will be exacerbated. If the tax liability associated with deficit spending is fully anticipated, however, the public will "save" commensurately with the increase in the demand for credit resulting from the issuance of government debt. In this case, interest rates are not bid higher than they would be in the case of tax-financed government expenditures, and therefore the connection between deficits and inflation via the reaction of the Federal Reserve to interest rate movements breaks down.

In addition, it has been argued that deficit spending encourages a larger government sector than would result from a balanced budget policy. In fact, this belief underlies the reasoning of many of the current supporters of the balanced budget constitutional amendment. Buchanan and Wagner, recent proponents of this view, argue that deficit financing reduces the perceived cost of government services to current

²⁴Ibid., p. 215.

²⁵See Carlson and Spencer, "Crowding Out," pp. 2-17.

taxpayers.²⁶ As a result, government services increase at a faster rate than actually desired by citizens. This explanation of the growing size of government depends crucially upon the assumption that less than full tax discounting occurs.²⁷

CONCLUSION

Traditionally, economic analysts have found that the choice between debt and taxes has a significant effect on the economy. To the extent that taxpayers do not take into account the tax liability associated with government debt, they will perceive increased income and wealth when government debt is substituted for current taxation. As a result, current consumption is encouraged and investment discouraged in comparison with tax-financed government expenditure. Under this scenario, private capital formation and the long-term growth of the economy are reduced.

Some recent theoretical and empirical studies have questioned the analysis underlying these results. These studies point out that taxes versus debt is really a choice between taxation today versus taxation tomorrow. If the future taxes required to service the debt

are widely perceived by the public, no increase in private wealth occurs with deficit financing. In this case, the choice between debt and taxes is essentially neutral and the presumed benefits of a balanced budget disappear.

Also, the argument for a link between inflation and deficits is not as strong if tax discounting is assumed. If the issuance of government debt does not result in the perception of increased wealth, a given level of government expenditures financed by debt is no more expansionary than the same outlays financed by taxes. Furthermore, since interest rates do not rise in this case, the mechanism by which deficits raise overall credit demands and encourage the Federal Reserve to expand the money supply at a greater rate is also suspect.

In essence, complete discounting of tax liabilities implies that the arguments over the relative merits of balanced and unbalanced budgets are irrelevant. With complete discounting, neither the potential of unbalanced budgets (changing taxes with a given level of government expenditures) to influence aggregate demand nor the adverse effects of unbalanced budgets on investment, inflation, or the size of government exist. Although recent theoretical and empirical studies lend support to the incorporation of tax discounting into the analysis of debt financing, the evidence does not appear strong enough for one to completely disregard the possibility of less than full discounting.

²⁶J. M. Buchanan and R. Wagner, *Democracy in Deficit: The Political Legacy of Lord Keynes* (Academic Press, New York, 1977).

²⁷For a study that finds evidence opposing these views, see William A. Niskanen, "Deficit, Government Spending, and Inflation—What is the Evidence?" *Journal of Monetary Economics* (August 1978), pp. 591-602.

