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MACROECONOMIC POLICY AS A SOURCE OF AGRICULTURAL CHANGE

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Farmers traditionally have had to cope with a high degree of uncertainty arising from the forces of nature including weather, pests, and disease. As agriculture became commercialised, business cycles emerged as a source of variation in markets. Technological advances in industrial countries later became a force for change. As economic development achieved high levels in advanced industrial nations, low income elasticities of demand for farm products somewhat decreased the influence of business cycles on the farming economy. But macroeconomic policies of governments have emerged as a major source of uncertainty and change in recent years.

The objective of this paper is to examine the influence of macroeconomic policy as a source of agricultural change. Macroeconomic policy as used here refers mainly to fiscal and monetary policy but may also refer to international trade policy. Agricultural change implications are noted for (i) farm prices, receipts, expenses, and balance sheets, and (ii) farm structure, mainly size and number of farms. The paper draws heavily on U.S. experience because: (i) I know it best, and (ii) the U.S. is a major force in the world economy - its actions have powerful international implications.

TYPOLOGY OF MONETARY AND FISCAL POLICY

In discussing macroeconomic policy impacts on agriculture, a typology is useful. Later I outline the rudiments of a sound macroeconomic policy, but the focus here is on unsound policies in a two-way classification.

Fiscal policy	Monetary policy: Restrictive		Expansionary	
Restrictive	A:	Depression	B:	Carternomics
Expansionary	C:	Reaganomics	D:	Hyperinflation

An overly restrictive monetary policy combined with a restrictive fiscal policy leads to recession or depression. Such a policy has not been followed in the U.S. since the Great Depression and is unlikely to be followed again. Also, an expansionary fiscal policy combined with an expansionary monetary policy which leads to hyperinflation is intolerable in most advanced industrial economies. Hence quadrants A and D in the above typology are ignored; the focus is on quandrants B and C. Carternomics and Reaganomics describe the macroeconomic policies of the U.S. for the past decade.

*Comments by Darryll Ray and Larry Sanders are much appreciated

CARTERNOMICS

Macroeconomic policy characterized by a relatively tight fiscal policy (modest federal budget surpluses or deficits) and expansionary monetary policy (rapid increase in money supply) is classified for convenience as "Carternomics" after Jimmy Carter, who was U.S. President in the 1976-1980 period when the policy was followed. The money supply in the U.S. is controlled by the Federal Reserve Bank, which is nominally independent of the political process, including the President. Hence the label should not be interpreted to mean that Jimmy Carter was solely responsible for the policy.

The expansionary monetary policy can be traced back in no small part to OPEC oil price increases. If the money supply is restrained as energy prices rise, other prices and wages will fall to minimise increases in the general price level (inflation). But because prices and wages are inflexible downward in industrial economies, higher energy prices are associated with worker layoffs, idled industry capacity, and recession. To avoid this outcome, monetary authorities increased the money supply until inflation reached 13% in 1979 and was 12% in 1980. At issue is cash flow, wealth, instability, and cost-price impacts on the U.S. farming sector in the 1976-1980 period.

CASH FLOW

Understanding cash flow impacts requires a review of the theory of the pricing of land which accounts for three-fourths of U.S. farm assets and strongly influences the economic destiny of farmers.

My theory (Tweeten, 1981) of farmland price determination assumes that land earnings or rent per acre in year t are expected to increase at a rate $i+i'$ where i is the expected inflation rate and i' is the expected real rate of increase in land earnings. Hence future rent in year t, R_t, is a function of current rent R_0 and other variables:

(i) $R_t = R_0 e^{(i + i')t}$ where e is the base of natural logarithms.

The present value of land P_0 per acre in a well-functioning land market is the sum of future

expected rent discounted at a rate r + i where r is the desired or equilibrium real rate of return on farmland or

$$\text{(ii)}\quad P_o = \int_{i=o}^{\infty} \frac{R_o e^{(i + i')t}}{e^{(r + i)t}}\, dt = \frac{R_o}{r - i'}$$

It follows that the current rate of return on farmland is

$$\text{(iii)}\quad \frac{R_o}{P_o} = r\text{-}i'.$$

Because land price is a linear function of rent, it follows that

$$\text{(iv)}\quad P_t = P_o e^{(i + i')t}$$

and the expected appreciation of land values is the real rate of capital gain i' plus the nominal rate of capital gain i. The total return on land is the current rate of return r-i' plus the rate of capital gain i+i' or (r-i') = r+i in nominal terms and r in real terms.

Equation 3 can be generalised to any asset such as a bond earning a fixed nominal return per year so that real earnings decline with the inflation rate i. Hence the current return on a bond-type financial investment is

$$\text{(v)}\quad \frac{R_o}{P_o} = r + i.$$

If for simplicity, we assume that the real rate of interest is r, it is apparent that the current farm mortgage interest rate is r+i in a well-functioning market.

The cash flow rate on a unit of land owned with full indebtedness is the current return r-i' less the mortgage interest rate r-i or

$$\text{(vi)}\quad (r - i') - (r - i) = -(i + i').$$

thus the cash flow deficit rate is i+i'.

It was reasonable in 1980 to assume the future inflation rate would be 8% and the real rate of increase in land earnings i' would be 2% per year. Hence the current cash flow shortfall of earnings below mortgage interest would be 10% of the land value.

Land earnings increased at a faster rate than inflation in the 1970s but extensive analysis for the 1962-1982 period indicated that market expectations of i' were zero so that the current return on land was r and the cash flow shortfall was i (Pongtanakorn 1985). Still, with a farm mortage interest rate of 12% and current return (also the real rate of return) on farmland of r = 4%, current earnings on 3 acres were required to pay interest on one acre. Although the real rate of return on farmland was favourable, the cash flow shortfall caused farmers to take to the streets in "tractorcades" and to call for high rigid price supports and mandatory production controls to relieve cash flow problems associated with Carternomics.

Wealth

Because lenders did not anticipate inflation under Carternomics, mortgage loans were made at long-term fixed rates well below the realised value of r + i. Real interest rates averaged near zero for the 1970s and massive real wealth was transferred from creditors to indebted land investors - the latter mostly farm operators. If farmland investors would have expected the zero real interest rate of the 1970s to be permanent and used that rate to set r, they would have paid an infinite price for land. Although the ratio of rent to land value (R_t/P_t) declined in the 1970s, it averaged over 4% among states in 1980. Hence investors in farmland were cautious and positioned to break even with a real interest rate of 4% in the 1980s even if land earnings only kept pace with inflation after exceeding the inflation rate in the 1960s and 1970s.

Cost-price

"Cost-price" is a widely used if somewhat inaccurate name for the terms of trade or parity price for farmers as measured by the ratio of prices received for products to prices paid for inputs. In theory, it is not possible to say *a priori* whether agricultural terms of trade are made worse off or better off by a change in the general price level caused by a change in the money supply. Two opposing hypotheses have been advanced:

(i) The first is that agriculture is one of the few flexible-price sectors of the economy where product prices are set competitively. Adjustments to supply or demand shocks are apparent more in price changes than in quantity changes. Most sectors of the economy including the farm input supply sector are characterised by imperfect competition and sticky prices.
Holders of cash balances enlarged by monetary expansion convert excess balances into real goods and services. This creates excess demand which raises prices most quickly in flex-price sectors characterised by inelastic supply. In the non-flex price sectors, adjustments to economic conditions are made mostly by changing quantity placed on the market rather than by changing price. If this hypothesis holds, prices received by farmers react more than prices paid by farmers to changes in money supply. So deflation worsens terms of trade (ratio of prices received to prices paid) for farmers. And inflation improves terms of trade for farmers because prices received by farmers increase faster than prices paid by farmers.

(ii) The opposing hypothesis is that the imperfectly competitive input supply sector practices cost-plus pricing and passes higher prices along quickly to the next link in the marketing chain - farmers. Farmers, who are price takers, not price makers, cannot pass higher input prices along quickly because each farmer has no control over price. Hence an expansion in the money supply increases prices paid by farmers more quickly than prices received by farmers. Inflation worsens terms of trade for farmers if this hypothesis holds.

Some empirical evidence (Tweeten 1983, pp. 61-64) indicates dominance of the second hypothesis,

although some researchers (see Gardner 1981; Starleaf et al. 1985) have reached other conclusions. I found that each 1% increase in the general price level increases prices paid by farmers about 1,5% in one year and prices received by farmers by 1,0%, other things being equal. It follows that the ratio of prices received to prices paid by farmers falls about 0,5% for each 1% increase in the general price level. The overreaction to inflation or deflation is mostly offset in the second year. Thus inflation or deflation has no real impact on farm prices in the long run. Because the cost-price squeeze induced by changes in the general price level is short-lived, it contributes to instability but not to chronic low returns in farming.

International macroeconomic policies

Other oil importing countries expanded money supply in the 1970s to reduce the shock of higher oil prices. The expansion in worldwide money supply was attended by recycling by oil exporters of earnings through Western banks which lent the funds to developing countries. Some of the loaned proceeds were used to purchase farm exports which contributed to higher commodity and land prices of U.S. farmers. On the whole, world money supply and credit were expanded at rates that could not be sustained without intolerable inflation and debt.

The *expansionary phase* of the inflation cycle characterised by Carternomics eventually brought high inflation rates which monetary policy corrects by reducing the money supply. The second or *stabilisation phase* of the inflation cycle originated in the U.S. when the Federal Reserve Bank switched in late 1979 from a policy of controlling interest rates to a policy of controlling money supply. This monetary restraint response to public demands for less inflation induced a recession which was severe in 1981 and 1982 and which reduced the inflation rate to 4% in 1982, where it has remained into 1986.

REAGANOMICS

President Ronald Reagan, who was elected in 1980 and took office in 1981, was ideologically committed to lower tax rates, to a strong national defence, and to reduce domestic welfare spending. As the intellectual foundation for his economic policy, he was strongly attracted to the "Laffer Curve" concept of economist Arthur Laffer who maintained that lower tax rates would increase the tax take - which could be used to finance increased military spending.

The concept was erroneously labelled "supply-side" economics but in fact was mostly discredited neo-Keynesian economics. The latter holds that advanced industrial market economies are chronically prone to less than full employment which can only be alleviated by full-employment (structural) federal deficits. In contrast to neo-Keynesian and Laffer Curve economics, mainstream economics holds that lowering the tax rate reduces the tax take, and that federal deficits are appropriate to bring a nation out of recession but that a balanced or surplus budget is appropriate in a full-employment economy.

President Reagan, who had conceived his economic policy before the 1981 recession was apparent, successfully steered his economic policy legislation through Congress to form the Economic Recovery Tax Act of 1981. The resulting large deficit was timed perfectly to lift the nation out of recession. The economy approached full employment in 1983. (Seven per cent unemployment is currently "full employment" because less unemployment induced by macroeconomic policy tends to bring inflation; lower unemployment can be sustained only by structural economic policies such as manpower programmes and the removal of institutional restraints to employment).

If the federal government had moved towards a balanced budget in 1983, the script would have followed mainstream economic fiscal policy prescriptions to deal with the inflation cycle. But no action was taken by President Reagan and Congress to balance the federal budget in 1983; deficits continued to rise in a full employment economy.

The result was embarkation on an economic policy in uncharted waters. The large demand for funds to finance the deficit coupled with strong private demand for funds to finance a full-employment economy in the face of limited savings and tight money raised the real interest rate to unprecedented levels - 8-9% versus historic rates of 2-3%. Although many economists predicted that high real interest rates would truncate the recovery, in fact, the consumer and service industry sectors continued a boom that has lasted longer than typical recoveries.

The most unexpected impacts of Reaganomics came through international linkages. Lower tax rates added only modestly to domestic savings. Federal deficits were negative savings which brought overall savings rates to historically low levels. But the high real interest rates attracted savings in the form of financial investment from abroad to keep interest rates from rising even further. The strong foreign demand for dollars to invest in U.S. financial markets relative to a limited supply of dollars abroad raised the real value of the dollar by 40% from 1980 to 1984. The high dollar made imports cheap and abundant to hold down inflation and maintain prosperity for consumers and service industries.

However, the high dollar diminished U.S. export shares in world markets. U.S. macroeconomic policies contributed to recession abroad and hastened financial crises in developing countries because much of their debt carried U.S. interest rates and had to be paid in dollars. These elements contributed to declining U.S. exports.

Charles Dickens' *A Tale of Two Cities* might refer to "A Tale of Two Economies" in the U.S. For consumers and service industries it was the best of times; for traded goods sectors it was the worst of times because the latter found it difficult to compete with imports or to compete for exports.

Reaganomics was particularly devastating to the farming industry because it (i) uses twice as much capital per worker as other industries and high real interest rates raised the cost of capital; (ii) is a net debtor, owing others $4 for each $1 others owe farmers; and (iii) depends much more heavily on exports than do other industries on the average. The following paragraphs review specific impacts.

Cash flow

As noted earlier, the cash flow deficit on farmland investment as a per cent of land price is i + i' where i is the inflation rate and i' is the expected rate of increase in real rent. Under Reaganomics i was reduced to 4% and i' became negative. Hence Reagonamics minimised the pure cash flow problem but created other problems.

Wealth

As indicated, the strong demand for savings relative to supply raised real interest rates under Reaganomics. Even with reduced inflation, creditors were unwilling to commit funds at low nominal interest rates because inflation might revive. Whatever the source, real interest rates triple historic levels, reduced land prices to half of 1980 levels by 1986 in many states, bringing real wealth losses of $250 billion on farmland alone. Most of this loss accrued to farmer operators and to retired operators and their spouses who own 80% of farmland. Financial stress and bankruptcies reached levels unprecedented since the Great Depression of the 1930s.

Recalling Equation 2, which states that $P_0 = R_0/(r\text{-}i')$, even if current rent R_0 and i' remained unchanged, a doubling of the desired real rate of return r on farmland because of tripling of real interest rates could alone explain the drop in U.S. land prices. By the mid-1980s, however, both R_0 and i' were falling owing to reduced exports caused by the high dollar in world markets. Hence further declines in farmland values are expected in the future. The 1985 decline in the value of the dollar by 25% and a decline of the real interest rate by 2 percentage points may signal the basis for a turnaround in land price trends but the effects are unlikely to raise farm earnings before 1987.

Cost-price

Empirical results of econometric studies indicate that the drop in inflation rates between 1981 and 1982 provided some modest support to farm commodity prices. Despite bumper crops in 1981 and 1982 and a drop in exports after 1981, farm commodity prices, gross receipts, net income, rents, and cash flow held up rather well to 1985. The situation was aided by drought and a large payment-in-kind supply control programme in 1983 and by commodity programmes (storage, direct payments, sizable nonrecourse loan rates) in other years. The 1981 farm bill proved unduly expensive to the U.S. Treasury, and (compounded by the high dollar) priced U.S. products out of world markets. It also encouraged excess capacity in the form of redundant resources and output as farmers produced for the programme and not for markets. Stocks accumulated to unreasonable levels.

The new farm bill is expected to reduce excess production capacity and stocks. The Food Security Act enacted in December 1985 provides for markedly lower nonrecourse loan rates and reduces incentives to produce for programmes rather than for the market. The Secretary of Agriculture has wide discretionary power under the 1985 Act to set loan rates, acreage diversions, and export subsidies. With loan rates sharply reduced on major crops, farm prices will be substantially lower, causing a cost-price squeeze. But if the programme is properly administered, it can eliminate excess capacity (output and resources in 1985 were 7% greater than the market would support with normal weather) and excessive stocks (U.S. wheat stocks are double reasonable levels) and hence restore market profitability within the 5-year life of the 1985 Act - if macroeconomic policy is supportive. If real interest rates and dollar exchange rates continue to fall as expected, American farmers will be highly competitive in world markets but probably will regain market shares more slowly than they were lost.

International economic policies

As indicated earlier, Reaganomics intensified the financial crisis in developing countries. Imports were cut and exports expanded to service debt. This, along with slow recovery of developed countries from the 1981-1982 recession, contributed to low demand for U.S. exports. But favourable weather, the success of many developing countries such as India in improving infrastructure and adopting high-yielding varieties, and the shift of mainland China to a more market-oriented economy also reduced U.S. Farm export demand. In the European Economic Community (EEC), high rigid price supports coupled with no production controls brought large grain surpluses which were exported. The EEC sharply expanded its farm export share at the expense of the U.S. share. The policy probably would have required export subsidies in excess of politically tolerable levels to the EEC in the absence of the overvalued dollar. Hence Reaganomics had diverse and often subtle impacts on U.S. agriculture.

MACROECONOMIC POLICY AND FARM STRUCTURE

Macroeconomic policy is not neutral with respect to size, number, and types of farms (Tweeten 1983). The major determinants of commercial farm size and numbers are technology and national income growth (Tweeten 1984). Technology is

usually scale-biased, creating economies of size which lead to fewer and larger commercial farms. National income growth increases the opportunity cost of farm labour as measured by real *per capita* income of nonfarmers, and farms must grow in size to maintain economic equilibrium with earnings comparable to those of nonfarmers. A sound economic policy as defined above would tend to quicken the pace of technological change and economic growth, hence would increase the size and decrease the number of commercial farms.

Unsound macroeconomic policy as represented by Carternomics and Reaganomics has especially disadvantaged mid-size family farms. The cash flow problem under Carternomics was particularly detrimental to mid-size farms because large farms have access to diverse sources of debt and equity capital to cope with cash flow shortfalls. Nonfarm investors prominent in large operations prefer earnings to accrue as capital gains because such gains are taxed at lower rates than ordinary income. Part-time small farmers have off-farm income to offset cash flow deficits from farming.

Reaganomics first brought high real interest rates and later a cost-price squeeze as exports fell. Although large farms are more heavily leveraged (higher debt-asset ratios) than other farms, they have higher rates of return on investment than do mid-size farms and hence appear to have coped better with high real interest rates. Low financial leverage coupled with off-farm income has helped operators of small farms to cope with high real interest rates. With narrower profit margins than large farms and less off-farm income than on small farms, mid-size family farms have suffered most from financial and cost-price stress. Many have failed financially.

Finally, as noted earlier, unsound macroeconomic policies have increased instability and uncertainty in agriculture. Because family farms have lower ratios of cash costs to receipts than large farms, they can "tighten their belt" in unfavourable times and accept lower returns to operator and family labour, management, and equity capital while awaiting better times. But large farms have greater resource flexibility to lay off hired workers and have larger profit margins than do mid-size family farms. Also large farms can afford to use sophisticated risk management strategies such as hedging in futures markets, hired consultants, and electronic computers by spreading the cost over many units of output.

To sum up, unsound macroeconomic policies create uncertainty, instability, and change most damaging to mid-size family farms. Sound macroeconomic policy may result in fewer commercial farms and more part-time small farms. But sound macroeconomic policy would probably result in a higher proportion of commercial farms being mid-sized family farms. Family farmers and society as a whole have much to gain from macroeconomic policies that seek steady economic growth with general price level stability, and that avoid cycles of instability forcing unrewarding change on farm and other sectors.

POLICY RESPONSE TO CHANGE

Former President Harry Truman once said, "Those who can't stand the heat should stay out of the kitchen". Technology and normal vagaries of nature creating uncertainties from weather, pests, and disease require change which might be viewed as normal "heat" that farmers and markets can bear without government interventions. Change induced by price and other incentives giving rise to sustainable gains in productivity might be viewed as tolerable to farmers and a reasonable price to pay for greater economic efficiency and real national income growth.

In the case of monetary, fiscal, and trade policy, however, governments play a major role in creating unnecessary uncertainty and change in agriculture. Change induced by improper macroeconomic policies under Carternomics and Reaganomics is only cyclical because neither inflation nor large budget deficits are sustainable. Long-term economic efficiency and growth are not enhanced. Even if farm and national income averaged over the cycle is as high as farm and national income without the cycle, the changes induced by the cycle are socially traumatic. Many farmers lost in the period of high real interest and exchange rates under Reaganomics will not be retrieved when real interest and exchange rates return to normal lower levels. The cycles may even reduce long-term farm and national income because resources are wasted in the adjustment process.

One way of avoiding such change is to adopt a centrally planned and tightly controlled agriculture and national economy. Americans are likely to continue to reject such a policy because it sacrifices too much economic efficiency and freedom to make decisions.

A more realistic alternative is to pursue a sound macroeconomic policy. As best economic theory and institutional tools can prescribe, such a policy is to expand the money supply at a relatively constant rate of approximately 6 per cent per year - with a somewhat faster rate during recession and a slower rate after recovery. The appropriate fiscal policy is a federal deficit during recession and a balanced or surplus budget after recovery. Co-ordination of monetary and fiscal policies among major industrialised countries can increase the effectiveness of such a policy. Also, world free trade can reduce instability and complement sound macroeconomic policies.

Macroeconomic tools are as yet too crude to fine tune an economy to steady growth without inflation, and some macroeconomic variability is inevitable in a free enterprise economy. That is part of the "heat in the kitchen" which farmers may have to live with.

Unsound, erratic macroeconomic policies bring the pain of change without the compensation of progress. In the short run, a cost of change is the trauma of individuals losing life savings or being displaced from farming. The unfavourable impacts in the long run are more subtle, indirect, and profound.

Substantial resource costs are incurred at the

farm level to reduce the cost of uncertainty and change through strategies such as maintaining diversification, flexibility, and liquidity. Substantial resources are devoted to forecasting, use of futures markets, and other risk avoidance devices that would be needed less in a more secure environment.

In a broader context, the search for and obtaining of a secure economic environment through political means in the face of unsound macroeconomic policies also entail economic costs. Although on the whole gains to society from economic change may far exceed costs, the costs are likely to be narrowly concentrated on a few big losers (often producers) and the benefits widely dispersed among large numbers of gainers (often consumers). A few determined big losers seeking political and other institutional means to protect themselves from the pain of change are likely to be more than a political match for large numbers of indifferent gainers. The free-rider problem and the widely dispersed nature of benefits from change do not make a very effective defence against those who would erect institutional barriers to change. Many farmers and some groups that represent them strive mightily in the political arena to protect themselves through commodity programmes, collective bargaining, or other devices from the pain of change. When they are successful the result can be substantial economic loss to society from inefficient resource combinations (so-called "X-inefficiency"), inefficient overall input and output levels (dead-weight losses), and excessive commitment of resources to special-interest lobbying for favored policies.

A growing body of literature (see Norton 1986; Olson 1983) makes the point that the historic secular rise and decline of economies is closely tied to the ability of markets and institutions to accommodate change. A well-functioning market price system contributes to economic efficiency by impersonally (some might say ruthlessly) culling economic laggards whether they lag because of poor management, unwise risk taking, or bad luck.

Governments frequently sanction or encourage initiatives such as organised labour or trade associations which insulate individuals and groups from market incentives for change. Rigidities established to avoid the pain of change for those victimised by conditions which they could not control inevitably are unable to distinguish between the poor manager, the plunger, and the victim of circumstances beyond the control of a prudent manager. Decisions by the public sector regarding who should fail and who should survive or expand tend to favor retention even if the cause of failure is poor management. The result is economic inefficiency and retarded national income growth. In short, unrewarding change begets institutional measures to stop change; causing premature aging and sclerosis of the agricultural and national economies.

SUMMARY AND CONCLUSIONS

Macroeconomic policies are an important source of change in agriculture. Unsound macroeconomic policies bring cycles to farm prices, expenses, receipts, and balance sheets. Farmers, who on the average are risk-averse, find it traumatic to deal with such cycles even if farm prices and income average out to the same levels as under sound macroeconomic policies. A major social cost is incurred for adjustments and for risk-management strategies that would be unnecessary in a more stable economy. Farm families driven out of agriculture in unfavourable phases of unsound macroeconomic policies are not retrieved in the favourable phases.

Change that persistently leads to greater economic efficiency and higher income levels may be desirable even if farmers are displaced and resource levels and combinations have to be adjusted. But cyclical movements from unsound macroeconomic policy become change for the sake of change. Social cost in the form of traumatic adjustments into and out of agriculture are not compensated by long-term gains in economic equity or efficiency. Farmers and others in agriculture need to become more knowledgeable about macroeconomic policy and more politically active to work towards sound monetary, fiscal, and trade policies.

Advanced free-enterprise economies are chronically prone to instability arising from business cycles and other sources. Because the source of much instability is expectations which cannot be predicted, even the most well-intentioned macroeconomic policy cannot eliminate uncertainty and instability. The alternative is a centrally planned and tightly controlled economy sacrificing so much freedom and economic efficiency that Americans to date have rejected it and probably will for years to come.

Much political debate in the United States centres on the appropriate role for government in agriculture to ameliorate the social and economic costs of change. The outcome of that debate and of U.S. macroeconomic policy cannot be predicted but will be of critical importance to the global economy.

BIBLIOGRAPHY

GARDNER, BRUCE. December 1981. "On the Power of Macroeconomic Linkages to Explain Events in U.S. Agriculture". *American Journal of Agricultural Economics.* 63:872-78

NORTON, R.D. March, 1986. "Industrial Policy and American Renewal". *Journal of Economic Literature* 24:1-40

OLSON, MANCUR. 1982. *The rise and Decline of Nations: Economic Growth, Stagflation, and Social Rigidities.* New Haven: Yale University Press

PONGTANAKORN, CHAIPANT. December 1985. "Theory and Measurement of Determinants of Farmland Price and the Ratio of Rent to Farmland Price". Unpublished Ph.D. thesis. Stillwater: Department of Agricultural Economics, Oklahoma State University

STARLEAF, DENNIS, WILLIAM MEYERS, and ABNER WOMACK. May, 1985. "The Impact of Inflation on the Real Income of U.S. Farmers". *American Journal of Agricultural Economics.* 67:384-89

TWEETEN, LUTHER. June 1981. "Farmland Pricing and Cash Flow in An Inflationary Economy". Research Report P-811. Stillwater: Agricultural Experiment Station, Oklahoma State University

TWEETEN, LUTHER. July 1983. "Impact of Federal Fiscal-Monetary Policies on Farm Structure". *Southern Journal of Agricultural Economics* 15(1):61-68

TWEETEN, LUTHER. 1984. "Causes and Consequences of Structural Change in the Farming industry". NPA Report No. 207. Washington, D.C.: National Planning Association