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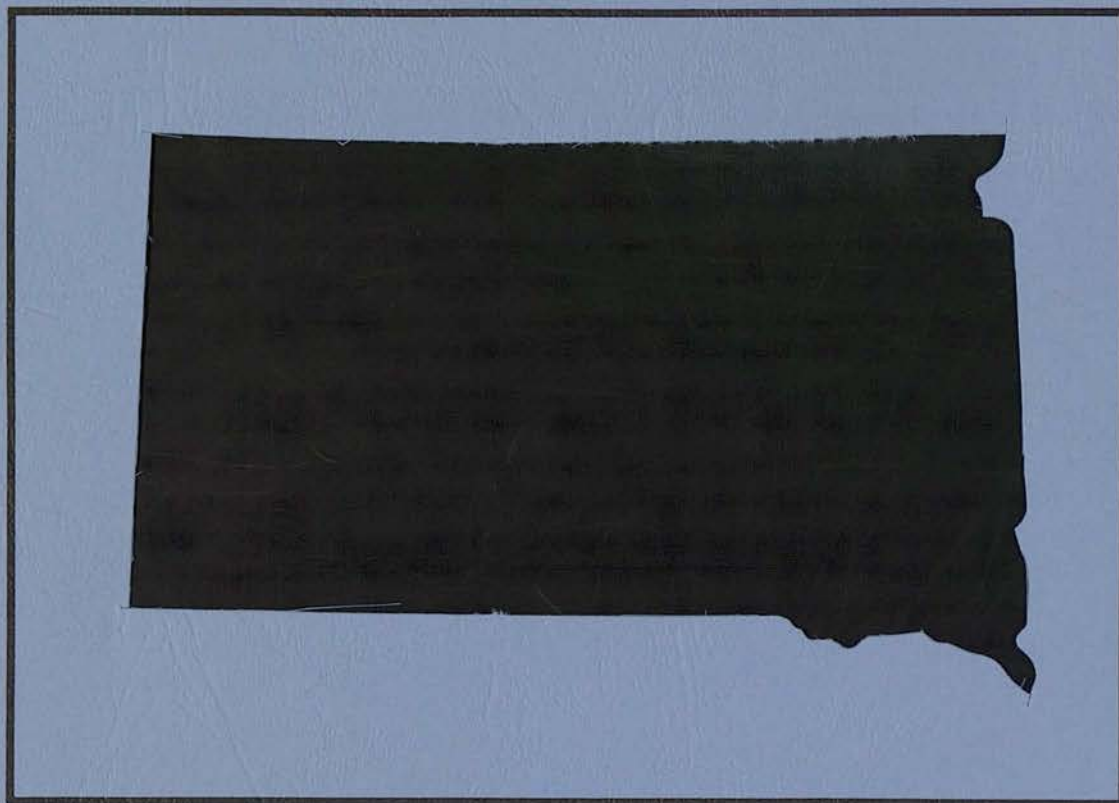
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## **ECONOMICS DEPARTMENT**

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AGRICULTURAL DEBT PERSPECTIVE  
IN SOUTH DAKOTA  
1969 - 1989\*

by

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ABSTRACT: This report documents the major changes that have occurred in South Dakota and U.S. farm sector debt structure and debt servicing ability from 1969 - 1989. South Dakota and U.S. agricultural debt trends are presented and evaluated for two contrasting time periods: (1) 1969 - 1983 period characterized by rapid increases in agricultural debt and interest payments; and (2) 1983 - 1989 period of declining levels of agricultural debt and interest payments. Trends in farm real estate debt and nonreal estate farm debt levels and changing market shares of agricultural lenders are presented. Finally, several indicators are used to evaluate the debt servicing ability of South Dakota's agricultural sector. The implications of these financial trends in the South Dakota and U.S. farm economy are discussed.

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# AGRICULTURAL DEBT PERSPECTIVE IN SOUTH DAKOTA, 1969 - 1989

## INTRODUCTION

South Dakota's agricultural economy is not insulated from economic changes taking place in the nation or in the world. The impacts of these changes on South Dakota's agricultural debt - a major component affecting the economic well-being of the state's farm sector - is the focus of this report. The major purpose of this report is to provide readers with an improved understanding of the forces affecting agricultural debt levels and to provide information on agricultural debt trends in South Dakota and in the United States from 1969 - 1989. These two decades include: (1) the agricultural export and farm finance "boom" of the 1970's and early 1980's, and (2) the farm financial crisis and partial recovery of the 1980's.

We begin with a discussion of the economic environment of the 1970's and 1980's that had major impacts on South Dakota's farm sector and its level of debt. Next, trends in agricultural debt level and composition (farm real estate and nonreal estate debt) are compared for South Dakota and the United States over the 1969 - 1989 time period. Also, the changing market shares of the major holders of agricultural debt in South Dakota and in the United States are compared and contrasted. Finally, debt servicing ability of South Dakota's farm sector is examined by comparing trends in: (1) interest expense incurred by type of debt, (2) interest expense as a proportion of total production expenses, and (3) agricultural debt in relation to agricultural assets, equity and net income.

Discussion of each topic is centered over two time periods: (1) 1969 - 1982/83 period of rapid growth in agricultural debt and interest payments, and (2) 1982/83 - 1989 period of declining levels of agricultural debt and interest expense. The major data sources are state-level and U.S. farm sector financial



data provided by the Economic Research Service (USDA - ERS) of the U.S. Department of Agriculture. These data are summarized in various tables and charts located at the end of this report. All data on agricultural debt are reported annually from December 31, 1969 through December 31, 1989. See Appendix I for a discussion of specific data sources, procedures and limitations.

## THE AGRICULTURAL EXPORT AND FINANCE BOOM OF THE 1970'S

### AND ITS LATER EFFECTS ON U.S. AND SOUTH DAKOTA AGRICULTURE

#### Agricultural Export and Finance Boom

Export demand for U.S. agricultural products rapidly increased from about \$8 billion in 1972 to nearly \$44 billion in 1981. The dependence of U.S. agriculture on export markets nearly doubled during that period and the U.S. obtained an increased share of world agricultural trade. The moderate expansion of U.S. money supply and budget deficits coupled with low interest rates and low international value of the dollar were major economic factors that induced rapid expansion of U.S. agriculture from 1972 - 1981.

The expectation that economic conditions in agriculture, spurred by high export demand for U.S. agricultural products, would remain strong in the future induced farm operators to purchase additional land, bid up farmland prices and increase their debt levels. South Dakota farm real estate prices increased from an average of \$84 per acre in 1972 to a peak price of \$349 in 1982 (USDA, Farm Real Estate Market Developments, various issues).

The low "real" interest rates (inflation adjusted interest rates) contributed to favorable conditions in agriculture during the 1970's. Inflation rates and market interest rates began to increase in 1972, with inflation rate increases outstripping the rate of increases in market interest rates. As a



result the ex post "real" interest rate on financial assets was very low and often negative until 1980, a condition leading savers to invest in physical assets such as farm real estate (Bain and Paulson, 1986, p. 2).

Nominal interest rates increase in the late 1970's and early 1980's. Many agricultural lenders were willing to expand farm loans under the assumption that collateral values (including farm real estate) would continue to increase and future cash flows would continue to be strong. It was this opportunity that led farm operators to increase their financial leverage by purchasing farm real estate and equipment with debt capital.

#### Farm Finance Crisis

In the 1980's, the favorable situation of the agricultural economy drastically changed due to a major switch to a restrictive monetary policy. The domestic inflation rate fell dramatically from 10 - 12% in 1979 - 1980 to about 4% in 1983. Nominal average interest rates on new nonreal estate farm loans in the U.S. increased from 9.6% in 1978 to 19.6% in the third quarter of 1981 and remained above 13.5% through 1984 (Federal Reserve, 1987). The ex post "real" interest rates climbed drastically and the value of the dollar appreciated by nearly 75 percent between 1980 and 1985. These factors contributed to a decrease in export demand for U.S. agricultural products from nearly \$44 billion in 1981 to \$27 billion in 1986 as foreign buyers found them to be very expensive (USDA. Outlook for U.S Agricultural Exports, 1986, 1989).

The above conditions precipitated the farm financial crisis of the 1980's. These conditions were created and sustained by several key factors including: (1) restrictive monetary policy and expansionary fiscal policy, (2) selective deregulation of financial institution activities, and (3) changing debt management and agricultural policies of developing nations.



The Federal Reserve Board switch to a restrictive monetary policy to combat accelerating inflation rates of the latter 1970's was the fundamental factor leading to higher cost farm loans and reduced competitiveness of exported goods. A restrictive monetary policy leads to increased interest rates and fosters dollar appreciation relative to the exchange value of other currencies. With a rising dollar value, imports are cheaper to U.S. consumers as the same number of dollars will buy more foreign goods. In contrast, U.S. agricultural exports tend to be more expensive to buyers from other nations.

Similarly, the effects of an expansionary fiscal policy in the 1980's had some adverse impacts on the agricultural economy. The Federal budget deficit increased from an annual average of nearly \$50 billion per year from 1977 - 1980 to an annual average of \$140 billion in 1981 - 1985. The demand for such sums of money from private U.S. and foreign investors further contributed to major increases in ex post "real" interest rates.

Rapid changes in the economic and financial industry environment in the 1970's led to substantial deregulation of U.S. financial institutions in the 1980's. Congressional passage of the Depository Institution Deregulation and Monetary Act (DIDMCA) of 1980 accomplished two major tasks. First, all types of depository financial institutions were placed under more uniform sets of economic regulations which permitted them to undertake a broader range of activities and subjected them to a greater degree of market competition. Second, it enabled the Federal Reserve System to have broader control over monetary aggregates and eliminated their ability to set interest rate ceilings on deposits. These twin changes radically transformed rural financial markets as rural savers became accustomed to a wider assortment of saving instruments. Rural banks could no longer depend on a reliable and cheap source of deposits and were forced to



compete for deposits by increasing interest rates which were now more subject to competitive market forces. The market response of lenders to these factors was to increase interest rates on new farm loans, increase the use of variable interest rate loans and reduce loan term length on farm real estate loans.

Increased interest rates, encouraged foreign investors into the United States. This contributed to the appreciation of the U.S. dollar. At the same time the U.S. government supported relatively high Federal commodity program loan rates. This led to major reductions in U.S. agricultural exports from 1981 - 1986. This adverse trend was reinforced by debt servicing problems encountered by many Third World importing nations, forcing them to reduce imports and increase exports. Many food importing nations in the 1970's successfully implemented plans to increase food self-sufficiency, which reduced their need for food imports in the 1980's.

The above economic factors of high interest rates and reduced farm exports greatly affected the export-dependent, capital-intensive U.S. farm sector. Many indebted producers were unable to generate sufficient cash flow for debt servicing and soon found themselves in a vulnerable financial position. In 1985 and 1986, an estimated 10% of U.S. farms were in a "vulnerable" financial position (negative net farm income and debt/asset ratio above 0.40) and another 45 - 50% were experiencing some degree of financial difficulty - either negative net farm income or a debt/asset ratio above 0.4. The proportion of financially stressed farms in the Northern Plains states, including South Dakota, was even greater (Morehart, et.al. 1988).

An SDSU survey of agricultural lenders in November 1984 and November 1985 indicated 24-25% of South Dakota farm borrowers were classified in a "weak" or "inferior" financial position. Furthermore, lenders were not willing to make any

loans to prospective customers in a "weak" or "inferior" financial position and very few (17%) were willing to make loans to new customers of "average" financial risks (Schmiesing and Swinson, 1986).

Farm debt levels of the early 1980's were not sustainable in this economic environment. Consequently, farm debt levels began to decline due to net loan pay downs by producers and loan write downs by lenders as a result of voluntary negotiation, farm foreclosure or bankruptcy proceedings.

#### Partial Recovery of the Depressed Farm Economy

By 1985 - 1986 monetary policy shifted to a more expansionary policy and a new Federal farm bill (1985 Food Security Act) provided unprecedented levels of Federal income support to the ailing farm sector. Under these conditions, net incomes (including Federal payments) to agriculture stabilized and began to increase, while interest rates and the value of the dollar declined. Export demand for U.S farm products increased again from \$27 billion in 1986 to nearly \$38 billion in 1989 (USDA, Outlook for U.S Agricultural Exports, 1990). In the aggregate, farmers continued to use increased net cash incomes to reduce their debt levels. Finally, many debt-free or low-debt farmers were able to use excess cash to purchase machinery to replace their aging equipment and to purchase additional farmland at "bargain prices".



## AGRICULTURAL DEBT LEVEL TRENDS - SOUTH DAKOTA AND U.S. COMPARISONS

The favorable conditions created within the agricultural sector during the 1970's agricultural boom led many South Dakota farmers to financially leverage their agricultural operations. This period of financial prosperity was followed by decline resulting in adverse financial impacts nationally and in South Dakota. During the 1970 to 1982\83 time period, increases in farm commodity prices produced higher net incomes and prosperity inducing farmers to borrow funds and invest in land and equipment.

As a result, South Dakota's total agricultural debt was \$1.237 billion at the beginning of 1970 and peaked at \$5.415 billion in late 1983 ... a 437 percent increase (Table 1a and Figure 1a). A majority of this increased debt was assumed from 1975 - 1979. Agricultural debt levels continued to increase in the early 1980's from \$4.133 billion to \$5.415 billion during a period of sharply increased interest rates, increasing prices of purchased farm inputs and declining farm commodity prices. Beginning in 1984, agricultural debt levels in South Dakota began to decline. By late 1989, agricultural debt of South Dakota's farmers had declined to \$3.44 billion, a 36.5% reduction from its peak level in early 1984 (Table 1a and Figure 1a).

South Dakota's farm real estate debt levels increased drastically during the agricultural land market boom period of 1972 - 1982. Farm real estate debt increased from \$624 million at the beginning of the period to \$2.017 billion at the end of 1981, a 320% increase. Farm real estate debt remained above \$2 billion from 1981-1985 and then plunged to \$1.429 billion by the end of 1989.

Changes in the level of South Dakota's nonreal estate farm debt has been even greater than changes in farm real estate debt. The amount of nonreal estate farm debt increased from \$666 million at the beginning of 1970 to \$2.486 billion



at the end of the same decade. Nonreal estate debt continued to increase in the early 1980's from \$2.486 billion to \$3.289 billion. From early 1984 through late 1989, nonreal estate farm debt levels declined.

Similar trends are observed at the national level. Total agricultural debt increased from \$53.02 billion in early 1970 to \$217.24 billion in early 1983 (Table 1b). The most pronounced debt build-up occurred from 1973 to 1979. U.S. agricultural debt continued to increase through 1982 but at a slower rate. In 1983, U.S. agricultural debt levels started to decline and reached a minimum amount of \$151.19 billion at the end of the 1980's, a 30% decrease from the peak year value of \$217.24 billion in 1982 (Table 1b and Figure 1b).

The level of U.S. farm real estate debt annually increased at double digit rates in the years from 1973 to 1981. Farm real estate debt continued to slowly increase in 1982 and 1983 when it reached its peak value of \$112.62 billion. Farm real estate debt levels steadily decreased through the remainder of the 1980's. Likewise, major increases in nonreal estate farm debt occurred from 1970 - 1982, reaching a peak total of \$107.21 billion. Drastic declines in the volume of nonreal estate farm debt occurred throughout the remainder of the 1980's.

In most years of the 1970's and 1980's, South Dakota's total agricultural debt was 2.3 - 2.5% of U.S. total agricultural debt. The proportion of U.S. nonreal estate farm debt from South Dakota was usually higher (2.3% - 3.1%), while the proportion of farm real estate debt from South Dakota was lower (1.8% - 2.1%). The major reasons for these differing proportions by type of debt are the greater commercial agricultural orientation of South Dakota (compared to the U.S.) and relatively lower farm land values.



## AGRICULTURAL DEBT BY LENDER GROUPS

### Farm Real Estate Debt

The primary sources of farm real estate credit are contracts for deed issued by farmland sellers or mortgages obtained from the Federal Land Bank (FLB), Farmers Home Administration (FmHA), life insurance companies, or commercial banks.

The Federal Land Bank, a component of the cooperative Farm Credit System, is the largest source of real estate loans to South Dakota farmers. Its market share of outstanding farm real estate loan volume increased from 27.8% in early 1970 to between 37.5% - 37.7% in 1982 - 1985. Total outstanding FLB loan volume was less than \$200 million through 1972, increasing to \$772 - 799 million during the 1982 - 1985 period. From late 1985 to late 1989, Federal Land Bank outstanding loan volume declined from \$772 million to \$449 million and its market share declined from 37.5% to 31.4% (Table 2a and Figure 2a).

The Federal Land Bank is also the nation's largest farm real estate lender. National changes in FLB outstanding loan volume and market share are even more dramatic than changes observed in South Dakota. For example, in early 1970, Federal Land Bank outstanding loan volume was \$6.67 billion and its market share was 22.9%. In the peak year of 1984, FLB loan volume was \$49.1 billion and its farm real estate loan market share was 44%. From late 1984 to late 1989, FLB outstanding loan volume declined 42% to \$28.5 billion and its market share declined from 44% to 35.4% (Table 2b and Figure 2b).

The rapidly changing loan volume and market shares of the Federal Land Bank in this twenty year period is related to several explanatory factors. First, changing macroeconomic policies and international economic conditions had major impacts on farm real estate loan volume. Second, the Federal Land Bank is



primarily limited to making first mortgage farm real estate loans and is chartered by Congress with an obligation to "service the credit needs of agriculture". Consequently, economic conditions in agriculture affecting farm real estate values will have a magnified impact on the Federal Land Bank.

Third, the Federal Land Bank emphasized average cost pricing of its farm loans - based on the average cost of its outstanding bond portfolio plus an operating margin. This loan pricing policy made Federal Land Bank loans highly competitive and frequently lower cost than other farm real estate credit sources in the 1970's and early 1980's, a period of rising interest rates. For these and other reasons, the Federal Land Bank was able to greatly increase its market share in a "booming" growth market. However, by the mid-1980's, the Federal Land Bank was saddled with a high average cost bond portfolio, rapidly increasing farm loan losses and substantial operating losses that affected investor and farmer - borrower confidence in the entire Farm Credit System, including the Federal Land Bank. Loan loss performance of the Federal Land Bank was similar to the loan loss experience of other commercial agricultural lenders; however, FLB loan volume is almost entirely concentrated in agricultural loans and thus industry-wide impacts are magnified in the Federal Land Bank's loan portfolio.

Fourth, the Farm Credit System units, including the Federal Land Banks, are farmer-member owned cooperatives. Farmer-borrowers are the systems owners and suppliers of equity capital, via required stock purchases, and elect a board of directors. This ownership and governing structure, along with decentralized management decision making at the Association level facilitated growth in farm loan volume. Major restructuring and consolidation of Farm Credit System units, merger of Production Associations into one PCA and merger of Federal Land Associations into one FLBA was needed when major loan loss problems developed.



Since 1985, the Federal Land Bank loan portfolio has been downsized due to: (1) many borrowers repaying their entire loan balance and/or switching to other credit sources, (2) loan collection and writeoffs from loan foreclosure or bankruptcy proceedings, and (3) Farm Credit Bank management policy changes emphasizing loan restructuring for many member-borrowers with nonperforming loans or other credit weaknesses. In many cases, significant portions of a borrower's loan volume was written down and the remaining credit terms were revised in attempts to place the loan on a performing basis. At this time, it appears that Federal Land Bank loan volume has stabilized (Freshwater, 1990).

In the 1980's, Farmers Home Administration (FmHA), a credit agency of the Federal government, emerged as a major holder of farm real estate debt in South Dakota. From 1981 - 1989, FmHA farm real estate loan volume in South Dakota was between \$395 million and \$466 million, compared to \$109 million at the beginning of the 1970's. The market share of FmHA farm real estate loan volume remained between 19% - 21% in most years between 1969 - 1983. From late 1983 to late 1989 its market share increased from 20.3% to 27.6% (Table 2b and Figure 2b). The primary reason is that FmHA farm real estate loan volume remained relatively stable in a period of downsizing (reduction in outstanding loan volume) in the farm credit industry.

South Dakota farm real estate loan borrowers are much more dependent on Farmers Home Administration than is the case for all U.S. farmers. The FmHA market share of national farm real estate loan volume varied from 5.8% to 8.4% from 1969 - 1984, increasing to 10.8% in late 1989 (Tables 2b and Figure 2b).

Farm real estate loan volume of Farmers Home Administration is from their: (1) basic farm ownership loan program, (2) real estate loans in the emergency disaster (EM) program, and (3) real estate loans outstanding in their



discontinued economic emergency loan program. A substantial proportion (37%) of U.S. FmHA farm loan volume in 1989 was delinquent. As of September 30, 1989, 8.9% of farm ownership loan principal, 25.8% of farm operating loan principal, 43.8% of economic emergency loan principal and 60% of emergency disaster loan principal outstanding was delinquent. Most of this \$8.7 billion of debt has been delinquent for four years or more. "Much of this long-term delinquent loan volume is not collectable and will be reflected in future loan write-offs by the agency" (USDA, AFO-32, 1989, p. 25; USDA, AFO-36, 1990, p. 20-23). Indeed, a total of \$6.5 billion of FmHA farm loan losses were charged off in 1989 and 1990 and continued high amounts of net charge offs are expected in the next few years, (USDA, AFO-40, 1990, pp. 11, 23).

Life insurance companies have been traditional sources of long-term real estate mortgage credit to agriculture. However, their market share continues to erode in the United States and in South Dakota. Life insurance companies have a much lower market share of South Dakota farm real estate debt than total U.S. farm real estate debt.

In South Dakota, life insurance companies market share has declined from 15.1% of farm real estate debt in late 1969, to 7.5% in late 1979 and only 3.7% in late 1989. By comparison, life insurance companies market share of U.S. farm real estate loan volume declined from 19.6% in late 1969, to 14.2% in late 1979 and remained between 11 - 12% from late 1982 through late 1989.

In late 1988 and 1989 only \$52 - \$53 million of South Dakota farm real estate loan volume was held by life insurance companies - the lowest dollar amounts reported in the 1970's and 1980's. Few life insurance companies are making any new farm real estate loans in South Dakota.



Commercial banks have become an important source of farm real estate credit in the latter 1980's. From late 1969 through late 1984, commercial banks market share of South Dakota farm real estate loan volume varied from 2.2% - 3.6%, increasing to 11.7% in late 1989 (Table 2a and Figure 2a). Total farm real estate loan volume of commercial banks increased from \$68 million in late 1984 to \$167 million in late 1989 - the only lender to increase farm real estate loan volume and market share during this retrenchment period!

Commercial banks refinanced many Federal Land Bank borrower's real estate loans in this period. Also, deregulation of banking activities and development of a secondary mortgage market for farm real estate (Farmer Mac) has encouraged some banks to become active in farm mortgage lending. Another contributing factor is increased collateral requirements of some commercial banks, requiring farm real estate mortgages for refinancing farm operating loans.

Commercial banks market share of U.S. farm real estate debt in the 1970's and 1980's has been considerably higher than their market share of South Dakota farm real estate debt. During the 1970's, commercial banks held 10 - 14% of U.S. farm real estate debt. Their market share declined to about 8% in 1982 and 1983, and subsequently increased to 20.7% in late 1989. Their farm real estate loan volume increased from \$3.55 billion in late 1969 to \$8.62 billion in late 1979 and \$16.65 billion in late 1989. At the national level, commercial banks also increased their farm real estate loan volume during the 1983 -1989 period of industry retrenchment. In all likelihood, commercial banks will continue to increase their market share of farm real estate loans in South Dakota and in the United States over the next several years, but the rate of increase will be much lower than in the 1983 - 1989 period.



Individuals have been and continue as major sources of farm real estate credit, although their market share declined in the 1980's. During the 1970's, individuals held the largest market share of farm real estate credit in South Dakota. During the 1980's, the market share held by individuals was second to the market share held by the Federal Land Bank.

Most individual creditors have been farmland sellers issuing a contract for deed to the buyer, although some individuals hold mortgages. A contract for deed has often been preferred by buyers and many sellers, because most terms are readily negotiable and can be tailored to the various financial needs of the buyer and seller. Contract for deed became less popular in the 1980's as potential risks of buyer default increased and sellers with reacquired properties were faced with reselling the property in a depressed market.

South Dakota farm real estate loan volume held by individuals increased from \$199 million in late 1969 to a peak of \$696 million in late 1983, and declining to \$366 million in late 1988. From late 1969 to late 1983, the market share of South Dakota farm real estate debt held by individuals varied from 33.1% to 36.4%. During the industry retrenchment period (late 1983 - late 1989), their market share of farm real estate debt declined from 32.7% to 25.6%. Similar market share trends have also occurred at the national level.

The flexibility of credit terms available in a contract for deed makes it likely that individuals will remain an important source of farm real estate credit in South Dakota. Its relative importance will depend on: (1) the extent of farmland price recovery and subsequent demand for farm real estate credit, (2) the competitive position of mortgage terms offered by commercial banks and the Farm Credit Banks, (3) Farmers Home Administration policy toward farm real estate



loans, and (4) Federal tax and credit policies (including bankruptcy policies) that affect buyer or seller incentives on a contract for deed.

#### Nonreal Estate Agricultural Debt

Commercial banks are the cornerstone in providing nonreal estate debt to South Dakota farms. Their market share of nonreal estate debt (operating loans, feeder and breeding livestock loans, and machinery/equipment loans) increased from 47.1% in late 1969 to above 60% in the mid-1970's. Since 1977, their market share has varied from 36.6% to 49.8%. The volume of commercial bank nonreal estate lending increased from \$314 million in late 1969 to \$1434 million in late 1984, declined to \$934 million in 1987 and increased to \$1,002 billion by the end of 1989 (Table 3a and Figure 3a).

Similar, but less dramatic, trends are shown at the national level. Commercial banks market share of nonreal estate debt rose from 43.3% in late 1969 to 50.8% in late 1973, with a subsequent decline to a market share low of 33.7% in late 1983 and a rebound to 43.5% in late 1989 (Table 3b and Figure 3b). Commercial bank loan volume increased nearly fourfold from late 1969 to late 1983 (\$10.33 billion to \$39.74 billion) and declined to about \$29 billion in late 1987. Commercial bank farm nonreal estate loan volume rebounded upward in 1988 and 1989 ending the decade with \$30.78 billion.

The Farm Credit Banks (Production Credit Association loans and Federal Intermediate Credit Bank loans to qualifying agricultural credit corporations) held a modest market share (11.9% to 16.8%) of nonreal estate debt in South Dakota from late 1969 to late 1982. During this period, Farm Credit Bank loan volume increased from \$87 to \$387 million. The financial problems experienced by the Farm Credit System hit the PCA - FICB institutions two years earlier than the Federal Land Banks. Loan volume plummeted from \$387 million in late 1982 to



only \$97 million in late 1988; market share declined from 11.9% to 4.5%. Farm Credit Bank nonreal estate loan volume began to rebound in 1989 and 1990.

Nationally, the Farm Credit Banks have been a much larger supplier of short-term and intermediate-term credit (nonreal estate farm credit) than is the case in South Dakota. Commercial banks have been much stronger competition for farm loans in South Dakota, partly due to the state's dependence on commercial agriculture and its lesser amount of economic diversification.

The Farmers Home Administration (FmHA) has shown a drastic and increasing role in financing South Dakota's nonreal estate farm debt. FmHA nonreal estate farm loan volume market share was 5.2% - 5.6% from 1969 - 1974, greatly increasing to above a 20% market share from 1978 - 1989. FmHA loan volume peaked at \$779 million in late 1985 and declined to \$513 million at the end of 1989. As one can observe from data in Tables 3a and 3b, South Dakota has a much higher proportion of nonreal estate debt held by FmHA relative to the credit agency's market share of U.S. nonreal estate farm loans.

The drastic increase in FmHA loan volume and market share from 1977 - 1982 reflects Congressional policy response of increased availability of FmHA credit to: (1) South Dakota farms devastated by the 1976 drought became eligible for emergency disaster loans, and (2) larger commercial farms (experiencing economic hardships due to lower prices and higher production costs) became eligible for economic emergency loans. In many cases, these subsidized loans were added to already high levels of existing debt and little attention was given to the increased financial management requirements necessary to handle the increased amount of debt. Federal farm credit policies in the late 1970's were an important factor contributing to the magnitude of farm credit problems in the 1980's.



From 1970 through late 1983, the market share of nonreal estate farm credit provided by individuals and others (merchants, dealers and machinery finance companies) varied from 10 - 15% in South Dakota and from 18 - 21% at the national level (Tables 3a and 3b). Tightened credit standards and reduced demand for farm machinery and equipment resulted in sharply reduced loan volume from late 1983 to late 1987 and modest declines in market share. Credit for machinery replacement led the rebound of credit provided by this source in 1988 and 1989 at the state and national levels.

Another important, but highly variable, source of nonreal estate farm credit are nonrecourse commodity loans from the Commodity Credit Corporation (CCC). The availability and use of CCC nonrecourse loans is dependent on Federal commodity program provisions, farm program participation rates and market prices of program crops. Since South Dakota farmers are more dependent on Federal farm programs than are all U.S. farmers, it is not surprising that the market share of CCC loans is higher in South Dakota than in the U.S. The market share of CCC loans in South Dakota has varied from 0.7% in 1974 and 1975 to 24.4% in late 1986 (Table 3a). Except for the export boom period of 1973 - 1976, the market share of nonreal estate farm debt provided by CCC loans has been above 9.5% in South Dakota. From 1983 - 1987, there was substantial use of CCC loans in South Dakota and the United States. Improved grain prices in 1988 and 1989 drastically reduced farmers' use of this source.

#### DEBT SERVICING ABILITY OF SOUTH DAKOTA AGRICULTURE, 1970 - 1989

As mentioned earlier, high "real" rates of interest created cash flow and debt servicing problems for many indebted producers, placing many in a vulnerable financial position. In this section, the debt servicing ability of South Dakota



agriculture is examined through an analysis of: (1) the trends in interest rates and interest expense assumed by South Dakota farmers as a proportion of total production expenses; and (2) the level of agricultural debt in relation to the sectors' assets, equity and net income levels.

#### Interest Rate Levels on Farm Debt

An analysis of average interest rates incurred by South Dakota farm operators since 1970 shows that the cost of borrowing funds has increased steadily over the years. The average rate incurred on real estate loans rose from 5.6% in 1970 to 9.3% in 1982 and remained above 8% in subsequent years. Average interest rates on nonreal estate farm debt varied from 7.2% in 1970 to 13.6% in 1982 and fluctuated from 10.4% to 11.2% from 1985 - 1988.

It is worth noting that average interest rates reported in Table 4 consist of rates paid on new loans as well as interest rates on debt outstanding carried forward from previous years. Thus the average rate incurred by South Dakota farmers may not reflect the higher interest rates on new loans in the early to mid-1980's. The higher cost of borrowing adversely impacts the financial position of many South Dakota farmers.

#### Interest Payments on Farm Debt

The volume of interest payments made by South Dakota farmers has climbed drastically over the years. In 1970, interest payment obligations amounted to \$76 million. In 1982, interest payments of South Dakota farmers were \$563 million - a 739 percent increase in 12 years (Table 5). Nearly five-ninths of this increase in interest obligations was due to increased levels of debt, while four-ninths was due to increases in the average level of interest rates on farm loans. Interest expense declined slightly in 1983 - 1984, and declined substantially thereafter reaching a low of \$344 million in 1988 (Table 5). Most



(83% - 85%) of the decline in interest expense was due to decreases in amount of debt; relatively little was due to declines in average interest rates - which remain relatively high by historical standards.

Another important measure of financial stress is the ratio of interest expense to total production expense for the South Dakota farm sector (Table 5). Interest expense increased from about 9% of total production expenses in the 1970 - 1975 period to the range of 20% - 21.6% of total production expenses in the 1981 - 1984 period. Most agricultural lenders consider interest expenses exceeding 20% of total production expenses are a "red flag" or "warning" sign of possible major problems in loans to farm businesses. In this case the South Dakota farm sector as a whole was in the "red flag" zone!

Total annual production expenses in 1985 - 1988 were lower than annual production expenses in 1983 and 1984. Most of the decline is due to reduction in interest expenses. The 1985 to 1988 period is the only time period since the 1930's that farm production expenses declined over a several year period!

By 1988, interest expense had declined to 13.6% of total farm production expenses in South Dakota. In the authors' opinion, farm production expenses and interest expense are likely to increase in the early to mid-1990's and interest expense is likely to remain at or above 11% to 12% of total production expenses. Furthermore, substantial reductions in aggregate farm debt are unlikely and interest rates are not likely to greatly decline.

#### Trends in Agricultural Debt Ratios

The above information on average interest payment rates, interest expense and total production expenses provides a useful perspective about the importance of debt servicing. However, debt servicing ability can be measured more directly by comparing interest obligations to the level of net income generated by the



farm sector. Farm businesses assuming larger debt loads must also generate increased earnings sufficient to handle debt servicing or farm business survival may be in jeopardy!

Too many business people and financial analysts have primarily focused on solvency ratios (debt-to-asset or debt-to equity) as indicators of financial problems and have downplayed (or even ignored) the role of net income as the critical variable affecting debt servicing ability!

Financial analysts focusing on debt-to-asset or debt-to-equity ratios of the South Dakota farm sector in the 1970's and early 1980's, would likely conclude that there were no major financial problems forthcoming in South Dakota's farm sector. The debt-to-asset ratio remained between 0.17 and 0.22 and the corresponding debt-to-equity ratio remained between 0.20 and 0.28 (Table 6). This was the time period when farm asset values (especially farm real estate values) were increasing almost as rapidly as the increased amount of debt assumed. If cash flow problems developed, refinancing opportunities using increased farm asset values as collateral were readily available.

A different picture emerges if one examines trends in debt to net cash farm income over the same period. From 1970 - 1975, the ratio of total farm debt to net cash farm income remained between 1.90 and 3.10 - which is a relatively low value indicating ample ability to service increased debt. However, from 1975 to 1981, the ratio of debt to net cash farm income drastically increased from 2.24 to 6.62 indicating major problems in debt servicing were forthcoming. The ratio peaked at 9.21 in 1982, declined to 5.16 in 1985 and further declined to less than 3.50 in 1987 and 1988.

The ratio of debt to net cash farm income showed a major increase over the time period of 1975 - 1982. This disparity of debt and net income growth led to



increased foreclosure, bankruptcy and business reorganization among South Dakota farm firms. If one examined debt to net cash farm income data, the potential warning signs were evident by 1978 and 1979!

Farm asset values greatly increased from 1970 - 1982 and rapidly declined from 1982 - 1986, paced by changing current values of farm real estate. Debt as a percentage of total assets rose from 20% in 1980, to 24% in 1982 to 35% in 1986 and declined to 23% in late 1988. Changing debt-to-asset ratios, during this period, reflected farm financial stress and farm asset value reversals. Declining farm asset values are not "leading indicators" of financial stress, but only confirm that financial problems exist.

#### CONCLUSIONS AND IMPLICATIONS

The review of agricultural debt trends in South Dakota and the economic environment influencing the use of farm debt in the 1970's and 1980's provides several key conclusions and implications.

First, U.S. macroeconomic policies and international trade-finance policies have major impacts on the financial health and economic well-being of the agricultural sector. The expansionary monetary, fiscal and international finance policies of the 1970's provided an economic environment of inflation, low cost credit and booming agricultural export markets - a combination that led to rapid increases in farm debt. The combination of restrictive monetary policy and expansionary fiscal policy of the early to mid-1980's meant credit was available at much higher costs, while reduced export demand for U.S. farm products provided fewer profitable incentives for acquiring more debt capital. The combination of increased interest rates and higher financial leverage was a painful experience for many producers (and their lenders) as many were unable to fully service their



debt. This created numerous problems for agribusiness and rural communities in farm dependent states, including South Dakota.

Second, South Dakota's agricultural sector is in better shape to weather potential adverse economic-financial conditions in the future, than it has been since the mid-1970's. The primary reason has been the ability of farmers to drastically reduce debt loads in the past 6 years (1984 - 1989) and control unit costs. Public policies (farm commodity programs, farm mediation and financial reorganization programs) have also assisted by stabilizing net farm incomes and asset values and providing policy tools that permitted farmers, agribusiness and lenders time to adjust to the changing economic conditions.

Third, lenders, producers and policymakers should focus on "leading" indicators of financial stress in agriculture so proactive decisions can be made to reduce the likelihood of financial losses. Profitability and debt-servicing measures are "leading" farm sector indicators of financial stress, while leverage and solvency ratios - (such as the ratio of total debt to total assets) - indicate if financial problems have already occurred. For example, the ratio of total debt to net cash farm income increased more than threefold from 1975 - 1983 and was clearly indicating debt servicing problems for numerous farmers by early 1978. However, the total debt/asset ratio did not greatly increase until late 1984 - after the farm finance crisis had already started! Based on evidence from 1970 - 1989, a total debt/net cash farm income ratio above 3.0 should be watched closely as a strong indication of possible cash flow and debt-servicing problems in South Dakota's agricultural sector.

Fourth, total loan volume and market shares of agricultural lenders can rapidly change and are greatly influenced by macroeconomic policies, international economic conditions, agricultural policies and financial regulatory



policies. The Farm Credit System experienced rapid growth in loan volume and increased market share during the 1970's and early 1980's, and reduced loan volume and market share from 1983 -1988. Commercial banks, which have been and continue to be the largest source of nonreal estate farm loans, lost market share in the 1970's, but increased their market share and dominance in the 1980's. Furthermore, commercial banks have now become an important competitor in the farm real estate loan market. Deteriorating farm financial conditions and changing agricultural credit policies led to increased FmHA market share.

Fifth, South Dakota's agricultural sector is greatly affected by changes in Federal agricultural policies, especially commodity programs and credit policies. Farmers in South Dakota and other Midwestern states are more dependent on Federal commodity programs than farmers in other regions of the United States. Commodity program provisions often have a substantial impact on state net farm income and on CCC loan activity. In addition, South Dakota's farmers are more dependent on Farmer's Home Administration credit programs than are farmers in most other Midwestern states. Major changes in FmHA credit policies will have major repercussions in South Dakota.

Sixth, individuals (and other) remain as an important source of farm credit even though their share of farm real estate credit has declined in the 1980's.

Finally, high "real" interest rates will continue to adversely affect net farm income levels and producers ability to profitably use debt capital. Macroeconomic policies which primarily rely on high interest rates to check inflationary pressures have led to and will continue to create financial problems in South Dakota agriculture. Sound, balanced macroeconomic policies, including better coordination between monetary and fiscal policies, can have major benefits for South Dakota's producers and their lenders.



## LIST OF REFERENCES

- Bain, R.M., and J.A. Paulson. 1986. "Financial Stress in Agriculture: Its Causes and Extent". Minnesota Agricultural Economist. Special issue No. 1, June.
- Baker, Chester B. 1986. "Current Financial Stress: Sources and Structural Implications for U.S. Agriculture". W.I. Myers Memorial Lecture. Cornell University, October 15.
- Brake, J.R. 1983. "Financial Crisis in Agriculture: Discussions." Amer. J. Agr. Econ. Vol. 65, No. 5, p. 953 - 954.
- Freshwater, David. 1990. "The Political Economy of Farm Credit Reform: The Agricultural credit Act of 1987." The Political Economy of U.S. Agriculture - Challenges for the 1990's. Carol Kramer, ed. National Center for Food and Agriculture Policy, Annual Policy Review.
- Federal Reserve. 1987. Agricultural Finance Databook. June.
- Janssen, Larry and Mark Eldelman. 1983. The Changing Structure of South Dakota Agriculture. South Dakota State University, Economics Dept. Research Report 83 - 2, Brookings, S.D. January.
- Johnson, Bruce. 1985. A Perspective on Agricultural Debt in Nebraska. Bureau of Business Research, University of Nebraska, February.
- Morehart, M.J., J.A. Johnson, D.E. Barker. 1988. Financial Characteristics of U.S. Farms. USDA. January.
- Outlook for U.S. Agricultural Exports, 1986. Economic Research Service and Foreign Agricultural Service, USDA. August 20.
- Schmiesing, Brian and Cindy Swinson. 1986. "Financial Conditions of and Availability of Credit to South Dakota Agricultural Producers". Economics Newsletter 231, South Dakota State University, Brookings, SD, January 30.
- \_\_\_\_\_. 1989. Economic Research Service and Foreign Agricultural Service, USDA. August 28.
- \_\_\_\_\_. 1990. Economic Research Service and Foreign Agricultural Service, USDA, November 28.
- U.S. Department of Agriculture. 1979. Balance Sheet of The Farming Sector. Economic Research Service, Washington D.C.
- \_\_\_\_\_. 1980. Economic Indicators of The Farm Sector. Economic Research Service, Washington D.C.
- \_\_\_\_\_. 1982. Economic Indicators of The Farm Sector. Economic Research Service, Washington D.C.



- \_\_\_\_\_. 1984. Economic Indicators of The Farming Sector. Economic Research Service, Washington D.C.
- \_\_\_\_\_. 1984. Agricultural Finance Statistics, 1960-1983. Prepared by George Amols and Wilson Kaiser, Economic Research Service, Wash. D.C.
- \_\_\_\_\_. 1986. Farm Income Data: A Historical Perspective. Prepared by Gary Lucier, Agnes Chesley, and Mary Ahearn, Economic Research Service, USDA. Washington D.C.
- \_\_\_\_\_. 1988. Economic Indicators of the Farm Sector - State Financial Summary. Economic Research Service, Washington DC.
- \_\_\_\_\_. 1989. Agricultural Income and Finance - Situation and Outlook Report. AFO - 32, Economic Research Service, Washington D.C. February.
- \_\_\_\_\_. 1990. Agricultural Income and Finance - Situation and Outlook Report. AFO - 36, Economic Research Service, Washington D.C. February.
- \_\_\_\_\_. 1990. Agricultural Income and Finance - Situation and Outlook Report. AFO - 39, Economic Research Service, Washington D.C. December.
- \_\_\_\_\_. 1984. Agricultural Finance Statistics, 1960-1983. Prepared by George Amols and Wilson Kaiser, Economic Research Service, Washington, D.C.
- \_\_\_\_\_. 1986. Farm Income Data: A Historical Perspective. Prepared by Gary Lucier, Agnes Chesley, and Mary Ahearn, Economics Research Service, Washington, D.C.
- \_\_\_\_\_. 1988. Economic Indicators of the Farm Sector - State Financial Summary. Economics Research Service, Washington DC.
- William E. Kamps and Gerald D. Toland, Jr. 1987. Impacts of the Macroeconomy and International Trade on South Dakota Agriculture. Economics Department South Dakota State University, Brookings, South Dakota. December.



## APPENDIX I: COMMENTS ON DATA SOURCES, PROCEDURES AND LIMITATIONS

The data presented in the various tables are obtained from state-level and U.S. farm sector financial data provided by the Economics Research Service of the U.S. Department of Agriculture. The specific sources are cited in the list of references and as endnotes to Tables 1a, 1b, 4 and 6.

It is important that the reader recognize that agricultural debt, asset and income statistics are subject to revisions as more recent information becomes available from various primary data reporting services by agricultural lending groups and from the U.S. Census of Agriculture. Some revisions may also occur due to changes in methodology used to estimate some financial accounts. These methodological changes have primarily affected estimates of agricultural asset and income accounts and have had a lesser impact on estimation of farm debt accounts. We have attempted to report agricultural debt statistics for each year from the most recent and comprehensive published data sources. However, readers should be cautioned that some data contained in this report (especially for more recent years) may be revised in future years. We believe that most agricultural debt statistics will not be greatly changed from the information contained in this report.

Agricultural debt and asset statistics reported in this publications are based on the USDA - ERS reporting methodology which "includes farm households". All farm business debt and personal debt of farm families and farm business of nonoperator landlords are included. Based on South Dakota agricultural debt statistics for 1984 - 1989, household debt of farm families is about 6% of nonreal estate agricultural debt and 10% of farm real estate debt reported in this research report. Very little (<7%) of South Dakota's agricultural debt is held by nonoperator landlords; but over 30% of the value of farm real estate assets are owned by nonoperator landlords.

An alternative method of reporting agricultural finance statistics is to report only the amount of farm business debt, excluding household assets and debts held by the farm family. However, state-level estimates have only been published since 1983 and are not available for earlier years. Consequently, we decided to use the data reporting method - which includes all farm business debt and household debt of farm families - that permitted a consistent data series for the 1970 - 1989 period.

Nonreal estate debt reported in this publication includes the book value of net CCC farm commodity loans and is an indicator of farm program usage. CCC farm commodity loans have traditionally been considered nonrecourse short-term loans which often had significant impact on agricultural lending activity of other lenders. CCC loans have traditionally been included in farm-sector agricultural debt accounts prepared by the Economic Research Service. Recent changes in commodity loan program (PIK certificates) which encourage producers to place and redeem commodities in the CCC loan program within a short time span has made this a less useful indicator of agricultural income and debt. Consequently, future reports of the Economic Research Service are not including net CCC loans as a component of farm nonreal estate debt.



We elected to retain net CCC loans as a component of farm nonreal estate debt. Data reported in Tables 3a and 3b can be used to calculate farm nonreal estate debt, excluding CCC loans, for South Dakota and the United States.

Table 1a. Agricultural Debt in South Dakota, Dec. 31, 1969-1989 a

Real Estate Debt			Nonreal Estate Debt		Total Debt	
Year	Amount	Change from Previous Year	Amount	Change from Previous Year	Amount	Change from Previous Year
Dec.31	Million dollars	Percent	Million dollars	Percent	Million dollars	Percent
1969	571	-	666	-	1,237	-
1970	589	3.2	717	7.6	1,306	5.6
1971	624	5.9	796	11.0	1,420	8.7
1972	691	10.7	864	8.5	1,555	9.5
1973	761	10.1	916	6.0	1,677	7.8
1974	852	12.0	947	3.4	1,799	7.3
1975	952	11.7	1,071	10.2	2,023	12.5
1976	1,082	13.7	1,179	10.1	2,261	11.8
1977	1,249	15.4	1,706	44.7	2,955	30.7
1978	1,349	8.0	2,128	24.7	3,477	17.7
1979	1,647	22.1	2,486	16.8	4,133	18.9
1980	1,825	10.8	2,554	2.7	4,379	6.0
1981	2,017	10.5	2,790	9.2	4,807	9.8
1982	2,084	3.3	3,240	16.1	5,324	10.8
1983	2,126	2.0	3,289	1.5	5,415	1.7
1984	2,094	-1.5	3,250	1.2	5,344	-1.3
1985	2,059	-1.7	3,105	4.5	5,164	-3.4
1986	1,831	-11.1	2,794	-10.0	4,625	-8.7
1987	1,613	-12.0	2,503	-10.4	4,116	-11.0
1988	1,490	-7.6	2,151	-14.1	3,641	-11.5
1989	1,429	-4.3	2,012	-6.5	3,441	-5.6

(a) Includes operator household debt

Source: Debt levels by respective years are extracted from the following publications:

1969-1973: Amols, George and Wilson Kaiser. Agricultural Finance Statistics 1969-1984. Economic Research Service, USDA, April 1984.

1974-1984: Economic Indicators of the Farm Sector State Financial Summary. Economic Research Service, USDA, 1984.

1985-1988: Economic Indicators of the Farm Sector State Financial Summary. Economic Research Service, USDA, 1988.

1989: Preliminary estimates based on personal conversation (Jan. 24, 1991) with Jim Ryan, Agricultural and Rural Economy Division, Economic Research Service, USDA.



Table 1b. Agricultural Debt in the United States, Dec. 31, 1969-1989 (a)

Real Estate Debt			Nonreal Estate Debt		Total Debt	
Year	Amount	Change From Previous Year	Amount	Change From Previous Year	Amount	Change From Previous Year
Dec.31	Million dollars	Percent	Million dollars	Percent	Million dollars	Percent
1969	29,183	-	23,843	-	53,026	-
1970	30,346	4.0	24,138	1.2	54,484	2.7
1971	32,192	6.1	27,376	13.4	59,568	9.3
1972	35,095	9.0	29,758	8.7	64,853	8.9
1973	39,528	12.6	33,804	13.6	73,332	13.1
1974	44,705	13.1	37,055	9.6	81,760	11.5
1975	49,683	11.1	41,980	13.3	91,663	12.1
1976	55,268	11.2	48,805	16.3	104,073	13.5
1977	63,458	14.8	59,527	22.0	122,985	18.2
1978	71,610	12.8	69,493	16.7	141,103	14.7
1979	85,599	19.5	80,475	15.8	166,074	17.7
1980	95,764	11.9	86,561	7.6	182,325	9.8
1981	105,801	10.5	96,307	11.3	202,108	10.9
1982	110,026	4.0	107,214	11.3	217,240	7.5
1983	112,622	2.4	103,624	-3.3	216,246	-0.5
1984	111,637	-0.9	100,912	-2.6	212,549	-1.7
1985	105,739	-5.3	99,203	-1.7	204,942	-3.6
1986	95,880	-9.3	89,440	-9.8	185,320	-9.6
1987	87,718	-8.5	80,848	-9.6	168,566	-9.0
1988	82,953	-5.4	73,991	-8.5	156,944	-6.9
1989	80,476	-3.0	70,714	-4.4	151,190	-3.7

(a) Includes operator household debt.

Source: Debt values for respective years are extracted from the following publications.

1969-1973: Amols, George and Wilson Kaiser. Agricultural Finance Statistics 1969-1983. Economic Research Service, USDA, April 1984.

1974-1984: Economic Indicators of the Farm Sector State Financial Summary, Economic Research Service, USDA, 1984.

1985-1988: Economic Indicators of the Farm Sector State Financial Summary, Economic Research Service, USDA, 1988.

1989: Preliminary estimates based on personal conversation (Jan.25,1991) with Jim Ryan, Agricultural Rural Economy Division, Economic Research Service, USDA.

Table 2a. Farm Real Estate Debt By Type of Lender, South Dakota,  
Dec. 31, 1969 - 1989

Amount of Outstanding Debt By Major Lender Group						
Year	Federal Land Bank	Farmers Home Admin.	Life Insurance Companies	All Operating Banks	Individuals and Others	Total
Dec. 31	<u>Million dollars</u>					
1969	159	109	86	18	199	571
1970	166	116	82	19	207	589
1971	179	125	79	21	221	624
1972	199	153	75	22	242	691
1973	228	163	73	23	274	761
1974	261	177	76	27	310	852
1975	306	188	78	34	346	952
1976	370	206	85	36	385	1,082
1977	433	229	100	44	444	1,249
1978	456	237	108	48	500	1,349
1979	533	343	123	48	600	1,647
1980	635	369	127	44	650	1,825
1981	740	406	142	45	684	2,017
1982	782	419	144	50	689	2,084
1983	799	431	142	59	696	2,126
1984	790	453	139	68	644	2,094
1985	772	466	127	98	598	2,059
1986	640	458	97	117	521	1,831
1987	518	443	75	132	445	1,613
1988	481	421	52	148	389	1,490
1989	449	395	53	167	366	1,429
-----Percent Distribution-----						
Dec. 31						
1969	27.8	19.1	15.1	3.2	34.9	100.0
1970	28.2	19.7	13.9	3.2	35.1	100.0
1971	28.7	20.0	12.7	3.4	35.4	100.0
1972	28.8	22.1	10.9	3.2	35.0	100.0
1973	30.0	21.4	9.6	3.0	36.0	100.0
1974	30.6	20.8	8.9	3.2	36.4	100.0



Table 2a - continued

Year	Federal Land Bank	Farmers Home Admin.	Life Insurance Companies	All Operating Banks	Individuals and Others	Total
Dec. 31	----- percent distribution -----					
1975	32.1	19.7	8.2	3.6	36.3	100.0
1976	34.2	19.0	7.9	3.3	35.6	100.0
1977	34.7	18.3	8.0	3.5	35.5	100.0
1978	33.8	17.6	8.0	3.6	37.1	100.0
1979	32.4	20.8	7.5	2.9	36.4	100.0
1980	34.8	20.2	7.0	2.4	35.6	100.0
1981	36.7	20.1	7.0	2.2	33.9	100.0
1982	37.5	20.1	6.9	2.4	33.1	100.0
1983	37.6	20.3	6.7	2.8	32.7	100.0
1984	37.7	21.6	6.6	3.2	30.8	100.0
1985	37.5	22.6	6.2	4.8	29.0	100.0
1986	35.0	25.0	5.3	6.4	28.5	100.0
1987	32.1	27.5	4.6	8.2	27.6	100.0
1988	32.3	28.3	3.5	10.0	26.1	100.0
1989	31.4	27.6	3.7	11.7	25.6	100.0

Source: See footnotes at the end of Table 1a.

Table 2b. Farm Real Estate Debt by Type of Lender, United States  
Dec. 31, 1969 - 1989

Amount of Outstanding Debt By Major Lender Group						
Year	Federal Land Bank	Farmers Home Administration	Life Insurance Companies	All Operating Banks	Individuals and Others	Total
Dec. 31	<u>Million dollars</u>					
1969	6,671	2,280	5,734	3,545	10,953	29,183
1970	7,145	2,440	5,610	3,772	11,378	30,346
1971	7,880	2,618	5,564	4,218	11,911	32,192
1972	9,050	2,835	5,643	4,792	12,774	35,095
1973	10,901	3,034	5,965	5,458	14,190	39,528
1974	13,470	3,215	6,297	5,966	15,757	44,705
1975	16,029	3,369	6,726	6,296	17,262	49,683
1976	18,565	3,657	7,400	6,781	18,864	55,268
1977	21,541	3,982	8,819	7,780	21,335	63,458
1978	24,816	4,121	10,478	8,557	23,638	71,610
1979	29,820	7,111	12,165	8,623	27,880	85,599
1980	36,196	7,715	12,928	8,745	30,180	95,764
1981	43,825	8,744	13,074	8,387	31,770	105,801
1982	47,699	9,085	12,802	8,441	32,000	110,026
1983	48,811	9,452	12,718	9,321	32,320	112,622
1984	49,103	10,013	12,444	10,177	29,900	111,637
1985	44,584	10,427	11,836	11,385	27,507	105,739
1986	37,758	10,349	10,940	12,711	24,123	95,880
1987	32,638	10,083	9,896	14,455	20,646	87,718
1988	30,327	9,607	9,582	15,417	18,021	82,953
1989	28,501	8,720	9,598	16,646	17,011	80,476
-----Percent Distribution-----						
1969	22.9	7.8	19.6	12.1	37.5	100.0
1970	23.5	8.0	18.5	12.4	37.5	100.0
1971	24.5	8.1	17.3	13.1	37.0	100.0
1972	25.8	8.1	16.1	13.7	36.4	100.0
1973	27.6	7.6	15.1	13.8	35.9	100.0
1974	30.1	7.2	14.1	13.3	35.2	100.0
1975	32.3	6.8	13.5	12.7	34.7	100.0
1976	33.6	6.6	13.4	12.3	34.1	100.0
1977	33.9	6.3	13.9	12.3	33.6	100.0
1978	34.7	5.8	14.6	11.9	33.0	100.0
1979	34.8	8.3	14.2	10.1	32.6	100.0



Table 2b - continued

Year	Federal Land Bank	Farmers Home Admin.	Life Insurance Companies	All Operating Banks	Individuals and Others	Total
Dec. 31	----- Percent Distribution -----					
1980	37.8	8.1	13.5	9.1	31.5	100.0
1981	41.4	8.3	12.4	7.9	30.0	100.0
1982	43.4	8.3	11.6	7.7	29.1	100.0
1983	43.3	8.4	11.3	8.3	28.7	100.0
1984	44.0	9.0	11.1	9.1	26.8	100.0
1985	42.2	9.9	11.2	10.8	26.0	100.0
1986	39.4	10.8	11.4	13.3	25.2	100.0
1987	37.2	11.5	11.3	16.5	23.5	100.0
1988	36.6	11.6	11.6	18.6	21.7	100.0
1989	35.4	10.8	11.9	20.7	21.1	100.0

Source: See footnotes at the end of Table 1b.

Table 3a. Farm Nonreal Estate Debt by Type of Lender, South Dakota,  
Dec. 31, 1969 - 1989

Year	All Operating Banks	Farm Credit Banks	Farmers Home Administration	Individuals and Others	Commodity Credit Corporation	Total
Dec. 31	<u>Million dollars</u>					
1969	314	87	37	94	134	666
1970	368	108	38	85	117	717
1971	414	120	41	100	121	796
1972	466	126	45	105	123	864
1973	562	151	49	128	24	916
1974	592	159	50	139	7	947
1975	657	172	81	154	7	1,071
1976	717	180	98	170	14	1,179
1977	793	201	312	222	178	1,706
1978	895	241	430	239	322	2,128
1979	1,090	330	503	270	293	2,486
1980	1,087	346	582	294	245	2,554
1981	1,114	359	697	308	313	2,790
1982	1,266	387	746	334	508	3,240
1983	1,366	375	745	329	474	3,289
1984	1,434	310	752	307	447	3,250
1985	1,244	227	779	277	578	3,105
1986	1,024	138	747	204	681	2,794
1987	934	105	705	202	558	2,503
1988	940	97	621	228	265	2,151
1989	1,002	112	513	228	157	2,012
-----Percent Distribution-----						
1969	47.1	13.1	5.6	14.1	20.1	100.0
1970	51.3	15.1	5.3	11.9	16.3	100.0
1971	52.0	15.0	5.2	12.6	15.2	100.0
1972	54.0	14.6	5.2	12.2	14.2	100.0
1973	61.4	16.5	5.3	14.0	2.6	100.0
1974	62.5	16.8	5.3	14.7	0.7	100.0
1975	61.3	16.1	7.6	14.4	0.7	100.0
1976	60.8	15.3	8.3	14.4	1.2	100.0
1977	46.5	11.8	18.3	13.0	10.4	100.0
1978	42.1	11.3	20.2	11.2	15.1	100.0
1979	43.8	13.2	20.2	10.9	11.8	100.0



Table 3a - continued

Year	All Operating Banks	Farm Credit Banks	Farmers Home Admin.	Individuals and Others	Commodity Credit Corporation	Total
Dec. 31	----- Percent Distribution -----					
1980	42.6	13.6	22.8	11.5	9.6	100.0
1981	39.9	12.9	25.0	11.0	11.2	100.0
1982	39.1	11.9	23.0	10.3	15.7	100.0
1983	41.5	11.4	22.7	10.0	14.4	100.0
1984	44.1	9.5	23.1	9.4	13.8	100.0
1985	40.1	7.3	25.1	8.9	18.6	100.0
1986	36.6	4.9	26.7	7.3	24.4	100.0
1987	37.3	4.2	28.2	8.1	22.3	100.0
1988	43.7	4.5	28.9	10.6	12.3	100.0
1989	49.8	5.6	25.5	11.3	7.8	100.0

Source: See footnotes at the end of Table 1a.

Table 3b. Farm Nonreal Estate Debt by Type of Lender, United States,  
Dec. 31, 1969 - 1989

Year	All Operating Banks	Farm Credit Banks	Farmers Home Administration	Individuals and Others	Commodity Credit Corporation	Total
Dec. 31	<u>Million dollars</u>					
1969	10,330	4,713	785	5,340	2,676	23,843
1970	11,102	5,515	795	4,850	1,876	24,138
1971	12,498	6,315	771	5,530	2,262	27,376
1972	14,315	6,859	780	6,011	1,793	29,758
1973	17,167	8,145	877	6,865	750	33,804
1974	18,239	9,905	1,044	7,549	319	37,055
1975	20,160	11,120	1,772	8,553	375	41,980
1976	23,283	12,617	1,877	9,989	1,040	48,805
1977	25,709	13,893	3,141	12,244	4,540	59,527
1978	28,273	15,476	5,780	14,297	5,666	69,493
1979	31,034	18,778	8,982	16,610	5,070	80,475
1980	31,567	20,539	11,756	17,721	4,978	86,561
1981	32,948	22,116	14,452	18,780	8,011	96,307
1982	36,149	21,343	14,759	19,530	15,433	107,214
1983	39,066	20,165	14,646	18,945	10,801	103,624
1984	39,742	18,800	15,651	18,000	8,719	100,912
1985	35,513	14,562	16,721	15,378	17,029	99,203
1986	31,240	10,735	16,392	12,391	18,682	89,440
1987	29,041	9,768	16,049	11,139	14,851	80,848
1988	29,799	9,131	14,658	12,000	8,403	73,991
1989	30,782	9,885	12,322	12,500	5,225	70,714
-----Percent Distribution-----						
1969	43.3	19.8	3.3	22.4	11.2	100.0
1970	46.0	22.8	3.3	20.1	7.8	100.0
1971	45.7	23.1	2.8	20.2	8.3	100.0
1972	48.1	23.0	2.6	20.2	6.0	100.0
1973	50.8	24.1	2.6	20.3	2.2	100.0
1974	49.2	26.7	2.8	20.4	0.9	100.0
1975	48.0	26.5	4.2	20.4	0.9	100.0
1976	47.7	25.9	3.8	20.5	2.1	100.0
1977	43.2	23.3	5.3	20.6	7.6	100.0
1978	40.7	22.3	8.3	20.6	8.2	100.0
1979	38.6	23.3	11.2	20.6	6.3	100.0



Table 3b - continued

Year	All Operating Banks	Farm Credit Banks	Farmers Home Admin.	Individuals and Others	Commodity Credit Corporation	Total
Dec. 31	----- Percent Distribution -----					
1980	36.5	23.7	13.6	20.5	5.8	100.0
1981	34.2	23.0	15.0	19.5	8.3	100.0
1982	33.7	19.9	13.8	18.2	14.4	100.0
1983	37.7	19.5	14.1	18.3	10.4	100.0
1984	39.4	18.6	15.5	17.8	8.6	100.0
1985	35.8	14.7	16.9	15.5	17.2	100.0
1986	34.9	12.0	18.0	13.9	20.9	100.0
1987	35.9	12.1	19.9	13.8	18.4	100.0
1988	40.3	12.3	19.8	16.2	11.4	100.0
1989	43.5	14.0	17.4	17.7	7.4	100.0

Source: See footnotes at the end of Table 1b.

Table 4. Average Interest Rate Incurred By South Dakota Farm Operators  
By Type of Debt, 1970-1988. (a)

Year	Type of Debt		
	Real Estate (b)	Nonreal Estate (c)	Total
1970	5.6	7.2	6.4
1971	5.6	7.3	6.5
1972	5.5	7.0	6.3
1973	5.7	7.3	6.5
1974	5.8	8.2	7.1
1975	6.0	7.4	6.7
1976	6.3	7.9	7.1
1977	6.3	7.5	7.0
1978	6.7	8.4	7.7
1979	6.6	9.5	8.3
1980	7.5	12.1	10.1
1981	8.4	13.3	11.1
1982	9.3	13.6	11.7
1983	9.1	12.5	11.0
1984	9.0	12.8	11.2
1985	8.1	10.4	9.3
1986	8.4	10.9	9.7
1987	8.9	11.2	10.1
1988	9.1	11.1	10.2

a- Represents amount of interest charges incurred by farm operators divided by the amount of total farm debt.

b- Including operator household debt.

c- Excluding Commodity Credit Corporation Loans.

Source: Average interest rates on debt have been calculated from data reported in the following publications:

1970-1984: Gary Lucier, Agnes Chesley and Mary Ahearn, Farm Income Data: A Historical Perspective, USDA, ERS, 1986.

1985-1988: Economic Indicators of the Farm Sector: State Financial Summary, USDA, ERS, 1988.



Table 5. Interest Expense and Total Production Expenses of South Dakota  
Farm Operators, 1970 - 1988

Year	Interest Expense	All other Production Expenses	Total Production Expenses	Interest Expense as Percent of Total Production Expenses
----- Million Dollars -----				
1970	76.2	756.1	832.2	9.2
1971	83.8	813.2	897.0	9.3
1972	89.8	863.4	953.3	9.4
1973	108.2	1,139.6	1,247.8	8.7
1974	126.3	1,220.7	1,347.1	9.4
1975	135.9	1,268.9	1,404.9	9.7
1976	160.0	1,227.2	1,387.2	11.5
1977	193.8	1,467.4	1,661.1	11.7
1978	242.1	1,588.0	1,830.1	13.2
1979	317.6	1,774.0	2,091.6	15.2
1980	417.3	1,915.4	2,332.6	17.9
1981	500.2	1,999.8	2,500.0	20.0
1982	563.3	2,046.4	2,609.6	21.6
1983	543.9	2,097.6	2,641.5	20.6
1984	547.9	2,166.8	2,714.7	20.2
1985	427.9	2,185.8	2,613.7	16.4
1986	383.5	1,922.2	2,305.7	16.6
1987	359.0	2,059.0	2,418.0	14.8
1988	344.2	2,183.1	2,527.3	13.6

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Source: See footnotes at the end of Table 4.

Table 6. Comparison of Farm Debt with Farm Equity, Farm Assets, Net Farm Income and Net Cash Farm Income for South Dakota, 1970 - 1988

Year	Total Debt (a)	Total Equity (b)	Total Assets (b)	Net Farm Income (c)	Net Cash Farm Income (d)
Million			Dollars		
1970	1,306	5,233	6,545	333	421
1971	1,420	5,433	6,854	408	485
1972	1,555	6,224	7,789	650	645
1973	1,677	7,977	9,660	744	852
1974	1,799	8,603	10,351	786	949
1975	2,023	9,383	11,309	512	905
1976	2,261	10,437	12,563	384	580
1977	2,955	11,528	14,276	286	459
1978	3,477	13,809	17,029	397	423
1979	4,133	14,671	18,457	399	704
1980	4,379	17,206	21,586	440	755
1981	4,807	17,229	22,036	387	726
1982	5,324	16,843	22,167	359	578
1983	5,415	16,321	21,736	383	682
1984	5,344	12,389	17,456	454	899
1985	5,164	10,658	15,243	637	1,001
1986	4,625	9,318	13,262	774	1,168
1987	4,116	10,876	14,433	828	1,201
1988	3,641	12,291	15,667	876	1,318
Year	Debt/Equity	Equity/Assets	Debt/Assets	Debt/NFI	Debt/NFCI
1970	0.25	0.80	0.20	3.92	3.10
1971	0.26	0.79	0.21	3.48	2.93
1972	0.25	0.80	0.20	2.39	2.41
1973	0.21	0.83	0.17	2.25	1.97
1974	0.20	0.83	0.17	2.29	1.90
1975	0.22	0.83	0.18	3.95	2.24
1976	0.22	0.83	0.18	5.89	3.90
1977	0.26	0.81	0.21	10.33	6.44
1978	0.25	0.81	0.20	8.76	8.22
1979	0.28	0.79	0.22	10.36	5.87



Table 6 - continued

Year	Debt/Equity	Equity/Assets	Debt/Assets	Debt/NFI	Debt/NCFI
1980	0.25	0.80	0.20	9.95	5.80
1981	0.28	0.78	0.22	12.42	6.62
1982	0.32	0.76	0.24	14.83	9.21
1983	0.33	0.75	0.25	14.14	7.94
1984	0.43	0.71	0.31	11.77	5.94
1985	0.48	0.70	0.34	8.11	5.16
1986	0.50	0.70	0.35	5.98	3.96
1987	0.38	0.75	0.29	3.16	3.43
1988	0.30	0.78	0.23	4.16	2.76

a) Total debt values are the same as reported in Table 1a for the ending date (Dec. 31) of each year.

b) Total equity and total asset values are extracted from various publication as follows:

1970-1975: Balance Sheet of the Farming Sector, USDA, ERS, 1979.

1976-1979: Economic Indicators of the Farm Sector, USDA, ERS, 1980.

1980-1983: Economic Indicators of the Farm Sector, USDA, ERS, 1984.

1984-1988: Economic Indicators of the Farm Sector, USDA, ERS, 1988.

Equity and total asset values reported by year in this table are for the ending date (Dec. 31), of each year.

c) Income and expense values used to calculate net farm income and net cash farm income, have been extracted from the following publications:

1970-1976: Economic Indicators of the Farm Sector, USDA, ERS, 1984.

1977-1978: Economic Indicators of the Farm Sector, USDA, ERS, 1980.

1979-1981: Economic Indicators of the Farm Sector, USDA, ERS, 1982.

1982-1983: Economic Indicators of the Farm Sector, USDA, ERS, 1986.

1984-1988: Economic Indicators of the Farm Sector, USDA, ERS, 1988.

Note: Cash expense from 1969 to 1976 have been estimated from data contained in the following publication:

Economic Indicators of the Farm Sector: State Financial Summary, 1984.

d) Net Farm Income and Net Cash Farm Income are based upon a 3 year moving average.

Net farm income (NFI) is defined as the difference between gross farm income (the sum of gross cash income, nonmoney income items -- such as the onfarm consumption of farm products and the imputed rental value of the farm dwelling and the change in crop and livestock inventories) and total expenses (all cash expenses plus depreciation).

Net cash farm income (NCFI) is defined as the difference between gross cash income and cash operating expenses (including interest). The NCFI gives a current or short-term perspective on the farms' earning position as no account of capital consumed during the year is taken into account. This level of income indicates whether farmers are able to cover all cash costs including payment of interest.

Fig. 1a. **Agricultural Debt in South Dakota,  
December 31, 1969-1989**

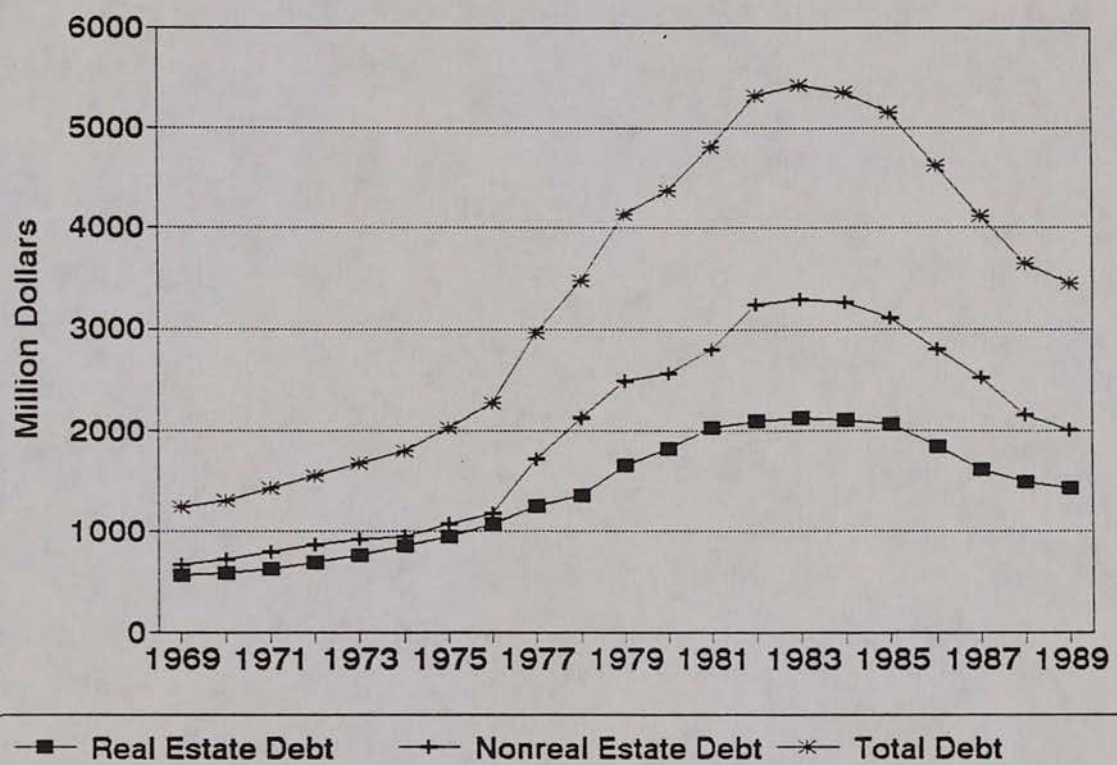




Fig. 1b.

# **Agricultural Debt in the United States, December 31, 1969-1989**

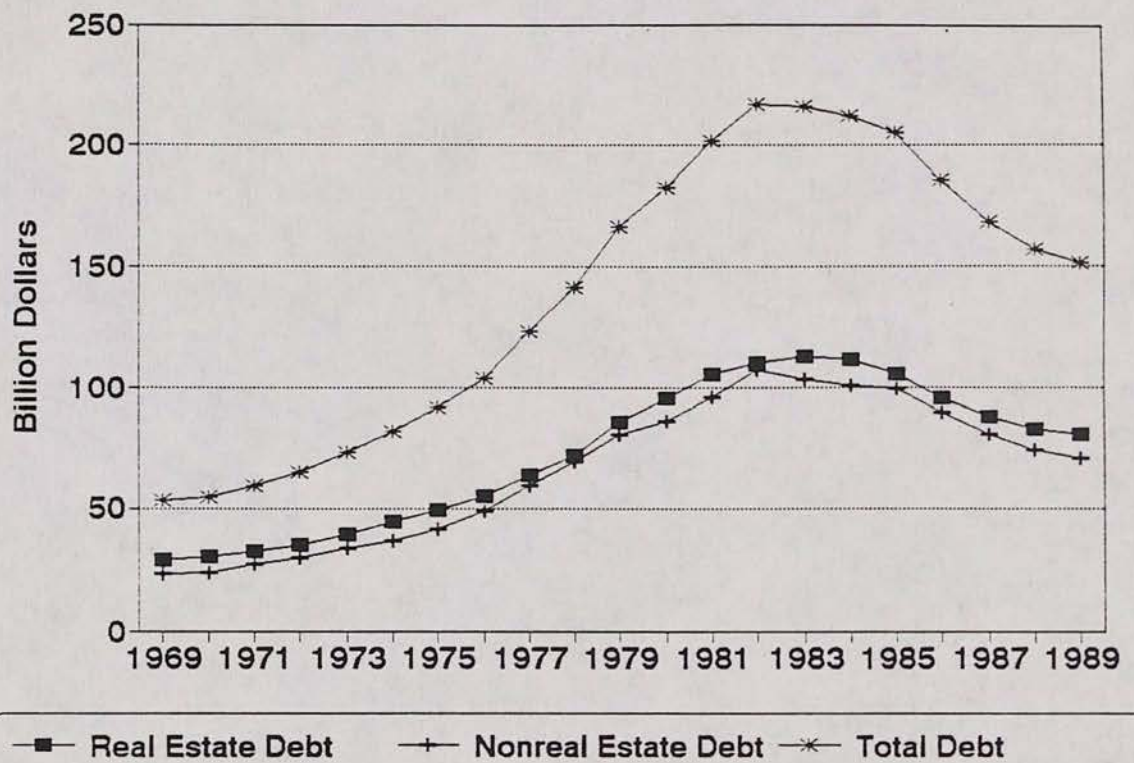


Fig. 2a. **Farm Real Estate Debt By Type of Lender  
South Dakota, December 31, 1969-1989**

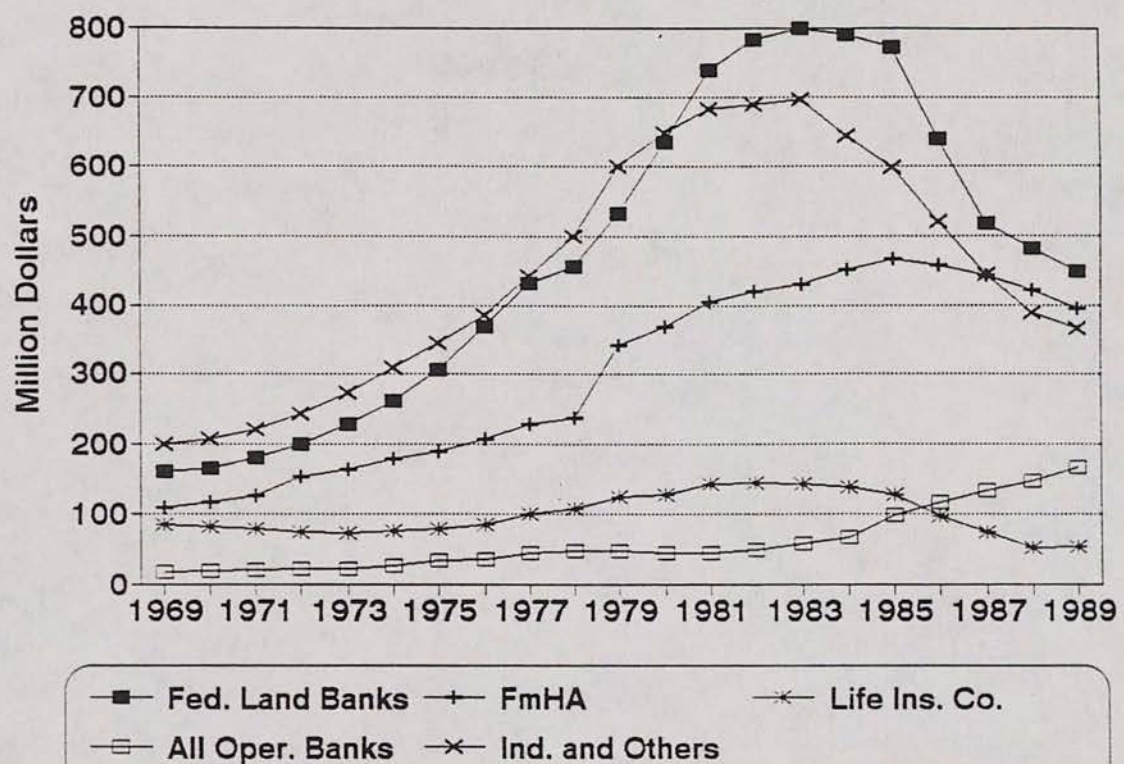




Fig. 2b. **Farm Real Estate Debt By Type of Lender  
United States, December 31, 1969-1989**

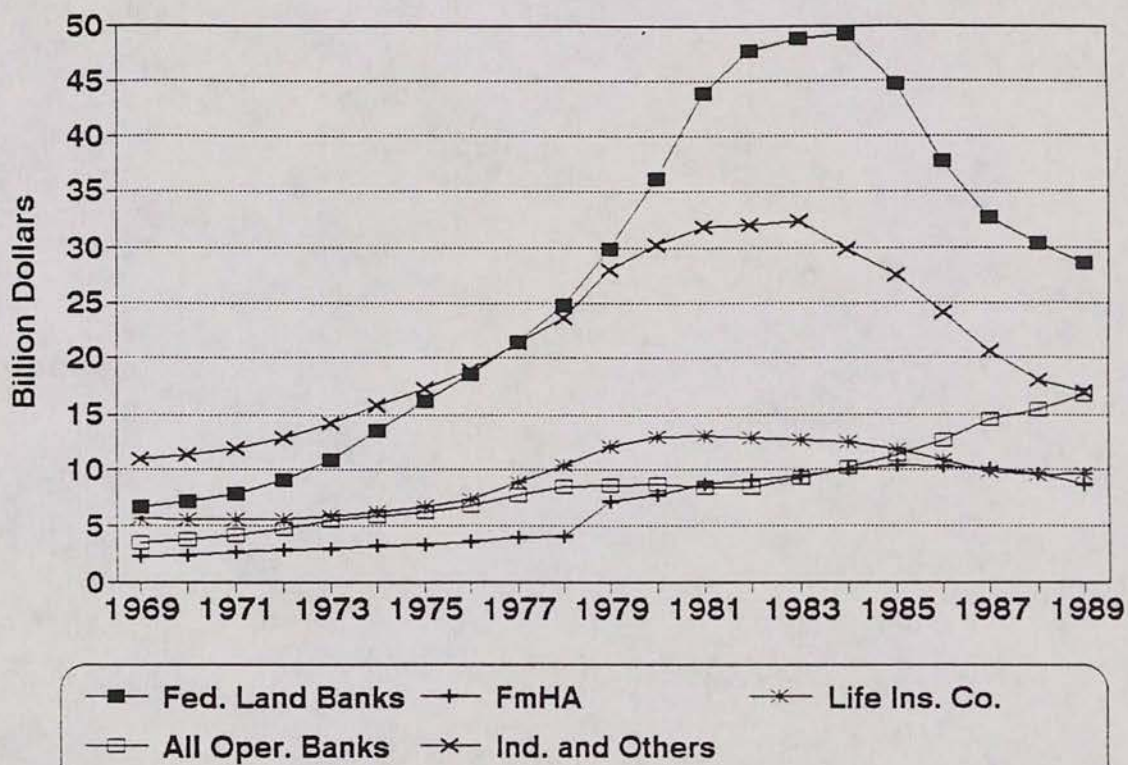


Fig. 3a. **Farm Nonreal Estate Debt By Type of Lender, South Dakota, Dec.31, 1969-1989**

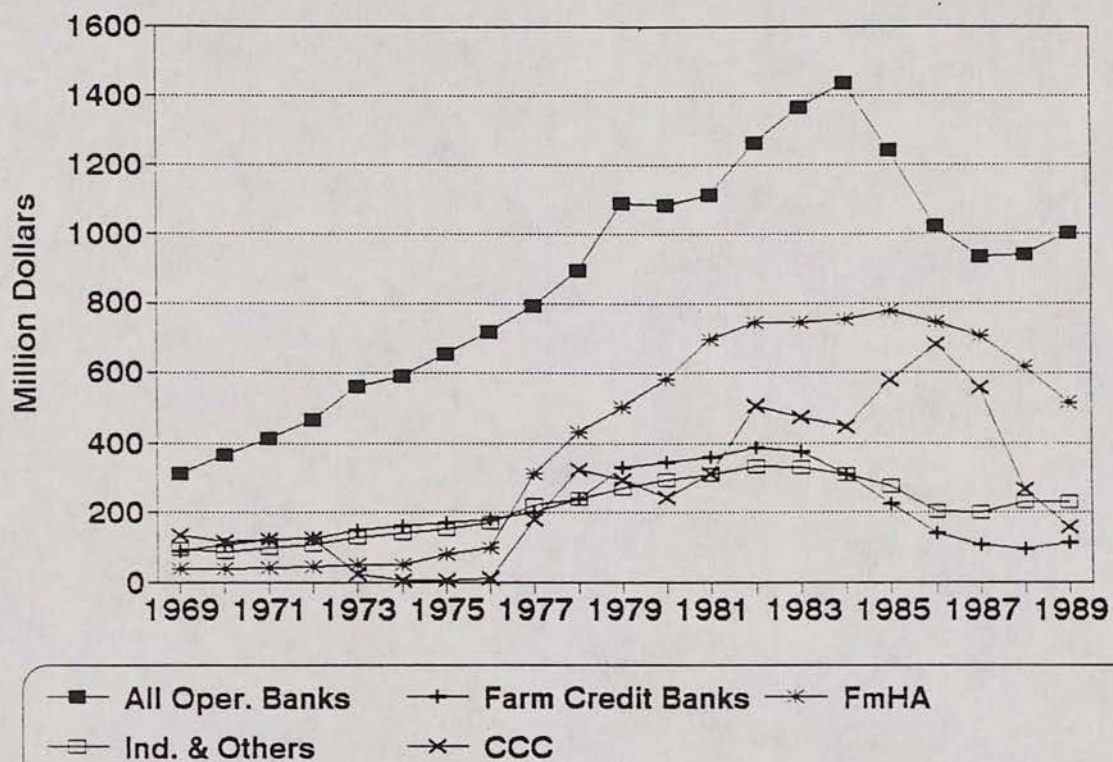




Fig. 3b.

# **Farm Nonreal Estate Debt By Type of Lender, United States, Dec.31,1969-1989**

