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FORECAST OF INCOME AND WEALTH FOR THE FARM SECTOR, HOUSEHOLDS, AND THE FARMS THEY OPERATE

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An array of financial indicators suggests that 2003 was an exceptional year for U.S. agriculture. New records were established for net cash income and valued added because of strong exports, favorable production and prices for many crop and livestock commodities, and a relatively high amount of government payments. Continued growth in farm real estate values pushed the assessment of farm assets to new highs, while modest increases in debt helped maintain a consistent level of solvency for the sector.

Despite recent events in beef markets, the financial outlook for U.S. agriculture remains strong in 2004. Crop receipts are expected to increase by more than \$7 billion to a record \$114 billion based mainly on improved market conditions for corn and soybeans. Although livestock receipts are expected to decline from 2003's record level, they should exceed \$100 billion for the third time in the last 4 years. Farming is expected to contribute less to farm household earnings in 2004 than in 2003. However, expectations for a more than 3 percent increase in household income from off-farm sources should help buffer the decline in total household income. Farmers and their households should benefit from higher asset values in 2004. The value of farm assets is expected to increase by almost \$43 billion. Real estate values are forecast to rise by 3.5 percent, accounting for nearly 90 percent of the increase in the total value of farm assets. The importance of the non-farm economy to the economic well being of farm households is reinforced by the significance of non-farm assets and debt. About 20 percent of the average farm household's net worth could be attributed to non-farm sources.

Farm Income Outlook Driven by Market Fundamentals

In both 2003 and 2004, market receipts are projected to make up a higher share of net income than has occurred since 1997 (figure 1). Prices for several agricultural commodities increased towards the end of 2003 and are expected to sustain these relatively high levels through 2004. Corn, soybean, and wheat prices were sharply higher than their past five-year average. Broiler prices were over ten percent higher than the previous year's price and egg prices were up over 25 percent. For the second consecutive year, receipts from crops and livestock, individually, should exceed the \$100 billion mark with their total forecasted at \$215 billion in 2004, up nearly \$3 billion from 2003 (figure 2). Corn, the number one crop (ranked in terms of receipts), could see upward movement of its receipts by as much as 16 percent in 2004. Cash receipts for soybeans, the second largest crop, are also expected to rise by nearly 16 percent due to lower expected domestic production. Strong demand for U.S. cotton in 2004, primarily from China, could improve receipts by nearly \$700 million. Another factor strengthening cotton receipts is the

expected stock-to-use ratio in 2004, which could be the lowest since the 1997 crop. Projected low ending stocks are also expected to improve rice receipts.

While market conditions have improved for some crop and livestock commodities, there are some notable exceptions. Beef producers could experience a \$5.8 billion year-over-year reduction in receipts as a result of a positive case of bovine spongiform encephalopathy (BSE) being found in an adult Holstein cow in the state of Washington. Most countries that import beef from the U.S. are instituting a ban or restricting its importation from the United States. Even with this market uncertainty, beef receipts are expected to remain higher than they were in 2002. The combination of consumers substituting poultry for beef and of the declining dollar could cause expected poultry and egg receipts to rise by 7 percent in 2004. Dairy cow numbers declined in 2003 for the first time in several years. However, an expected increase in milk productivity may offset the lower herd size and result in a relatively small decline in overall milk production. Further productivity gains are anticipated in 2004, which when combined with a lower inventory of milking cows, could result in unchanged receipts.

Following a 6 percent increase in 2003, total production expenses are expected to rise by less than 2 percent in 2004. Purchased inputs, the major component of total expenses, are forecast to increase \$1.6 billion, accounting for half of the increase in total production expenses (figure 3). Expenses in 2003 were marked by several double-digit percentage increases due primarily to higher input prices. In 2004, feed is expected to have one of the largest increases for a single expense item (6 percent), while livestock purchases may drop by more than 11 percent. The relatively low percentage change in prices for production items such as interest, taxes, and wages in 2004 helps to hold down expense growth. Prices for these items were up 4 percent in 2003, but are expected to rise only 2 percent in 2004. Fuel expenses are expected to decrease only \$80 million in 2004 based on a slight drop in fuel prices and the projected decline in planted acres. These expenses rose \$2 billion (31 percent) in 2003 because of a 19-percent increase in the composite price of oil. In 2004, this price is forecast to decline by almost 4 percent. After jumping more than 13 percent in 2003, fertilizer expenses are forecast to rise 2 percent in 2004. The price of natural gas (the primary ingredient in nitrogen fertilizers) rose by 68 percent in 2003, but is forecast to decline by around 3 percent in 2004. Nonetheless, natural gas prices are expected to remain around 29 percent higher than in 2002.

Direct government payments are expected to total \$10.3 billion in 2004, down from 2003's estimated \$17.4 billion (figure 4). Direct payments in 2004 are currently projected at 4.1 billion. Direct payments were larger in calendar year 2003 because, under the 2002 Farm Act, producers received 2002 and 2003 crop payments, and a portion of 2004 crop payments in that year. Direct payments rates are fixed in legislation and are not affected by the level of program crop prices. Counter-cyclical payments, loan deficiency payments, and marketing loan gains in calendar 2004 are expected to decline from 2003 levels. Market prices determine payment rates for these programs and program crop prices are expected to be higher in 2004. In addition, the level of market prices relative to loan rates affects the amount of the program crop that realizes loan deficiency payments and marketing loan gains. Thus far, the Crop Disaster Program, the Livestock Compensation Program, and Noninsured Assistance Programs are the only ad hoc and emergency programs expected to provide payments to producers in 2004.

Combining the outlook for the value of commodity production and expenses into a ratio indicates how efficiently inputs are used to produce the sectors' output. During most of the 1990s, operating margins for the sector ranged between 80 and 85 percent (figure 5). Low commodity

prices, combined with relatively high annual increases in production cost pushed the ratio of expenses to the value of output well above 85 percent during the period from 1999-2002. Government payments played an important role in relieving the cost/price squeeze during this period. The forecast that increases in receipts will exceed increases in expenses in both 2003 and 2004 suggests that operating margins (excluding government payments) could retreat back to 85 percent for the first time since 1998.

The farm sector is forecast to produce a net value-added of \$93 billion in 2004 as its contribution to the U.S. national economy, a \$6 billion decline from 2003's record \$99 billion (figure 6). Payments to stakeholders are expected to rise to \$1.4 billion (over 3 percent) in 2004 to another record high. The residual net farm income forecast of \$47.6 billion will accrue to those who contribute resources with the expectation of receiving financial rewards for sharing in the risks of production. Net rent to non-operators is expected to claim 14 percent of net value added; employee compensation claims 23 percent; and interest claims 12 percent (figure 7). Together, their returns could represent 49 percent of net value added. Contractors are expected to earn an estimated \$13.4 billion in 2004, which would be 15 percent of net value added and 29 percent of net farm income. The remainder, \$32.5 billion, accrues to farm operators. Operators' share represents 36 percent of net value added and 70 percent of net farm income. Thus, the earnings from agricultural production are widely distributed among many different persons and enterprises and have a broad impact across the agricultural and local economies.

Cash Income and Financial Circumstances Varies Among Farms

After increasing by 15 percent in 2003, farm business net cash income is forecast to fall by a similar amount in 2004. Not all farm types or regions of the country will experience a similar decline. Differences in the value of crop and livestock production, levels of government transfers, and the levels and types of inputs purchased by farmers are expected to control the diversity of income prospects in 2004. Average net cash incomes are projected to increase for producers of corn, poultry, and specialty crops. The largest income gains are expected for corn farms where much higher receipts are forecast to more than compensate for the projected decline in government payments and forecasted higher production costs (figure 8). Average net cash income will likely remain stable for mixed cash grain, soybean, and peanut farm businesses. Lower average income is expected for other farm types, since gains in market receipts may not be enough to compensate for lower government payments and higher expenses. Among program crops, wheat producers (who had the largest increase in 2003) are expected to see the highest reduction in 2004 average net cash income. Market uncertainty and the withdrawal of export demand following the discovery of a cow with BSE is expected to cause more than a \$10,000 decline in the average net cash income of beef producers (figure 9). In addition to lower prices, cattle producers are also expected to face higher feed costs given the anticipated strength of corn and soybean markets. Average net cash income of dairy operations is forecast to fall in 2004, following an exceptionally strong year in 2003.

Geographic concentration of commodity production explains much of the regional variation in the income outlook for farm businesses. In 2004, average net cash income is projected to fall in most regions. The only exception is the Heartland, where corn and soybeans are prominent commodities. Regions with a high concentration of beef and wheat production such as the Basin and Range, the Prairie Gateway, and Northern Great Plains are expected to have the largest declines in average net cash income. In 2003, average net cash income is projected to increase in all regions except the Fruitful Rim and the Eastern Uplands.

Projected changes in net cash income also vary widely by size of farming operation in 2004. Commercial operations, which represent about 9 percent of farms and 70 percent of production, are expected to experience a 9-percent decline in net cash income for 2004. Average net cash income of intermediate farms (primary occupation of farming and gross sales below \$250,000) is forecast to decline by more than 30 percent. Many of these farms specialize in beef cattle production. The 63 percent of U.S. farms classified as rural residences typically rely on off-farm income to meet household financial needs. The small farming operations of these households reported negative net cash income in 2003, and are likely to see slightly higher losses from farming in 2004.

Asset Values, Debt Levels, and Debt Service Requirements Rise

Despite the decline in farm income in 2004, rising farm business assets, debt, and equity values are expected to continue through the end of the year. These financial measures reflect farm investors' and lenders' collective decisions about longer-term expected profitability of farm investments. The value of U.S. farm business assets is forecast to gain 3 percent in 2004, rising from 2003's \$1.36 trillion. The value of farm real estate, accounting for more than 80 percent of farming's assets, is expected to increase by 3.5 percent. Growth in farmland values is expected to be driven by improvement in the general economy rather than the level of net cash income. Farmland values are expected to rise at a slower rate than has been experienced since 1999 (about 5-percent annually). Year-end 2004 commodity inventory values are expected to rise slightly from 2003 levels. Despite added uncertainty, livestock prices are expected to remain high by historical standards and rising crop prices are expected to offset reduced inventory levels at year-end 2004. Farm business debt is expected to rise less than 3 percent in 2004, exceeding \$205 billion by the end of the year. Farm debt exceeded \$200 billion at the end of 2003, surpassing its previous record level (in nominal terms) of \$188.8 billion set in 1984. Sector equity (net worth) is expected to rise more than 3 percent, as, in dollar terms, the gain in asset values exceeds the increase in debt levels by about \$36 billion. Farm business balance sheets have stabilized over the last 10 years. Debt-to-asset ratios have ranged between 15.5 percent and 16 percent since 1993, as increases in debt typically have been offset by larger gains in farm asset values (figure 10). Because farm real estate values have risen faster than farm mortgage debt, the degree to which farmland is leveraged has declined slightly. This has provided farm investors with an added equity cushion to lessen the impact of any short-term declines in income or asset values.

While the rise in debt in recent years may have resulted in additional financial difficulty for some farm operators, it does not indicate widespread financial distress in the farm sector. Viewed from the farm sector level, farmers relied less on their available credit lines in 2003. Debt repayment capacity utilization (DRCU), computed as actual debt relative to maximum feasible debt, effectively measures the extent to which farmers can service debt using only current income. The projected 2004 decline in net cash income means that operators are expected to generate less available cash from their farming activities to meet family living expenses, to fund capital purchases, and to service debt loads. The projected DRCU ratio indicates that, in 2004, farmers can be expected to use about 60 percent of the debt that could be supported by their current incomes. The 2004 decline in the overall ability of the farm sector to service debt is indicated by the anticipated rise in DRCU from 54 percent in 2003.

Despite the apparent financial strength of the farm sector as a whole, some individual farm operator households may experience financial stress if individual debt levels become high. Farm debt repayment would not appear to pose a problem for the 60 percent of operator households that reported no farm debt outstanding. However, about 40 percent of farms owing no farm debt reported an existing loan balance for non-farm purposes. The level of farm operator household debt for non-farm purposes may expose some farm operations to potential debt service difficulty.

Farm Income and Household Income From all Sources Have Different Trends and Rates of Change

Incomes of farm households are, on average, are expected to be 1 percent less in 2004. At \$66,732, the expected reduction in average household income from all sources is a relatively infrequent occurrence, having dropped below prior year levels only three times in the past 15 years. When household income has been less than prior year levels, the reduction has typically resulted from either earnings from off-farm sources falling from the prior year or rising at a level that was insufficient to off-set a reduction in earnings from the farm. In most years, increases in off-farm earnings have been sufficient to offset reductions in farm earnings, leaving household incomes on a rising trend (figure 11). In 2004, a projected increase in off-farm earnings of about 3 percent is not expected to be sufficient to overcome the anticipated reduction in household income from farm sources, potentially leaving average household income down a relatively small amount for the first time in 4 years.

Net cash income earned from farm production and total income earned by members of farm operators' households has not followed a similar trend in recent years. Moreover, year-to-year changes in these two income indicators also have not exhibited a similar pattern (figure 12). Differences between annual changes in farm estimates of net cash income and changes in household estimates of operator income have occurred for three key reasons. First, households that engage in farming do not retain all the net income earned by the farms they operate. As noted above, households hire labor to help operate the farm, they lease land, acquire debt, and enter into business arrangements that enable the production of commodities and or the acquisition of inputs. The effect of these household business organization and operating decisions is that income earned by farm businesses ends up being shared among several parties. Farm operator households are estimated to retain about one-third of the net value added and 70 percent of net farm income. This is contrary to the traditionally assumed notion that farmers earn the income generated by their farms and is an out growth of changes in how farm families have chosen to organize their businesses.

A second reason that household incomes and net income of farm businesses follow different trends is that many farms have more than one operator. Whether a result of long held ideas about what constitutes family farms or a statistical artifact of data collection of the past century, farms have been assumed to have one operator. This is not the case for modern farms. Since 1989, the Economic Research Service has been asking farm operators if they shared the income of their farm with other households. The most recent survey results showed that over 300,000 households, in addition to the household of primary operators, shared in farm income in 2002. These households received about 5 percent of the net income generated by farm businesses.

A third key reason is that, for a very large majority of households, farming is not the sole or primary source of earnings. The Census of Agriculture, for several decades, has documented the

trend toward off-farm work by farm operators. Over half of operators had moved into non-farm labor markets by the 1960s, rising from 30 percent of operators in the 1930s (figure 13). Not only has the Census documented the long-term trend of a larger share of operators working off-farm, it has also revealed a trend toward more work off farm as measured by the number of days worked. USDA's annual farm-household survey indicates a continued shift toward essentially full-time off-farm work by farm operators. In 2002, results showed that 42 percent of operators worked 200 days or more off farm, up from 37 percent in 1997. The proportion of primary operators that reported no off-farm work remained relatively steady over this period.

Off-farm Work Decisions Drive Diversity in Household Income

The proportion of farm operators that work off-farm, even the growing share that are employed full time, obscures other important changes that have occurred with regard to off-farm work. In 2002, 60 percent of spouses worked off farm (figure 14). While a larger share of spouses of operators of residential farms worked off-farm, as was the case for primary operators themselves, the proportion that worked off-farm does not vary as much among typology groups as for operators. Even for households that operated commercial farms, 48 percent of spouses worked off-farm, while 17 percent of operators did so. Over 40 percent of spouses from households that operated commercial farms considered off-farm work to be their primary occupation while only 4 percent of operators did not consider farming to be their primary occupation. Only about a third of farm households had neither the operator nor spouse working off farm in 2002, a large reduction from 25 years earlier when 48 percent of households had neither working off farm. Household members hold a wide variety of jobs and are employed in both public and private sector industries, though private sector employment dominates for both operators and their spouses. Changes in employment that have emerged in the past 25 years include more operators and spouses operating their own non-farm businesses and working for government with a smaller percentage working for a private employer.

Perhaps just as important to an understanding of work and household income sources is the indication that farm household members make the decision to work off farm as a career choice rather than an action needed to support the financial position of their farming operation. Two pieces of evidence from USDA's farm-household survey support this observation. In 2001, operators and their spouses, who worked off farm and indicated that off-farm work was their primary occupation, were asked if their off-farm occupation was their career choice. Over three-fourths of operators and four-fifths of spouses responded that this was the case. Moreover, a third of operators and spouses also reported that they worked at an off-farm job prior to becoming a farm operator. While this result is most common with households that operate residential farms, where 48 percent of these operators reported having worked off farm prior to operating their farm, the result is not uncommon for households that operate intermediate and commercial size farms. Twenty four percent of households with intermediate farms and six percent of households that operate commercial farms reported working off farm prior to taking over their farm. An even larger share of spouses on intermediate and commercial farms reported working off farm prior to farming. Finally, when asked the main reason they had an off-farm job, only about 6 percent of operators reported that they worked off farm to help cover farm or ranch expenses. An even smaller share of spouses, about 2 percent reported working off farm to cover farm expenses. By far the most common reason provided for off-farm employment by both operators and spouses was to increase total family income from all sources.

The outcome of work and investment decisions is a diverse set of income sources that vary among households by size of farming operation. Households that operate residential farms, on average, tend to lose money in farming. However, these households have the largest amount of earnings from off-farm sources. Consistent with their off-farm work commitment, wage and salary earnings are the largest component of these households' off-farm earnings (figure 15). Self-employment income from the operation of a non-farm business is the second largest source of off-farm income for residential households. Other sources of income such as interest and dividends and retirement incomes become more important for households that operate commercial and intermediate size farms. The breadth of employment sources and income underpins the importance of the non-farm economy and public policies other than mainstream commodity programs to households that operate U.S. farms.

Household Incomes Compare Favorably with all U.S. Households

In 2004, it is anticipated that incomes of farm operator households will remain above U.S. average household income. Starting with the early 1990s farm household income became roughly equal to the average income of all U.S. households. By the mid-1990s, incomes of farm households had moved above the incomes earned by all U.S. households and they have held this position since. Farm household income was nearly \$8,000 greater than U.S. average household income in 2002, the last year for which observed estimates are available from USDA for farm households and from the U.S. Census Bureau for all U.S. households (figure 16). Based on expected changes in farm and non-farm sources of earnings, incomes of farm households are projected to have increased by about 2 percent in 2003 before falling back by about 1 percent this year. At the forecast levels of \$67,453 for 2003 and \$66,732 for 2004 it is again likely that farm operators' household income exceeded U.S. average household income.

Income circumstance will not be the same across all households that operate farm businesses. Households that operated intermediate size farms, which are those farms where operators considered farming their primary occupation but with sales of less than \$250,000, had incomes, on average, that were about 5 percent below the average for all U.S. households in 2002. These households tend to have relatively small earnings from farming in comparison to households that operate commercial size businesses and less income from off-farm sources than either households that operate residential farms or all farm households on average. Given the projected decline in farm earnings expected for 2004, combined with a relatively modest increase expected for off-farm income sources, it is likely that households that operate intermediate size farms may again have incomes below the U.S. average in 2004. Households that operate commercial and rural residential farms had incomes well above the average for all U.S. households in 2002 and will likely retain this position in 2004.

Three regions had household incomes below the average for all U.S. households in 2002. These regions were the Northern Crescent, Northern Great Plains, and Eastern Uplands. Households in both the Northern Crescent and Eastern Uplands earned less than the average farm household in 2002 from their farm and off-farm sources. This pattern is expected to continue in 2004. Households in the Northern Great Plains are forecast to earn more from their farms, but less from off-farm sources. Households in this region are projected to earn less from their farming operations in 2004 and, while incomes from off-farm sources are expected to rise, the increase will likely be insufficient to prevent this region from having the largest year-over-year reduction in household income from 2003. Households associated with two types of farm businesses, based on majority of production value, had household incomes, on average, from all sources that

were below all U.S. households in 2002. These were general cash grain and poultry farms. Based on projections for 2004, poultry and dairy farms are expected to have average incomes below the average for all U.S. households.

Farm Household Wealth Drawn from Multiple Sources

Owning a farming operation has been an important wealth-building tool for many farm operator households. The average value of farm assets on family farms is forecast to be about \$573,000 in 2004. With average farm debt of about \$72,000, the calculated average net worth of family farm businesses is expected to exceed \$500,000. Most farm households depend on farming as a major source of wealth, with real estate holdings being the principal asset. As a result, household net worth is positively related with farm size. Household net worth, on average, ranges from over \$400,000 for rural residences to nearly \$1.2 million from households operating commercial-size farm businesses (figure 17). In addition to farm size, the age of the principal operator and stage of the business influence the amount of net worth. Data from the 2002 ARMS show that average household net worth increase from \$235,000 for operators that were 34 years or younger to 647,000 for operators age 55 to 64 years. Average net worth declined slightly for operators that were 65 years or older to \$605,000.

Farm households also have a diverse portfolio of non-farm assets. Farm households associated with all sizes of farms hold assets in a variety of investment instruments. Just over 21 percent of non-farm assets were comprised of cash, checking, savings, money market funds, US savings bonds, and certificates of deposit. A similar proportion was held in corporate stock, mutual funds and other financial assets. Retirement accounts made up about 26 percent of total non-farm assets. Non-farm assets are relatively more important for rural residence farms, accounting for nearly one-third of total household assets.

A Small Proportion of Farm Households Are Disadvantaged when Using Income and Wealth Jointly as a Measure of Economic Well-being

In order to gain a perspective about the economic well-being of farm operators households, it is necessary to consider both income and wealth levels with reference to non-farm households. In 2004, only 6 percent of farm households are projected to have income and wealth below the median values for non-farm households (figure 18). Almost twice as many farm households had a combination of high income and high wealth compared with non-farm households. Because incomes are similar for farm and non-farm, these results are driven by the large differences in wealth between farm and non-farm households.

Figure 1. Farm sector net cash income. 1996-2004f

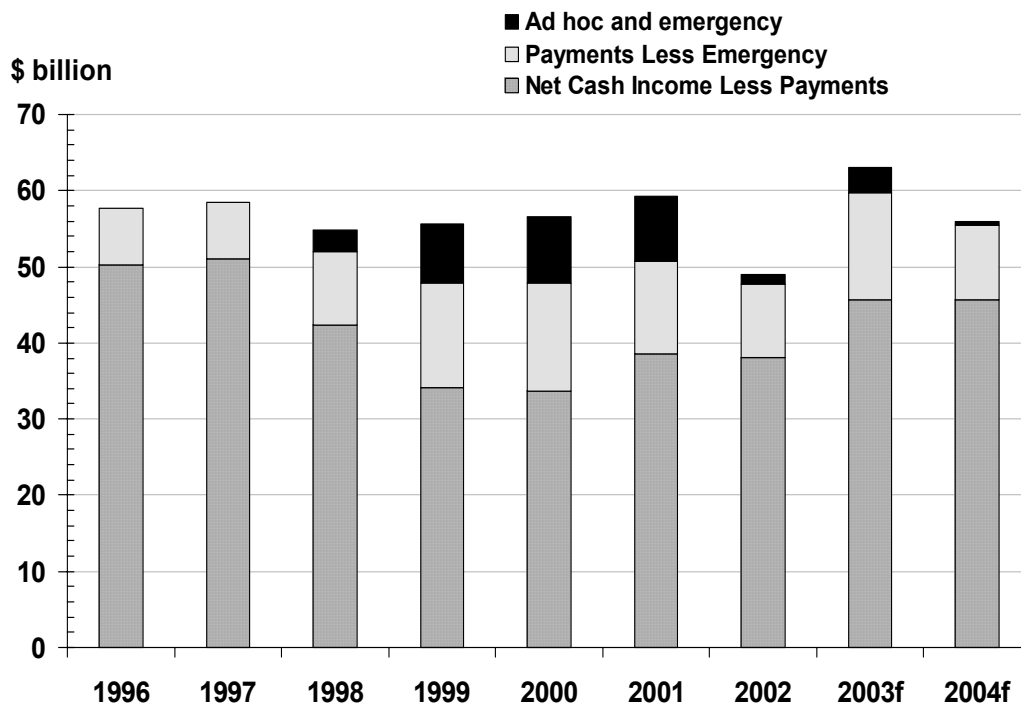


Figure 2. Farm sector cash receipts 2000-2004f

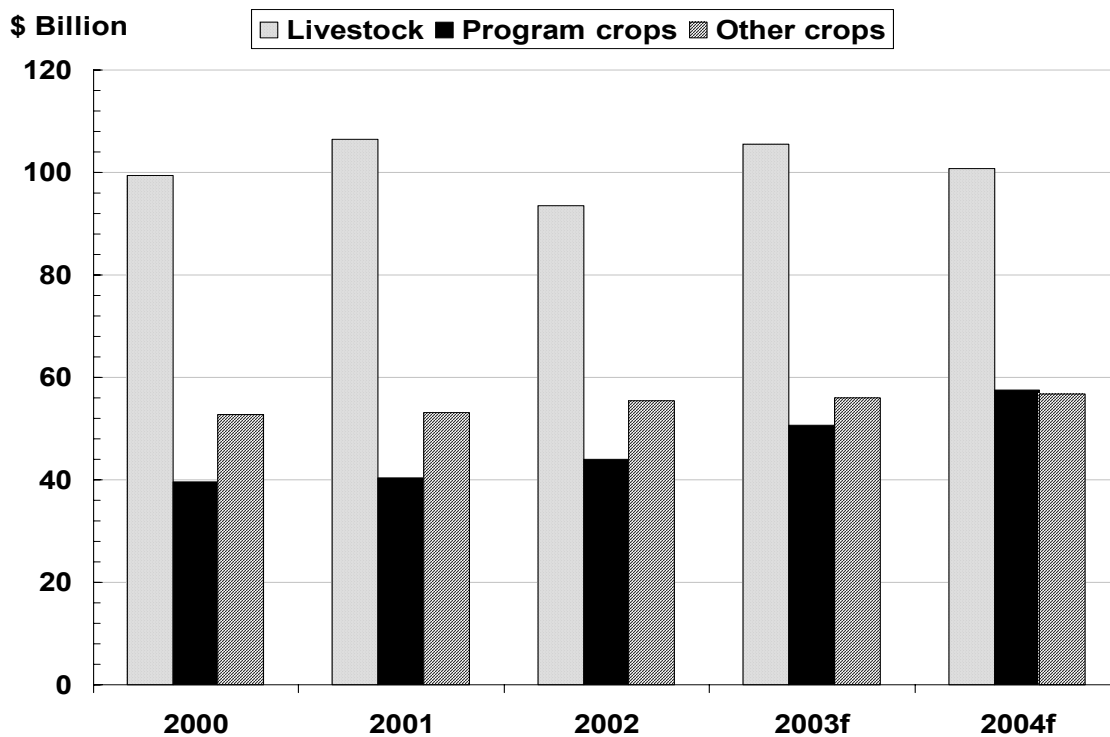


Figure 3. Farm sector expenses 2000-2004f

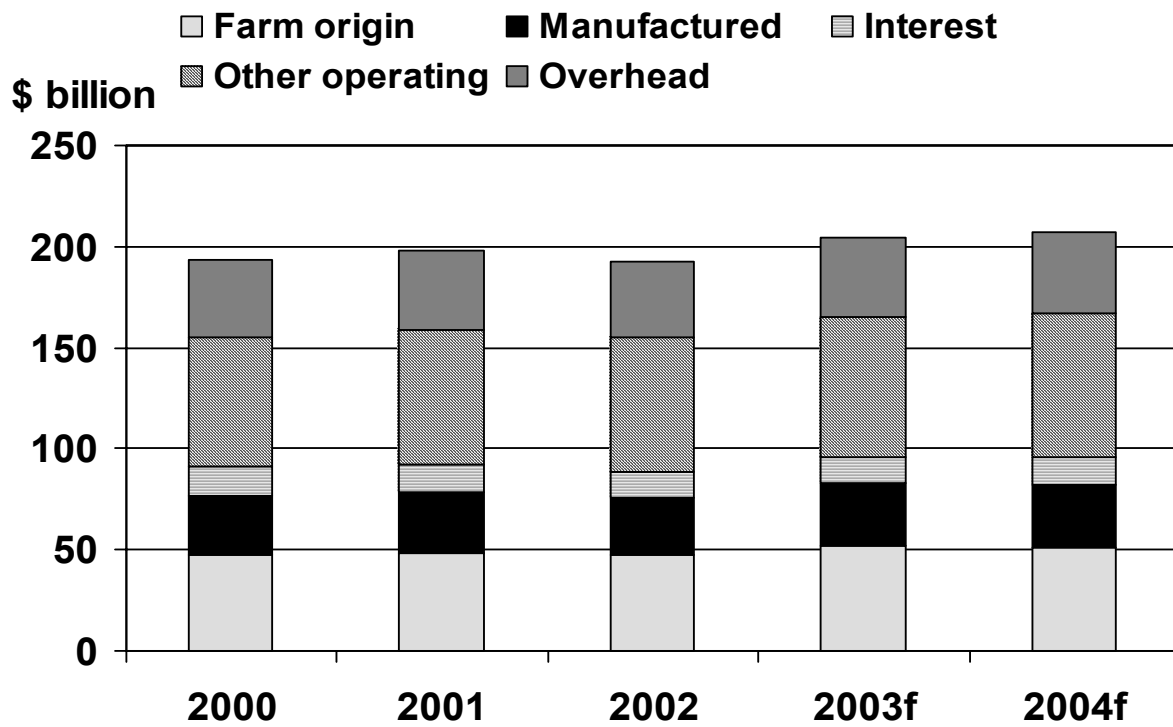


Figure 4. Composition of government payments, 2000-2004f

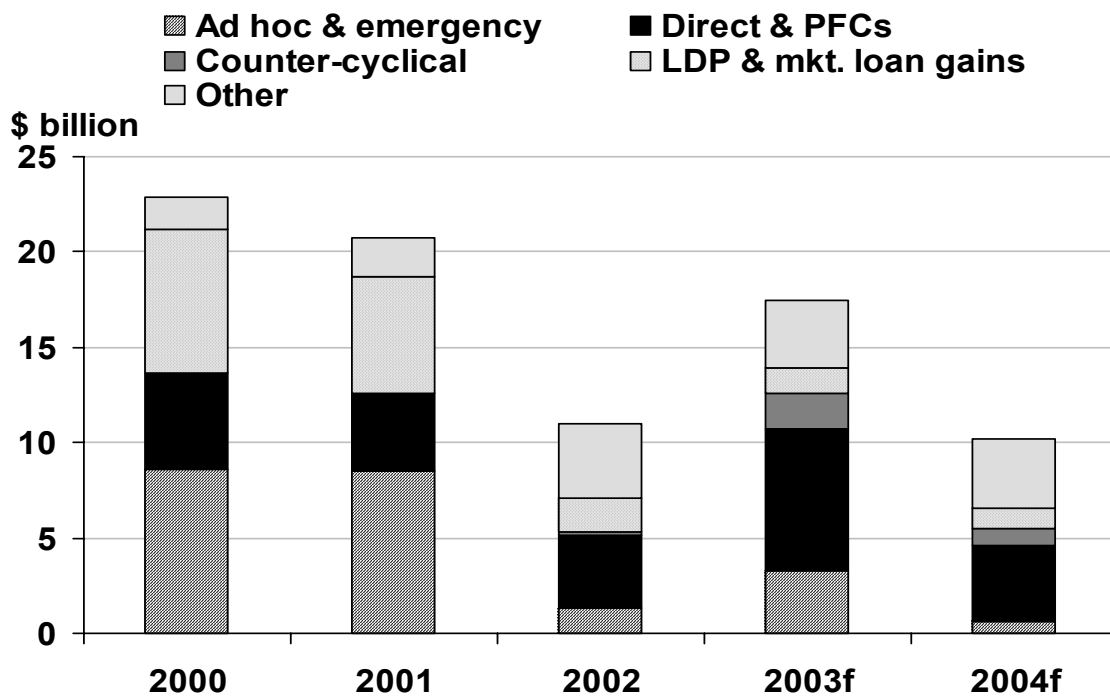


Figure 5. Total production expenses in relation to the value of agricultural sector output, 1980-2004f

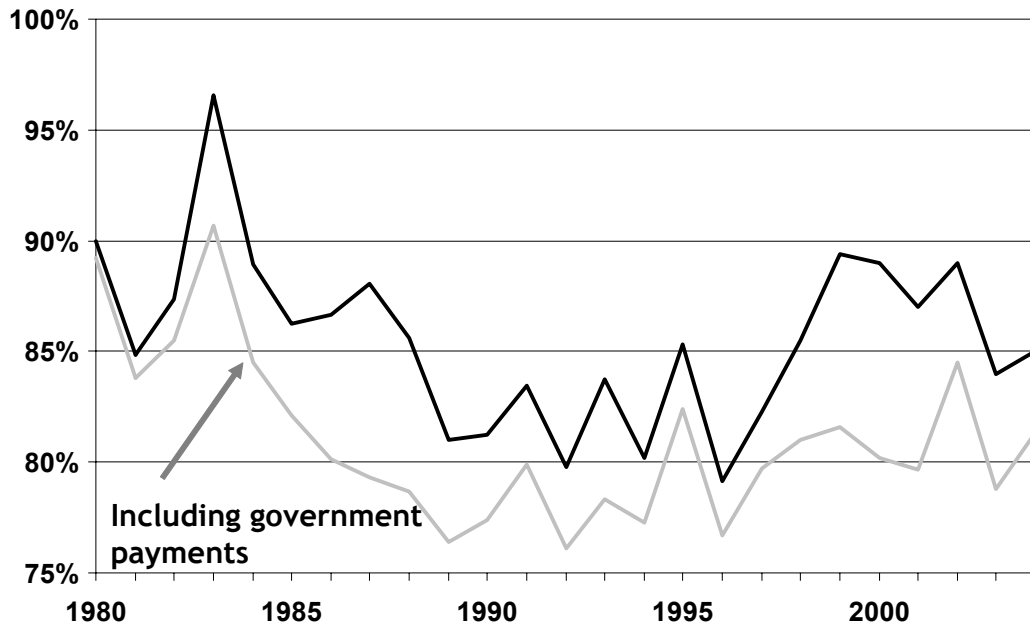


Figure 6. Farm sector net value added 1996-2004f

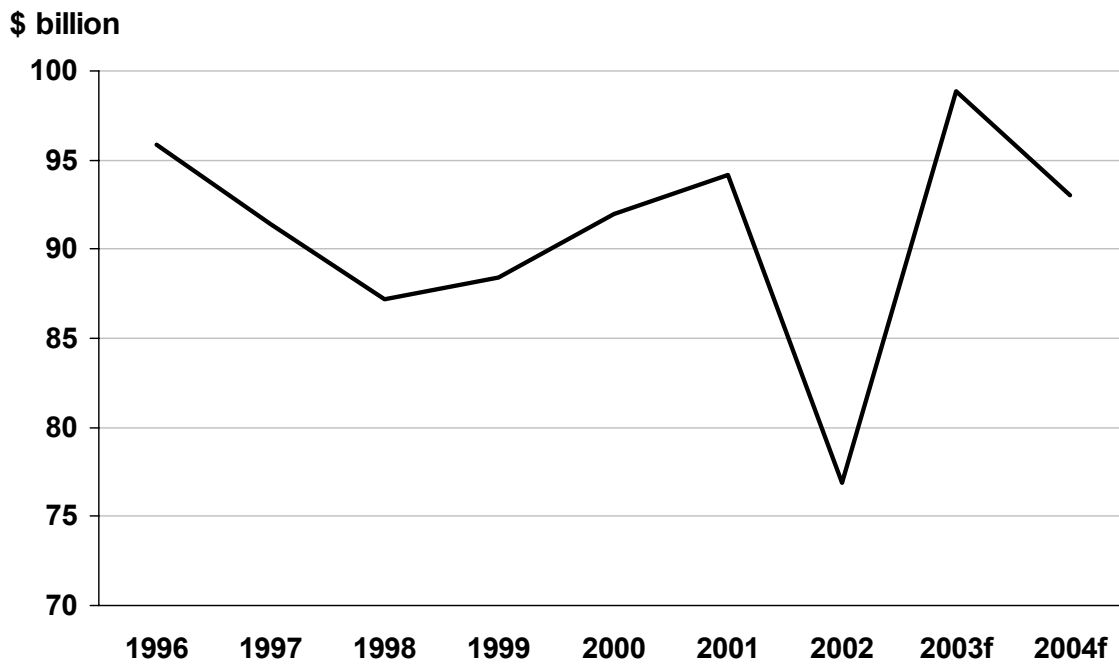


Figure 7. Distribution of farm sector net value added, 2004f

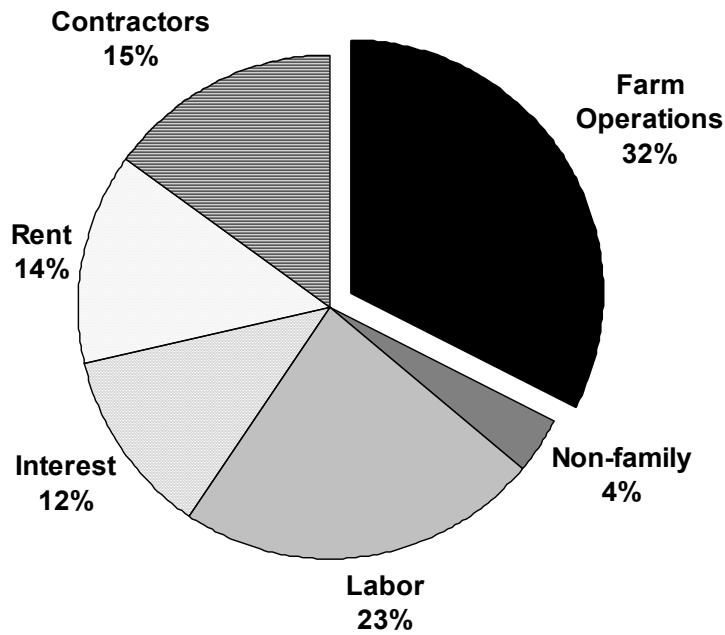


Figure 8. Farm business net cash income forecasts for selected crop farms

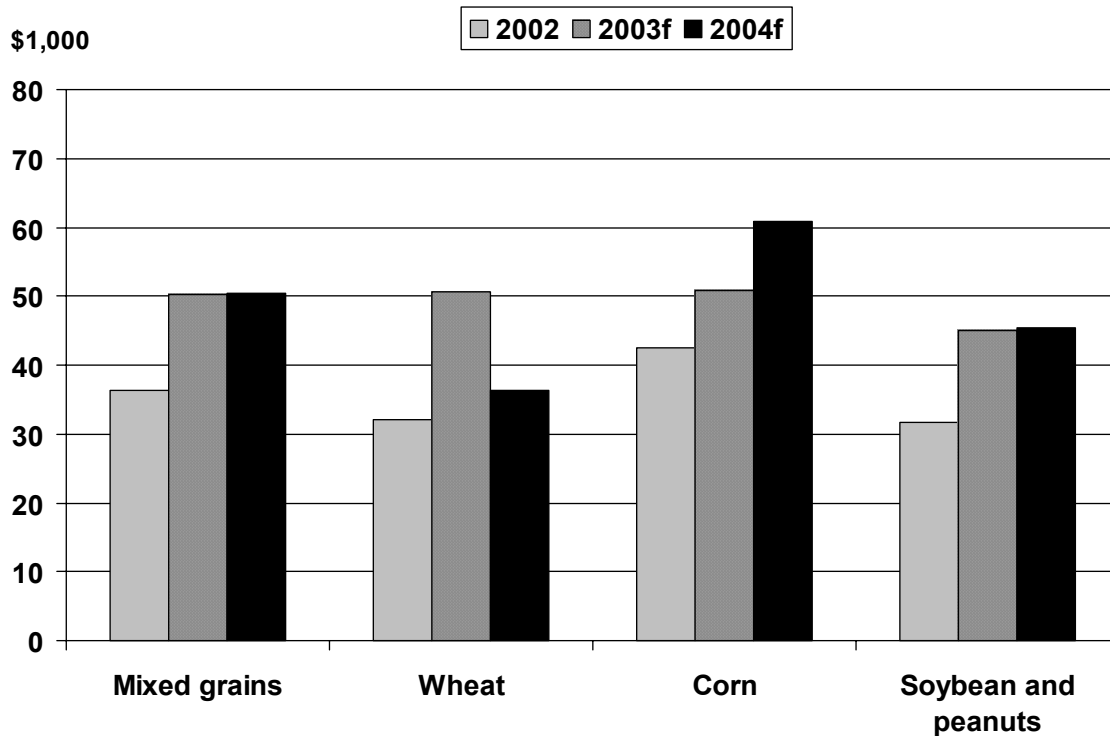


Figure 9. Farm business net cash income forecasts for selected livestock farms

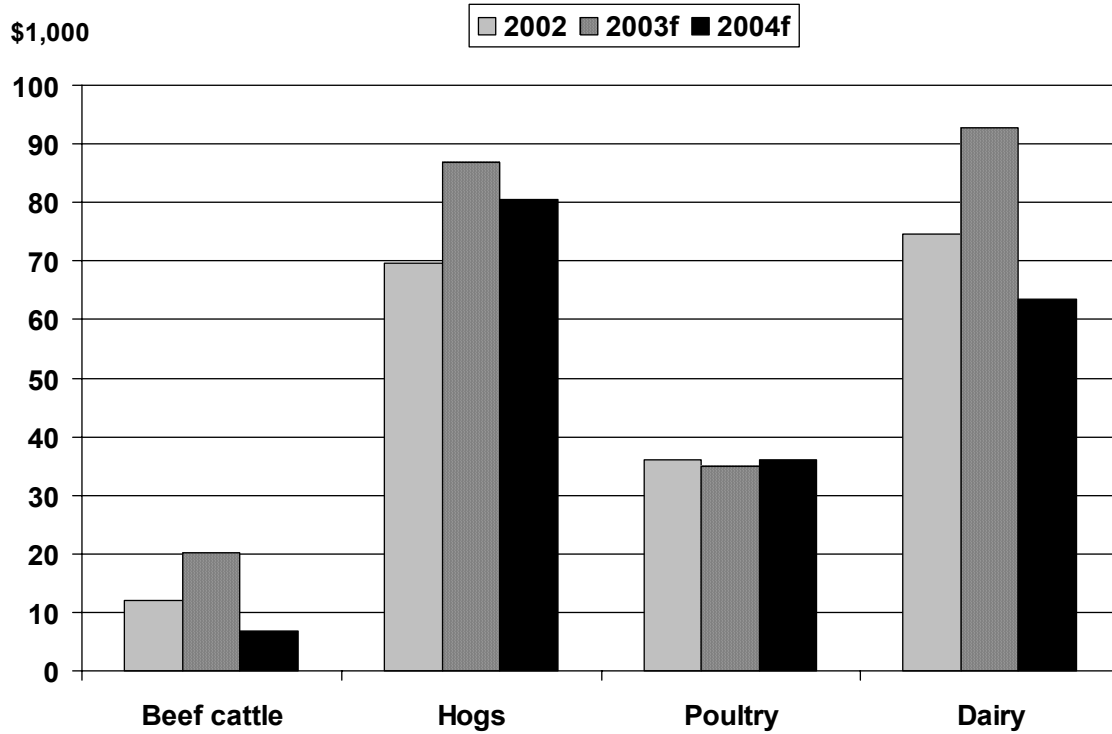


Figure 10. Farm sector debt/asset ratio and debt repayment capacity utilization (DRCU), 1984-2004f

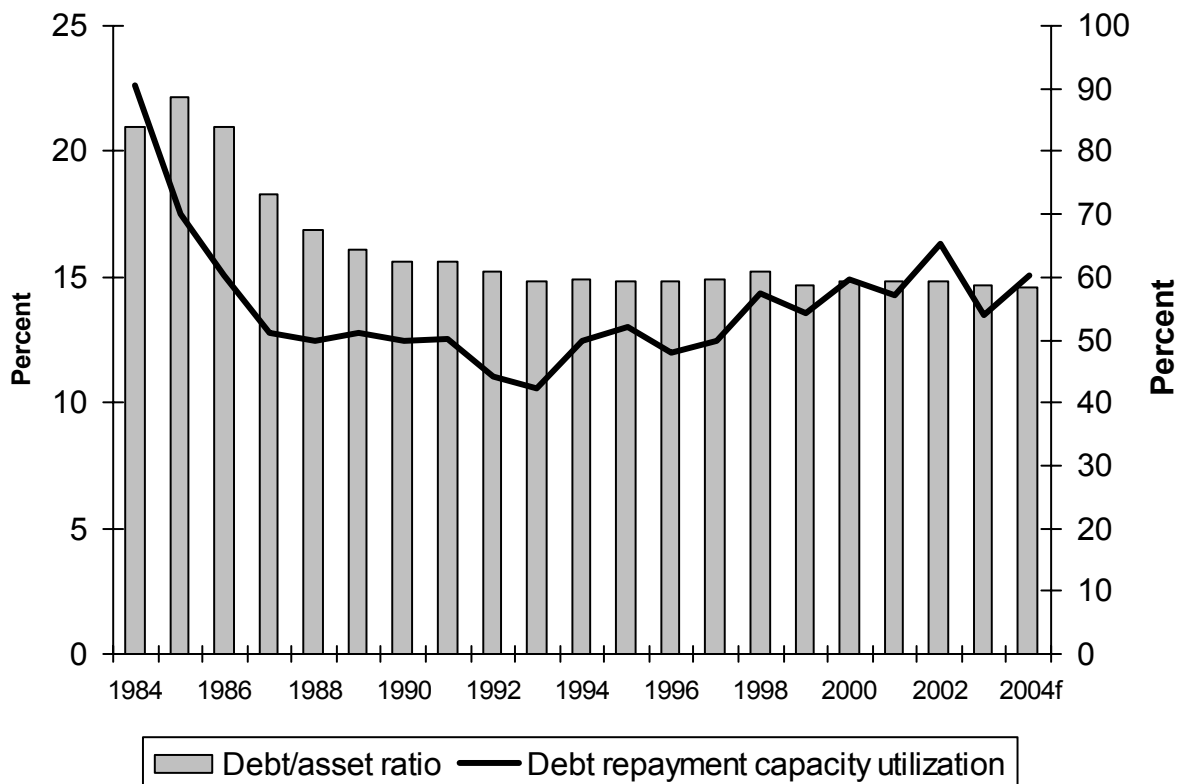


Figure 11. Trend in net cash farm income and household income of farm operators, 1988-2004

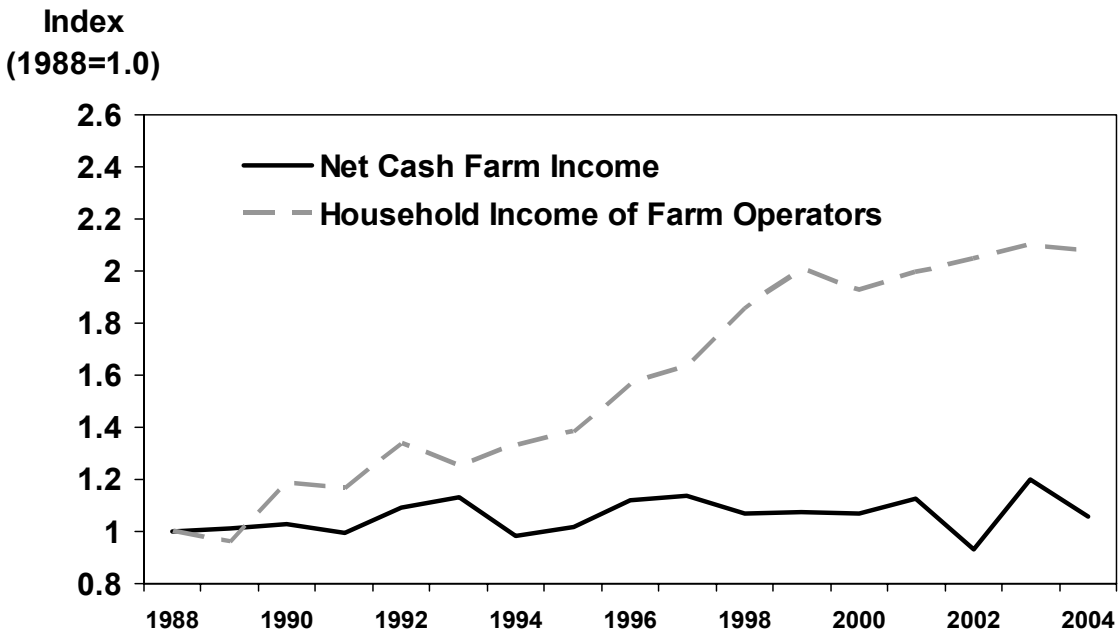


Figure 12. Percent change in net cash farm income and household income of operators

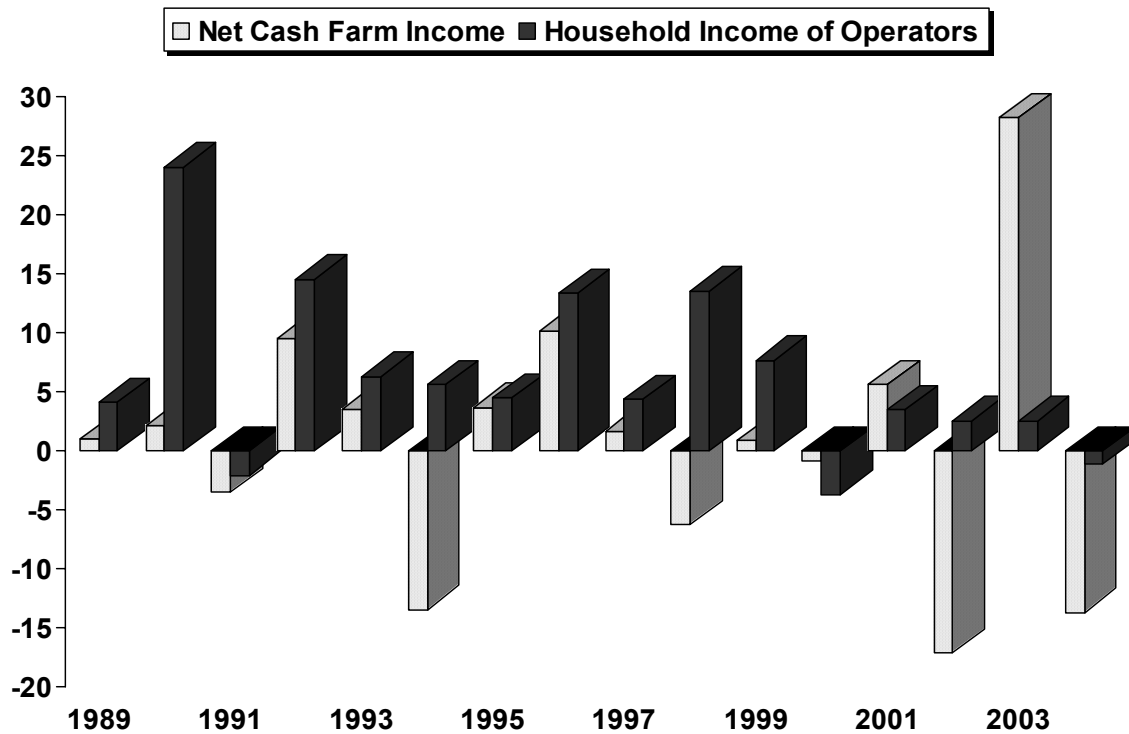


Figure 13. Farm operators reporting off-farm work, 1930-97

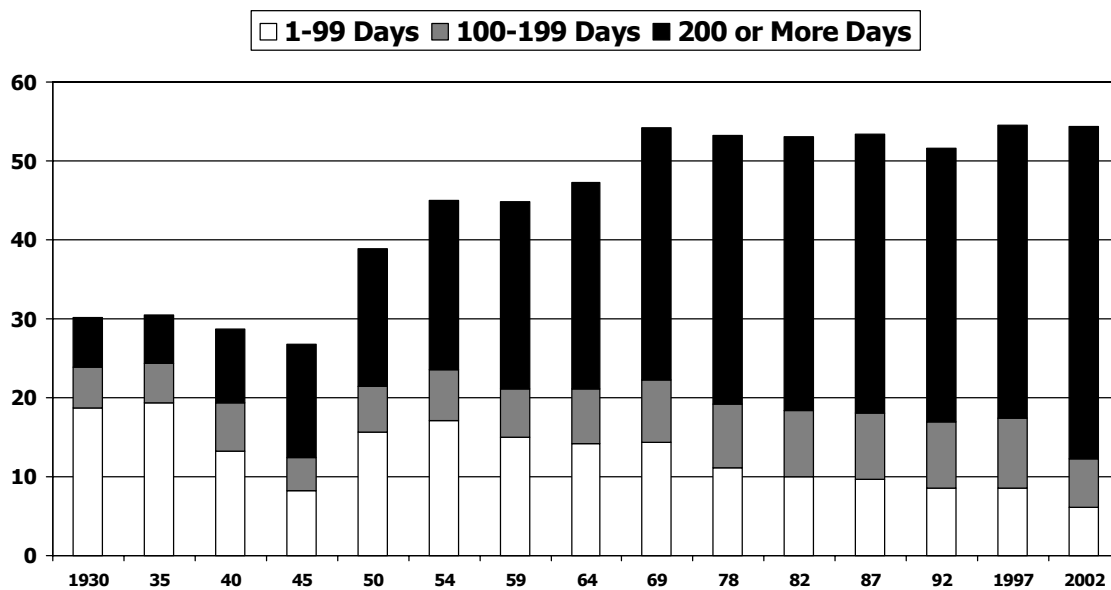


Figure 14. Off-Farm work experience of farm households, 1978 and 2002

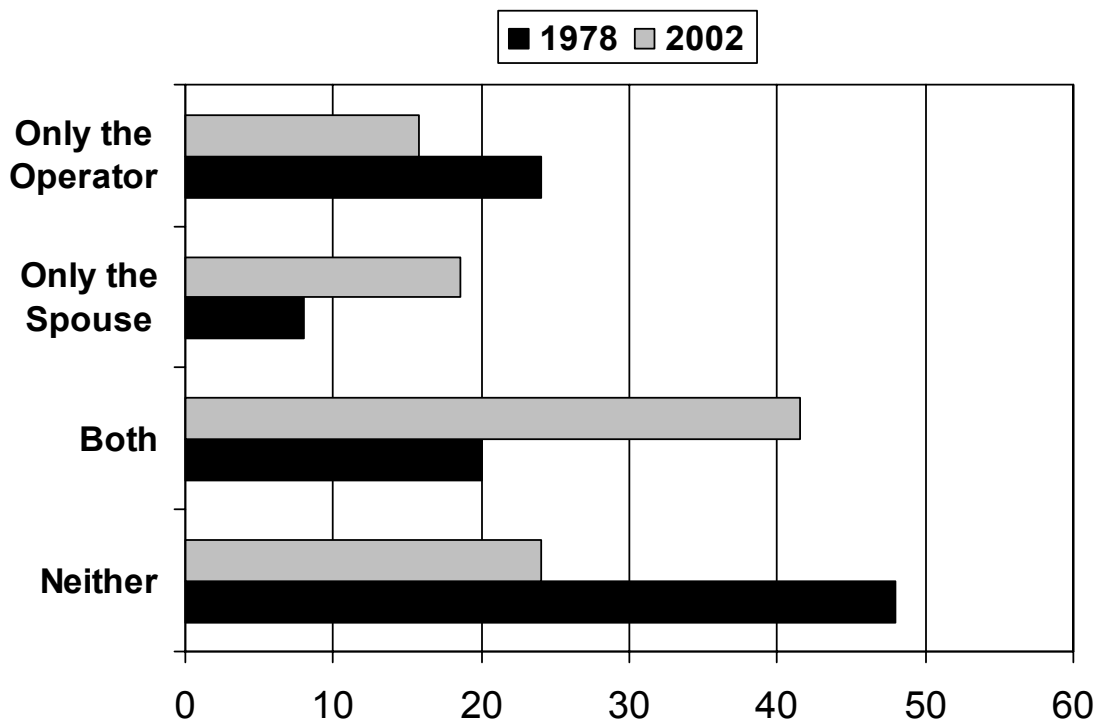


Figure 15. There are a variety of off-farm income sources for all sizes of farms

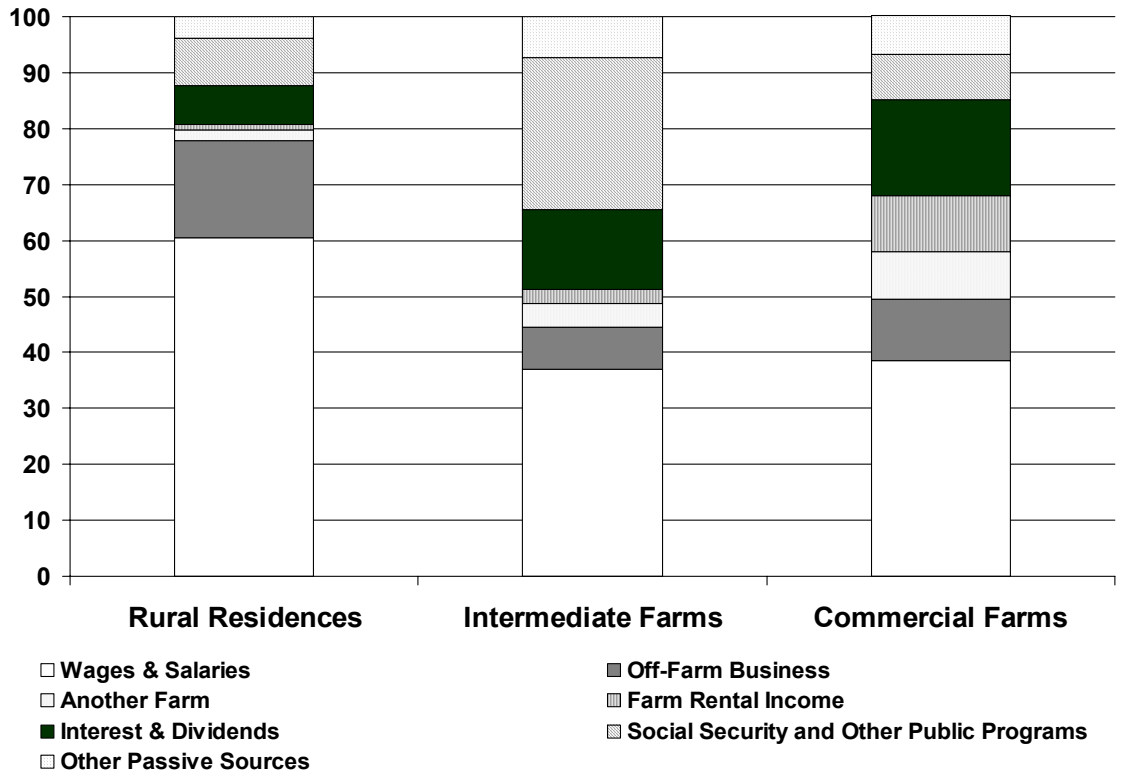


Figure 16. Farm households have higher income compared with non-farm households

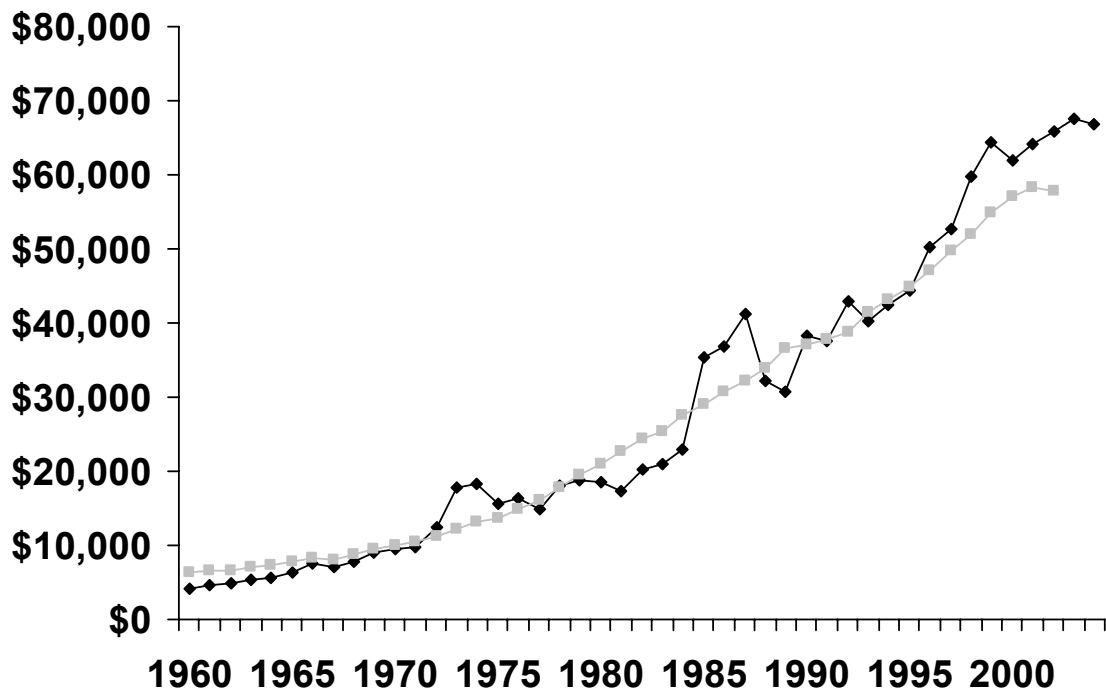


Figure 17. Components of farm household net worth, 2002

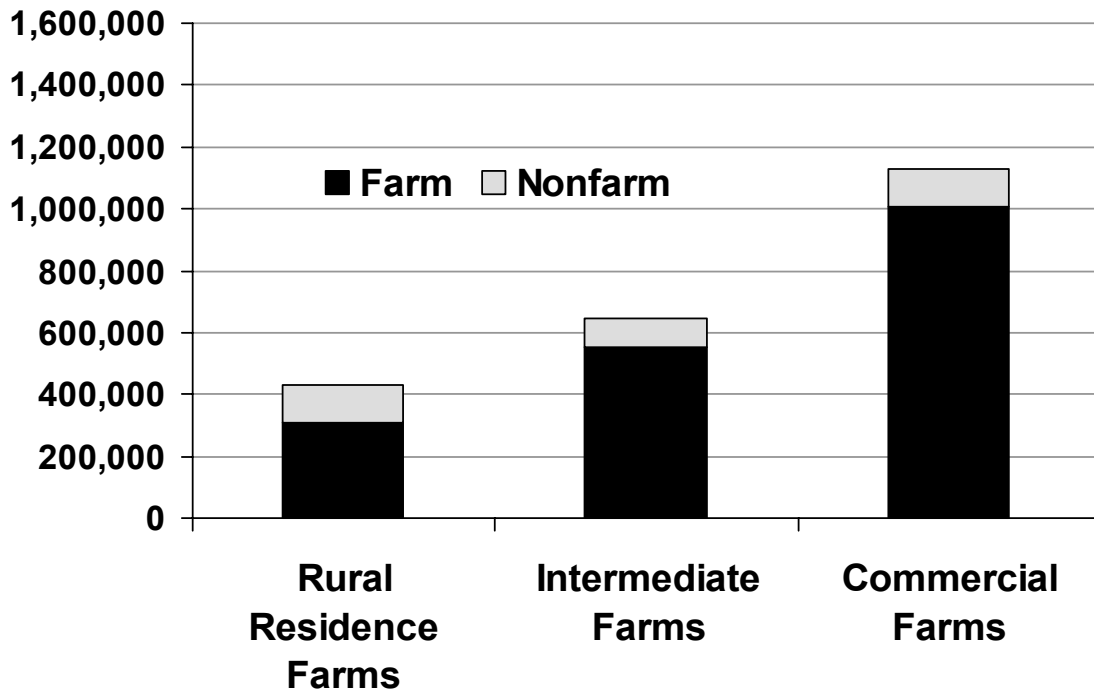


Figure 18. Economic well-being of farm households compared with non-farm households, 2004f

