Idaho Crop and Livestock Cash Receipts, Farm Program Payments and Farm Income Projections for 2002

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This report provides an estimate of Idaho farm and ranch cash receipts for calendar year 2002. Farm revenue is contrasted to previous years, and changes in the various revenue components are examined. Following the forecast of cash receipts, historical and 2002, government payments are reported. Crop and livestock revenue is but one side of the farm income picture. The costs of farming are needed to estimate farm income. The final section of this report makes cost forecasts and combines costs with revenues to project Idaho farm income for 2002.

The 2002 farm and ranch cash receipts from marketings were estimated to set a new record, breaking the $4 billion mark ($4.03 billion). Total cash receipts increased 5% from last year's $3.85 billion (Table 1). Forecasted 2002 commodity prices and preliminary 2002 production are used to make the revenue forecast. Revenue from crop production comprises 55% of total 2002 farm-gate revenue and livestock revenue the remaining 45%. Revenues from barley, beans, potatoes, sugarbeets, and wheat rebounded in 2002, while cattle, milk, and hay reversed directions. The strength of crop revenues more than offset decreased livestock revenues.

Livestock Revenue

For 2002, livestock revenues are estimated to be $1.82 billion, a 12% decrease from last year's $2.06 billion. Cash receipts from beef cattle and milk have both declined from their record highs last year.

Cattle and Calves Revenue from cattle and calves was estimated at $790 million, down 14% from last years record high of $915 million. Cattle revenues are still well above the long-run average, however. While cattle marketings are about even with the previous year, prices dropped an estimated 8%.

Milk The dairy industry remains Idaho's largest agricultural revenue producer. Revenue from milk production was estimated to be $923 million, down 11% from last years record high of $1.04 billion. Idaho milk production is up nearly 6% over last

year. Increased production has caused the dairy industry to suffer from low milk prices. In January 2002, the price was $12.70, but fell to $10.30 by July. Average milk prices are down 16% from last year.

Other Livestock The "other livestock" category in Table 1 includes trout, poultry/eggs, hogs, and sheep. This category is estimated by taking a trend line of past receipts and is forecast to be down 1% from last year.

Crop Revenue

Crop revenues are estimated to be $2.21 billion this year, up 24% from last year's $1.79 billion. 2002 is the second year crop revenues exceeded $2 billion. Idaho crop revenues are expected to surpass livestock revenues by $400 million, reversing last year's change in revenue leadership.

Crop revenue is recorded on a calendar year basis (Table 1). For crops that can be stored, that means portions of two or more crops can be sold in a January to December calendar year. For example, part of the 2001 potato crop was sold in the spring and summer of 2002. Part of this year's crop will be sold in 2002, and the remainder will be sold out of storage in the winter, spring, and summer of 2003.

Barley Revenues from barley are estimated at $152 million, 15% higher than last year. Idaho barley production increased by 7%, and prices were also forecast to be 7% higher. Nationally, barley production is at the lowest level since 1937. Eastern Idaho is the state's largest producing region. Over two-thirds of Idaho's barley acreage is planted to malting varieties, a significant and steady increase since the mid 1990s when the split was equal.

Beans Dry bean revenues are estimated to be $46 million, the highest in 6 years. This 60% increase in revenue is due to a forecasted 25% increase in price and a 31% increase in production from 2001. Nationally, dry bean production is up 54% from a year ago. Dry beans include the traditional market classes grown in the irrigated regions of southern Idaho, as well as garbanzo beans grown in the dryland area of northern Idaho. Idaho is now one of the leading producers of garbanzo beans.

Greenhouse/Nursery Idaho's greenhouse and nursery industry remains steady. Revenues in 2002 are estimated to be $81 million, up 6% from last year. Nursery growers market high-quality landscaping plants across western North America.

Hay Idaho hay production continues to be a significant revenue producer. Alfalfa hay production is up 12% to an estimated 4.88 million tons, a new record high. Other hay production is up 5%. The increase in production led to a decrease in hay prices in 2002, which was estimated to be 7% lower than last year. Revenues from hay production are forecasted to be $277 million, down 8% from 2001.

Onions Onion production in Idaho is expected to be 5.1 million cwt, a 1% increase over 2001's production of 5.0 million cwt. Yield was forecasted to be consistent with last year's 640 cwt. Onion revenues are forecasted to be $42 million, down 7% from last year. The 10% decrease in onion price was responsible for the decreased revenues.

Potatoes Potatoes remain the largest crop revenue producer for Idaho farmers. Revenues from potato production are estimated to be $885 million, 61% higher than 2001, by far a new record high. Idaho potato production is estimated to be 133 million cwt, up 11% from last year's 120 million cwt. Yields are estimated to be 358 cwt, 13 cwt higher than last year. Prices are estimated to be 45% higher than in 2001. Nationally, fall potato production is up 5% from 2001, but 11% lower than the record high crop of 2000.

Sugarbeets Idaho's sugarbeet production is estimated to be 5.31 million tons, up 15% from last year's production of 4.64 million tons. Yield per acre remained fairly steady, while acres harvested jumped 17%, primarily because there was no PIK program to reduce the sugar supply. Sugarbeet prices are estimated to be 12% higher than a year ago. Revenue from sugarbeets is estimated to be $225 million, up 28% from last year's $175 million.

Wheat Wheat revenues are expected to increase to $329 million, up 13% over last year. Idaho wheat production is up 3% at 87.7 million bushels, an increase from last year's 85.2 million bushels. Prices are also estimated to be 9% higher. Nationally, wheat production is 17% below 2001, the lowest production in 30 years.

Other Crops The "other crops" category in Table 1 includes apples, cherries, corn, hops, lentils, mint, oats, peaches, peas, plums, prunes, sweet corn, grass seed and other crops for which the USDA does not estimate an Idaho value of production. Revenues for these crops were forecast to decrease by 3%.

Cash Receipts – A Historical Perspective

In nominal dollars, 2002 cash receipts are at the highest levels ever. A different story emerges when nominal dollars are converted to real dollars (adjusted for inflation to 1996 dollars). In real dollar terms, cash receipts in 2002 were still 14% greater than the 30-year average (Figure 3). Real, 2002 cash receipts were $3.63 billion (1996 base year). Over a 30-year span, cash receipts in real terms were the lowest in 1971 and three years later in 1974 rose to their highest point. In three years, cash receipts rose from their lowest to their highest. Cash receipts have been far less volatile in the decade of the 90's and into the 21st century.

Last year was the first time since 1979 livestock revenues exceeded crop revenues (Figure 4). An increase in the major crop revenues such as barley, beans, potatoes,

sugarbeets, and wheat combined with large declines in milk and beef revenues has once again pushed crop revenues above livestock revenues in 2002.

Government Payments

Federal government payments in the 2002 fiscal year are estimated to be $142 million, less than half of last year. Government payments exceeded $292 million in 2001, which was the highest amount received in Idaho agriculture.

The massive drop in total direct government payments in 2002 comes from a 76% decline in emergency payments, and an 84% reduction in Loan Deficiency Payments (LDP). Last year emergency payments were $161 million, this year emergency payments are estimated to be under $39 million. Loan Deficiency Payments were $35 million in 2001, but fell to just $5.6 million this year as grain prices rose. Conservation payments are also 8% below last year's level, estimated to be $32.4 million dollars. Payments on Production Flexibility Contracts are estimated to be $49.7 million, 6% lower than 2001. Government payments for the Sugar Payment in Kind program have increased from last year's $2.9 million to nearly $10 million in 2002, for payments on the 2001 sugarbeet crop.

Total U.S. direct government payments are estimated to be $17 billion, down nearly 18% from last year's $20.7 billion. Direct government payments are estimated to be 47% of the net farm income for U.S. agriculture (Figure 10). Government payments to Idaho agriculture are estimated to be 8% of net farm income, compared to 18% in 2002. Idaho received approximately a mere 0.6% of the total payments made to agriculture by the federal government in 2002.

Idaho Farm Income

Farm income is the bottom line, the net of revenues minus cost (Table 3). Farm revenues include the cash receipts of crop and livestock marketings, discussed above, as well as inventory changes and the estimated value of home consumption. Other revenues include government payments, machine hire and custom work, forest products sold, and the imputed rental value of farm dwellings.

Farm expenses include purchased inputs, which may be classified as farm origin inputs, or manufactured inputs. Farm origin inputs include purchased livestock, feed, and seed. Manufactured inputs include fertilizers, pesticides, fuel, and electricity. Other inputs include repairs and maintenance, machine hire and custom work, marketing, storage, transportation, and contract labor expenses. Property taxes and motor vehicle registration are also farm expenses.

Idaho net farm income is estimated to be $1.28 billion in 2002, up 11% from last year's record high of $1.15 billion (Table 2). The increase in farm income can be

attributed almost completely to the strong revenues in the crop sector. Crop revenue increases more than compensated for the decline in livestock revenue and government program payments. Most farm expenses are estimated to remain constant or increase moderately, however, manufactured input costs are expected to be down 5%. Property taxes are also 12% lower this year due to the elimination of property tax on farm equipment.

Over a fifty-four year period Idaho net farm income, in nominal terms, peaked in 2002 at $1.28 billion and hit a low in 1964 at $74 million (Figure 9). In real dollars (1996 base year), Idaho net farm income topped out in 1974 at $1.6 billion, and just five years later, in 1979, net farm income hit its lowest point at $241 million. In just five years, net farm income fell seven fold. Idaho net farm income for 2002 is estimated to be 57% higher than the fifty-year average real net farm income.

Methods

There were five basic methods used to forecast cash receipts for the different categories of crops and livestock. Each crop or livestock lends itself to a different method of forecasting depending on the availability of price and production data and the marketing characteristics of the commodity. The five methods are (1) trend, (2) index, (3) econometric, (4) price times quantity, and (5) expected value.

The index method is the main method used to forecast cash receipts. It is used for crops that are storable and may be produced in one year but marketed well into the next such as barley, beans, hay, onions, potatoes, sugarbeets, and wheat. This method takes an index of both price and production using data from the current and previous year. The price and production indices are then summed together and multiplied by the previous year's cash receipts for each crop. This method allows us to capture the relative changes in prices and production that are typically similar from year-to-year.

The trend method is used to forecast cash receipts from greenhouse and nursery products. This method is used because price and production data is unavailable due to product diversity. Here the average increase over the last three years is projected to the current year.

Econometrics is used to forecast cash receipts from cattle and calves because accurate marketing data is unavailable. The independent variables are cattle marketings from feedlots with 1000+ head, and the average annual real cattle price. The dependent variable is cash receipts for cattle and calves. The equation used to forecast cash receipts from cattle and calves is:

$$\text{2002 Cash Receipts from Cattle \& Calves} = -717.29 + 0.47M + 0.14.19P$$

Where, M is cattle marketings from Idaho feedlots with a capacity of 1,000+ head, and P is the annual average price for all beef cattle (cows, steers, and heifers).

The price times quantity method is used when we have exceptionally accurate monthly price and quantity data. This forecasting method is used for milk because accurate price and production information is available, and milk must be marketed shortly after it is produced. Monthly prices are multiplied by monthly production to give the cash receipts for each month. The cash receipts for each month are then totaled to forecast the cash receipts for the current year.

The expected value method is used when price and quantity data is unavailable, or only available at the end of the year. Probabilities are assigned to the cash receipts for the three most recent years. The most recent year is assigned a 60% probability while the other two years are assigned probabilities of 20%. The expected value then becomes the forecasted cash receipts for the current year. This forecasting method is reserved for crops and livestock classified in the "other" categories, which are relatively small contributors to total cash receipts. Some examples are poultry and eggs, sheep and lambs, trout, hogs, apples, corn, peas and lentils, and mint.

Table 1. Idaho Cash Receipts from Farm Marketings (Million Dollars)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Percent Change
LIVESTOCK											
Cattle and Calves	670	652	636	574	663	653	677	757	915	790	-14%
Milk	388	456	508	653	634	829	834	762	1,043	923	-11%
Other Livestock	88	93	97	107	109	104	105	110	103	102	-1%
TOTAL LIVESTOCK	**1,146**	**1,201**	**1,241**	**1,333**	**1,405**	**1,585**	**1,616**	**1,628**	**2,060**	**1,814**	**-12%**
CROPS											
Barley	125	125	145	157	142	120	129	121	132	152	15%
Beans	39	53	39	52	41	40	34	30	28	46	60%
Greenhouse/Nursery	49	38	43	48	63	63	69	71	76	81	6%
Hay	190	179	188	199	243	248	215	263	303	277	-8%
Onions	79	51	42	51	44	49	30	23	46	42	-7%
Potatoes	557	573	677	694	521	546	597	532	551	885	61%
Sugarbeets	195	213	191	210	212	219	216	212	175	225	28%
Wheat	310	324	399	430	439	268	229	300	293	329	13%
Other Crops	177	178	192	190	187	180	172	191	183	177	-3%
TOTAL CROPS	**1,721**	**1,734**	**1,916**	**2,031**	**1,891**	**1,733**	**1,690**	**1,744**	**1,788**	**2,214**	**24%**
TOTAL CASH RECEIPTS	**2,867**	**2,935**	**3,157**	**3,364**	**3,296**	**3,319**	**3,306**	**3,372**	**3,848**	**4,028**	**5%**

SOURCES:
1993-2001: Idaho Agricultural Statistics Service
2002: Forecasted by G. Taylor and B. Eborn, University of Idaho

Table 2. Idaho Net Farm Income
(Million Dollars)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Percent Change
REVENUES											
Crop Production	1,868	1,780	1,999	2,190	1,889	1,781	1,769	1,868	1,721	2,149	25%
Livestock Production	1,167	1,249	1,253	1,327	1,484	1,617	1,660	1,643	2,092	1,872	-11%
Services & Forestry	206	213	241	249	256	315	318	292	307	316	3%
Government Payments	159	127	89	116	110	199	211	261	208	101	-51%
TOTAL REVENUES	**3,400**	**3,369**	**3,583**	**3,881**	**3,740**	**3,913**	**3,957**	**4,064**	**4,327**	**4,438**	**3%**
EXPENSES											
Farm Origin Inputs	481	552	578	597	671	624	619	653	721	722	0%
Manufactured Inputs	396	486	524	595	581	568	561	582	570	540	-5%
Other Inputs	541	652	674	676	714	724	709	754	743	738	-1%
Vehicle Regist./Licensing	9	11	9	10	11	12	10	13	12	12	1%
Property Taxes	74	82	89	92	93	93	89	91	89	78	-12%
Capital Consumption	253	262	270	278	281	287	292	294	296	300	1%
Payments to Stockholders	533	651	709	704	706	696	721	769	749	769	3%
TOTAL EXPENSES	**2,287**	**2,696**	**2,854**	**2,953**	**3,057**	**3,003**	**3,001**	**3,156**	**3,180**	**3,160**	**-1%**
NET FARM INCOME	**1,113**	**673**	**728**	**928**	**683**	**910**	**956**	**908**	**1,147**	**1,278**	**11%**

SOURCES:
1993-2001: Economic Research Service/USDA
2002: Forecasted by G. Taylor and B. Eborn, University of Idaho

Table 3. Idaho Net Farm Income, 2002 Forecast

	Value of crop production	**2,149,449**
	Barley	152,000
	Beans	46,000
	Greenhouse/Nursery	81,000
	Hay	277,000
	Onions	42,000
	Potatoes	885,000
	Sugar Beets	225,000
	Wheat	329,000
	Other Crops	177,000
	Home consumption	1,499
	Value of inventory adjustment 2/	(66,050)
	Value of livestock production	**1,871,967**
	Cattle and Calves	790,000
	Milk	923,000
	Other Livestock	102,000
	Home consumption	6,219
	Value of inventory adjustment 2/	50,748
	Revenues from services and forestry	**315,544**
	Machine hire and customwork	48,463
	Forest products sold	589
	Other farm income	103,987
	Gross imputed rental value of farm dwellings	162,505
	Value of agricultural sector production	**4,336,960**
less:	**Purchased inputs**	**2,000,322**
	Farm origin	**722,189**
	Feed purchased	391,770
	Livestock and poultry purchased	209,007
	Seed purchased	121,412
	Manufactured inputs	**539,849**
	Fertilizers and lime	194,795
	Pesticides	127,862
	Petroleum fuel and oils	117,737
	Electricity	99,456
	Other purchased inputs	**738,283**
	Repair and maintenance of capital items	147,112
	Machine hire and customwork	88,233
	Marketing, storage, and transportation expenses	92,401
	Contract labor	29,641
	Miscellaneous expenses	380,896
plus:	**Net government transactions**	**10,424**
+	**Direct Government payments**	**101,000**
-	**Motor vehicle registration and licensing fees**	**12,413**
-	**Property taxes**	**78,163**
	Gross value added	**2,347,062**
less:	**Capital consumption**	**299,977**
	Net value added	**2,047,085**
less:	**Payments to stakeholders**	**769,046**
	Employee compensation (total hired labor)	366,709
	Net rent received by nonoperator landlords	200,898
	Real estate and nonreal estate interest	201,438
	Net farm income	**1,278,040**

Figure 1. 2002 Idaho Cash Receipts

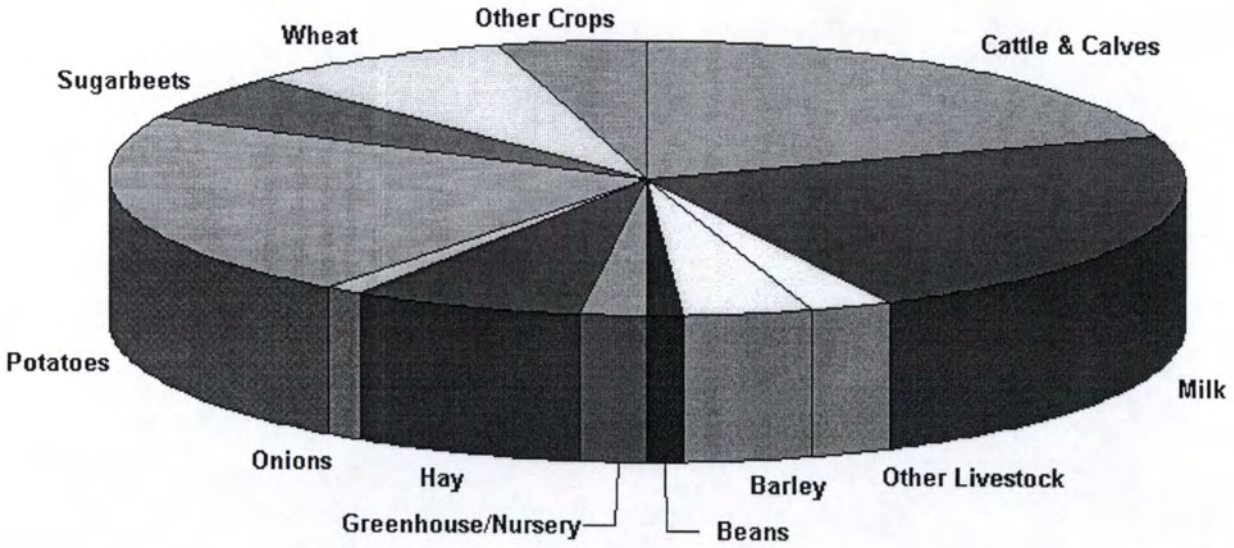

Figure 2. 2002 Idaho Cash Receipts

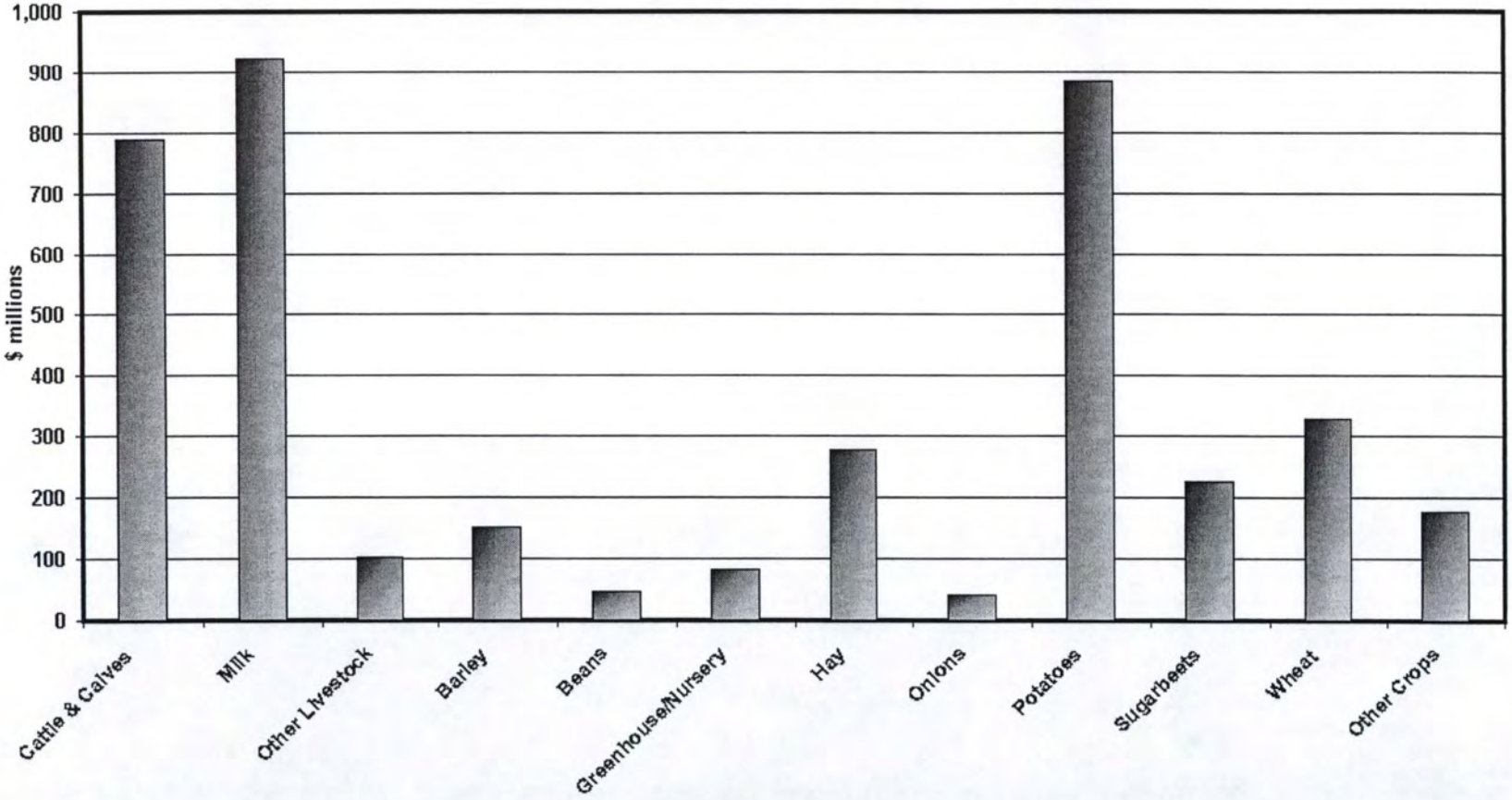

Figure 3. Idaho Farm Cash Receipts

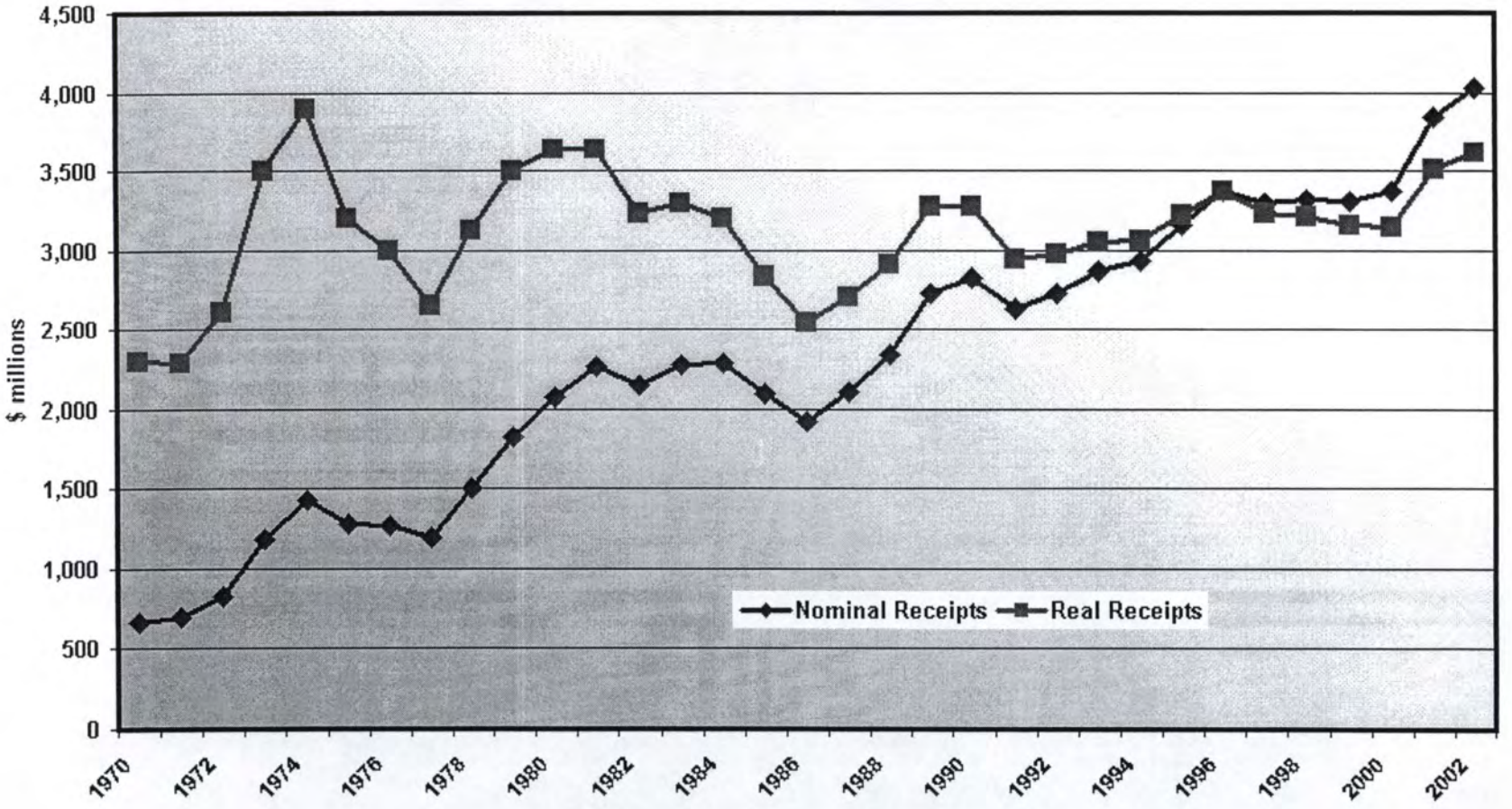

Figure 4. Livestock & Crop Cash Receipts

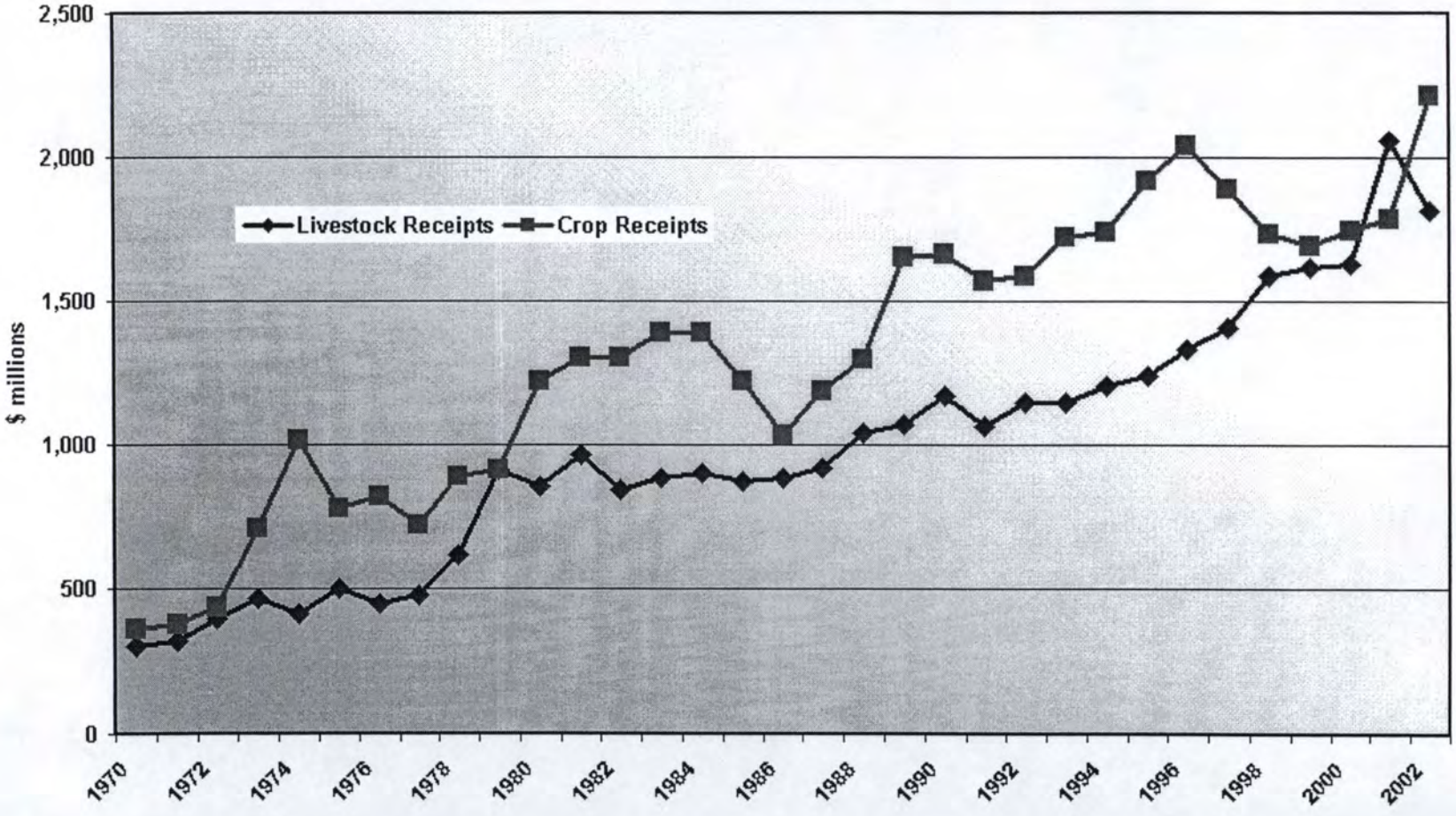

Figure 5. Milk & Potato Cash Receipts

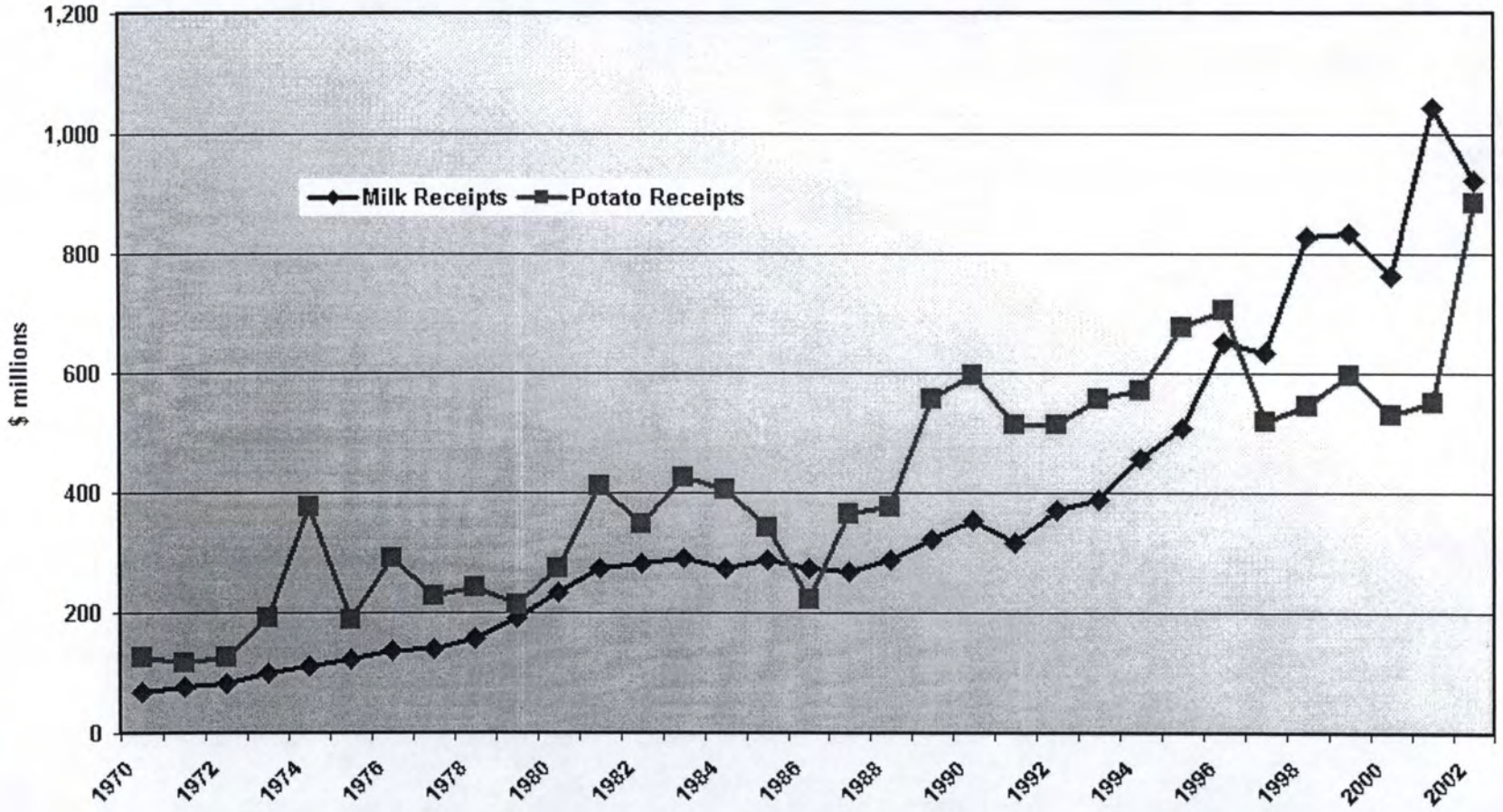

Figure 6. Idaho Government Payments, FY 2002

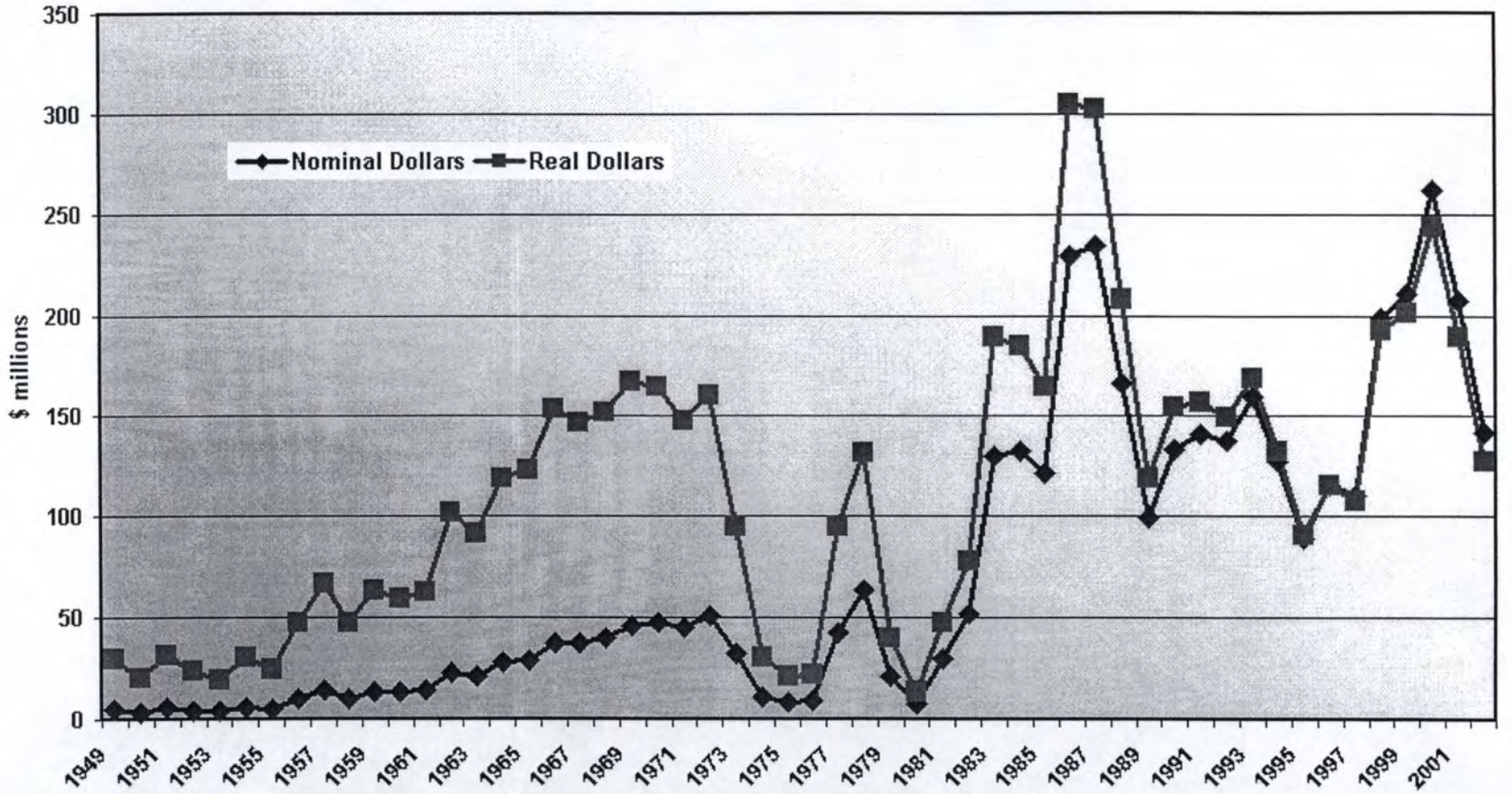

Figure 7. Idaho Government Payments, FY 2001
$292.7 million

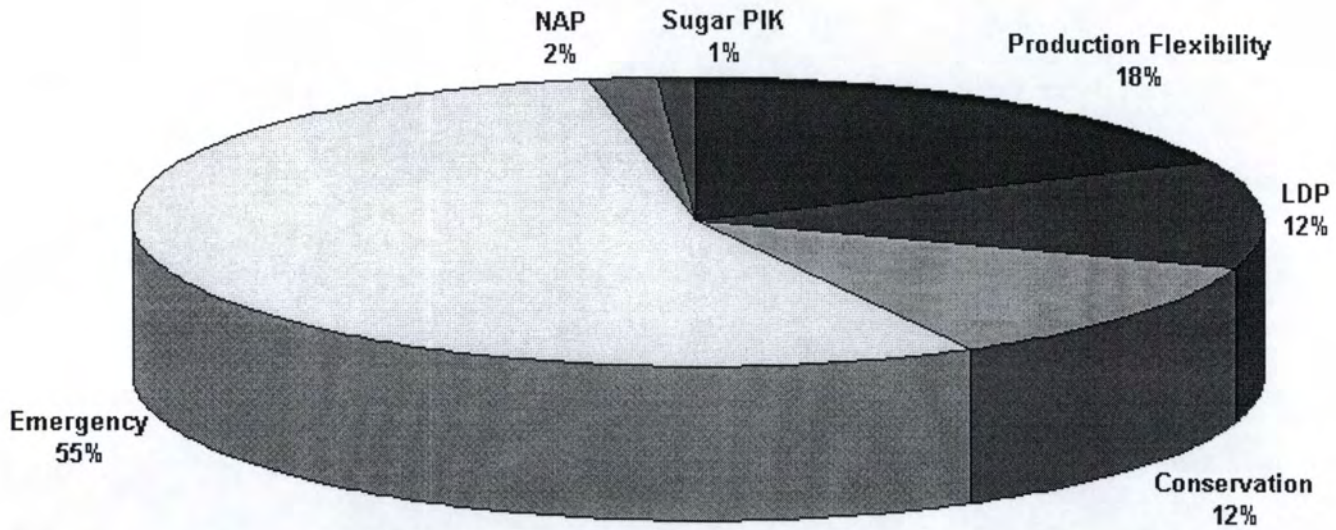

Figure 8. Idaho Government Payments, FY 2002
$141.7 million

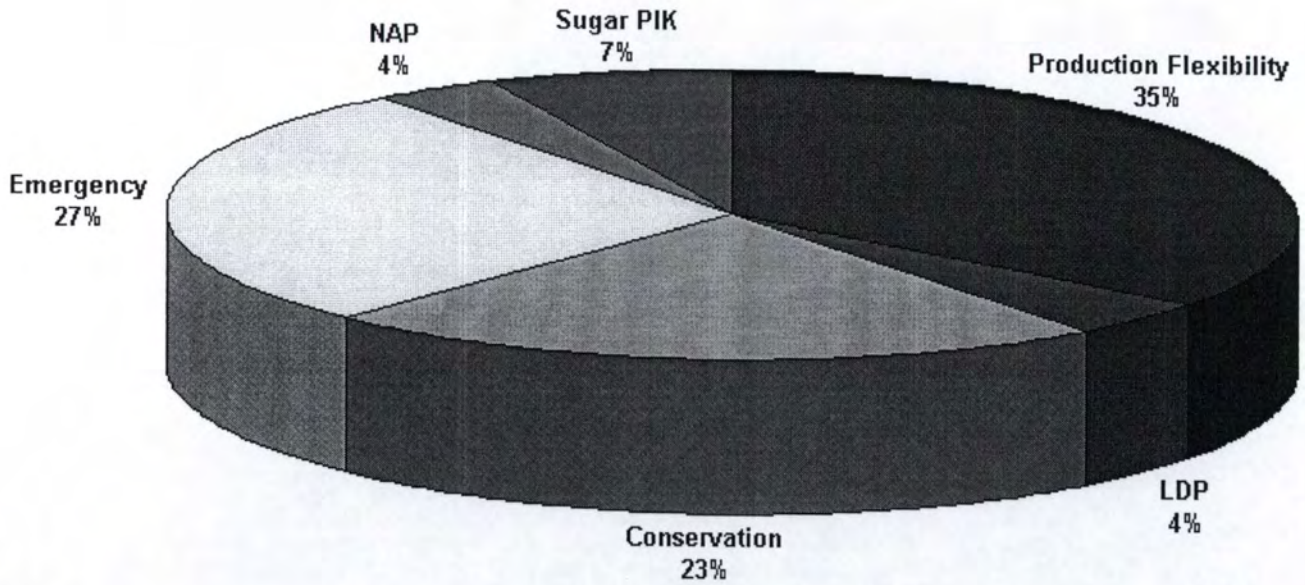

Figure 9. Idaho Net Farm Income

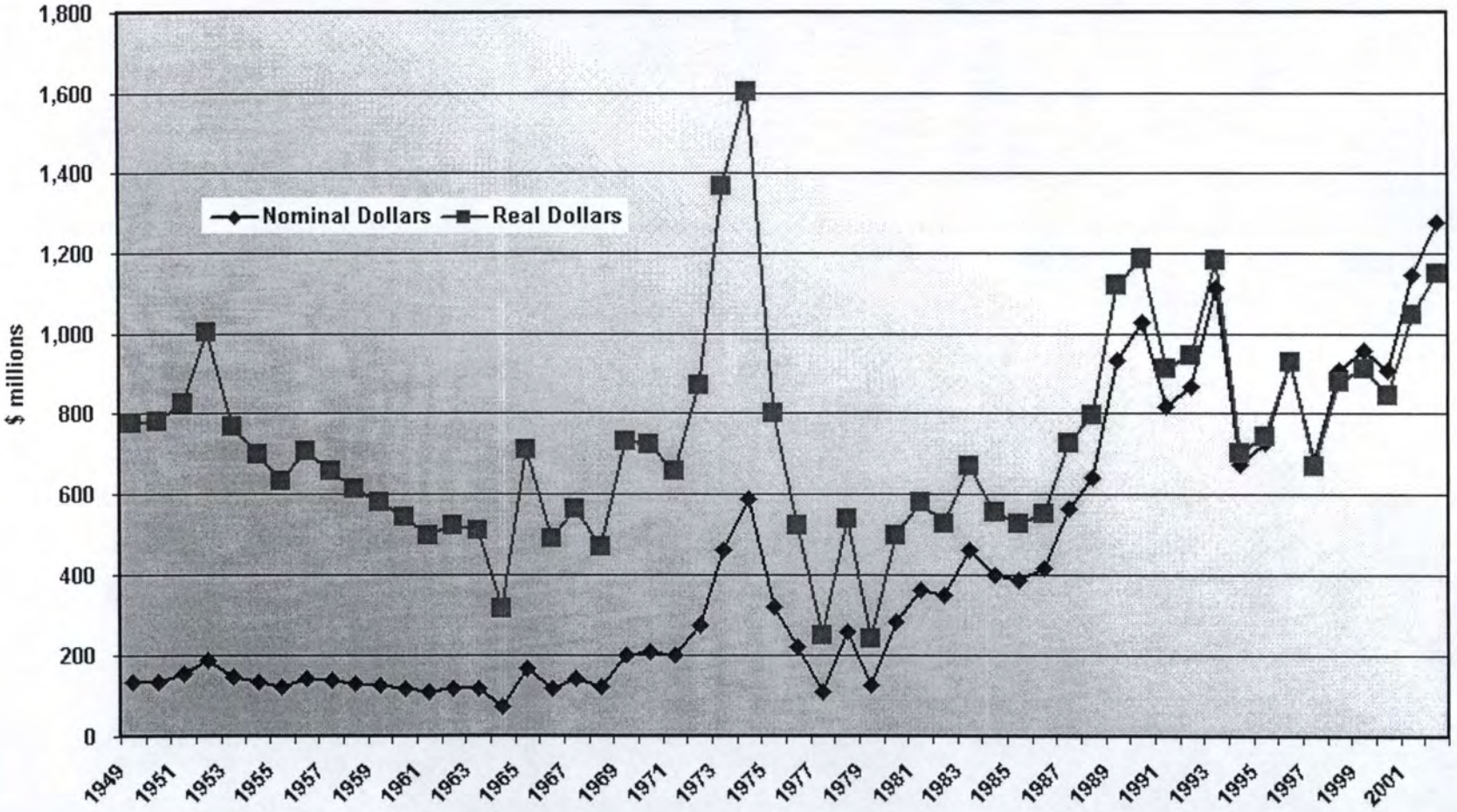

Figure 10. Government Payments as a % of Net Farm Income