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The Economic Impacts of the CRP on Rural Economies

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ABSTRACT

The Economic Impacts of the CRP on Rural Economies.

The impacts of the CRP on 5 industrial sectors were investigated at national, regional, and local levels using an input/output model. The results indicate that the agricultural production sector is most affected, followed by the agricultural inputs sector. The incomes in the agricultural production sector and the agricultural inputs sectors in areas dependent on agricultural production were found to decline up to 7 times the national rate.

I. Economic Impacts of the CRP on Rural Economies

Introduction

The economic and employment links between agriculture and the industries supplying its inputs (upstream) and processing its output (downstream) determine how a change in the agricultural sector will affect the rest of the economy. While minor changes in farm programs (such as temporarily reducing commodity acreage or production to limit Government stock accumulation) have a limited long-term effect on employment and income in the rest of the economy, substantial changes in farm programs, such as the Conservation Reserve Program (CRP) affect the entire economy by forcing cutbacks in industries linked either directly or indirectly to agricultural production while inducing changes in household consumption industries (Harrington, Schluter and O'Brien, 1987).

The impacts of a substantial program like the CRP, while significant for the nation, are potentially even more important for farm dependent economies in the Mountain states since a relatively large proportion of the region's cropland base is eligible for and has been enrolled in the CRP. This paper illustrates the importance of measuring the distributional impacts of national programs. Emphasis is placed on comparing the economic impacts of the program on farm dependent areas, states and regions. Specific examples are drawn from areas within the Mountain Region[1] that have a high proportion of their cropland acreage enrolled in the CRP.

Agriculture and the United States Economy

The importance of agriculture in the U.S. economy is indicated by the total economic activity generated as a result of agricultural production, consumption, and trade. These activities account for approximately 18 percent of the U.S. Gross National Product and 21 million jobs. Crop and livestock production activities accounted for only 2 percent of the Gross National Product (GNP) and 2.7 million jobs in 1984. The upstream activities associated with the production of agricultural commodities (purchases of equipment, supplies, feed, seed, fertilizer, labor, and financing) accounted for an additional 2 percent of GNP and 2 million jobs. The remaining 14 percent of GNP and 16.6 million jobs generated by agriculture is attributable to the downstream activities (transport, storage, processing, manufacture, distribution, and sale of agricultural products). These statistics indicate that federal agricultural or resource policy, while directly affecting agriculture and therefore only 2 percent of the nation's economy, can affect approximately another 19 million jobs and 18 percent of GNP.

The size of the potential economic impacts of federal agricultural policy increases as the importance of agriculture in the area considered increases. Many regions, states and counties are more dependent on agriculture than the U.S. as the basis of their economy. Employment and income in approximately one-third of all U.S. counties is largely the result of agricultural production and the associated upstream and downstream activities. (See Figure 1 for a map of the farm dependent counties in the U.S.)[2]. The remaining economic activity in these areas is generated by farmers and the workers in the upstream and downstream industries, who spend their incomes for food, durable and non-durable goods, recreation, and private and public services.

Additional employment and income is generated from the production of these goods and services. Individuals providing these goods and services in turn spend their incomes for goods and services generating additional employment in the local economy, ad infinitum.

Recent data confirms the extensive dependence of some counties on agriculture. For example, in 1984, Colorado crop and livestock production activities accounted for only approximately 2 percent of the state's total income (Miller et al, 1987, p 9). This is comparable to the contribution of the same activities on a national scale to GNP. But in the 15 farm dependent counties in Colorado, crop and livestock activities alone accounted for 51 percent of the counties' total income, and the entire food system, 54 percent. In a second group of 10 "farm important" counties, agribusiness contributed 23 percent to total income, and 27 percent contributed by the food system.

In terms of employment, this dependency becomes even more pronounced. The 15 farm dependent counties derived 69 percent of total employment from the food system, and the farm important counties derived 45 percent (Miller et al, 1987, p 11). Data from 1975-79 for Montana indicates a large number of counties in a similar farm dependent situation (Petrulis et al, 1987, p 10). Clearly, the farm dependent and important counties in both states will be significantly affected by any farm policy like the CRP that displaces a considerable portion of crop production and farmer incomes.

The Conservation Reserve Program (CRP) and Farm Dependent Communities

The CRP is a ten year Federal acreage reduction program that will ultimately remove approximately 45 million acres of fragile cropland from agricultural production. The primary goal of the program is to reduce soil erosion on highly erodible agricultural land, however, the program will also

reduce the production of surplus agricultural commodities that are eligible for Federal commodity program payments and benefits. The CRP involves a ten-year agreement between the Federal government and a farmer/landowner. To enter the program a farmer agrees to place the land removed from production into an approved conservation practice for ten years. The government in turn, agrees to pay the farmer an annual rental payment and half the cost of the conservation practice's establishment. The program began in 1986, and by July 1987 approximately 23 million acres had been enrolled.

The enrolled acreage consists of only a small portion of total U.S. cropland,[3] but 80 percent of the land is concentrated in only 25 percent of the participating counties. As shown in Figure 2, the counties with high rates of participation tend to be concentrated in specific regions of the country. The majority of these counties are located in the Mountain and Southern Plains regions, with the greatest concentration of counties with high levels of enrollment occurring in the high plains areas in Texas, New Mexico, Oklahoma, Kansas, Colorado and Montana. Enrollment is highly concentrated because of the large quantity of eligible cropland in certain counties where annual CRP rental payments greatly exceeded the opportunity cost of the land.

Figure 2 indicates the extent of this concentration of enrollment. The impacts that the program will have on those areas of the Mountain and Plains states with high levels of enrollments will depend upon the actual level of CRP participation, the level of crop production control achieved, the expenditures generated by the rental and establishment cost-share payments, and the local economy's ability to adapt to changes in the local expenditure patterns.

Before presenting the estimates of the economic impacts of the CRP, the methods used to estimate the regional and local CRP acreage and model the

local economies will be described. The impacts of the CRP on rural economies are highlighted by comparing the impacts of the program on the nation as a whole to those for ten regions of the country including the Mountain region, and three areas within the Mountain region: the state of Montana, Northeastern Montana (production area 48) and Southeastern Colorado (production area 62).

B. Methods

The distribution of the 23 million acres currently enrolled in the CRP was determined by aggregating individual observations from the Agricultural Stabilization and Conservation Service records at the county, farm production region, and national levels. Participation in the program was determined by crop for each geographic region studied. The distribution of the participation for a full enrollment of 45 million acres was estimated at a county level by using the trends in program enrollment. County enrollments for the 45 million acre program were constrained by the 1985 Food Security Act requirement limiting a county's enrollment to 25 percent of its total cropland. Total enrollments in a region or county were also constrained by the number of eligible acres in the area.

To determine the effects of the CRP on local economies, the impacts must be traced from the reduction in crop production (direct impacts) through the reduction in the associated agricultural input and processing industries (indirect impacts), to the goods and services industries providing support to these agricultural industries (induced impacts). The USDA Forest Service has developed a computer-based system, IMPLAN, which utilizes input-output analysis procedures capable of estimating the inter-industry economic impacts.

The IMPLAN model data base contains a national technology matrix of

industrial production functions (Alward and Palmer, 1983). These production functions describe the purchase and sales patterns between industries through the use of gross output, final demand and final payment measures for each of the industries. The data base collapses the total U.S. economy into 528 industrial sectors.

IMPLAN also contains county-level estimates of gross transactions for ten components of consumption, investment and trade demand, four value added components, employment and total industry output. IMPLAN uses these estimates in conjunction with the national technology matrix of production functions to create county-level I/O models, or models of any desired aggregation of counties (including sub-state, state, and regional models). This method was used to create models for the areas analyzed in this study.

Before the impacts of enrolling highly erodible cropland in the CRP in these areas can be estimated, the CRP rental payments and changes in cropland use for these areas must be converted into changes in the final demand for feed grains, food grains, cotton, oil-bearing crops, hay, pasture and forestry establishment and household consumption activities. Each areas' final demand changes are then imposed upon their respective IMPLAN model. The shocks caused by these changes in final demand will result in changes in the total gross output (TGO), employment and incomes in all sectors of the economy.

Three separate stages of CRP final demand shocks reflecting changes in the program requirements over time are imposed on the models. The first stage imposes the final demand changes associated with the 23 million acres enrolled as of July, 1987, where establishment activities are taking place and rental payments are being received. The second reflects the impacts of the CRP after all establishment activities have ended, and rental payments are received for

the 45 million acres that have been enrolled nationally.

The third stage, the post-CRP period, contains two separate economic shocks. The shocks are modeled separately to highlight the effects of the rental payments relative to the cropland acreage removed from production. One shock occurring in the third stage comes from the ending of rental payments. The results of this shock are presented to emphasize just how important this acreage is to the local economy, particularly without the supplemental rental payments. The second shock modeled reflects what will happen in the local economies after the CRP has ended if one-half of the CRP grassland were used for commercial hay and pasture production. (Table 1 summarizes these stages of demand shocks).

C. Results

National Impacts of the CRP

In all three stages of final demand shocks described above, economic activity is reduced by the CRP. Total income, total gross output, and employment decrease nationally in all sectors (See Tables 2a-2f)[4]. The reduction in economic activity due to decreases in agricultural production (Table 2a) and the related decrease in the use of agricultural inputs (Table 2b) are somewhat offset by the temporary infusion of rental payments.

In stage 1, agricultural production total gross output, total income and employment decrease as cropland is retired from production, rental payments are made to participants, and cover crops are established (see Table 2a). In the next stage, economic activity declines in all sectors. The agricultural input sector declines more rapidly in the second stage than the other sectors

because the expenditures for cover establishment which stimulate the sector were completed in the first stage. As would be expected, the reduction in economic activity that results from the ending of the rental payments in stage 3 is the largest of the shocks. The economic activity that results from returning some of the CRP land to production increases income in all sectors (Figures 3, 4, and 6).

The agricultural production sector is the most affected by the CRP (Figure 3). Reductions in total gross output and income are approximately 3.4 percent nationally in the second stage. Some increase in economic activity can be expected after the contracts expire and the retired land goes into haying and grazing, but the level of activity will not recover to pre-program levels.

The reduction in cropland use decreases total income and total gross output in the agricultural input sector (Figure 3). This reduction occurs both during the program and after the rental payments have ended. The establishment of the cover crop mitigates the negative economic impact in the first stage, but over the remainder of the program economic activity and income in the input sector fall to a lower level.

Income and total gross output in the agricultural processing sector decreases nationally, although these decreases are marginal (Figure 3). The percentage changes in the processing sector are small in comparison to other agricultural sectors because the processing sector responds strongly to increases in household income. The increased household consumption expenditures serves to offset the negative effect of the decreased economic activity associated with a reduction in crop acreage.

The CRP will have a minor impact on the economic activity in the

household and other sectors. Total income, total gross output, and employment fall by one tenth of one percent in the household sector, and by even less in the other sectors of the economy (Figure 3).

Local and Regional Impacts of the CRP

The greatest impacts are found in regions with a large number of farm dependent counties and high rates of enrollment in the CRP. Larger impacts are observed in the Northern Plains, Southern Plains, and Mountain States due to high enrollment rates (44% of the eligible land), while in the Lake and Corn Belt states the economic effects are explained by the higher productivity of the land enrolled.

The CRP reduces activity in the agricultural production sector in all regions. The effects on the agricultural production sector will be greatest in the Northern and Southern Plains, Mountain and Lake States, and Corn Belt. When smaller, more agriculturally dependent areas are examined the CRP has an even greater effect on agricultural activity. Reductions in agricultural production income reach 2.5 percent in the Mountain Region, 4.6 percent in Montana, 7.2 percent in Southeastern Colorado, and 10.4 percent in Northeastern Montana in stage 1. These decreases nearly double with the 45 million acre CRP in stage 2 (Figure 4).

Employment in the agricultural production sector decreases both during and after the CRP. While the CRP contracts are in effect in stage 2, the decreases in employment range from 0.0 percent in the Northeast to 3.5 percent in the Mountain Region, 11.3 percent in Montana, 5.9 percent in SE Colorado, and 21.4 percent in Northeastern Montana (Table 2a). The impact of the CRP on employment in the agricultural production sector can be expected to diminish

after the land retired from crop production goes into haying and grazing.

The regional and local effects on the agricultural input sector have a pattern similar to the production sector (Table 2b and Figure 6). The same areas feel the greatest impact. As was noted for the nation, the negative effects of removing the CRP land from crop production on the input sector are mitigated during the first stage of the CRP because agricultural inputs are needed for the establishment of a cover crop (Figure 6). In stage 2, after the cover crop has been established, the sector's TGO in the Mountain States decrease approximately 3.1 percent. In agriculturally dependent, rural areas such as Montana, Northeastern Montana, and Southeastern Colorado the effects of the CRP on the input sector are magnified. Stage 2 TGO in the input sector for these areas decrease 8.2, 15.8, and 2.4 percent (Figure 6).

Generally, the effect of the CRP on the household and other economic sectors at a regional level are small in percentage terms (Tables 2e-2d). The results tend to indicate slightly reduced levels of income, total gross output, and employment. When the ratio of the annual rental payment to the cash rent for land is high then household income can actually increase. For example in Montana and Northeastern Montana the payment/ cash rent ratio is 1.6, and activity in the household expenditure sector increases during the period when payments are being received.

The existence of alternative economic opportunities in an area affects the impact of the CRP on a region's economy. The total economic impact of the CRP on Southeastern Colorado, which includes two metropolitan areas and has a large military influence, is much smaller than for Montana and Northeastern Montana (Table 2f and Figure 7). This smaller impact is in spite of the fact that Southern Colorado has a significant proportion of its cropland acres

enrolled in the CRP.

When the number of acres enrolled in a local area increase as the CRP approaches 45 million acres nationally, the shock in final demand sharply accelerates the economic decline in regions such as Montana, while barely affecting other regions, such as Southeastern Colorado (Figure 7). The difference between these two areas is because Southeastern Colorado, as of 1987, had already nearly reached the maximum enrollment permitted by the Food Security Act. Montana, on the other hand, has a substantial amount of cropland that can still enter the CRP.

The results suggest that the CRP will have little impact on the agricultural processing sector during the period when rental payments are made (Table 2c). This is somewhat unexpected because the reduced agricultural output must also lower the grain handling and marketing activities in these regions. But the agricultural processing sector in these models includes all of the high-value processing activities in addition to those of the grain handlers (see footnote 4). The rental payments are essentially ordinary disposable income, which is used by farmers to purchase a bundle of goods that includes a large component of these high-valued processed agricultural goods. As a result, the economic activity in agricultural processing sector can increase as rental payments and disposable farmer incomes increase, even when planted crop acreage is reduced.

D. Assumptions

The analysis presented above relies on strong assumptions that define the source of the rental payments, the pattern of household consumption, the movement of resources between sectors, and the effects of inter-regional trade. This section discusses these assumptions and the impacts that they have on the results.

The CRP rental payments are transfer payments from taxpayers to program participants and will have economic impacts through changes in both farmer and taxpayer disposable incomes. For this analysis the rental payments are not treated as transfers but are assumed to enter the economy exogenously. The results therefore do not reflect the reduction in income and therefore economic activity that will result from the taxation that makes the CRP possible, and overstate the positive impacts of the rental payments at both the national and regional level. The impacts of ignoring taxation are further complicated by the redistribution of wealth from region to region. Some regions with large populations, large incomes and relatively small levels of CRP participation may pay more in taxes than they receive in CRP payments, thereby experiencing a net decline in disposable income as a result.

The analysis also assumes that the rental payments are made to persons living in the same areas as where the land is retired. In some communities a proportion of the participants in the CRP are nonresident landowners or leave the area after retiring their cropland. As a result, the CRP rental payments made to these participants do not contribute to economic activity in the community. By assuming that 100 percent of the payments are made to residents, the positive effects of the payments on local economic activity are probably overstated.

Household consumption expenditures fueled by the receipt of CRP rental payments were assumed to be a constant portion of income. These assumed expenditures are consistent with the historical expenditure patterns of residents earning an average income for the region. Because there is no data available on the income levels of CRP participants or participants' spending patterns, the assumption of average incomes and constant expenditure patterns is a reasonable first approximation. If, as additional information is obtained, the incomes of recipients of CRP rental payments are found to differ from the regional average, or the assumed spending patterns deviate from historical patterns, the impacts of the CRP will have to be re-estimated. The household expenditures sector would be most affected by any adjustment in the assumptions, but the changes would be felt in all sectors.

The analysis assumes that the local economies are able to instantly reallocate available resources between the agricultural and non-agricultural sectors. In reality, the movement of land, labor, and capital between the different sectors will require an adjustment period, as individuals are trained, land exchanged, and capital reallocated. Much of this adjustment can be expected to take place over a period of years. The results presented here are abstractions that portray the changes as occurring immediately. This does not permit the display of the intermediate adjustments that occur during transition period, but identifies the cumulative effects of the changes in land use.

A regional model estimates the effects of CRP participation from only that region, the assumption being that there is no inter-regional trade. The effects on one region of the reduction in crop acreage in adjoining regions are therefore not included in this analysis. For example, the farm implement

manufacturers in the Corn Belt produce equipment for sale throughout the country, and the removal of national acreage from crop production has to reduce these manufacturers' national sales and their manufacturing activity. By ignoring the acreage reductions in other regions, the model underestimates the CRP impacts on these farm implement manufacturers, and therefore the impacts on the Corn Belt's total economic activity.

E. Summary

Although rental payments are made to landowners for their retired cropland, implementation of the CRP reduces agricultural production enough to cause economic activity to decline. Total income, total gross output, and employment decrease nationally in all regions and sectors. The agricultural production and inputs sectors are most affected by the CRP. The household expenditure and other sectors are affected, but only marginally.

Increasing the number of acres enrolled in the CRP from the 23 million currently enrolled to 45 million acres will double the decline in national economic activity, but will affect the local economies differently.

The decrease in economic activity in a region becomes more evident as the concentration of enrollment in the CRP and the dependence on agriculture increase. The Northern Plains, Southern Plains, and the Mountain States are the production regions that feel the largest effects of the program. Rural communities within these regions are affected to an even larger degree, with incomes in the agricultural production sector decreasing as much as six times the national figure.

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FOOTNOTES

1. The Mountain Region includes Arizona, Colorado, Idaho, Kansas, Montana, Nebraska, New Mexico, Nevada, North Dakota, Oklahoma, South Dakota, Texas, Utah, and Wyoming.

2. Farm dependent counties are those where farm related earnings make up 20 percent or more of the county income (Petrulis, et al., 1987)

3. The 1986 and 1987 enrollments for CRP have reduced the total acreage used for crop production by about 5 percent. This small impact is spread across most of the U.S. as some 75 percent of all U.S. counties have participated in the CRP and may show some reduction in economic activity.

4. For this study the results for the 528 industrial sectors used in IMPLAN have been aggregated into 6 sectors. The sectors are: 1) Agricultural Production, including all crop and livestock activities; 2) Agricultural Inputs, including farm machinery and chemical and fertilizer inputs; 3) Agricultural Processing, including not only the primary handlers of grains and livestock, but also all of the secondary handlers and manufactures of high-value products (i.e., breakfast foods, frozen dinners, and fruit and vegetable processed products); 4) Other, all non-agricultural manufacturing and services; 5) Household Expenditures, all of the activity associated with the expenditures of personal income; and 6) Total, the sum of all of the first 5 sectors.

TABLE 1: THE 3 STAGES OF THE CRP

Stage 1: 23 million acres with establishment activities.

- 23 million acres of cropland are diverted.
- Rental payments are made to farmers.
- Farm income and government funds are used to establish the cover crop.

The establishment stage reduces agricultural production through the retirement of cropland. The lower agricultural production reduces the use of agricultural inputs, causes a decrease in farm income, and has a small impact on agricultural processing. The establishment stage also is characterized by the establishment of cover crops on the retired cropland. This activity decreases the farm income available for household consumption, and increases the payments to labor and agricultural inputs (but not enough to offset the reduction caused by the land retirement). A rental payment is also received by farmers in this stage. The rental payment increases the income available for household consumption.

Stage 2: 45 million acres, no establishment activities

- 45 million acres diverted.
- Rental payments are made to farmers.

During this stage the retired cropland remains idled and farmers continue to receive rental payments. Household incomes will increase slightly because no income will be diverted for the establishment of the cover crops.

Stage 3: CRP contracts end, land can return to production.

- Rental payments end.
- Some cropland is assumed to remain out of production.

The full effect of the CRP is felt after the rental payments have ended. One-half of the CRP grassland is assumed to enter pasture and hay production. This production stimulates economic activity in livestock industry, inducing effects throughout the regional economy. The re-entry of pastureland into production is included as a separate shock to permit the identification of the effects of the rental payments and production on the local economies.

Tables 2a-f: Percent Changes in Economic Activity as a Result of the Conservation Reserve Program, By Sector and Total

Table 2a: Agricultural Production Sector

	NATION	MOUNTAIN STATES	MONTANA	NORTHEAST MONTANA	SOUTHEAST COLORADO
Total Gross Output					
1982 level (Mil $)	195890	14370	2228	396	672
			(percent change)		
23 MILLION ACRES	-1.49	-2.04	-3.71	-9.47	-3.89
45 MILLION ACRES	-2.95	-3.51	-10.28	-20.86	-4.32
POST-CRP, W/O PRODUCTION	-3.09	-3.60	-10.51	-21.01	-4.42
POST-CRP, W PRODUCTION	-2.69	-3.18	-8.84	-17.82	-3.97
Income					
1982 level (Mil $)	63837	3965	596	120	119
			(percent change)		
23 MILLION ACRES	-1.71	-2.43	-4.55	-10.41	-7.19
45 MILLION ACRES	-3.38	-4.20	-12.61	-22.93	-7.98
POST-CRP, W/O PRODUCTION	-3.51	-4.28	-12.79	-23.03	-8.09
POST-CRP, W PRODUCTION	-3.11	-3.77	-10.76	-19.56	-7.26
Employment					
1982 level (Mil $)	1781751	120219	17253	5557	8669
			(percent change)		
23 MILLION ACRES	-1.06	-2.00	-4.03	-9.71	-5.28
45 MILLION ACRES	-2.16	-3.54	-11.26	-21.40	-5.87
POST-CRP, W/O PRODUCTION	-2.30	-3.63	-11.47	-21.52	-5.99
POST-CRP, W PRODUCTION	-2.06	-3.37	-10.40	-19.76	-5.64

Table 2b: Agricultural Inputs Sector

	NATION	MOUNTAIN STATES	MONTANA	NORTHEAST MONTANA	SOUTHEAST COLORADO
Total Gross Output					
1982 level (Mil $)	26481	867	21	7	11
			(percent change)		
23 MILLION ACRES	-0.68	-0.57	-2.13	-7.11	-2.13
45 MILLION ACRES	-1.98	-3.11	-8.17	-15.71	-2.36
POST-CRP, W/O PRODUCTION	-2.25	-3.15	-8.31	-15.85	-2.40
POST-CRP, W PRODUCTION	-1.85	-2.68	-6.51	-12.74	-2.11
Income					
1982 level (Mil $)	8173	262	7	2	4
			(percent change)		
23 MILLION ACRES	-0.63	-0.50	-1.87	-6.82	-2.06
45 MILLION ACRES	-1.85	-2.94	-7.43	-15.12	-2.29
POST-CRP, W/O PRODUCTION	-2.21	-2.99	-7.56	-15.26	-2.32
POST-CRP, W PRODUCTION	-1.82	-2.54	-5.87	-12.21	-2.04
Employment					
1982 level (Mil $)	196600	5321	175	48	129
			(percent change)		
23 MILLION ACRES	-0.57	-0.54	-1.80	-6.32	-1.96
45 MILLION ACRES	-1.55	-2.72	-6.53	-13.98	-2.18
POST-CRP, W/O PRODUCTION	-1.98	-2.76	-6.64	-14.11	-2.21
POST-CRP, W PRODUCTION	-1.63	-2.35	-5.28	-11.49	-1.95

Tables 2a-f (cont.)

Table 2c: Agricultural Processing Sector

	NATION	MOUNTAIN STATES	MONTANA	NORTHEAST MONTANA	SOUTHEAST COLORADO
Total Gross Output					
1982 level (Mil $)	421144	16590	1699	36	541
			(percent change)		
23 MILLION ACRES	-0.02	0.01	0.08	0.35	0.05
45 MILLION ACRES	-0.02	0.07	0.27	1.23	0.06
POST-CRP, W/O PRODUCTION	-0.18	-0.11	-0.31	-2.65	-0.15
POST-CRP, W PRODUCTION	-0.16	-0.10	-0.27	-2.40	-0.14
Income					
1982 level (Mil $)	102739	3800	439	6	91
			(percent change)		
23 MILLION ACRES	-0.02	0.01	0.05	0.34	0.05
45 MILLION ACRES	-0.02	0.07	0.17	1.19	0.06
POST-CRP, W/O PRODUCTION	-0.18	-0.10	-0.23	-2.57	-0.14
POST-CRP, W PRODUCTION	-0.16	-0.09	-0.20	-2.33	-0.13
Employment					
1982 level (Mil $)	2996975	125800	15816	122	3474
			(percent change)		
23 MILLION ACRES	-0.02	0.01	0.04	0.44	0.05
45 MILLION ACRES	-0.03	0.06	0.15	1.50	0.05
POST-CRP, W/O PRODUCTION	-0.18	-0.10	-0.21	-3.02	-0.14
POST-CRP, W PRODUCTION	-0.15	-0.09	-0.18	-2.74	-0.13

Table 2d: Other Manufacturing and Services Sector

	NATION	MOUNTAIN STATES	MONTANA	NORTHEAST MONTANA	SOUTHEAST COLORADO
Total Gross Output					
1982 level (Mil $)	2630834	135512	7495	458	4137
			(percent change)		
23 MILLION ACRES	-0.03	-0.02	-0.11	-0.43	-0.01
45 MILLION ACRES	-0.07	-0.04	-0.35	-0.80	-0.01
POST-CRP, W/O PRODUCTION	-0.15	-0.12	-0.83	-2.08	-0.06
POST-CRP, W PRODUCTION	-0.13	-0.10	-0.70	-1.80	-0.06
Income					
1982 level (Mil $)	1237620	67796	3708	230	2483
			(percent change)		
23 MILLION ACRES	-0.03	-0.01	-0.05	-0.24	-0.01
45 MILLION ACRES	-0.06	-0.03	-0.16	-0.39	-0.01
POST-CRP, W/O PRODUCTION	-0.12	-0.09	-0.54	-1.55	-0.05
POST-CRP, W PRODUCTION	-0.10	-0.08	-0.46	-1.35	-0.05
Employment					
1982 level (Mil $)	43743782	2151850	129048	8178	107408
			(percent change)		
23 MILLION ACRES	-0.02	-0.01	-0.01	-0.12	-0.01
45 MILLION ACRES	-0.04	-0.01	-0.02	-0.17	-0.01
POST-CRP, W/O PRODUCTION	-0.09	-0.07	-0.38	-1.08	-0.04
POST-CRP, W PRODUCTION	-0.08	-0.06	-0.32	-0.94	-0.04

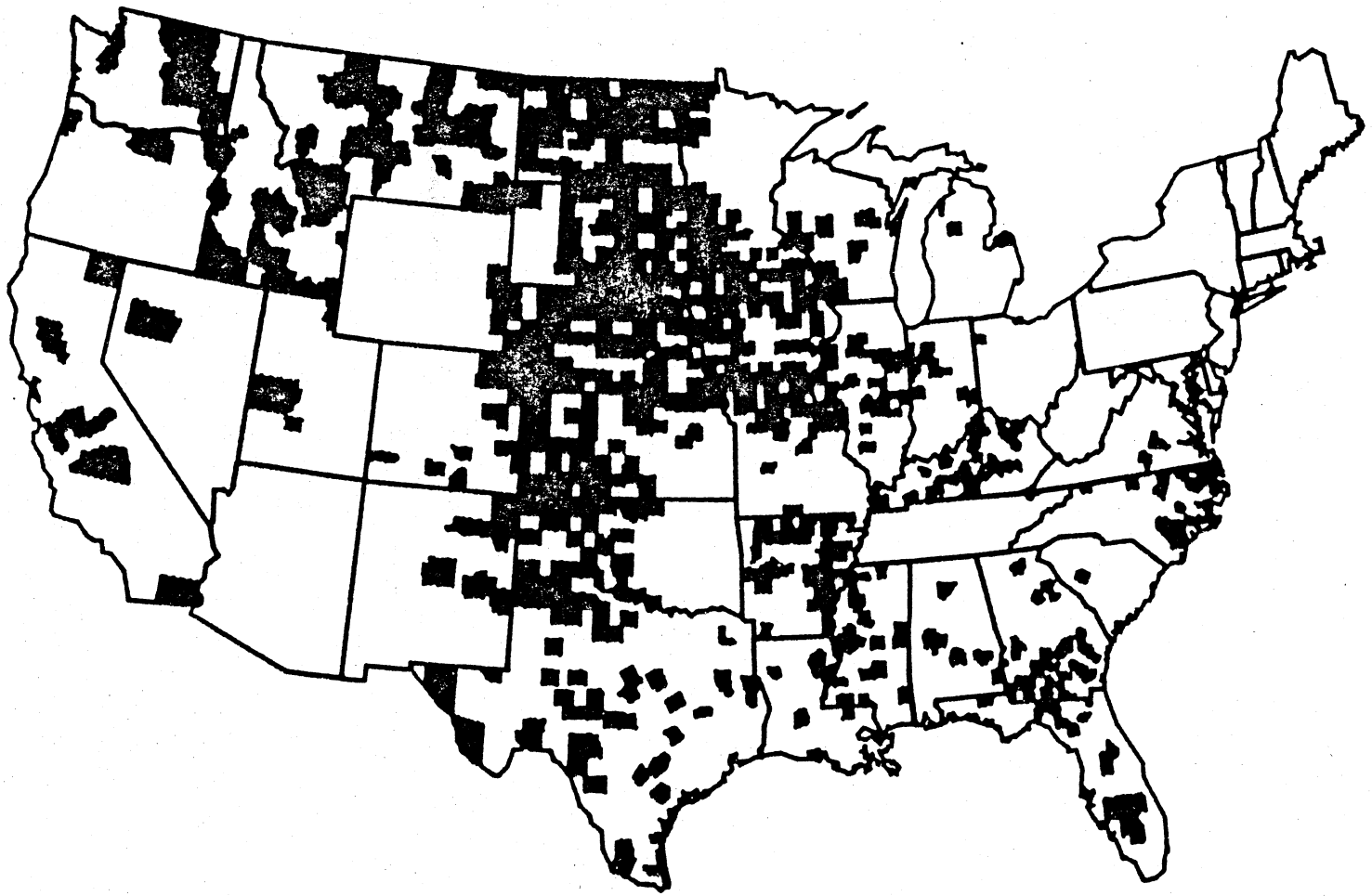
Tables 2a-f (cont.)

Table 2e: Household Expenditures Sector

	NATION	MOUNTAIN STATES	MONTANA	NORTHEAST MONTANA	SOUTHEAST COLORADO
Total Gross Output					
1982 level (Mil $)	2697925	140387	7087	371	4870
			(percent change)		
23 MILLION ACRES	-0.04	-0.00	0.15	0.44	0.02
45 MILLION ACRES	-0.06	0.02	0.51	2.08	0.03
POST-CRP, W/O PRODUCTION	-0.22	-0.25	-1.53	-7.38	-0.32
POST-CRP, W PRODUCTION	-0.19	-0.22	-1.31	-6.58	-0.30
Income					
1982 level (Mil $)	1408759	74779	3776	195	2537
			(percent change)		
23 MILLION ACRES	-0.04	-0.01	0.14	0.43	0.02
45 MILLION ACRES	-0.07	0.02	0.50	2.09	0.02
POST-CRP, W/O PRODUCTION	-0.23	-0.26	-1.59	-7.70	-0.35
POST-CRP, W PRODUCTION	-0.20	-0.23	-1.36	-6.88	-0.32
Employment					
1982 level (Mil $)	47896888	2571075	158090	8611	105083
			(percent change)		
23 MILLION ACRES	-0.03	0.01	0.21	0.98	0.07
45 MILLION ACRES	-0.05	0.06	0.70	3.34	0.09
POST-CRP, W/O PRODUCTION	-0.20	-0.22	-1.40	-6.71	-0.30
POST-CRP, W PRODUCTION	-0.17	-0.20	-1.20	-6.04	-0.28

Table 2f: Total

	NATION	MOUNTAIN STATES	MONTANA	NORTHEAST MONTANA	SOUTHEAST COLORADO
Total Gross Output					
1982 level (Mil $)	5972275	307727	18530	1268	10231
			(percent change)		
23 MILLION ACRES	-0.09	-0.10	-0.43	-3.01	-0.25
45 MILLION ACRES	-0.17	-0.18	-1.17	-6.24	-0.28
POST-CRP, W/O PRODUCTION	-0.29	-0.35	-2.22	-9.64	-0.48
POST-CRP, W PRODUCTION	-0.25	-0.31	-1.88	-8.28	-0.44
Income					
1982 level (Mil $)	2821128	150602	8526	553	5234
			(percent change)		
23 MILLION ACRES	-0.07	-0.07	-0.27	-2.23	-0.16
45 MILLION ACRES	-0.14	-0.12	-0.72	-4.45	-0.18
POST-CRP, W/O PRODUCTION	-0.26	-0.29	-1.85	-8.45	-0.38
POST-CRP, W PRODUCTION	-0.22	-0.26	-1.57	-7.30	-0.35
Employment					
1982 level (Mil $)	96615995	4974265	320382	22515	224764
			(percent change)		
23 MILLION ACRES	-0.05	-0.05	-0.12	-2.08	-0.17
45 MILLION ACRES	-0.08	-0.06	-0.27	-4.09	-0.19
POST-CRP, W/O PRODUCTION	-0.20	-0.24	-1.48	-8.32	-0.39
POST-CRP, W PRODUCTION	-0.17	-0.21	-1.29	-7.57	-0.37



From: Petrulis et al, 1988; and Sommer, 1988

Figure 1: The nonmetropolitan counties in the U.S. that are farm dependent, 1975-79

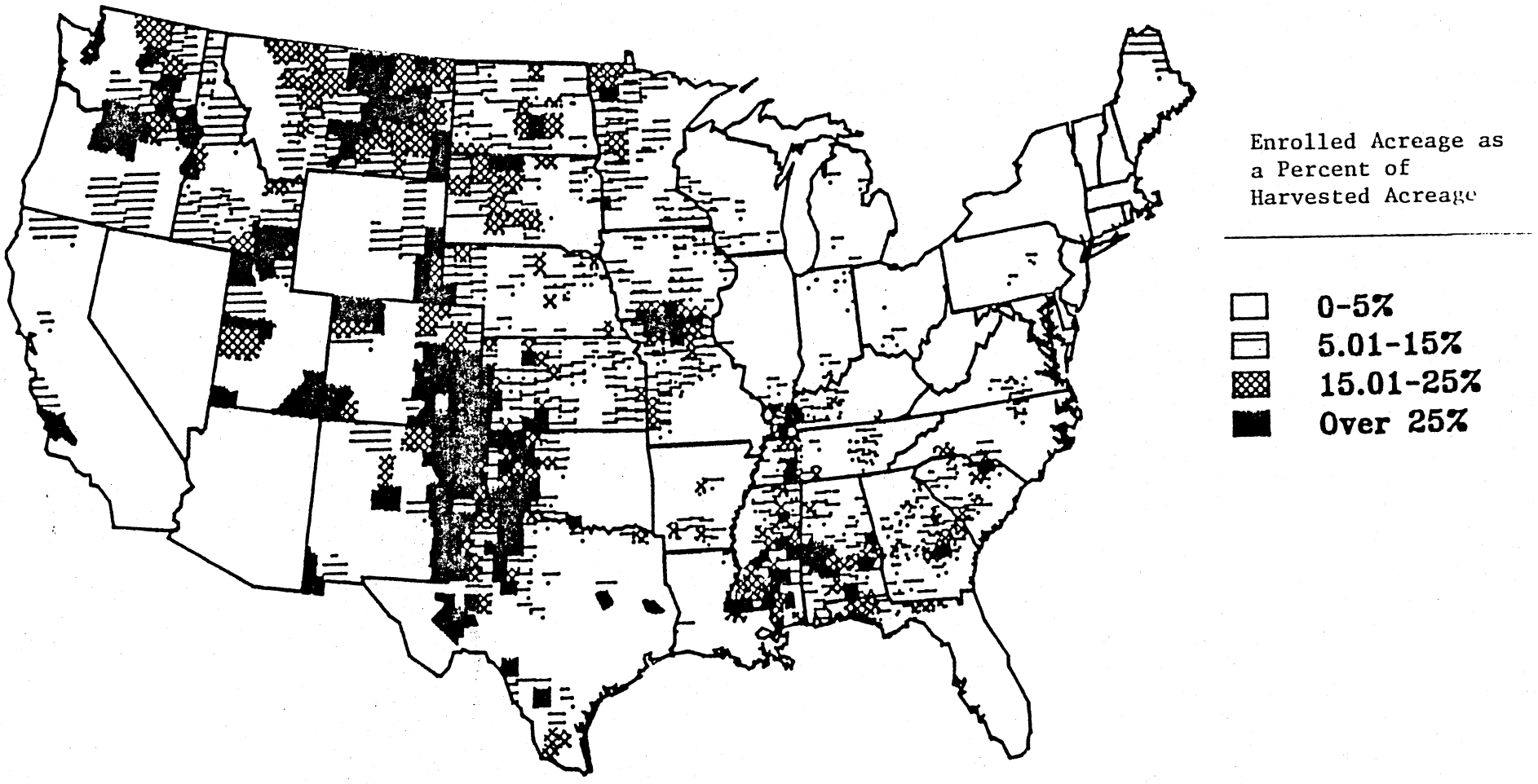


Figure 2: Conservation Reserve Program enrolled acreage, county level, as a percent of harvested acres, 1986-87

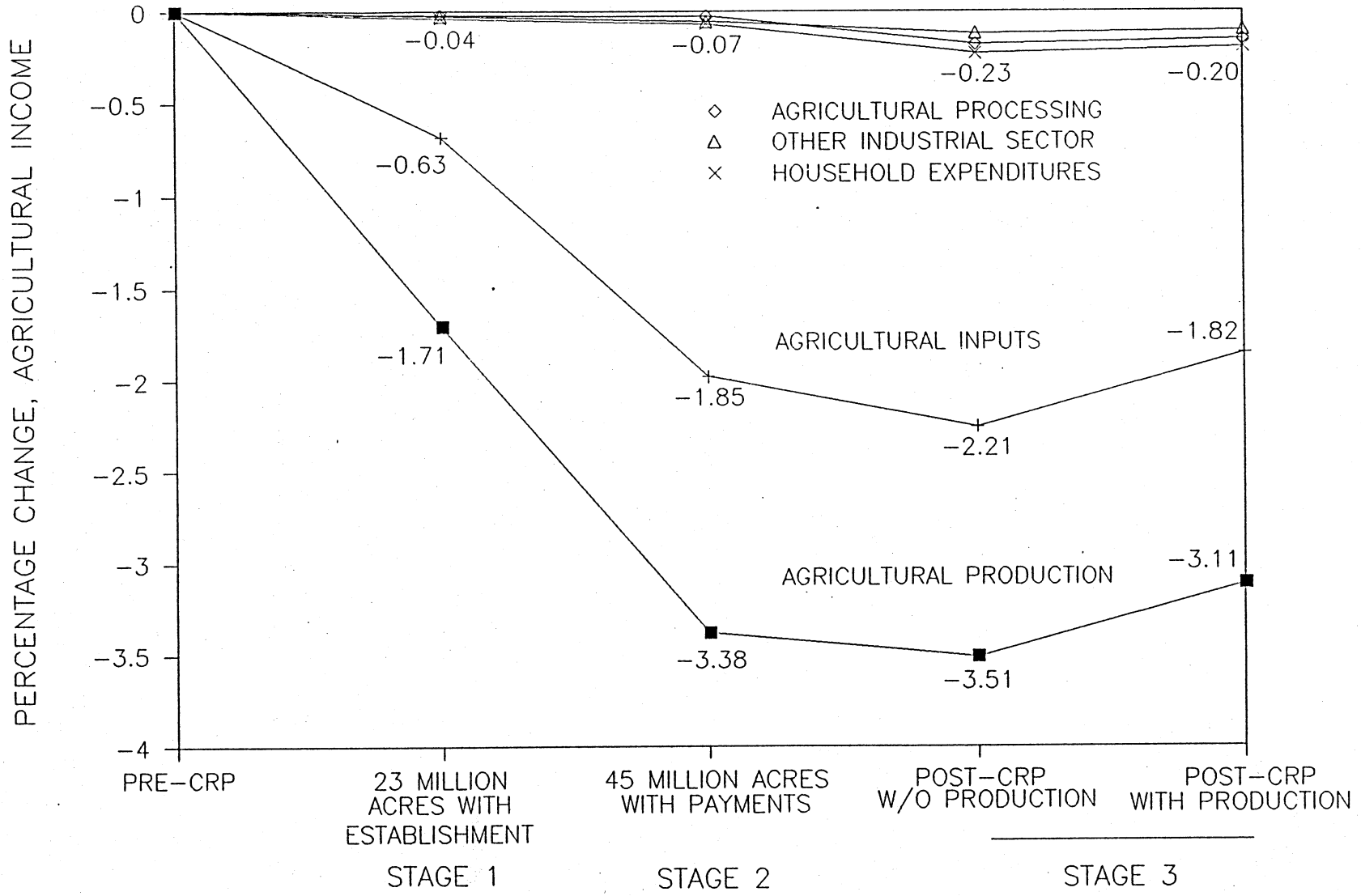


FIGURE 3: CHANGE IN NATIONAL INCOME BY ECONOMIC SECTOR: AGRICULTURAL PRODUCTION, AGRICULTURAL INPUTS, AGRICULTURAL PROCESSING, OTHER, AND HOUSEHOLD SECTORS

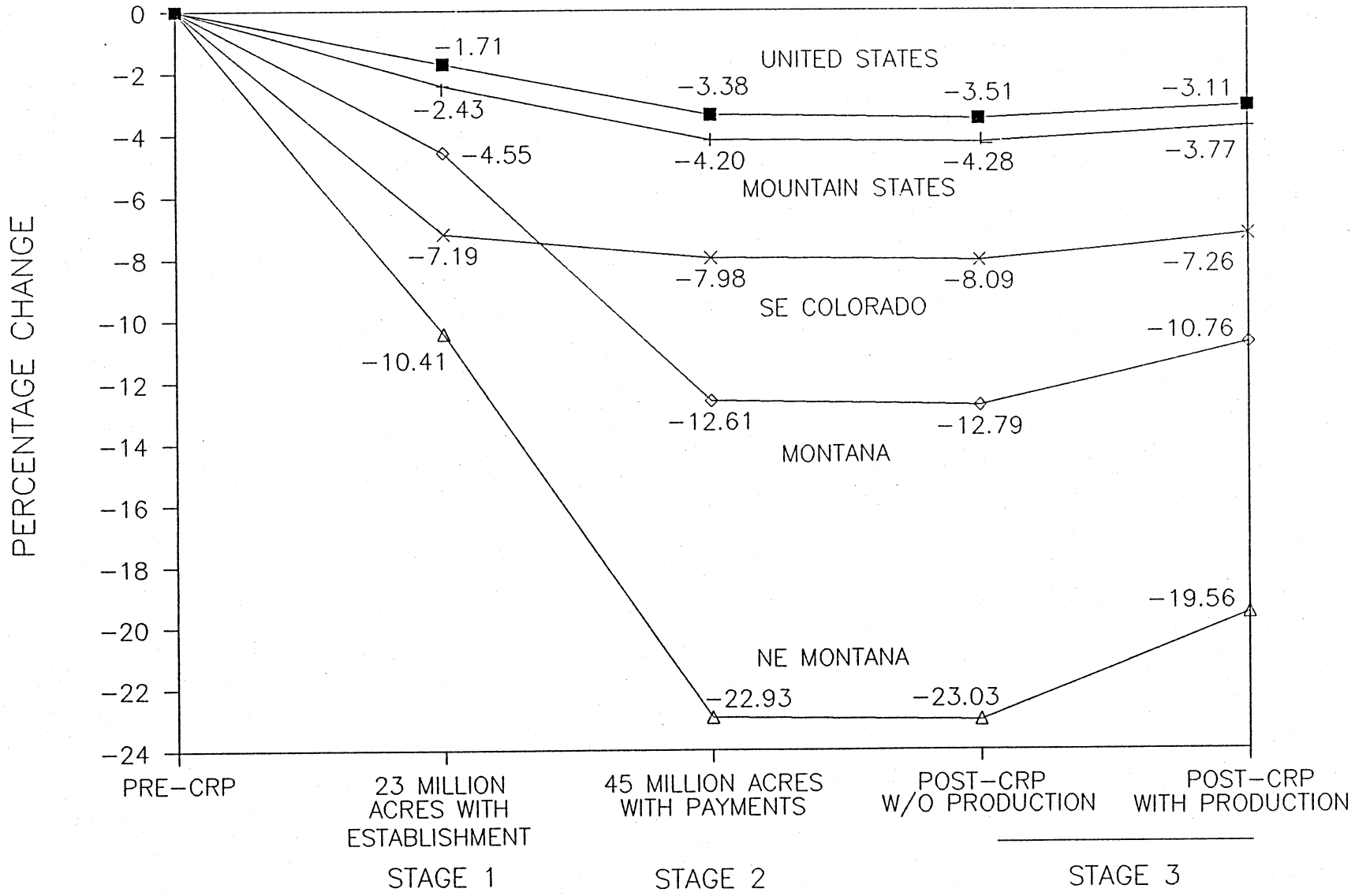


FIGURE 4: CHANGE IN AGRICULTURAL PRODUCTION INCOME: UNITED STATES, MOUNTAIN STATES, MONTANA, NE MONTANA, AND SE COLORADO

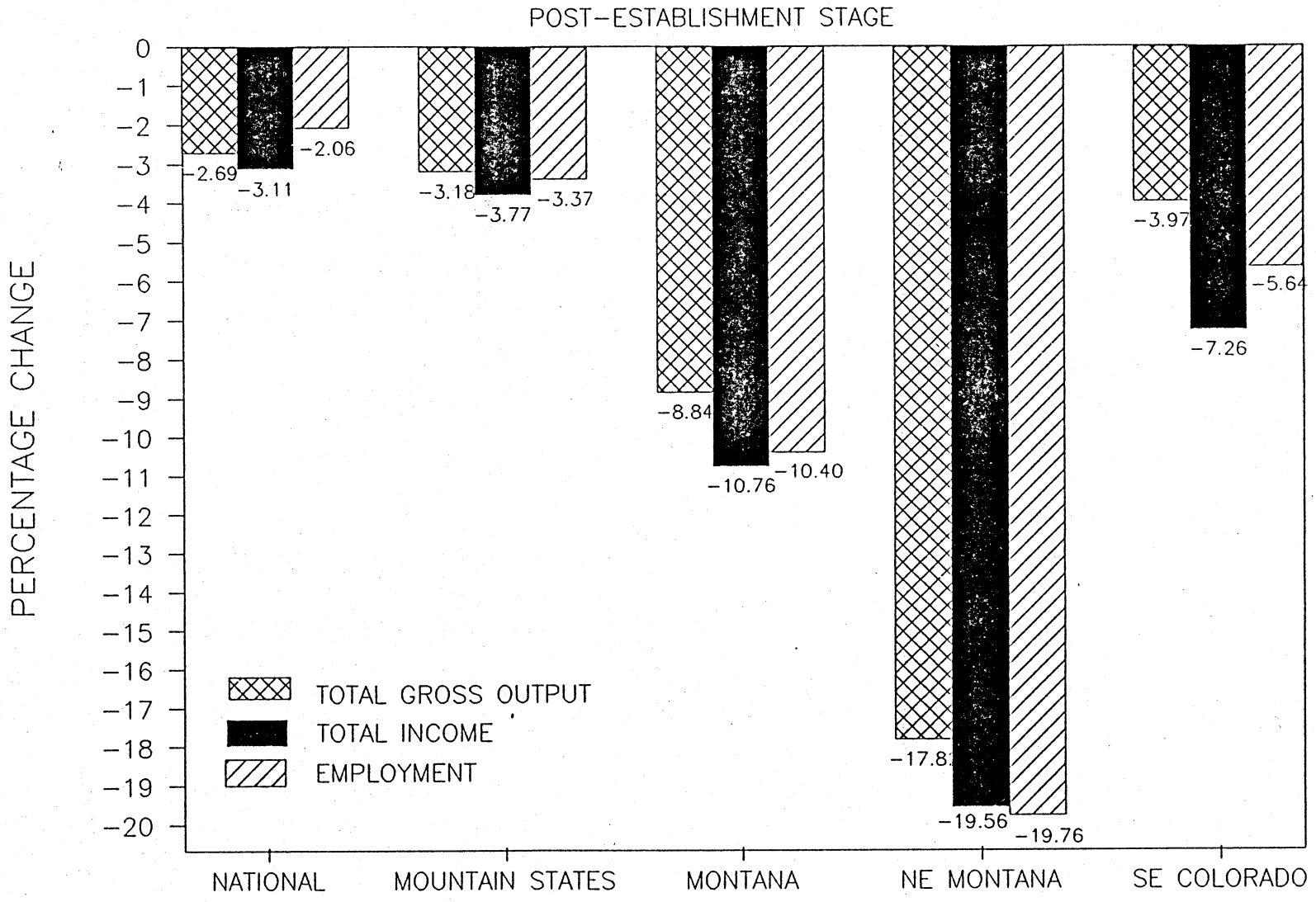


FIGURE 5: REGIONAL EFFECTS ON AGRICULTURE: UNITED STATES, MOUNTAIN STATES, MONTANA, NE MONTANA, AND SE COLORADO

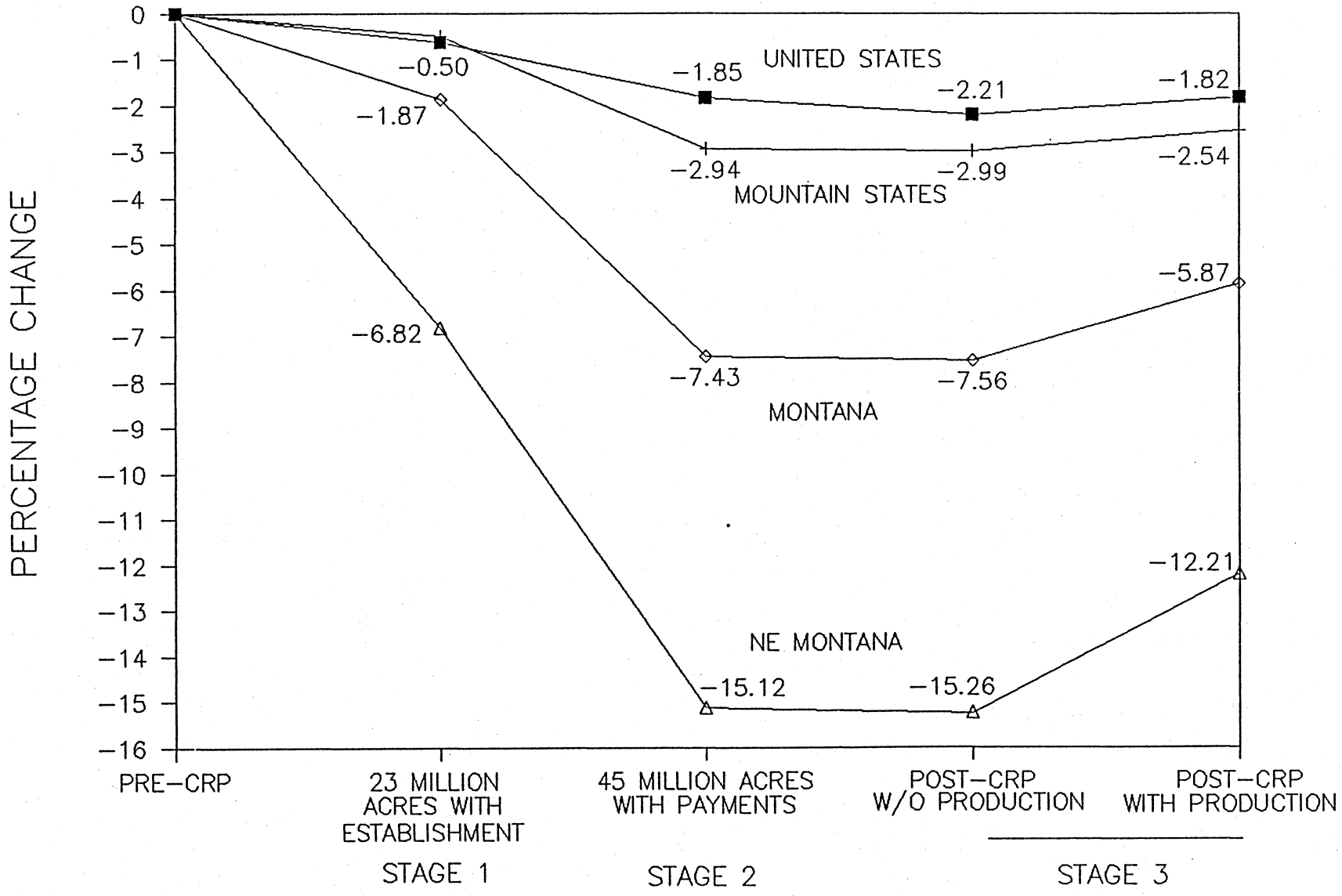


FIGURE 6: CHANGE IN INCOME BY REGION: AGRICULTURAL INPUTS SECTOR

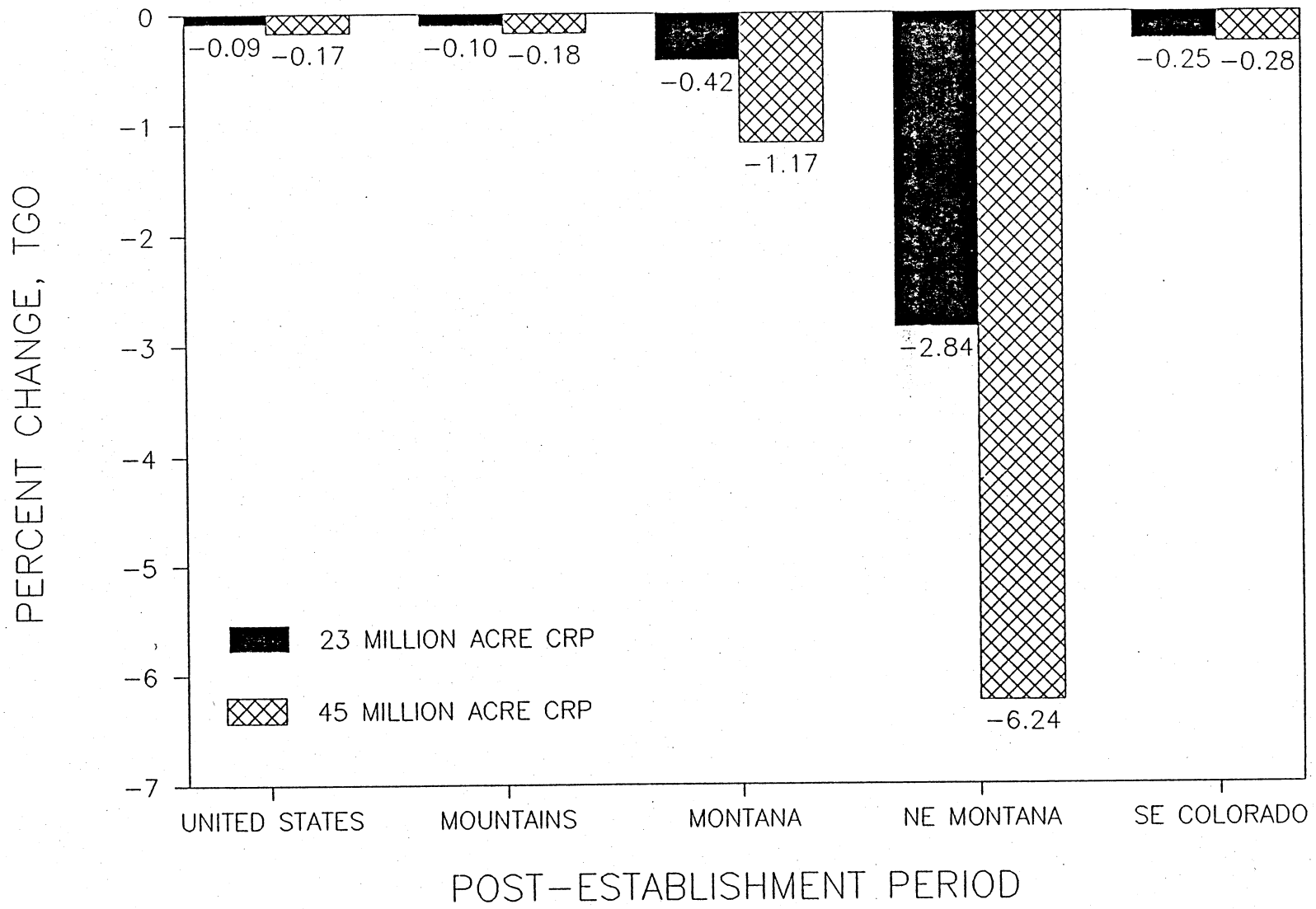


FIGURE 7: TOTAL CHANGE IN TOTAL GROSS OUTPUT: UNITED STATES, MOUNTAIN STATES, MONTANA, NE MONTANA, AND SE COLORADO