THE TIMBERLAND IN CONSERVATION RESERVE PROGRAM
AND ITS EFFECT ON SOUTHERN RURAL ECONOMIES

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ABSTRACT

Tree planting under the Conservation Reserve Program has occurred in 40 states. However, fully 85 percent of CRP tree planting is concentrated in the 7 states in the Delta and Southeast farm production regions. In these regions trees make up between 43 percent (Louisiana) and 92 percent (Florida and Georgia) of the individual state programs. The Forest Service's IMPLAN model indicated that a 45 million acre CRP would have a very minor effect on the Nation's economy as a whole. In contrast, the model indicated the economies of the Northern Plains and Montana, which are heavily-farm dependent and have a heavy concentration of CRP acres, showed major negative impacts both during the Reserve period and afterward when the use of the land will be constrained by Conservation Compliance. The South with its diversified economy and farm sector showed impacts similar to those for the Nation during the life of the Reserve, and timber harvesting in the years after the Reserve will likely generate a higher level of economic activity than existed while the land was in agricultural production.

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 (Hyberg et al., 1988, Harrington, et al., 1987).

The impacts of a substantial program like the CRP, while significant for the nation, are potentially even more important for farm dependent economies with significant enrollments in the CRP. The CRP acreage in the Southern United States is unique because much of the land has been reforested rather than being planted into grass. Because timber

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production has different properties than land retirement or cattle production, the effect of the CRP on rural communities in the south will be different than in other portions of the country.

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 Southeastern and Delta States regions\(^2\) that have a high proportion of their cropland acreage enrolled in the CRP. The impacts of the CRP on the Southern United States will be compared to the effects on rural communities within the Mountain Region.\(^3\)

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 (Harrington, Schluter and O'Brien, 1987). 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 economies. Employment and income in approximately one-third of all U.S. counties is heavily influenced by agricultural production and the associated upstream and downstream activities. (See Figure 1 for a map of the farm dependent counties in the U.S.)\(^4\) A significant portion of the remaining economic

\(^2\) The Southeastern region is comprised of Alabama, Florida, Georgia, and South Carolina. The Delta States are Arkansas, Louisiana, and Mississippi.

\(^3\) The Mountain Region includes Arizona, Colorado, Idaho, Montana, New Mexico, Nevada, Utah, and Wyoming.

\(^4\) Farm dependent counties are those where farm related earnings and employment make up 20 percent or more of the county income and employment (Petrulis, et al., 1987).
Figure 1. Nonmetro Counties Dependent on Farming

From Sommer. 1988
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 confirm the extensive dependence of some counties on agriculture. In the 15 farm dependent counties in Colorado, crop and livestock activities alone accounted for 51 percent of the counties' total income, and 69 percent of the counties' employment. In a second group of 10 "farm important" counties, agribusiness contributed 23 percent to total income, and 45 percent of the counties' employment (Miller et al., 1987). Data from 1975-79 for Montana indicate a large number of counties in a similar farm dependent situation (Petrulis et al., 1987, p. 10).

Previous studies of the CRP indicate the Total Gross Output (TGO) for some agriculturally dependent communities in the Mountain States could decline by 6 percent with a 45 million acre CRP (Dicks et al., 1988, Hyberg et al., 1989). This is 35 times greater than the estimated decline in national TGO. Specific agricultural sectors, such as the production and inputs sectors have larger declines in TGO.

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 soil conserving cover 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, but 80 percent of the land is concentrated in less than 20 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. Alabama, Georgia, and Mississippi all

5 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.
CONSERVATION RESERVE PROGRAM
CONCENTRATION OF ENROLLMENT
(RATIO TO CROPLAND ACRES, 1986-87)

PERCENT OF CROPLAND ACRES

- 0-5%
- 5.01-15%
- Over 15%
contain concentrations of counties with high levels of enrollment. Enrollment is highly concentrated because much of the eligible cropland is concentrated in certain counties, where participation in the CRP provides a better return than farming the land.

Figure 2 indicates the extent that enrollment is concentrated. The impacts that the program will have on those areas of the Southeastern and Delta 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 southern economies are highlighted by comparing the impacts of the program on the nation as a whole to those for the Southeastern and Delta States regions, and Eastern Georgia.

METHODS

The distribution of the 23 million acres enrolled in the CRP by July 1987, 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.

6 It might be argued that due to the accumulation of agricultural surpluses some form of land retirement program is necessary to reduce agricultural production. This argument holds that without the CRP a stronger set-aside program would have been imposed.

There are several factors that must be considered when examining this contention. First, the acreage reduction program and paid land diversion requirements under the Food Security Act are near or at historical highs making it politically difficult to legislate stronger set-aside requirements. Second, and more important to the subject at hand, is the fact that the distributional effects of an expanded ARP and the CRP are quite different. For instance, while the Mountain States accounted for only 8 percent of the land harvested of corn, sorghum, wheat, and cotton acreage harvested during 1987 (11.1 million acres of 135.6 million acres harvested nationally), the Mountain States provided 20 percent of the 25.5 million acres of land enrolled in the CRP as of February 1988. Thus, and expanded ARP would affect 8 percent of the Mountain State, while the CRP affected more than twice that area. Given the uncertainty of imposing a stronger set-aside requirement, and the disproportionate CRP enrollment in the Mountain States it is reasonable to estimate the economic effect of the CRP on the Mountain States and communities within the region, by examining the economic activity foregone by retiring land into the CRP.
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 effect that decreased wages and salaries has on household expenditures on goods and services (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 1982 purchase 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. These changes in final demand are estimated by calculating the shift in production due to the CRP and evaluating the change in production in the base year (1982) prices. 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), and employment in all sectors. 7

Three separate stages of CRP final demand shocks, reflecting changes in the program requirements over time, are imposed on the models. The first, or cover establishment, stage imposes the final demand changes

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7 Employment in IMPLAN consists of a mix of full and part-time employment rather than only full-time equivalents as often found in Input-Output models (Siverts and Palmer, 1985).
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, or full CRP, stage 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, or post-CRP period, contains several separate economic shocks. The shocks are modeled separately to examine the effects on the local economy of grazing and timber management activities on CRP land. The first post-CRP shock comes from one half of the grassland established entering into grazing activities, and the ending of the rental payments. This shock captures the post-CRP activity for most of the nation. Because the harvesting of timber creates income and employment, and most of the land bid into the CRP in the Southeast and Delta States regions were planted in timber, these regions are modeled differently. The harvesting activity is modeled by assuming commercial thinnings take place 17, 25, and 35 years after planting, and a final harvest followed by reforestation occurs 40 to 55 years after planting. 8

Table 1 summarizes the stages of demand shocks. To interpret the results of the analysis, it is important to understand how the different shocks are treated in the model. The revenue from the receipt of rental payments, goes into the household expenditure sector, because this revenue is assumed to be used for the maintenance of farm households. 9 The TGO and employment in the agricultural production sector is treated as economic activity resulting from production of agricultural goods. Thus, the CRP will reduce economic activity in the agricultural production sector because it displaces farming activities with rental payments going into the household expenditures sector. The expenditures that once went to acquire seed, fertilizer, machinery, and hired labor for production on the land in the CRP are substituted for expenditures on private and public services, recreation, durables, and other household good and services.

After the shocks were imposed on the national and regional models the 528 industrial sectors were aggregated into 5 sectors: agricultural production, agricultural inputs, agricultural processing, household

8 Because the timber was planted over a five year period, the thinnings take place over five years. Therefore, 20 percent of the CRP land is thinned each year.

We assumed a site index of 86 to 95, which results in a 164.3 ft³/acre mean annual increment. Establishment costs and stumpage prices are given in table 2.

9 This assumption is a logical extension of the CRP bidding process. Because the farmers enter a voluntary bid for admission into the program, the bid should compensate the farmer for the foregone profits from agricultural production. The profits from agricultural production would have been used by the farmer for the maintenance of the household.
TABLE 1: THE 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 pasturceland 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.

Stage 4: First Commercial thinning
Stage 5: First Commercial thinning
Stage 6: First Commercial thinning
Stage 7: Final Harvest
expenditures, and other industrial sectors. The aggregation results in some retail agricultural activity being merged into the other industrial sector, but the qualitative results are not altered. Aggregation of sectors simplifies the discussion, while capturing the fundamental results of the analysis.

RESULTS: IMPACTS OF THE CRP ON THE NATIONAL AND REGIONAL ECONOMIES

National Economy

The effect of the CRP has been discussed in detail in elsewhere (Hyberg, et al. 1988, Dicks, et al. 1988, Hebert et al. 1988). In general, economic activity (TGO and employment) declines in all sectors, during all stages. Agricultural production, which decreased 3 percent during full implementation, and agricultural inputs, which decreased 2 percent, are the industrial sectors most affected. The CRP has a minor impact on the economic activity in the agricultural processing, household and other sectors. Total gross output and employment fall by less than two-tenths of one percent in each of these sectors.11

10 Agricultural Production includes all crop and livestock activities. Agricultural Inputs includes farm machinery and chemical and fertilizer inputs. Agricultural Processing includes 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). The Other Industrial sector includes all non-agricultural manufacturing and services, while the Household Expenditures sector includes all of the activity associated with the expenditures of personal income. Total, is the sum of all 5 sectors.

11 Total gross output in the agricultural processing sector decreases nationally, although this decrease is marginal. The percentage changes in the processing sector are small in comparison to other agricultural sectors because large stocks of agricultural commodities were sufficient to permit the continuation of most processing activities. In addition, the rental payments in the some regions were large relative to the profits available from agricultural production resulting in an increase in the household expenditures sector. The increased household consumption expenditures partially offsets the negative effect of the decreased economic activity associated with a reduction in crop acreage.

The processing and household expenditure sectors are affected in two ways. First, the reduced agricultural production results in a loss of employment in the agricultural production and inputs sectors. This reduced employment feeds back into the processing and household sectors causing reduced economic activity in these sectors. On the other hand, the rental payments go directly into the household expenditures sector, encouraging increased household consumption. The increased consumption results in increased demand for processed goods including food. These two effects tend to offset each other.
The reduction in economic activity due to decreases in agricultural production and the related decrease in the use of agricultural inputs are somewhat offset by the temporary infusion of rental payments and the establishment of a cover crop. The period with the largest decline in economic activity is that of full implementation. Some increase in economic activity occurs after the contracts expire and a portion of the retired land goes into haying and grazing, but the level of activity will not recover to pre-program levels.

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. The largest impacts are observed in the Great Plains due to high enrollment rates (44% of the eligible land).

The CRP reduces activity in the agricultural production sector in all regions. The effects on the agricultural production sector will be greatest in the Great Plains. When smaller, more agriculturally dependent areas are examined, the CRP has an even greater effect on agricultural activity. Reductions in the agricultural production sector's TGO reach 2 percent in the Mountain Region, 3.7 percent in Montana, 3.9 percent in Southeastern Colorado, and 9.5 percent in Northeastern Montana in the period when the cover crop is established. These decreases nearly double with the fully implemented 45 million acre CRP.

Employment in the agricultural production sector decreases both during and after the CRP. When the CRP is fully implemented, the decreases in employment range from 3.5 percent in the Mountain Region to 21.4 percent in Northeastern Montana. Employment declined 11.3 percent in Montana and 5.9 percent in SE Colorado. 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, grazing, or modified crop production under conservation compliance.

The regional and local effects on the agricultural input sector have a pattern similar to the production sector. The same areas feel the greatest impact. The effects are mitigated during the first stage of the CRP because agricultural inputs are needed for the establishment of a cover crop, but decrease after the cover has been established.

Generally, the effect of the CRP on the household and other economic sectors at a regional level are small in percentage terms. 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 rental payment is 1.6 times greater than cash rent for the land, 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. This smaller impact is in spite of the
fact that Southern Colorado has a significant proportion of its cropland
acres enrolled in the CRP. Nationwide, the decline in TGO for the all
sectors under the second stage is 0.17 percent, while for Northeastern
Montana, a much less diversified economy, the decrease is 35 times
greater (6.24 percent).

The results suggest that the CRP will have little impact on the agricul-
tural processing sector during the period when rental payments are made,
provided stock levels remain high. Rental payments, which are
essentially ordinary disposable income, are 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 the
agricultural processing sector can increase as rental payments and
disposable farmer incomes increase, even when planted crop acreage is
reduced, because the rental payments more than offset the loss in
employment in the agricultural inputs and agricultural production
sectors.

If stock levels were reduced and no longer sufficient to fill processing
needs, reduced agricultural output would also lower the regional grain
handling and marketing activities (see footnote 10). Nationally, if
stocks decreased and sufficient grain was not available, the agricultural
processing sector would be affected, but grain would be imported to
maintain the high-value processing activities. The grain handlers and
marketers in port areas and regions containing high value processing
activities would benefit.

The Effect of the CRP on Timber Growing Regions

The Southeastern and Delta States are the two regions of the country
that account for more than 85 percent of the timberland entered into the
CRP. In general, these regions and Eastern Georgia are not effected as
much as the Great Plains States because a smaller percentage of cropland
entered the CRP. In fact, as a percentage of TGO and employment,
economic activity in the Southeastern Region declines less than for the
United States as a whole because much of the agricultural activity in the
region revolves around citrus, fruit, vegetable, tobacco, and rice
production, activities basically unaffected by the CRP. The magnitude of
the effects for the Delta States and Eastern Georgia are similar to those
of Southeastern Colorado.

In the first 3 periods (15 years), the effect of the CRP on Eastern
Georgia, the Southeast, and the Delta States parallels the effects of the
CRP on the Great Plains States. However, once the thinning of the
planted timber begins, economic activity in all sectors begins to rise,
and the differences between grazing and timber activities become
apparent. Economic activity over all sectors approaches or passes pre-
CRP levels in the three timber producing regions, while economic activity at nation and the grazing regions remains below pre-CRP levels.

The agricultural processing sector in the timber processing regions is most affected by the increased timber production induced by the CRP. Once the thinnings begin in the three timber regions, TGO and employment in the processing sector both rise above pre-CRP levels. Other sectors do not recover with as much vigor, although, TGO and employment in the household expenditures and other manufacturing sectors rise above pre-CRP levels in both the Southeast and Eastern Georgia regions, and approach the pre-CRP level in the Delta States. The agricultural production and inputs sectors do not recover to pre-CRP levels, because the replacement of higher valued crops that use a greater amount of agricultural inputs, with timber production is not sufficient to maintain the same TGO or employment in these sectors.

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 not able to 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. Such an adjustment can be expected to take place over a period of years. The results presented here are abstractions that portray the changes as resources are no longer employed. This does not permit the display of the adjustments that occur during transition period, but identifies the instantaneous 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 may 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.

**SUMMARY**

The effects of the CRP on communities within the Southeastern and Delta States regions differ from results previously obtained for the Great Plains. The differences are because the productive activities associated with the harvest of the timber planted in the CRP induce greater economic activity than those associated with haying and grazing.

While, the effects of the CRP in the first 15 years after the establishment of the cover crop are similar for timber and grass production areas, once commercial thinning of the stands begins economic activity in the timber regions increase. The effects of the timber

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12 Henderson, et al. (1989) have found evidence that as per capita farm income increases in small rural communities, the proportion of household expenditures spent in larger communities increases. This result suggests that the use of historical expenditure patterns may understate the effect of the CRP on small rural communities.
harvesting activities continue to increase the overall economic well-being of the timber producing communities until the final harvest takes place. In each of the three timber producing regions, economic activity over all sector reached or surpassed pre-CRP levels.

The agricultural processing sector fared the best. Once commercial thinnings begin in the 17th year, TGO and employment in the sector increased above pre-CRP levels. On the other hand, the agricultural production and inputs sectors did not approach pre-CRP levels even in the years when the mature stand was harvested. The other sectors fared better in the timber producing regions than in the Great Plains states, generally settling at TGO and employment levels near their pre-CRP level.

**LITERATURE CITED**


