AN ABSTRACT OF THE THESIS OF

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Title: The Conservation Reserve Program: Its Impact On The
          Economies of Rural Communities

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        The purpose of this thesis is to present the results of a study
of the impacts of the Conservation Reserve Program, Title XII of the
Food Security Act of 1985, on the economies of small communities
located in Gilliam, Morrow and Umatilla Counties in Oregon. These
counties are representative of many rural counties which are
extremely dependent on agriculture for their economic well-being.

        The main objectives of this study are to determine: 1) the
economic impacts of an agricultural policy, in this case the CRP, on
rural communities; and 2) who may benefit and who may be adversely
affected by the policy.

        As the structure of agriculture continues to change,
communities as well as individual farmers, will experience this
change in varying degrees. In general, the outlook for rural
communities which are so dependent on agriculture is somewhat bleak.
The focus of this thesis, therefore, is to attempt to assess the
impact of the Conservation Reserve Program on such communities.

The Conservation Reserve Program:
Its Impact On the Economies
of Rural Communities

by

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CHAPTER I

INTRODUCTION

Long term land retirement was first used in the 1956 farm bill

when legislation passed by Congress authorized the Soil Bank

Program. The program was used extensively throughout the 1960s but

was discontinued during the world food crisis of the 1970s.

Since 1977, and continuing today, soil conservation and concern

for farm surpluses has been a high priority of those who administer

commodity programs.

The Conservation Title (Title XII) of the Food Security Act of

1985 contains, as part of Subtitle D, the conservation reserve

program (CRP), authorizing the retirement of up to 45 million acres

of highly erosive land from production through the 1990 crop year.

The goals of the CRP are twofold: (1) a reduction in soil ero-

sion damages, both on-site production losses and off-site sedimen-

tation; and (2) a reduction in production capacity to decrease com-

modity surpluses and bolster farm prices.

In addition to soil conservation and production control, the

program has secondary objectives which include water-quality

enhancement and the improvement of wildlife habitat (Carlson, 1985).

Growing concerns about the quality of our environment are

focusing increased attention on some of the program's secondary

objectives. The reduction of soil erosion damages and water quality

improvement is more politically acceptable, perhaps, than the production control aspects of the CRP. It is easier to convince a Member of Congress whose constituents reside in urban districts that soil erosion is a concern to all than it is to convince that same Member that we ought to support farm incomes.

The USDA has recognized wildlife as an important resource for agriculture and has, in fact, included wildlife as a valid consideration in its land management decisions (Carlson, 1985).

Objectives

This thesis deals with The Conservation Reserve Program and its impact on rural communities that are so dependent on agriculture for their economic well-being. The problem was put into the form of a question, "How can we expect the CRP to impact agricultural dependent communities?"

In order to estimate the economic reaction to the program the research took the following form:

1. Representative farms in Gilliam, Morrow and Umatilla County were selected to be surveyed to determine the current level of production, types of off-farm inputs purchased on a per acre basis and where those inputs were purchased. Farms in these three counties were selected because they are representative of the kinds of communities most likely to be affected by the CRP and because these communities are almost totally dependent on agriculture to drive their economies.

2. The U. S. Forest Service model IMPLAN, a secondary input-output model, was used to assess the impact of changes in consumer spending and to estimate the changes in economic activity related to the receipt of government transfer payments under the CRP.

3. A sensitivity analysis using local income multipliers was employed to assess the impacts of the CRP on the three counties involved. Three different scenarios was used for each county to determine what might happen in each case.

Organization of Thesis

The organization of the remainder of this thesis will be to establish the framework upon which the impacts of public policy may be studied.

Chapter I first presents the role of agriculture in the U. S. economy and then its importance to rural economies. The rural areas chosen for study are Morrow, Gilliam and Umatilla Counties in Eastern Oregon. These three counties are extremely dependent upon agriculture, especially the wheat industry, for their economic well-being.

Chapter II will give a detailed overview of the CRP and the obligations and responsibilities of the Secretary of Agriculture and those operators who enter into contracts under the CRP.

The third chapter will concentrate on the wheat industry and its prominence in the economic structure of the three-county area

mentioned above. Also the extent of participation of farmers in the program and expectations for production control.

Chapters IV and V will deal with the use of the input/ output model for analyzing community impacts brought about by changes in the structure of agriculture.

A sensitivity analysis for measuring community impacts will be the topic of Chapter VI.

Chapter VII will consist of a summary of findings and conclusions reached concerning costs and benefits to the Counties under the CRP.

Finally, because of the complexity of the issue of public policy and social welfare, Chapter VII will contain suggestions for future research. It is with regret that the author was unable to incorporate more of the unanswered questions into this thesis.

The Role of Agriculture in the U.S. Economy

In recent years agriculture has become more and more dependent on inputs purchased off the farm. These expenditures for production have created an ever growing agri-business industry. Every year agriculture injects billions of dollars into the nation's economy (Doll and Orazem, 1978). This, in turn, provides income and employment opportunities in other sectors of the economy. Thus, the U. S. economy can be seen as a chain of interdependent sectors.

As farms grew larger and became more mechanized, tractors replaced the horse, chemicals took the place of manure. Groceries which were once grown in the garden were purchased at the super-

market. It is easy to see then how an increase in farm income
benefits all sectors of the economy.

Alternatively, we can see how a decrease in farm incomes will
adversely affect not only the farming industry but the rest of the
economy as well; especially those engaged in industries supplying
farm production inputs. If producers curtail their input purchases,
these industries in turn must reduce their own expenditures which
will impact employment throughout the economy. This chain of events
eventually effects everyone in society. The respective effects can
be understood by examining the income multiplier as is done here.

Agriculture is perhaps the only industry to which the prin-
ciples of perfect competition may reasonably be applied. (In
perfect competition, the number of sellers is large and their
product homogeneous and the assumption is that all sellers have
perfect information about the market.) Agriculture is also typified
by ever-changing technology and by heavy reliance on government
policy. How will agriculture respond to new technology and improved
production methods or to policies aimed at decreasing commodity
surpluses?

In the aggregate, agricultural output remains fairly steady
from year to year. Because of the homogeneity of most farm products
each farmer knows that because he is simply one of hundreds of
thousands, his individual actions will not affect the overall supply
of the commodity he produces. Even if he triples his own output the
total industry output change would be negligible at best. However,
when there is an excess of the product he produces with an accom-

panying decline in price he may feel he will be less adversely affected by employing his resources to the fullest extent possible.

Attempts such as acreage allotments and marketing quotas aimed at curtailing agricultural supplies may have actually had the opposite effect--surpluses have continued to increase.

Mounting surpluses could threaten the well-being of all farmers. Excess supplies of a commodity forces reductions in acreage allotments. Acres diverted from the surplus commodity are then employed to produce other crops. This in turn forces competition with farmers already producing these crops. Through this chain reaction effect, surpluses occur in more and more agricultural products until eventually all farmers are affected.

Agriculture is entering a new technological era and at the same time the structure of agriculture is changing rapidly. Operators of commercial small[1] and moderate-size farms are becoming increasingly less able to compete, partly because they lack access to the information and when it is available they may lack the finances necessary for effectively adapting the new technologies (OTA-F-285, 1986). Many of these farmers must relocate, change to other kinds of farming or exit farming altogether. The disappearance of these farm operations is causing repercussions for other businesses in the rural community since small operators tend to make purchases locally. Moreover, the local labor pool must now absorb those whose livelihood once depended on agricultural production.

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[1] Small commercial farms are those with less than $20,000 value of product sold.

Small and part-time farms generally do not provide a signi-
ficant source of income to their operators. Most of these farmers
obtain their primary net income from off-farm sources (OTA-F-285,
1986) (Table 1). This class of farms is operated either by sub-
sistence farmers or by individuals who use the farm as either a tax
shelter or a source of recreation.

Moderate-size farms cover the range in which the farm is large
enough to be the primary source of income. However, most families
on moderate-size farms are also dependent on off-farm income.

The great majority of large and very large farms are family
owned and operated. Most require one or more full-time operators
and many depend on full-time hired labor. If present trends con-
tinue to the end of this century, the total number of farms will
continue to decline from 2.2 million in 1982 to 1.2 million in the
year 2000 (OTA-F-285, 1986) (Table 2). The number of small farms
will continue to decline but will still make up about 80 percent of
total farms. The large and very large farms will increase substan-
tially in number. The trend toward concentration of agricultural
resources into fewer but larger farms will continue, although the
degree of concentration will vary depending on the region and the
commodity grown. The largest decline, both in number and proportion of all
farms, will be the moderate-size farms. These farms will also cap-
ture a smaller share of the market and a declining share of new farm
income. These farms comprise most of the farms that depend on agri-
culture as the primary source of income. Traditionally, the

Table 2. Projection of Total Number of U. S. Farms in Year 2000 by Sales Class.

Sales Class	1982		2000	
	Number of farms (000)	Percent of all farms	Number of farms (000)	Percent of all farms
Small	1,936.9	86.0	1,000.2	80.0
Moderate	180.7	10.0	75.0	6.0
Large/Very Large	121.7	4.0	175.0	14.0
	2,239.3	100.0	1,250.2	100.0

Source: Office of Technology Assessment

Table 1. Distribution of Farm Sizes, Farm and Off-Farm Income Per Farm by Sales Class, 1982.

Sales Class	Value of Product sold	Number of farms	Percent of all farms	Average farm income	Average off farm income
Small	<20,000	1,355,344	60.6	(615)	20,505
Moderate	20,000-199,000	762,265	34.0	18,808	24,648
Large	200,000-499,000	93,891	4.2	48,095	12,834
Very Large	>500,000	27,800	1.2	504,832	24,317
		2,239,300	100.0	$9,976	$17,601

Source: Economic Indicators of the Farm Sector: Income and Balance Sheet Statistics, 1983 USDA Economic Research Service, 1984, Table 59. Farm number and cash receipts distribution from the 1982 Census of Agriculture, U.S. Department of Commerce, Bureau of the Census, 1984.

moderate-size farm has been viewed as the backbone of American agriculture. It is becoming more difficult for these farms to compete for what has historically been their share of farm income.

Rural Communities and Agriculture

Major differences in climate, soils, land use, economic and social patterns, availability of water, labor and density of population as well as education levels of the population, account for the varied structure of agriculture and of rural communities across the United States. Therefore, it can be expected that any change in the structure of agriculture will have varying degrees of impact on rural communities in different regions.

As with individual farmers, some communities will benefit and some will be adversely affected by changes in the structure of agriculture--whether those changes result from technological change or from public policy. For example, if a change brings about an increase in small farms this will likely result in an increase in the population of rural areas. With an increase in population there will be an increase in income and spending in some of the rural communities. The small farm operators in most cases tend to subsidize their income with off-farm employment in small surrounding communities (OTA-F-285, 1986).

In general, the outlook is not one of increasing prosperity for rural communities which are so dependent on agriculture. Many have already suffered a decline in income and population due to the changing farm situation. This is especially true of small towns

that are not located close enough to larger cities to serve as "bedroom" communities.

Fewer young people are willing to stay in small farming communities. This results in a disproportionately large population of older people. An imbalance in the age structure, probably accompanied by an imbalance in the female-to-male ratio, will have all sorts of economic and social consequences (Clawson, 1968). Once this deterioration begins in a small town it seems to perpetuate itself. As a town declines in livability[2] it become a less attractive place to live--usually because it is unable to offer good job opportunities for young people. These young people are then forced to leave seeking jobs in larger towns. This, in turn, makes the town even less attractive, more people leave and so on.

In small towns there is usually only one or two establishments of several different kinds of business enterprise--one hardware store, one supermarket, one shoe store, etc.--so that competition among them is virtually nonexistent. However, they are highly interdependent and when one establishment fails the remaining ones are left in an uncertain economic position. For example, in the town of Heppner, located in Morrow County, there are two gas stations and one supermarket. The local shoe store is also a combination barber shop, tee-shirt and fabric shop.

Although goods and services used in production by farm enter-prises have increased in recent years, fewer are being purchased in

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[2] Livability is defined here as adequate housing, social services such as education, availability of health care and librar-ies and cultural activities.

rural communities. Because of modern transportation methods and better roads, farmers can easily travel to larger towns to make their purchases. It is helpful to look at the economies of scale in providing these goods and services. For example, a fertilizer dealer in a small community might find it prohibitively expensive to purchase fertilizer by the carload. The small local farm-implement dealer would also find it cost prohibitive to stock a full line of parts for all farm machines.

As the number of farms has declined and farm incomes have increased, the farm family purchases have become indistinguishable from purchases made by nonfarm families. These purchases do tend to be made in larger towns which offer a larger variety of goods and usually more competitive prices.

These and other factors have contributed to a serious loss in sales for businesses in small rural communities. The experience of these small businesses is similar to that suffered by many small neighborhood stores in large cities (Clawson, 1968).

Because participation in the CRP is limited to those farmers possessing highly erodible land, those communities located in highly erodible areas will carry most of the burden for making adjustments to the program. If the program is successful as planned, the bene-fits will accrue to the agricultural sector as a whole and to tax-payers in the form of reduced government costs (storage costs, sup-port prices, etc). The communities located in fragile land areas will receive more government transfer payments in the form of rental

fees paid to farmers participating in the CRP than those areas consisting of land ineligible to be entered in the program.

Programs and policies that focus on commercial agriculture have not eradicated poverty in rural areas. A disproportionately large number of low-income people live in rural areas. Residents of rural communities have reacted to their poor living conditions by migrating to larger cities where there are more employment opportunities.

The declining farm population and its expected trend (Table 2) could see a corresponding decline in total population of rural areas.

CHAPTER II

HOW THE CRP WILL WORK

Implementation procedures of the program seem somewhat unclear in detail but the overall structure can be understood by studying the original legislation (Congressional Record, 12/17/85) and subsequent information bulletins from the USDA. As the deadline for implementation approaches there may continue to be minor changes. A great deal of the procedural decision-making is left to the discretion of the Secretary of Agriculture. At this point, however, the major goals of the program can be analyzed.

During the 1986 through the 1990 crop years, the Secretary of Agriculture will design and carry out an acreage conservation reserve program. To accomplish this, the Secretary is authorized to enter into contracts with owners and operators of farms and ranches which are comprised, at least in part, of highly erodible land. The goal has been established to place in the conservation reserve not less than 45 million acres by the 1990 crop year. Appendix II shows acres bid into the program as of the fourth signup period.

Under the program the Secretary shall not place more than 25 percent of the cropland in any one county under contract. The Secretary may, however, exceed this limitation in a county if he/she determines that the additional acreage contracted will not adversely affect the local economy.

The contracts with owner/operators will be for a term of not less than 10 years nor more than 15 years.

Unlike the earlier Soil Bank Program, the CRP targets highly erodible land and the bidding process forces farmers to specify the rental payment they are willing to accept to remove their land from production.

The land classification system of the USDA Soil Conservation Service is used to identify highly erodible land. Land is categorized into eight classes based on risk of land damage or impracticability of use (See Appendix III). The higher the number, the greater the erosion risk. The Secretary may include in the program lands that are not highly erodible but that pose an off-farm environmental threat or pose a threat of continued degradation of productivity if allowed to remain in production.

The CRP attempts to remove all land in categories six through eight. Land in these categories is too steep or shallow for farming. Land in classes two through five are also eligible for the program if it is eroding at three times the tolerable rate. Finally, to qualify for inclusion in the reserve, land must meet the above criteria and must have been in production for at least two years between 1981 and 1985.

Obligations of Owners and Operators

Farm and ranch owners or operators who enter into a contract under the CRP, hereafter referred to as the lessee, must agree to formulate a plan for converting their highly erodible cropland to a less intensive use. This plan and the subsequently planted vegetative cover is subject to approval by the local conservation district

under the auspices of the Secretary. Thus far the Secretary has defined as less intensive use, pasture, permanent grass, legumes, forbs, shrubs or trees. The cost of establishing cover on the land under contract will be shared equally by the government and the lessee. Technical assistance will be provided by various federal agencies. Where practical, one-eighth of the acreage placed in the conservation reserve will be planted in trees.

The lessee must agree not to use the cropland entered into the program for agricultural purposes, except as permitted by the Secretary.

If the terms of the contract are violated by the lessee, all rights to rental and cost sharing payments may be adjusted if the Secretary determines that the violation does not terminate the contract. However, the lessee could be required to refund, with interest determined by the Secretary, all rental and cost sharing payments if the Secretary decides that indeed the contract is terminated.

If ownership of land under contract is transferred, the lessee forfeits all right to rental and cost sharing payments. A refund or adjustment on payments received may be required as the Secretary deems appropriate unless the transferee of the land agrees to all terms of the existing contract (Congressional Record, 12/17/85).

Obligations of the Secretary

Upon entering into a contract under the CRP, the Secretary will share equally the cost of establishing cover on the land and will

each year, for the period of the contract, pay an annual rental payment to compensate for acreage in reserve and retirement of any cropland base that the lessee agrees to retire permanently. Rental payments will be made as soon as possible after October 1 of each calender year.

The Secretary, through various federal agencies, will continue to provide technical assistance to the lessee in carrying out the terms of the contract (Congressional Record, 12/17/85).

Payments Under CRP

The amount of the annual rental payments is determined by the submission of bids by owners and operators. The acceptability of the bids will be at the discretion of the Secretary. The Secretary will decide the amount necessary to entice owners or operators of eligible cropland to participate in the program. The Secretary may also take into consideration the extent of soil erosion and the productivity of the land and may establish different criteria in various States and regions. The Secretary may also give special consideration to areas that are undergoing especially difficult economic conditions.

Payments will be made in cash or in commodities in the amount provided for in the contract. If payment is made with in-kind commodities, the payment will be made by the Commodity Credit Corporation (CCC). CCC payments may be made by delivery of the commodity involved to a location agreed upon by the Secretary and

the lessee, or by the transfer of negotiable warehouse receipts
(Congressional Record, 12/17/85).

Contracts

No contract will be entered into concerning land to which
ownership has changed in the three year period preceding the first
year of the contract unless the new ownership was acquired by will
or succession as a result of the death of the previous owner; the
new ownership was acquired before January 1, 1985; or, the Secretary
determines that the land was acquired under circumstances that
assure the land was not acquired for the sole purpose of entering
the land into the Conservation Reserve Program.

The above conditions do not, however, prohibit continuation of
an existing agreement by a new owner. The new owner may continue
the contract under the same terms or enter into a new contract in
accordance with the program. The new owner may elect not to
participate in the program.

The Secretary may terminate a contract if the lessee agrees to
the termination or if the Secretary determines that such termination
would be in the public interest.

Before taking action to terminate all contracts entered into
under the CRP (in essence, terminating the program), the Secretary
is required to provide, within 90 days, written notice to the
Committee on Agriculture of the House of Representatives and the
Committee on Agriculture, Nutrition and Forest of the Senate
(Congressional Record, 12/17/85).

Base History

A reduction will be made during the period of the contract, in the aggregate, in crop bases, quotas and allotments on the farm with respect to crops for which there is a production adjustment program. This reduction will be based on a ratio between the total cropland acreage on the farm and the acreage placed in the CRP (Congressional Record, 12/17/85).

CHAPTER III

SITUATION IN THREE-COUNTY AREA

CRP as Production Control

The government has long had price support programs in effect for wheat production. In Figure 1 we see the effect of price support programs. A support price, P_s, is set which is above the market price, P_0. Consequently, at the support price output equals Q_s, but consumers only purchase Q_1 resulting in a surplus, $Q_s - Q_1$, which must be purchased by the government. It is clear that imposing a support price means that farmers receive more for their crop than they would without a support price program. The difference in their receipts in this case would be $P_s Q_s - P_0 Q_0$.

The CRP is seen by many as a way to reduce the amount of farm commodities that the government must purchase, store and finally market. As land is taken out of production through participation in the CRP, it is presumed that supply will shift to S' (Figure 2), so that at P_s, quantity supplied equals quantity demanded.

There is evidence that under acreage control programs implemented in the past, farm production actually increased. (McArthur, W.G. 1961) Although acreages in reserve had to be designated and left idle, the farmer could, through new technology and more intensive production methods, expand output on remaining acres. Farmers who participated in Soil Bank Programs tended to idle their least profitable land.
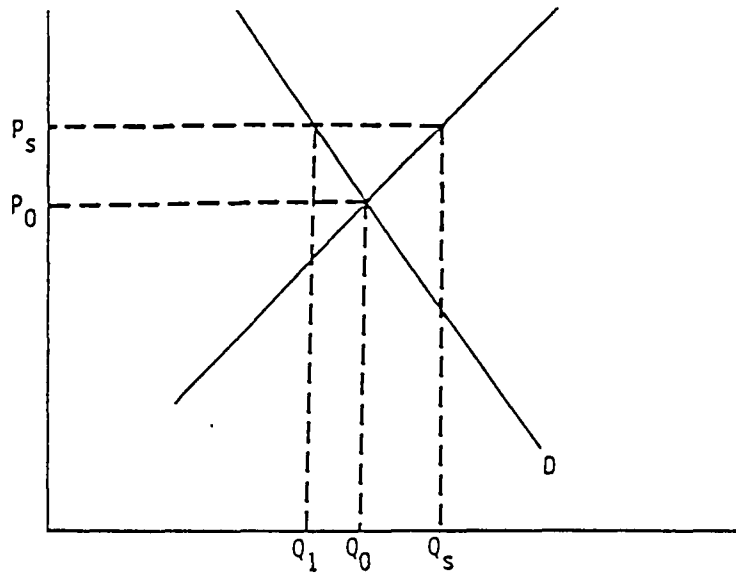
Figure 1. Effect of Price Support.
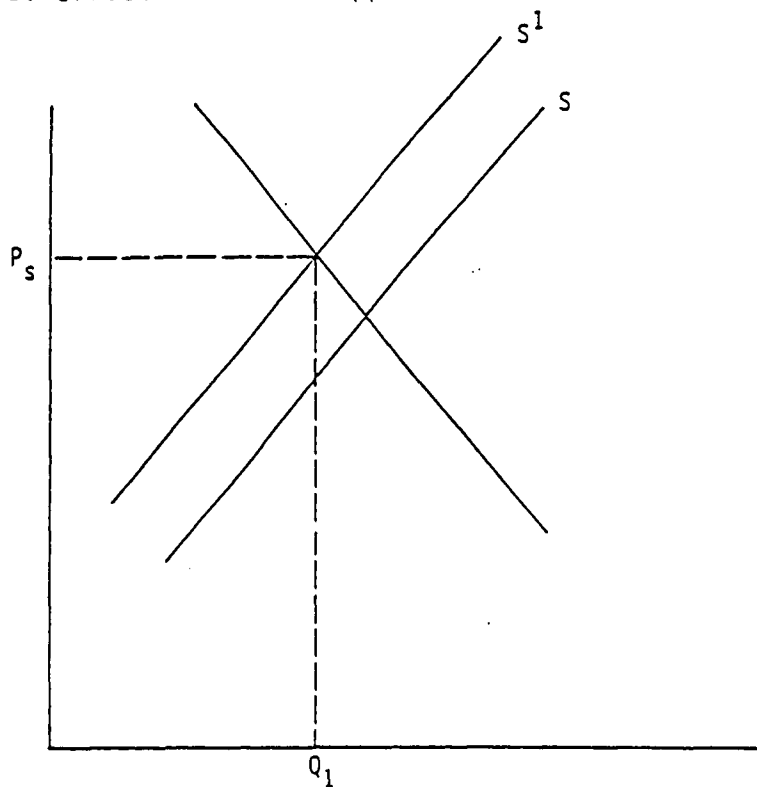
Figure 2. Effect of CRP on Supply.

Farmer Participation

In informal conversations with participating farmers in the three county area, their intentions at the present time are to remain on their farms and to continue farming. Of course, ten years is a long time and it is reasonable to expect that some farm families may decide to relocate. It is impossible to deal with every conceivable change that might occur so this analysis will assume three scenarios: (1) all participants in the CRP would continue to live in their communities and spend the transfer payments where they previously made production purchases; (2) a portion, in this case 20 percent, of the participants chose to leave the area and would not be spending the transfer payments in the community; and (3) the worst case scenario, all of the participants left the area so that none of the transfer payments were spent in the local community. Given that government agricultural policy tends to be arbitrary and priorities change with each administration, it is also entirely possible that the CRP may be terminated or written out of the next farm bill.

Most participants see the CRP as an opportunity to retire their most fragile land and still receive an income for it in the form of government transfer payments. Many have large land debts and see the rental fees as a way to meet those obligations and still be able to do what they feel they do best--farm. Some marginal producers see the CRP as their last chance to hold on to their land.

Several of the producers who are setting aside a portion of their farm were quite candid in saying they fully expected to more

intensively farm their remaining acres and would probably end up with higher yields than they had previously had. As one producer stated, "I'm a farmer--that's what I do and I'm good at it".

Farmers who participate in the CRP program are caught in a doublebind--the decisions they make as a business manager may be in conflict with the concerns of community leaders and what they deem to be best for the community at large. Many of the CRP participants expressed their concern about this conflict. They all felt that they are members of their community--their children attend the local schools and their church and social lives were tied to the community. Most of them grew up on the land they were now farming-- their roots are not only in the land but the community in which they live.[3]

At the time of the fourth and most recent signup there were 25 counties in Oregon participating in the CRP. The three counties being studied, Gilliam, Morrow and Umatilla, had bid in a total of 240,059 acres. This is 53.7 percent of the total acres bid into the program for the state (Table 3).

For these counties the principal industry is agriculture and they have few agricultural alternatives other than the production of grain and livestock. If we look at the production of wheat we see that Gilliam, Morrow and Umatilla Counties were responsible for 42.1 percent of the wheat produced in the State (Table 4).

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[3] They have all been extremely cooperative and helpful in conducting this study and are anxiously awaiting what they hope to be positive benefits for their communities.

Table 3. CRP Totals: Fourth Signup.

County	Acres	% State Totals
Morrow	105,306.3	23.6
Umatilla	70,473.9	15.8
Gilliam	64,279.7	14.4
State Total	**446,779.6**	

Source: U. S. Department of Agriculture, Agricultural Stabilization and Conservation Service. Oregon State ASCS Office.

TABLE 4. Wheat Production - 1985.

County	Production Bushels	Value of Sales (000)	% State Total
Gilliam	3,577,200	11,891	6.4
Morrow	6,791,000	22,320	12.0
Umatilla	13,160,800	43,924	23.7
State Total	**56,040,000**	**185,700**	

Source: Oregon State University Extension, Agricultural Economic Information.

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CHAPTER IV

ECONOMIC ANALYSIS OF COMMUNITY IMPACTS

Input/Output Models

A secondary input-output model and its resulting income multi-
plier[4] was used to assess the impact of changes in consumer spending
and to estimate the changes in economic activity related to the
receipt of government transfer payments under the CRP.

Another important application of input-output models is the use
of multipliers in making forecasts of business activity, employment
or income. If estimates of income, employment or export sales for a
given future year or series of years are available, multipliers can
be used to estimate total business sales, employment outlook or
income in the economy for these years. Appropriate adjustments for
structural changes expected in the economy during the forecasting
horizon must, of course, be made (Mandelbaum et al, 1984).

Economic input/output models are often used to estimate the
impact of resource changes or to calculate the contributions of an
industry to the local economy. The basic premise of the input/
output framework is that each industry sells its output to other
industries and final consumers and in turn purchases goods and
services from other industries and primary factors of production.
Therefore, the economic contribution of each industry can be

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[4] Multipliers are measures of the degree to which the various
firms and households in an economy are interrelated.

determined by changes in both final demand and the specific inter-industry relationships.

Input/output (I/O) models can be constructed using surveys of a regional economy. The disadvantages of the survey model approach are due to its complexity and high cost. Construction of a survey data I/O model involves obtaining data on the sectoral distribution of local purchases and sales to final demand of every sector of the economy, and on the imports purchased and exports sold by each sector. However, the amount of data needed to construct an I/O table and the associated time, cost and technical skill requirements are enormous.

Another approach, and the one taken in this thesis, uses secondary data to construct estimates of local economic activity. The U.S. Forest Service has developed a computer program called IMPLAN (Alward and Palmer, 1982) which can be used to construct county or multi-county I/O models for any region in the U.S. The regional I/O models used by the Forest Service are derived from technical coefficients of a national I/O model and localized estimates of total gross outputs by sectors. The computer program (IMPLAN) adjusts the national level data to fit the economic composition and estimated trade balance of a chosen region. The last section of this chapter will cover IMPLAN in more detail.

Measuring the Importance of
Local Economic Activity

One way of measuring the importance of a particular economic
activity is to look at the quantity or value of goods and services
it sells and buys outside the local economy. A local economy has
exports and imports similar to state or national exports and im-
ports. Wheat harvested in Gilliam County and transported to
Portland to be shipped to Japan is an export that benefits the local
economy. The windsurfer from Seattle and the fisherman from
Portland bring money to the Hood River and Central Oregon economies.
These recreation activities are exports because they bring in
"outside" money. Payments to local farmers from the U.S. Treasury
also stimulate the local economy and are therefore "exports" that
bring in "outside" money.

However, the money brought into a local economy does not all
stay in the local economy. This is particularly true for the
smaller rural economies which are far from economically self
sufficient. Many of the goods and services consumed in the local
economy must be brought in from outside. These goods and services
are the imports to the local economy. The money that flows out of
the local economy to pay for these imports is referred to as leak-
age.

To better understand the term "leakage" it is beneficial to
look at wheat production as an example of how leakages occur. In
the production process there are backward linkages to farm supply
stores, implement and equipment dealers, fertilizer and herbicide

distributors and all the way back to farm input manufacturing plants
and phosphate mines. The forward linkages consist of all the   .
activities that move wheat from the farm to the local elevators then
on to the centralized export terminals to be forwarded to export
markets created in the local, state and national economy (Martin and
Radtke, 1986).

Basic Sectors

Since imports take money out of the economy, it is important
for these smaller rural economies to have some exporting sectors.
In the I/O jargon, these are called "basic sectors". The dollars
brought in by basic exporting sectors begin the multiplier process.
The basic sectors stimulate a local economy by originating the
multiplier effect. When people talk about a change in the economic
base of an area, they are referring to a change in basic business
sector.

Sectors other than basic sectors generally do not generate "new
dollars", but rather operate on the circulation of dollars already
present in the economy. Therefore, nonbasic sectors do not initiate
a multiplier effect themselves, but instead contribute to the
multiplier effect of basic sectors by preventing leakage. For the
rural communities, the basic sectors are generally resource-based.
Examples of basic and nonbasic are (not necessarily in any order of
importance):

Basic Sector Examples	Non-Basic Sector Examples
1. logging and timber processing	1. medical services
2. agricultural production and processing	2. movie theaters
3. fish harvesting and processing	3. grocery stores
4. businesses that sell to tourists and recreationists	4. banking services
5. Transfer payments[5]	

Calculating Multipliers and Coefficients

How is the effect of a dollar of export sales multiplied in a local economy? Suppose a county's wheat industry increases export sales by $1,000. If the economy has an output multiplier of 2.49, total business sales through the county are expected to increase by a total of $2,490 as a result of the $1,000 increase in exports and the $1,490 in local sales generated by these exports. (The 2.49 is used as an example only. The actual output multiplier may be different.)

Figure 3 demonstrates how local respending of the export payment by businesses and households creates this multiplier effect. The process begins when a dollar enters the local economy, in this case as the result of an export sale (column A). The dollar will be respent by the exporting firm in order to purchase inputs (goods, services, labor, taxes, profits, etc.) to meet the increased export demand (column B). Sixty cents of the dollars will be received by local businesses and households, but .40 will leak out in the form of nonlocal purchases. Thus, in addition to the initial dollar,

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[5] Transfer payments include such things as U.S. Department of Agriculture payments, social security payments, retirements payments and nonlocal government salaries.
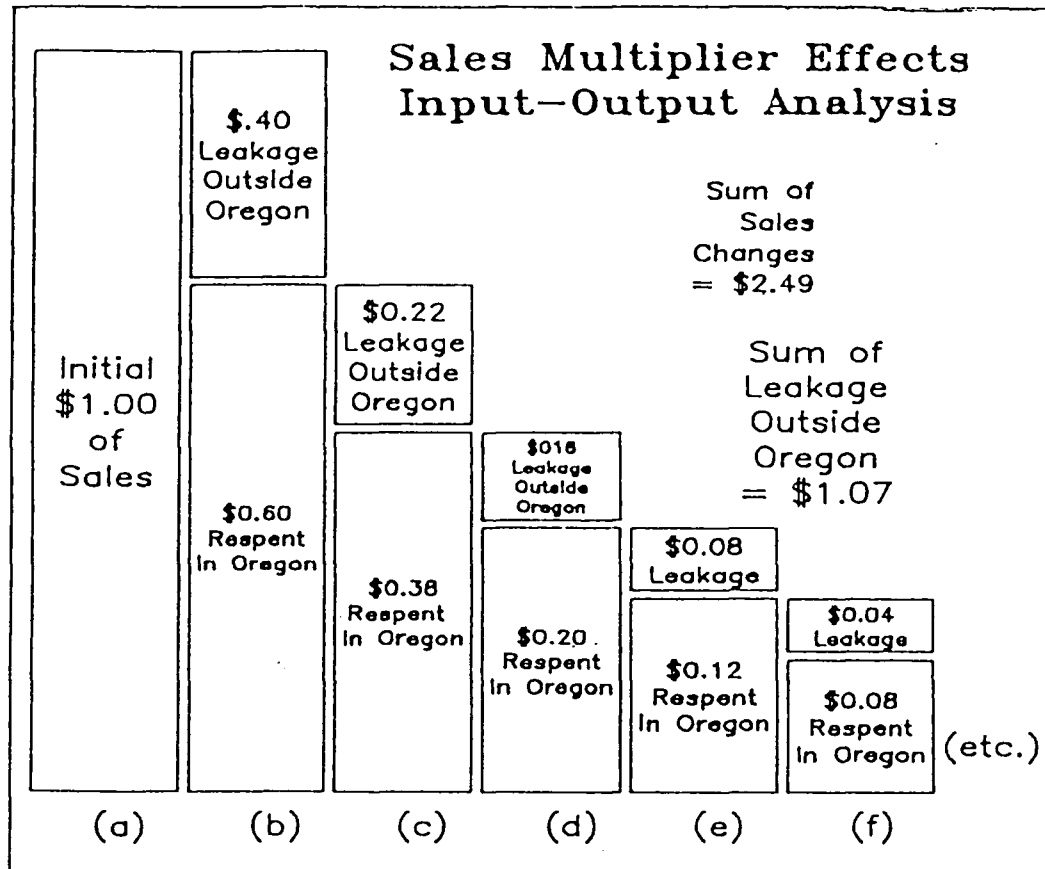
Figure 3. Sales Multiplier Effects, Input-Output Analysis.

business respending has generated an additional .60 of business activity within the economy. Of the .60 that is locally received, .38 will be respent within the county, and the rest will leak out (column C). This process continues until the amount remaining in the local economy is negligible (columns D, E, F). Thus, greater leakage at any round of respending leads to a smaller multiplier.

In order to determine the total multiplier value, the initial dollar is added to the sum of the local respending. In this example, the multiplier equals 2.49 ($1.00 initial change + 0.60 + 0.38 + 0.20 + 0.12 + 0.08 + etc.). Thus, $2.49 of local business activity will be generated for each dollar that enters the local economy. The same process can be used to explain a decrease in export sales.

The multiplier presented in this example is an output (sales) multiplier, measuring the total change in local sales generated by a $1 increase in export sales. While output multipliers are useful in describing the interrelationships between business sectors, they do not adequately describe the amount of income or employment generated locally by specific business activities.

Factors Affecting Multiplier Size

The most important factor affecting multiplier size is leakage. Sectors that import a large share of their first round purchases have large leakages and will generally have smaller multipliers than those sectors that purchase a larger share of inputs locally. In

other words, the greater the leakages at any round of respending, the smaller the multiplier.

Characteristics that influence multiplier size for an area are population, income per capita and geographic isolation. More populous areas provide larger markets and more diversified economies and will tend to have larger multipliers.

There is a tendency for households in high-income areas to purchase more outside the local area, perhaps luxury items and recreational activities. Because of this tendency there is an inverse relationship between per capita income and multiplier size--higher per capita income, smaller multipliers.

Greater distance to the nearest major trade center (geographic isolation) leads to more local purchases as a means of avoiding travel costs--consequently, resulting in larger multipliers (Mandelbaum et al).

Calculating Income Coefficients

A more useful measurement of the contribution of a sector's activity is the amount of local personal income that is directly and indirectly generated from an increase in sales. The distribution of the amount of local personal income generated by a change in economic activity is shown in Figure 4. Local personal income generated is the shaded part of the output described in Figure 3. The "Local Personal Income Coefficient" measures the income generated as a result of a change in sales. In the first round of export sales, $0.45 of local personal income is generated. The other $0.55 in the

Local Personal Income Effects Input-Output Analysis

$0.45 Oregon Income Generated (a)

$0.28 Oregon Income Generated (b)

$0.15 Oregon Income Generated (c)

$0.10 Oregon Income (d)

$0.06 Oregon Income (e)

$0.04 OR. Inc. (f)

(etc.)

Sum of Personal Income Generated by the $1 of Sales = $1.12
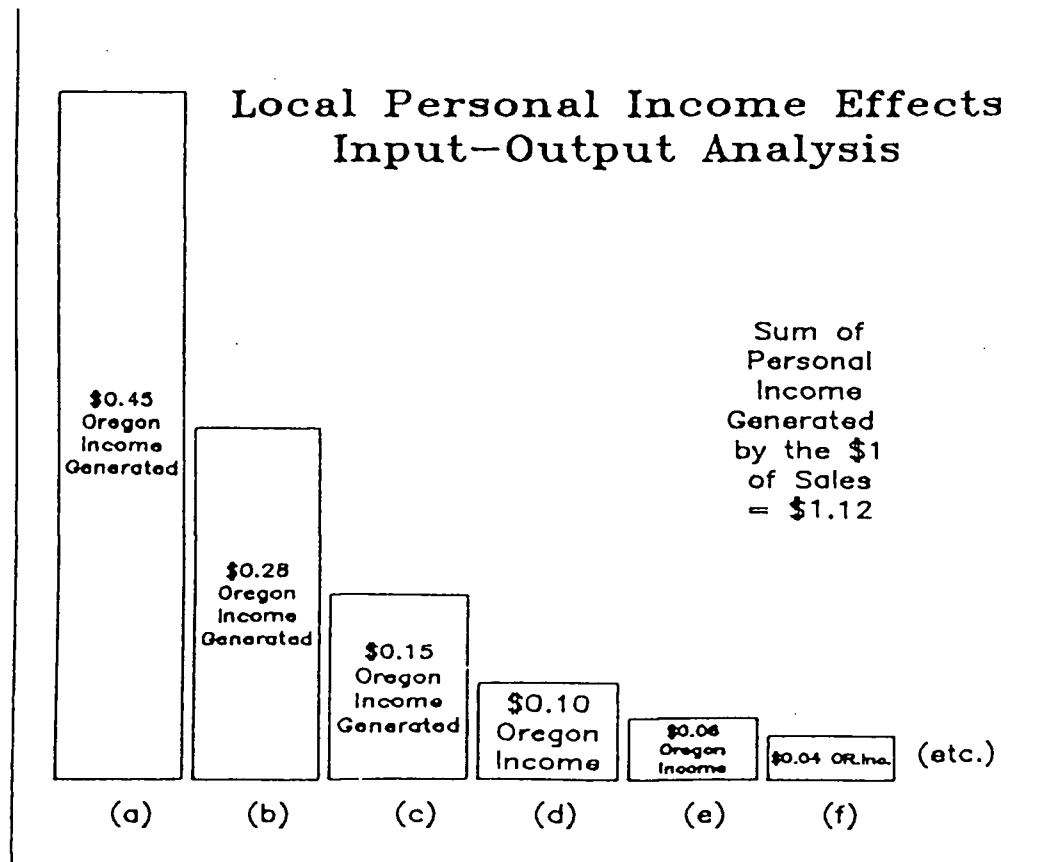
Figure 4. Local Personal Income Effect, Input-Output Analysis.

initial round goes to purchase supplies and services from other industries. These industries also create wages, salaries and profits. As these sales work through the economy, a total of $1.12 of personal income is generated for every $1 of increase in sales.

The output (sales) multiplier calculates how much money is "stirred up" in the economy, but it does not mean that someone in the local area is making a wage or profit from this money. The differences between output multipliers and income coefficients are often confused, leading to misuse (Lewis et al. and Radtke et al.).

The impacts estimated in this paper are effects on total personal income, the amount that is retained as household income (salaries, wages and proprietary income). Because many jobs in the agricultural industry are not full-time, an employment figure could be misleading. A full-time, equivalent employment figure can be calculated by dividing the total personal income figure by a representative annual personal income average.

Analysis of Impacts of the CRP Program

By participating in the CRP program a wheat farmer takes designated land out of production and therefore no expenditures on items such as fertilizer, gas and machine repair are created. For this analysis it was assumed that land charges (payments for land) would still have to be made. Also, a small amount of work on the land (conservation practices) would continue. The rest of the CRP payments per tilled acre goes to the farmer to spend on the upkeep of his household. The personal income coefficient for household ex-

penditures in Gilliam County is 1.3209. That is, for every dollar that is received in Gilliam County as pure income another $0.32 of additional income is created by the expenditures of the household on items such as food, medical services, car upkeep, etc.

On a per tilled acre basis of land that is part of the CRP program, a total of $95.12 of total personal income in Gilliam County is created.

A very important assumption in this analysis is that the wheat farmer only partially reduces his total acreage tilled and that he continues to live in the area. If the farmer idles his land and moves to another area a very different impact results. Only the payments to land and the small conservation practice expenditures would remain. For Gilliam County, under the latter assumption, an income loss of $120.21 would result. The assumption on the behavior of the farmer as a result of the CRP program is therefore very critical in this analysis.

IMPLAN

IMPLAN (Alward and Palmer, 1982) is a computer-based system developed by the USDA Forest Service to be used for nonsurvey input-output models. IMPLAN is used by forest planners to develop non-survey based interindustry models to be used in the evaluation of alternative management programs.

IMPLAN consists of a data base of relevant economic information relying upon secondary sources and a software system to perform the required computations. This IMPLAN system has the capability of

producing a nonsurvey input-output model for any region of the United States. The greatest degree of geographic resolution is a single county within a state.

The IMPLAN data base consists of two major parts: (1) a national-level technology matrix and (2) estimates of sectoral activity for final demand, final payments, gross output and employment for each county. This data represents county level economic activity for 466 sectors.

The 466 sectoral production functions used in the national technology matrix are used to estimate local purchases and sales and was derived from the most recent U. S. Department of Commerce national input-output model. Aggregation of some sectors such as agriculture, manufacturing and construction and disaggregation of the mining sectors resulted in the reduction from 496 sectors in the Department of Commerce model to 466 sectors used in IMPLAN. The resulting IMPLAN matrix is a highly disaggregated representation of national average sectoral input and output technology. Regional purchase patterns are estimated on the basis of these production functions.

As previously stated, the IMPLAN data base consists of 466 sectors to estimate activity for components of an input-output table (Table 5).

The estimates of economic activity for states and counties were made beginning with total national activity and disaggregating to states and finally to counties with control totals employed at each

Table 5.   Contents of the IMPLAN Data Base for each U. S. County.

A.   Final Demand

1. Personal Consumption Expenditures
2. Capital Formation
3. Inventory Change
4. State and Local Government Expenditures
5. Federal Government Expenditures
6. Foreign Exports

B.   Final Payments

1. Employee Compensation
2. Indirect Business Taxes
3. Property-Type Income

C.   Total Gross Output

D.   Production Employment

Source: Economic Research Service, Natural Resources Economic
              Division, 1/76.

level. For the control totals the national table was standardized using current National Income and Product Accounts. Since comparable accounts are not available for states or counties, the most suitable regional measures of economic activity were used to disaggregate the national production and demand activity--first among states and ultimately among counties within each state.

The IMPLAN software system was designed to serve three functions: (1) data retrieval, (2) data reduction and model development, and (3) impact analysis.

The data retrieval system was designed so that the user could have access to input-output data for any U. S. state or county.

The data reduction procedure used in IMPLAN produces a complete table of regional input-output accounts including a transaction table (Table 6) the final demand and final payments quadrants.

The analytical capabilities of the IMPLAN system can be divided into two categories: (1) the estimation of impacts originating from changes in final demand, and (2) the evaluation of constraints upon sectoral gross outputs.

A more detailed description of IMPLAN would be outside the scope of this thesis. More information on IMPLAN is available in current literature and from the Forest Service Implan manual (Siverts et al., 1983).

Table 6.   Illustrative Transaction Table[6]

| | **Purchasing Sectors** | | | | |
Processing Sectors	Agriculture	Manufac turing	Services	Final Demand	Total Output
Agriculture	10	6	2	18	36
Manufacturing	4	4	3	26	37
Services	6	2	1	35	44
Primary Inputs	16	25	38	0	79
Total Outlay	36	37	44	79	196

Source: Economic Research Service, Natural Resources Economic Division, 1/76.

[6] Each entry represents a sale of the row sector to the column sector.

CHAPTER V

ECONOMIC ASSESSMENT MODEL FOR ANALYZING IMPACTS OF THE
CRP ON THREE RURAL COUNTIES IN EASTERN OREGON

Procedures and Methods

The data used in the study were obtained by interviewing a
selected subset of wheat producers in the three county area. The
respondents may or may not be participating in the CRP. The Chair-
man Agent in each County was asked to provide a list of producers
known to him to be good record keepers and who would be receptive to
participating in a study of this type. In each case the County
Agent attempted to furnish a cross-section of those engaged in the
production of wheat. The survey was not conducted to yield statis-
tically discernible results, but to provide an operating budget that
represented production costs for each area surveyed. Because not
every producer in each County was interviewed, the author acknow-
ledges that different but similar information may have been obtained
from another sample set. Representative budgets on a per tilled
acre basis from the wheat harvesting sector are used to estimate the
impacts of changes that may result from the CRP program (See Table
7a, b, and c). Production inputs averages are multiplied by their
corresponding income coefficients to estimate local income impacts.

Input/output models have been constructed for the three rural
Oregon counties with the use of the U.S. Forest Service IMPLAN
model. Because the intent of this study is to estimate impacts of
economic changes brought about by removing land from production it

Table 7a. Umatilla County.

INPUTS	PER TILLED[7] ACRE AVERAGE	TOTAL INCOME COEFFICIENT	INCOME
Fert/Herb	32.51	.4567	14.85
Wheat Sales	6.44	.8072	5.20
Gas/Oil/Lube	8.40	.5353	4.50
Mach Repair	12.52	.5850	7.32
Crop Ins.	3.17	.9016	2.86
Conserv. Prac.	0.54	.6156	.33
Hired Labor	9.07	1.3797	12.51
Misc.	7.07	1.1576	8.18
Op. Cap. Int.	3.03	1.1128	3.37
Mach. Ins. & Fees	2.65	1.7270	4.58
Land Charge	39.35	1.1128	43.79
Int. on Mach.	14.81	1.1128	16.48
Mach. Deprec.	24.09	.6607	15.92
Operator Labor	10.06	1.3797	13.88
Management	12.31	1.3797	16.98
Marketing	19.11	.7865	15.03
PRODUCTION INCOME TOTAL	187.78		

[7] Tilled acre includes one fallow acre.

Table 7b. Morrow County.

INPUTS	PER TILLED ACRE AVERAGE	TOTAL INCOME COEFFICIENT	INCOME
Fert/Herb	20.44	.2304	4.7094
Wheat Seed	2.55	.5149	1.3130
Gas/Oil/Lube	8.00	.3454	2.7632
Mach Repair	7.52	.4521	3.3998
Crop Ins	2.81	.6939	1.9499
Conserv Prac	0.56	.4336	.2428
Hired Labor	5.18	1.2487	6.4683
Misc	4.88	.1883	.9189
Op. Cap. Int.	4.42	.6969	3.0803
Mach. Ins. & Fees	1.83	.2304	.4216
Land Charge	24.51	.6969	17.0810
Int. on Mach.	12.52	.6969	8.7139
Mach. Deprec.	16.96	.2290	3.8838
Operator Labor	5.38	1.2487	6.7180
Management	3.90	1.2487	4.8699
Marketing	11.46	.2661	3.0495
PRODUCTION INCOME TOTAL			69.5833

Table 7c. Gilliam County.

INPUTS	PER TILLED ACRE AVERAGE	TOTAL INCOME COEFFICIENT	INCOME
Fert/herb	20.52	.2873	5.8954
Wheat Sales	5.13	.6033	3.0949
Gas/Oil/Lube	8.40	.4203	3.5305
Mach. Repair	9.03	.5420	4.8943
Crop Ins.	2.35	.9173	2.1557
Conserv. Prac.	2.77	.4674	1.2947
Hired Labor	5.07	1.3209	6.6970
Misc.	4.61	.9754	4.4966
Op. Cap. Int.	5.04	.3852	1.9414
Mach. Ins. & Fees	2.31	.2873	.6637
Land Charge	36.98	.3852	14.2447
Int. on Mach.	9.72	.3852	3.7441
Mach. Deprec.	13.78	.2763	3.8074
Operator Labor	8.58	1.3209	11.3333
Management	4.33	1.3209	5.7195
Marketing	14.37	.6771	9.7299
PRODUCTION INCOME TOTAL			83.2431

was determined that the input/output model was the most appropriate economic "tool" to use. It was concluded that an I/O model would be more appropriate than, for example, an econometric model because of the large number of business sectors represented in a local economy. It would have been difficult to ascertain the most suitable variables to use in an econometric model. In addition, the author had past experience using I/O models.

Total impacts on community income resulting from changes in final demand or output depend on the size of the direct, indirect and induced income coefficients for the sector that is affected by the change.

To utilize the total personal income coefficients, the sector's total gross output change, adjusted for trade margins as appropriate, is multiplied by the total personal income coefficient. As an example, the coefficients used for the wheat farmer in Gilliam County are displayed (Table 7c). An explanation of these impacts is as follows: As one additional dollar is spent on fertilizer and herbicides in Gilliam County, $0.29 is retained in the local area as income in the form of wages, salaries and profits in the wheat industry supplying sectors and the general economy of Gilliam County.

Estimating Local Income Impacts

The type of expense, the percent of total expenditure category and the appropriate total income coefficient are used to estimate local income impacts. Referring again to the Gilliam County budget

(Table 7c), a wheat farmer who receives $1 of revenue from wheat farming spends 13.4 percent of those revenues on fertilizer and herbicides. These expenditures create $5.90 of local income. Similar calculations are made to estimate the contribution to local personal income of the wheat industry per acre of tilled land.

All of the production expenditures of $153.00 per tilled acre of wheat create a total of $83.24 of total personal income in Gilliam County every other year. This is because an acre of land is allowed to lie fallow every other year and is actually put into production once every two years. Thus, the CRP payment for a tilled acre (which includes one fallow acre) would be $100 per year. In other words, this is two acres, an acre in production and a fallow acre, at $50 per acre.

A Caveat

The impacts estimated in this analysis are total impacts on three rural counties in the wheat producing areas of Oregon. Shifts in production will cause specific expenditure changes that will cause severe hardship on some local businesses while helping others. As expenditures for machinery, fertilizer and repairs are reduced those businesses will be impacted negatively. Other businesses that cater to the general household will in all likelihood benefit from a shift away from wheat production expenditures toward general household expenditures.

While I/O impact analysis can provide general information concerning the distribution of these impacts among the various sectors

of the local economy, it cannot describe the social costs or the personal losses which transpire as a result of individual businesses going bankrupt, individuals having to move to another location, foreclosures that occur, or quality of life changes that will take place for some people.

It should also be emphasized that I/O impact analysis is a static analysis. The timing of these effects depends a great deal upon the reaction of the local wheat farmers and the local households to changes in income. Changes in expenditures for farming-related goods may take effect within a very short time in relationship to decreases or increases to total farm revenue changes. People involved in such businesses experience an almost immediate reduction in income as a result of reduced revenues. [Personal expenditures for items such as rents, medical bills and groceries may not be affected for some time--until lifestyles change.]

CHAPTER VI

SENSITIVITY ANALYSIS

Three Scenarios for Each County

As mentioned in Chapter III, this analysis assumes three
scenarios: (1) all participants in the Conservation Reserve Program
would continue to live in their communities and spend the transfer
payments where they previously made production purchases; (2) a
portion, in this case 20 percent, of the participants would choose
to leave the area and would not be spending the transfer payments in
the community; and (3) all of the participants left the area so that
none of the transfer payments were spent in the local community.

The following equations were formulated to assess community im-
pacts. The only unknown variable is P, the percentage of transfer
payments remaining in each county. By using the equations and the
income information for each county (Table 8), impacts on community
income can be determined (Table 9).

1. $[Tr(P) - FC](IM) = I_p$

2. $I_p + I_{fc} - I_n = I$

Tr = Transfer payment

P   = % of transfer payment remaining in County

FC = fixed costs per tilled acre

IM = income multiplier

I_p = income from participation

Table 8. Income Information for each County (per tilled acre).

	UMATILLA	GILLIAM	MORROW
Income Multiplier[8] :	1.3797	1.3209	1.2487
Income from production	187.78	83.24	69.58
Fixed costs	39.89	39.75	25.07
Income from fixed costs	44.12	15.54	17.32
Transfer payments	100.00	100.00	100.00

Source: Author

Table 9. Estimated Local Income Impacts[9] From Three Scenarios

	SCENARIOS		
COUNTY	1	2	3
UMATILLA	(60.73)	(88.32)	(198.70)
GILLIAM	11.88	(14.53)	(120.21)
MORROW	41.31	16.33	(83.56)

Source: Author

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[8] Weighted for high, medium and low incomes.

[9] The units are dollars.

I_n = income from production (nonparticipation)

I_{fc} = Income from fixed costs

I = difference between participation and nonparticipation

By looking at Table 9 we can see that under scenario one both Gilliam and Morrow County will have a net benefit resulting from the CRP but Umatilla County will have a net income loss. As we move to scenario two only Morrow County still has a net benefit and both Gilliam and Umatilla County suffer net losses. Under scenario three, as might be expected, all three counties have net income losses.

Use of the sensitivity analysis could become important as more time passes and we are better able to see what is really happening to the transfer payments. At this time we can only speculate. There are, however, rumors that a large percentage of transfer payments on land situated in Gilliam County is being sent to absentee owners. The author became aware of the rumors through casual conversations with producers and county officials just prior to concluding this thesis and was unable to substantiate the unofficial reports.

Impacts on Total Personal Income

It is useful to examine what portion of the total personal income for each County is accounted for by the estimated decline or gain in income under the stated scenarios (Table 10). This was done by multiplying the gain or decline in income (Table 9) times the number of acres bid into the CRP (Table 3) and dividing by the total

Table 10. Estimated Impacts as a Percentage of Total Personal
Income. _For. Totals —on Income -Net Effect_

County	Total Personal Income (000's)	Scenario		
		1	2	3
Morrow	106,224	4%	2%	-8%
Gilliam	26,501	3%	-4%	-29%
Umatilla	248,551	-2%	-3%	-6%

Source: Local Area Personal Income, Vol. 9. Far West Region, Alaska
and Hawaii. U.S. Department of Commerce. Bureau of
Economic Analysis and income information from Table 3 and
Table 9.

personal income for each County for the three scenarios outlined at
the beginning of this chapter.

CHAPTER VII

SUMMARY AND CONCLUSIONS

A survey was conducted in September of 1986 to determine the production costs for Gilliam, Morrow and Umatilla County. These counties were selected for the following reasons. First, they are representative of the kinds of communities most likely to be affected by the CRP and because in each case the communities are almost totally dependent on agriculture to drive their economies. In addition, agricultural production is almost totally limited to the traditional production of grain and livestock. And third, public opinion in this area suggests that community leaders and business people, as well as the general population, are seriously concerned about the future of their communities (SRC, Oregon State University, 1986).

Representative farms were selected to be surveyed to determine the current level of production, types of off-farm inputs purchased on a per acre basis and where those inputs were purchased. This was done to ascertain the change in spending patterns that are likely to occur as land is bid into the CRP and removed from production. The U. S. Forest Service model IMPLAN, a secondary input-output model, was used to assess the impact of changes in consumer spending and to estimate the changes in economic activity related to the receipt of government transfer payments under the CRP.

The fundamental finding of this analysis implies that in aggregate there will be positive net impacts for Gilliam and Morrow

Counties while Umatilla County is likely to experience negative net impacts. This appears to be the situation because Umatilla County serves as a subregional supplier of agricultural production inputs and marketing services. Approximately one-third of the survey respondents in Gilliam and Morrow Counties indicated that they made their input purchases in Umatilla County. Most of the machinery purchases of Gilliam and Morrow County producers were made in Umatilla County.

For the three counties being studied the production of grain and livestock is the principal industry. They are responsible for approximately 42 percent of the wheat grown in Oregon (Table 4). (Since the basis for this study is information from wheat producers, figures for livestock production is not presented.) Gilliam, Morrow and Umatilla County combined total 53.7 percent of the total acres bid into the CRP for the state (Table 3).

The results of this study seem to indicate that in the aggregate two of the counties being studied will benefit and one will be adversely affected by the CRP if all participants remain in their home county. In measuring the net costs and benefits accruing to individual counties, it appears that the most important variable is the intent of the participants to continue to live and spend the transfer payments in their local communities (See Chapter VI).

If the intent of the Conservation Reserve Program is to lessen some of the problems associated with excess supplies and to alleviate serious soil erosion while having the least amount of adverse impacts on rural communities, this study suggests that the program

has great potential for success. The Soil Conservation Service (SCS) considers the CRP a success when highly erodible acres are entered into the program (Langridge, 1988). (The SCS has no plans at this time to monitor the acres entered into the program except to insure that the terms of the contracts are upheld on the part of the lessee.) This in no way, however, ignores or negates the very real concerns of business people who may lose their livelihood as a result of the CRP. Although the volume of production goods and services used by farming enterprises has risen in recent years, the place of purchase tends to be shifting from the small communities to the surrounding larger towns and small cities. This tendency has already created an economic crisis for many businesses located in rural communities. The adjustment problems of people living in rural communities are at least as difficult as those encountered by today's farmers. However, there are virtually no national agricultural programs to assist small towns. Ironically, adverse impacts on small communities may be an important factor in termination of the Conservation Reserve Program. As a further irony, suppliers of goods and services to farmers for use in production wish to see their customers prosper and the CRP is intended, in part, to bolster farm incomes. In this respect the CRP illustrates the conflict between local economic objectives and our national agricultural goals.

As stated in Chapter III, many of the producers who are participating in CRP have large land debts and see the program as a last chance to hold on to their land. There is the possibility that

the CRP will aid in helping to stabilize land prices. When land values are no longer subject to the volatility of farm prices and are instead "growing" government transfer payments, land values may remain steady over a longer period of time.

Rural Development

A coordinated national policy that considers the interdependence between rural and urban areas is essential for development. Unless the federal government identifies what constitutes a reasonable national policy it is difficult to determine whether or not it might be in the interest of society to invest in the migration of displaced workers to other areas or to encourage the relocation of industries to rural regions. Because of the dichotomic efficiency/ equity issue there is a need to study the criteria used in evaluating programs as outlined in the following section.

Suggestions for Future Research

In the course of researching the Conservation Reserve Program and its impact on rural communities, many related effects pertaining to agriculture and social issues became apparent. It is because of the complexity of the interrelationship of agricultural public policy and social welfare that this section is included. In earlier studies done on the Conservation Reserve Program of the Soil Bank initiated in the 1950s, attempts were made to determine effects on farm operators (U.S. Department of Agriculture, Office of Information,1957). Since that time there does not appear to be a great

deal of literature addressing impacts on rural communities resulting from agricultural policy.

It is the opinion of this author that research is needed to ensure the effectiveness of national agricultural programs. Research should establish criteria for judging the effectiveness of public policy. Without well-defined criteria, significant policy cannot be formulated and programs cannot be properly evaluated.

The research should determine criteria for accomplishing the following:

1. In the process of proposing new agricultural policy the federal government should establish mandatory evaluations of community impacts. Programs aimed at commercial agriculture has not eliminated poverty in rural areas.

2. More emphasis should be given to residents of rural communities as people and as consumers.

3. Since programs aimed at commercial agriculture and natural resource development often have the effect of displacing workers, there is a need for research on a national policy that would entice industries to locate in areas where employment opportunities are needed and to assist people in moving to areas that offer better job opportunities.

4. The federal government should seek greater involvement with community leaders in establishing priorities, identifying goals, planning and evaluation of results.

The above suggested research could be conducted using input-output models based on surveys of firms, local governments and households in single communities or multi-communities where appropriate.

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APPENDICES

APPENDIX I

QUESTIONNAIRE AND SAMPLE COVER LETTER

OREGON WHEAT FARMS EXPENDITURES SURVEY

This survey is being conducted by the Department of Agricultural and Resource Economics, Oregon State University, in cooperation with the Oregon Wheat Commission.

The purpose of this survey is to gather data to assist in estimating the contribution that the production, transportation and marketing of wheat for export provides to Oregon's economy.

Wheat growers were chosen for this survey to represent a cross-section of those engaged in the production of wheat. While this is not a survey providing statistically discernible results due to the small sample size, your cooper-ation is essential as there is no way to substitute for the accurate information you can provide. Your participation is voluntary and all information you give is strictly confidential. Results are tabulated for the entire sample and not for any one grower.

1. First of all, how many years have you, yourself, farmed in Umatilla/Gilliam County?

    YEARS_____

2. Approximately how many total acres did you farm in 1985?
    TOTAL ACRES_____

3. And, how many acres did you plant to wheat in the fall of 1985? This is, the crop harvested in the summer of 1986?

    ACRES WHEAT_____

4. What was your income from sales of wheat for 1985? Just your best estimate is fine.
    $_____

Next, I would like to ask you some questions concerning your wheat crop budget.

Would you please look at this crop budget breakdown for operating expenses and tell me if it is representative of your own operation. If not, would you please indicate where you differ. As you can see this budget is on a per bushel basis so I would appreciate it if you would answer on a per bushel basis also, using dollar figures.

Now, I would like to ask you about the input purchases you made for the year.

5. Of all these budget expenses, about what percent would you say was spent:

   a. outside the County_____
   b. outside the State_____

6. Now let's look at some particular inputs. I would like to ask you whether they were purchased within the county. If not within the county, could you tell me where they were purchased.

	YES	NO	WHERE
a. Fertilizer	____	____	_____
b. Herbicides	____	____	_____
c. Machinery	____	____	_____

7. The last input question I have concerns labor.

   a. Does it come from within the county? If not, from where does it come?

YES	NO	WHERE
____	____	_____

   b. Do you use contracted combining and does it come from within the County? If no, from where does it come?

YES	NO	WHERE
____	____	_____

8. Do you have any suggestions you would like to make about Oregon's wheat industry?

9. Would you like to have a copy of the results of this survey when it is completed? (If interviewee answers yes, write name and address on attached sheet provided for that purpose.

I would like to have a copy of the results of this survey when it is completed.

PLEASE MAIL TO:

_____

_____

_____

Dear Morrow County Producer:

Wheat Production and marketing is one of the most important economic activities in Oregon and Morrow County. Any major changes in the way that the Morrow County agricultural producers operate has an enormous impact on the local economy.

The Department of Agricultural and Resource Economics at Oregon State University, with support of the Oregon Wheat Commission, is conducting a study of the production and marketing of wheat on a local economy.

We need your help. Your name was provided by Fred Lundin, Chairman Agent, Morrow County Extension Service. Enclosed is a copy of the survey being used. One of our interviewers will be contacting you by telephone within the next week to ten days to try to set a convenient time to conduct an interview with you. To help defray costs associated with this study, the interview itself will be done over the phone. It will be helpful if you would look over the survey and have your answers ready when the appointed time rolls around.

Complete confidentiality will be maintained throughout this study. The responses from the interviews will be aggregated together and only these totals will be evaluated. There will be no way that an individual producer can be identified from the results.

Thank you for your time and cooperation. If you have any questions about this study, please feel free to contact us here at OSU (754-2942) or Bruce Andrews (276-7330) of the Oregon Wheat Growers League.

Yours truly,

Michael V. Martin
Associate Professor

A. Gene Nelson
Department Head

Dianne Nofziger
Graduate Research Assistant

APPENDIX II

CRP NATIONAL TOTALS - THROUGH FOURTH SIGNUP

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CRP - NATIONAL TOTALS
FIRST THROUGH FOURTH SIGNUP

STATE	ELIGIBLE ACRES	ACRES BID	ACRES ACCEPTED	AVERAGE RENT PER ACRE
Alabama	1,123,000	182,569	174,995	$ 40.94
Alaska	0	10,385	10,385	36.51
Arizona	191,000	0	0	.00
Arkansas	619,000	58,116	56,687	48.54
California	496,000	35,212	34,419	48.26
Colorado	4,515,000	400,762	380,306	40.25
Connecticut	22,000	0	0	.00
Delaware	17,000	220	220	64.14
Florida	149,000	31,798	29,979	40.32
Georgia	901,000	184,522	174,300	41.35
Hawaii	88,000	0	0	80.00
Idaho	1,822,000	293,712	260,207	44.36
Illinois	3,644,000	237,120	216,511	69.83
Indiana	1,910,000	129,169	115,780	64.94
Iowa	7,121,000	1,072,887	1,029,762	76.51
Kansas	6,508,000	885,381	842,271	51.86
Kentucky	1,828,000	175,328	168,975	58.26
Louisiana	211,000	27,211	26,151	42.59
Maine	107,000	7,411	7,314	48.66
Maryland	405,000	1,937	1,738	59.14
Massachusetts	19,000	17	17	48.28
Michigan	411,000	67,012	58,637	56.40
Minnesota	1,208,000	946,762	889,849	56.44
Mississippi	1,504,000	263,457	252,961	41.05
Missouri	4,988,000	706,292	646,464	61.52
Montana	6,928,000	928,608	875,199	36.40
Nebraska	4,395,000	599,010	553,728	54.06
Nevada	68,000	409	249	40.08
New Hampshire	5,000	0	0	.00
New Jersey	137,000	61	9	52.42
New Mexico	731,000	56,711	50,086	37.69
New York	1,140,000	19,005	16,959	56.33
North Carolina	1,333,000	40,537	39,425	45.13
North Dakota	1,571,000	634,839	588,040	36.76
Ohio	1,408,000	97,314	84,847	60.18
Oklahoma	2,714,000	328,348	310,341	41.92
Oregon	854,000	146,596	140,446	48.92
Pennsylvania	1,780,000	21,360	19,665	59.07
Puerto Rico	171,000	257	257	58.55
Rhode Island	2,000	0	0	.00

CRP - NATIONAL TOTALS
FIRST THROUGH FOURTH SIGNUP (continued)

STATE	ELIGIBLE ACRES	ACRES BID	ACRES ACCEPTED	AVERAGE RENT PER ACRE
South Carolina	325,000	92,831	90,501	41.37
South Dakota	1,304,000	353,896	333,618	39.03
Tennessee	1,821,000	134,768	129,353	50.99
Texas	11,091,000	1,295,113	1,225,181	39.21
Utah	334,000	72,020	66,376	40.11
Vermont	36,000	80	69	49.97
Virginia	804,000	15,570	14,917	47.64
Washington	2,068,000	399,200	375,358	49.08
West Virginia	99,000	543	225	46.66
Wisconsin	2,295,000	199,144	184,343	65.70
Wyoming	107,000	101,337	95,282	38.27
Summary	**83,328,000**	**11,254,837**	**10,572,402**	**$ 48.70**

Source: U. S. Department of Agriculture, Agricultural Stabilization and Conservation Service.

APPENDIX III

SOIL CLASSIFICATIONS

Soil Classifications

The Soil Conservation Service (SCS) land capability class system consists of eight classes (I-VIII). These classes are further divided into subclasses if they have limitations for agricultural production. The subclasses are identified by the "dominant" limitation, such as erosion (e), wetness (w), and stony soils(s). The SCS system counts land as erodible only if erosion now limits agricultural production and if it is the dominant limitation.

The universal soil-loss equation (USLE) singles out physical erodibility and the management factors which add to or retard actual erosion. The physical factors are R (rainfall), K (erosivity), L (slope length) and S (slope steepness). Numerical values for R, K, L and S, when multiplied together, give an estimate of potential erosion. The management factors are C (crop grown and production technique) and P (conservation practices). The erosion rate is the product of RKLS and CP. CP values may range from 0 to 1 (Schaller et al, 1985).