IMPLAN Model | NRCS Economics

IMPLAN Model

Introduction to NRCS uses of the IMPLAN model

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Background and Availability

The USDA Forest Service in the mid-70s developed IMPLAN for community impact analysis. The current IMPLAN input-output database and model is maintained and sold by MIG, Inc . (Minnesota IMPLAN Group). Over 1,500 clients across the country use the IMPLAN model, making the results acceptable in inter-agency analysis. The National Technical Support Centers are supporting usage of IMPLAN throughout NRCS. They have provided IMPLAN training and models to each NRCS state and have available all 50 state and 3,000 country datasets. The IMPLAN software can combine any combination of counties and states into one study area. NRCS has the 2001 and 2007 IMPLAN data for all counties and states.

Watershed Projects

NRCS is required to determine national and regional economic impacts for each PL-566 watershed project. Similar impact analysis is needed for state conservation programs and projects. IMPLAN (Impact Analysis for Planning) is an economic input-output model designed for this task. NRCS and partners use IMPLAN to analyze conservation projects and programs. While originally implemented to supplement PL-566 National Economic Development (NED) accounting with regional impact analysis, IMPLAN is also being used to examine impacts of proposed regulations and benefits of conservation programs. IMPLAN measures economic and social impacts of conservation program implementation in measures (dollars of sales, local taxes received, jobs created) that non-agricultural decision-makers can understand.

One study, presented at the 1998 AAEA meeting, looks at impacts of proposed dairy farm regulations in Maricopa Co., AZ, and a potential PL-566 project to ease the transition of these farmers to these regulations. IMPLAN provided the data on the economic impact of a typical dairy farm closing or changing production practices. This IMPLAN analysis justified the federal cost-sharing portion of the project. This traditional usage of IMPLAN is used in West Virginia and other states. Using IMPLAN to determined NED benefits was used examine a proposed watershed project in the dairy farming reaches of the New York City water supply area and also in Vermont.

A second case study, also presented at the 1998 AAEA meeting looks at a typical flood control watershed project, Turkey Creek, along the Nebraska/Kansas border. IMPLAN is used to estimate the crop production, flood damages, recreation, and construction benefits of the project to counties within the watershed.

The New York State NRCS Office used IMPLAN with two PL-566 projects. One considered the impact of an NRCS water quality project to provide more assistance to the NYC drinking watershed. Alternatives considered included the construction of a multibillion dollar water treatment plant, or lost of the local dairy industry from the watershed. The second
case study, presented at a Regional Economist Workshop, considered a flood control project involving relocations out of the floodplain.

Justification for Local Cost Sharing

The quickest use of IMPLAN is to show the local benefits of Federal expenditures and increased business in a community. By showing the future economic benefits, and corresponding increases in local tax revenues, IMPLAN can help justify the local government cost sharing for conservation projects. Regional Impact Studies has been used for this in the former Northern Plains Region, Midwest Region, New York, Pennsylvania, and West Virginia.

RC&D

Another area where IMPLAN can make a difference is RC&D projects. These projects are primarily locally funded, and RC&D customers want to know their local economic impact. IMPLAN provides quick and simple estimates of the economic impacts. It can show if a conservation project actually pays for itself within a local economy.

CRP Studies

South Dakota State University used I-O modeling to examine the impacts of the Conservation Reserve Program (CRP) within their state. The South Dakota study found net economic benefits to the county economies from CRP rentals in the pothole regions, but net losses in the dryer wheat areas of the state. In the wetter, eastern counties, the farmers were more likely to place smaller portions of the farms in CRP, maintaining valuable farm operations, and pumping the CRP rental payments back into the local economies. In Western South Dakota, wheat farmers were more likely to put their entire farms into CRP, sell the equipment, and retire. Little of the CRP rental payments were recycled into the local communities, and most of that was only as household expenditures, not agricultural expenditures. For counties accepting over 25% of their cropland into CRP, the 1990 and 1996 Farm Bill required an economic impact study to be done to determine if additional CRP will harm the local economy. This South Dakota study provides a method for analysis.

North Dakota State University did a similar study, again finding net positive and negative impacts in various counties. In North Dakota, the CRP program slightly increase NET farm incomes. However it reduced farm production expenditures by taking land out of production by a net $55 million with 62% of that in the retail sector. This reduced total business activities by $141 million, a multiplier of 2.56. This is a 0.54% of total North Dakota business activity, and only 0.91% for the most impacted part of the state. The CRP program in North Dakota cost 2,416 jobs, with the job loss was concentrated in the most agricultural dependent rural areas of the state. Positive aspects of the CRP program whose economic benefits were not studied included the increased recreational expenditures and income stability for the landowners.

Resource Policy Analysis

A 1992 IMPLAN study on the Texas Coast looked at impacts on local agriculture from early proposed EPA regulations for Coastal Zone Management Areas. It looked at the extreme case of a total curtailment of agricultural pesticides in a ten county area, particularly on cotton. The main impact of the ban have a decrease in cotton production and gross income of 72%, or $60 million. Corn production would decline also. Grain Sorghum production would increase by 260%, but in total, gross farm income would decline 42%, variable costs would decline 47%, and net returns to management and fixed costs would decline 37%. Total regional industry output would decline by $106 million, which translates into 1,558 jobs. Since the total pesticide ban in the Coastal Zone Management Areas did not occur, these impacts did not.

State/Regional Planning

IMPLAN provides quick estimates of staffing and program impacts to state and local economies for strategic planning. This knowledge is useful for preparing staffing plans, advertising local programs, justifying state cost sharing with NRCS programs, and examining the impact of proposed regulations on local agricultural sectors. An impact of Agriculture in South Dakota was followed by an impact study of lost grazing and production due to natural resource problems. These studies help justify a doubling of the South Dakota state conservation grant program.