



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

No. 207

August 1982

Common Barriers to the Integration of Small Farms in  
Agricultural Development Policies in  
Brazil, Portugal, and the USA

by

William E. Saupe

Deborah H. Streeter

and

Atos F. Grawunder

Paper presented at the triennial meetings of the International  
Association of Agricultural Economists in Jakarta, Indonesia on  
August 31, 1982.

## Introduction

Failure to consider the needs of families on small farms during the formulation of agricultural development policies may result in unexpected inequities that worsen the small farmer's disadvantaged circumstances. An important challenge facing policymakers is the identification and implementation of strategies that will increase agricultural production and trade (growth considerations) without disenfranchising or eliminating small-scale farmers (an equity consideration), especially when agricultural producers are on both extremes of the size spectrum. When large farmers are the main responders to the incentives of agricultural policies, small farmers are not receiving the same encouragement and support from the public sector as their larger counterparts.

## Failure to Achieve Small Farm Integration

Evidence of the failure to integrate small farmers in the agricultural sector is found in each of three study areas, in spite of their geographic dispersion and differences in stage of agricultural development. One study area is in Wisconsin, a major agricultural state which supports about five percent of the United States' farm population and is located in the north central region of the United States. Although the Wisconsin agricultural sector is highly developed, about two-fifths of the farms can be considered "small" in terms of the resources controlled, and nearly one-fifth are in poverty by federal government standards.

The second study area is in Rio Grande do Sul, the southernmost state in Brazil, sharing common boundaries with Uruguay and Argentina. Since the early 1960's, it has been an area of rapid

agricultural development, fostered by federal government policies. A major Brazilian farming area, the state has a variety of regional micro-environments and agricultural enterprises, and rural incomes there that are above the national rural average. Nevertheless, nearly two-fifths of the farm families receive income below the level of one legal minimum salary per adult equivalent, an indicator of poverty status (Grawunder).

The country of Portugal is the third study area. It is the most southwestern country in continental Europe and contained 808,800 farms by its last census count in 1968. Of these, some 628,600 contained fewer than four hectares (United States Department of Agriculture, 1981, pp. 21-22). Small farms predominate in all areas of the country except in the southeastern one-fourth. Per capita income of rural people in the poorer districts averaged about \$330 in 1970, \$320 below the national average, which was lower than any other western European country. Portugal has recently initiated extensive rural programs to increase domestic agricultural production, prompted in part by their separation from food-exporting former African colonies as well as their impending entry into the European Economic Community. In contrast to the policies of the United States and Brazil, Portugal's agricultural programs are at an early stage of development.

#### Common Barriers to Small Farms in Agricultural Policies

It is hypothesized that agricultural policies fail to assist families on smaller farms because: a) the objectives of agricultural development policies are not necessarily consistent with improving the well-being of families on smaller farms, and b) the adverse im-

pact on small farms cannot be anticipated by policymakers because the unique characteristics of such families are not well documented or understood. The following examples illustrate these policy shortcomings in all three study areas.

#### Commodity Price Support Programs

Commodity price support programs take various forms but span decades and even centuries in the three study areas. For example, the quantity, quality, and price of port wine produced in Portugal has been controlled since 1760 by a decree that limits production to a specified geographic area in the upper Rio Douro valley. Brazil in the early 1960's established a guaranteed price to its wheat farmers at a level well above world price, to promote national self-sufficiency in the production of this important foodstuff. Farm commodity programs in the U.S.A. have raised the mean and reduced the variance of selected commodity prices and producer incomes. The methods used have included commodity loans to farmers that removed corn and wheat from the market, government purchase and storage of dairy products to enhance the farm price of milk, cash payments to corn producers to reduce their acreage, and tobacco acreage allotments that limit production to desired market-clearing levels.

Regardless of method, the benefits of commodity price enhancement programs are distributed to farmers on the basis of the quantity produced, i.e., by hectares of port wine grapes in Portugal; sacos of wheat in Brazil; acres of corn, wheat, or tobacco in the U.S.A., and hundredweights of milk produced in Wisconsin. Although the commodity price is enhanced for all producers of that commodity,

large or small, the skewed benefit distribution increases the inequality of the distribution of income. Thus, while the above programs may be effective in controlling production and quality of selected farm commodities or in raising and stabilizing producer incomes, they widen the gap in net income between large and small producers, on average.

### Agricultural Credit

In each of our study areas, the government has initiated programs to increase the availability of agricultural credit to farmers. In the U.S.A. this took the form of the creation in 1930 of what were initially federally funded cooperatives whose local offices made loans for real estate purchase and for farm operating expenses. In the 1960's, branches of the Bank of Brazil were established in rural communities as a new source of agricultural credit. Federal programs were implemented in Portugal in 1980 to direct additional funds to farmers through existing rural banks and credit cooperatives as well as through a newly created financial institution.

In each case the credit became available to operators of farms of all sizes who could meet the collateral and repayment criteria of the institution. Self-selection took place, however, as the more aggressive, market-oriented farmers (generally larger farmers) were the major users of this service. In addition, economies of size on the part of the lender meant that fewer but larger loans could be made with less cost in administration and supervision than if the same total amount of credit was loaned to a larger number of small borrowers. For these reasons, there is a tendency for federal credit programs, like open-market lending activities, to lend a dispro-

portionate share of the total credit to large versus small farmers.<sup>2/</sup>

### Agricultural Research

Agricultural research has been supported by the government in the U.S.A. for more than a century and in Brazil for many decades. In Portugal, agricultural research has been of limited scope and, to date, performed primarily by foundations. Most public sector agricultural research is scale neutral with new knowledge being useful to farmers of all sizes. Exceptions occur primarily in mechanization research that results in size economies for the larger farmers for whom the new equipment or machinery is economically feasible. However, new technology that facilitates the substitution of capital for labor also works to the disadvantage of the small farmers who have relatively ample labor but relatively limited capital. Proponents of appropriate technology for small farmers look primarily for labor-intensive practices and enterprises that are not amenable to mechanization.

The ultimate beneficiaries of agricultural research are consumers who gain a larger, more stable, better quality, and lower cost food supply. The primary agricultural beneficiaries tend to be the first farmers to adopt the new practices, and these tend to be the more aggressive, market-oriented farmers who are in a position to accept the risk associated with a new practice.

### Small Farm Research

The preceding examples illustrate that agricultural policy objectives and methods are not always consistent with small farmers' needs. The low profile of small farmers may serve as a stumbling block to their integration into national policy because undesirable

impacts may not be anticipated, and may even go unnoticed.

Small farm problems and characteristics are masked in aggregate census or survey data. Descriptors of mean farm size, mean farm income, etc., hide the distributional aspects of ownership or control of farm production resources and the distribution of income. The low visibility of small farmers is reinforced by the self-selection process that brings the more aggressive, larger farmers to the attention of the rural leadership, i.e., to the agricultural lenders, extension workers, managers of cooperatives, and merchants. The members of farmers' organizations are often those with the income and available time to afford such off-farm activity. Farm lobbyists represent only those with the income and wealth to finance their activities. Thus, small farmers are readily overlooked.

To correct this problem, descriptive and analytical small farm research can be the basis for understanding the distributional impacts of agricultural policies, and for developing public policies with the objective of increasing the well-being of families on small farms. The small farm data reported in Table 1 are from such surveys in Brazil, Portugal, and the U.S.A. and are suggestive of the kinds of information that can be obtained.

In each study area, the farms were considered small and economically disadvantaged by local criteria based on resources or income. Absolute level of well-being differ, however, as mean net cash farm operating income ranged from \$2,782 to \$8,653 among the three study groups. The Portuguese farms are the smallest in size, averaging 8.7 hectares, scattered among an average of 7.4 parcels per farm. The reported data from the small farm areas of the southern Brazilian



state of Rio Grande do Sul show that they have a larger labor supply than the other study areas, averaging 3.8 man equivalents per farm. The Wisconsin farmers were participants in an intensive extension program for small farmers and are believed to be typical of small, low-income farmers in that state. The Wisconsin case farms support the most animal units, particularly dairy cattle, and the most crop acres of the three groups of farms (See Table 1).

#### Small Farm Characteristics Affecting Public Policy

A selection of the many family and farm characteristics which influence how families on small farms are affected by agricultural development policies is illustrated by the data.

#### Low Productivity

Low productivity, i.e., output per unit of input, prevents small farmers from reaping the maximum benefits of policies based on output. Although a direct measure of productivity is not included in the table, low productivity was common in the three study areas. Understanding the causes of low productivity should precede the creation of programs or policies for improvement. In Portugal, the extreme parcelization of an already small land base increases labor travel time to and from tracts and constrains mechanization because of small field size and foot-path access. In other cases, the effectiveness of soil additives may be limited because available small-scale machines or tools distribute and incorporate the material inadequately. For example, farmers in Rio Grande do Sul who adopted the new chemical technology but incorporated the additives with oxen or human-powered equipment incurred the added costs but failed to gain the expected additional benefits of the practices.

### Age of Head

Effectiveness of public programs and policies is also influenced by the age of the clientele. Farmers who are younger tend to be more responsive to changes, more willing to accept financial risk, and more open to scientific versus traditional agriculture. Small farmers near age 50, e.g., in the Portugal and Rio Grande do Sul studies, were often less responsive than their younger counterparts to innovative public programs or policies.

### Education

Even when education levels are high, as in Wisconsin, existing extension programs based on state-wide printed brochures, news releases, radio programs, or mass meetings are not effective when small farmers feel that this information does not address small farm problems. Solutions include printed material identified as "small farmer" information, one-on-one on-farm extension programs directed at low-income farmers, and group meetings held specifically for small farmers.

Mass media are potentially effective in rural southern Brazil as there is more than 90% readership by farm families of weekly newspapers which contain relevant, seasonal farm information. Farmers reported spending nearly two hours per week in this activity (Fett). However, in Portugal a substantial percentage of farmers are unable to read and write. This reduces the potential for any public program that seeks coverage by written mass media.

### Labor Supply

Farm household labor supply is important as a farm production input, and in other ways as well. In Wisconsin, most farm families

have one or more adults who work off the farm for wages at least part of the year, and off-farm income can be an important determinant of total family well-being. While farms included in this study were far below the state mean in that regard, public programs that enhance off-farm work opportunities can directly benefit small farm families.

The farms selected in the Portuguese case studies all had a male head present on the farm. But in Portugal, substantial numbers of male household heads spend 10 or 11 months per year in employment in a foreign country, for much of their adult life. This generates a higher level of family income than otherwise available, but the head's continual absence restricts farm enterprises to those requiring only labor of the spouse and children. Output stimulating farm programs in Portugal need to recognize the composition of the labor supply. In contrast, small farms in southern Brazil have on average nearly four man-equivalents of labor supply. Research on appropriate technology and agricultural programs to assist small farmers there should consider the relative abundance of labor and shortage of capital.

#### Land Tenure and Control

The amount of land owned affects the farmer's ability to finance operating loans and realize the returns from long-term investments (e.g., liming, planting multiple-year crops such as sugar cane and pulp-wood trees, irrigation systems, land improvements, etc.). Also, smaller farmers cannot take advantage of the economies of size associated with reduced cost per unit of capacity of larger mechanical devices (e.g., tractors, irrigation equipment, fences, drainage tiles, etc.).

### Credit and Risk Aversion

Public policy could assist small farmers to expand their use of credit if current problems were recognized. Even when the smaller operator fully recognizes the low-risk, rapid payoff from the use of certain inputs, he may lack the internal cash flow or the needed credit from merchants or institutions to buy the input. Credit use may be inhibited by the lack of productive alternatives for its use, as in Portugal where a government program provides funds for fertilizer and lime use in corn production, but research to identify the expected yield increase is incomplete or inconclusive from the farmers' viewpoint.

Farmers in all countries display wide variation in their willingness to incur financial risk. Risk aversion is more pronounced among decisionmakers near the subsistence level of income where a mistake affects survival, and generally among older farmers who have fewer years remaining to recover potential losses.

### Summary and Conclusions

Agricultural policy objectives may have unintended conflicts with the improved well-being of families on small farms. The impact of policy on small farms may be unexpected because little is known of their unique characteristics. Special studies of small farms in three countries that are at different stages of agricultural development were used to demonstrate the new knowledge created and insights gained into expected small farmer response.

Table 1. Characteristics of selected small farmers in differing agricultural development circumstances.

	Unit	Portu- gal	Rio Grande do Sul, Brazil	Wiscon- sin, U.S.A.
Number of farms	no.	40	87	165
Age of head	years	47	51	34
Education level:				
Cannot read and write	%	10	4	0
Can read and write but no schooling	%	18	0	0
Have 1-4 years schooling	%	56	68	0
Have > 4 years schooling	%	16	28	100
		100	100	100
Household labor (man equivalents):				
Available	m.e.	2.8	3.8	2.1
Employed on the farm	m.e.	1.9	3.1	1.5
Employed off the farm	m.e.	.5	.1	.1
Land Tenure:				
Owned	ha.	4.9	16.7	68.4
Rented	ha.	3.8	1.1	22.7
Parcels owned	no.	5.5	1.0	1.0
Parcels rented	no.	1.9	.4	.4
Percent owning no land	%	15	4	7
Agricultural enterprises:				
Beef and dairy cattle	head	3.5	8.6	55.6
Sheep or goats	head	.3	0	3.6
Swine	head	3.2	17.5	8.8
Grain	ha.	2.5	12.6	52.3
Grapes and fruit	ha.	2.2	.8	< .1
Horticultural food crops	ha.	1.1	.4	.1
Forest and woodland	ha.	< .1	1.6	22.5
Financial:				
Percent responding	%	65	100	100
Gross sales per farm	USA\$	8,467	5,286	43,868
Net cash farm operating income	USA\$	3,674	2,782	8,653

Sources: The Portuguese data are from selected small farms from all areas of the country. The Brazilian data are from several farm surveys in southern Brazil. The Wisconsin data are from farms that participate in an Extension small farms program.

### Notes

1. William E. Saupe is a professor of Agricultural Economics, University of Wisconsin-Madison, and Deborah H. Streeter is a research assistant in the same institution. Atos F. Grawunder is a professor of Economics, Federal University of Rio Grande do Sul, Brazil.
2. It should be noted that in the U.S.A. the Farmers Home Administration was created as a government agency with the responsibility to lend where possible to farmers unable to obtain credit from market sources. In late 1981 this subsidized credit program for low-income farmers provided 17 percent of all farm credit in that country.

### References

- Fett, John H. "Content and Situational Relevance of Agricultural News in Brazilian Papers." Journalism Quarterly, Vol. 49, No. 3, pp. 505-511.
- Grawunder, Atos Freitas and William E. Saupe. "Small Farmer Income in an Area With Rapid Agricultural Development: Southern Brazil." Staff Paper 178, Department of Agricultural Economics, University of Wisconsin-Madison, July 1980.
- United States Department of Agriculture. "Selected Agricultural Statistics on Portugal, 1965-77." International Economics Division, Economics and Statistics Service, Statistical Bulletin No. 664. April 1981.