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CHARACTERISTICS OF INCOME DISTRIBUTION IN EASTERN PARAGUAY

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RURAL DEVELOPMENT DIVISION
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CHARACTERISTICS OF INCOME DISTRIBUTION IN EASTERN PARAGUAY

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ABSTRACT

This report examines the distribution of income and productive resources in rural Eastern Paraguay, and reviews some evidence relating to the standard of living experienced by rural Paraquayans. Aggregate data for the entire eastern region are reviewed in Part I. Departmental census data and disaggregated regional data are reviewed in Part II. Part III presents the results of several case studies, which both amplify the previous discussion and provide a check for reasonableness. Finally, Part IV presents a brief discussion of income distribution policy in Paraguay.

PREFACE

The data in this report are taken from several sources. In many cases, the definition of terms varies from source to source. These differences will be pointed out, when possible, throughout the report. The definitions of income and of different land tenure situations are especially variable, however, and they warrant mention here. Additionally, the term "target group" is used frequently in the report and it, too, merits explanation.

All measures of income used in this report are on a per capita basis, often measured as family income and divided by the average family size to arrive at a per capita figure. These income measures are subject to a great degree of variability. They are the estimate of an interviewer in a survey, who is using a brief questionnaire with only a few selected questions which relate to income. The interviewee probably did not keep records of transactions, and certainly would have to provide a mere estimate of payments in kind, home consumption, family labor, and other non-cash income components. When the interview is very detailed and long, it can be criticized for possibly confusing or boring the interviewee. When it is short and simple, it is relying upon broad estimates. The result is that, while income figures within any given source may be internally consistent, the comparability between sources must be understood with

the qualification that income measurements are generally somewhat different.

Furthermore, farm income (most of the income mentioned herein is from farming) is extremely variable due to price fluctuations both in time and in location. While non-agricultural prices generally follow a constant trend, farm prices fluctuate from season to season and from place to place. A one-time sample of these moving prices may not be representative of average conditions over a period of time across a region of the country.

For these reasons, the income measures reported herein must be judged in terms of the entirety of the data presented.

For the purpose of brevity and simplicity, land tenure is classified into three basic categories herein: titled ownership, occupancy, and in process of transfer from IBR. Unfortunately, there can be a great deal of overlap between these categories, and a much more detailed system would be needed to break out all of the combinations and possibilities. When a report mentions "ownership", it is often uncertain whether the "owner" has title to all his land or just a part of it. Some reports include persons who are applying for title through the IBR in the category of occupants. In some reports an "occupant" is a person who has no claim to any of his land through title or the IBR; in others an "occupant" may be a person who rents or occupies some land (even though owning other land). Generally, moreover, the reports do not define their use of the terms of land tenure. The result is that these terms must be evaluated with perhaps more caution than

income figures. Again, the aggregation of several sources of data is of more value than any single source.

Finally, the term "target group" as used in this report refers to the USAID designation for the population which experiences a level of poverty below certain guidelines. The specific USAID guidelines for target group inclusion take into account several factors besides income. For the purpose of this report, a "target group" member is anyone in a family whose per capita income is less than the equivalent of $300 annually (1978 prices). The original definition used a guideline of $150 per capita in 1969 prices. Because the exact inflation rate in Paraguay is not known, and because the commercial exchange rate fluctuates somewhat, the precise equivalent in Guaranies is not ascertainable. A reasonable estimate is that it is approximately ₲40,000.

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PART ONE

AGGREGATE DATA

Introduction

Much of the data in Parts I and II come from two recent surveys, the 1976 small farmer survey and the 1978 survey of rural women. The data were taken from reports by Nicanor Invernizzi and Judy Laird, respectively; and because both reports were in a preliminary form when reviewed for this document, it is possible that either or both of the authors might revise their work. All indications are, however, that both surveys are valid and both reports are an accurate representation of the results.

The comparability and consistency of specific results of both surveys will be discussed as the data are examined. Generally, however, the two reports seem reasonably consistent and reliable.

The small farmer survey was conducted in August and September, 1976, by the Gabinete Técnico of the Ministerio de Agricultura y Ganadería, Centro Paraguayo de Estudios Sociológicos, the Facultad de Ingenería Agrónoma, New Mexico State University, and A.I.D. It represents 1053 observations selected randomly from a sample frame of farms of less than 51 hectares in Eastern Paraguay. Results are stratified by farm size and are available for the entire eastern region, for the Minifundia area and for

the non-Minifundia area. For a detailed description of the methodology, refer to Algunas Consideraciones de la Encuesta de 1975/76 del Pequeño Agricultor (Dietze, et. al.) or An Evaluation of Three Documents for Target Group Identification (Oberbeck).

The survey of rural women was conducted in 1978 by U.S.A.I.D./Paraguay under the direction of Judith Laird in cooperation with the Dirección General de Estadística y Censos, represented by F. David Vera. It represents 2353 observations in 100 sampling units of 83 districts of Eastern Paraguay, or about one percent of all rural dwellings. A detailed description of the survey methodology is found in Rural Women in Paraguay: The Socio-Economic Dimension (Laird), along with several tests of statistical reliability. Generally, the data are reliable and representative.

Income

Tables 1,2, and 3 refer to the distribution of income in rural Paraguay. They are derived from two different surveys - the Small Farmer Survey and the Survey of Rural Women (hereafter, Femrural). In order to compare the results of the surveys, it is necessary to make some observations about the measurement of income in both instances. For example, Femrural discovers an average per capita income of ₲32,782 while the Small Farmer Survey finds an average of ₲25,700. There are several differences in the surveys which explain this discrepancy.

First, Femrural measures a different population than the Small Farmer Survey. The former samples all households, while the

Table 1

Family Income Distribution, Eastern Paraguay, 1977.

Per Capita Income (1000 ₲'s)	Dollar Equivalent[1]	% of Families	Accumulative Percent
No income		2.7	2.7
1 - 9.9	($ 1 - 75)	28.4	31.1
10 - 19.9	($ 75 - 150)	25.2	56.3
20 - 29.9	($150 - 225)	13.9	70.2
30 - 39.9	($225 - 300)	8.9	79.1
40 - 59.9	($300 - 450)	8.9	88.0
60 - 99.9	($450 - 750)	6.7	94.7
bove 100	(above $750)	5.4	100.1

Source: Laird, Femrural Table 2.

[1]Using an estimated commercial exchange rate of 133.3.

Table 2

Farm Family Income Distribution, Eastern Paraguay, 1977.

Per Capita Income (1000 ₲'s)	Dollar Equivalent[1]	% of Families	Accumulative Percent
Less than 20	($150)	61.6	61.6
20 - 39.9	($150 - 300)	20.7	82.3
40 and more	(above $300)	17.7	100.0

Source: Femrural Table 14.

[1] Using an estimated commercial exchange rate of 133.3.

Table 3

Small Farm Income Distribution, Eastern Paraguay, 1977.

Per Capita Income (1000 ₲'s)	Percentage of Families by Strata				
	0-4.9 Ha.	5-9.9 Ha.	10-20.9 Ha.	21-50.9 Ha.	Total
Less than 10	26.1	13.2	11.9	8.1	17.4
" " 20	58.6	45.2	48.2	35.9	50.6
" " 30	76.5	72.7	74.0	56.7	73.2
" " 40	90.1	82.3	84.1	73.2	85.1
" " 50	96.1	93.3	87.2	79.0	91.2
" " 60	96.5	94.0	91.4	84.4	93.2
" " 70	98.4	95.7	93.9	89.1	95.5
" " 80	98.6	96.6	95.8	89.9	96.4
" " 90	98.6	97.2	97.3	90.9	97.1
" " 100	99.2	97.8	97.9	91.2	97.7
More than 100	0.8	2.0	2.1	8.6	2.2

Source: Invernizzi, Table 15.

latter samples only farms of less than 51 hectares. Because farm incomes are, on the average, lower than incomes for the population as a whole, and because the Small Farmer Survey samples only small farms, it is to be expected that the average income presented by the Small Farmer Survey would be lower than the Femrural average income.

Secondly, there are two major differences in the way income is measured. Femrural starts with a gross cash income figure and discounts this by an estimated amount to arrive at net income. No measure is made of home consumption. The Small Farmer Survey measures actual expenses and includes home consumption.

The discount rate applied to gross farm income in the Femrural figures is ten percent. That is, gross costs are estimated to be 10% of gross cash income. This is too low. In fact, the Small Farmer Survey* estimates that gross expenses are about 45% of the value of cash income (sales plus off-farm income). Income from agriculture is, then, overstated by about 30% in the Femrural figure. For comparability to the Small Farmer Survey, the income estimates must first be discounted by as much as 30%.

Next, this discounted figure can be inflated about 35% (unpublished figure derived from Small Farmer Survey - crop and farm budget data) to 45% (Femrural estimate) to account for the value of home consumption.

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*Invernizzi, Tables 13 and 14.

The application of these corrections to specific cases is still more complicated. If, for example, a family derives very little income from agriculture, then there would be no need to discount the estimated income by the correct cost ratio figure (i.e. 45% of farm income). If, however, this family has very little farming activity, it also would have an especially low value for home consumption, and the correction upward would be very small.

Femrural estimates average income for farmers with fewer than 5 hectares to be ₲24,100. The Small Farmer Survey estimates that the same group has an average income of ₲21,100 per capita. If we reduce the Femrural figure by 30% and then increase it by 35% for home consumption, the estimate becomes $22,800. This is a difference of only ₲1,700 or about $13. The two surveys would appear to be reasonably compatible in this case.

Assuming, then, that the income estimates are within reason for both surveys, we can further conclude that the approximate distribution of income represented in Tables 1, 2, and 3 is reliable. About 79% of all families in Eastern Paraguay appear to be within the target population (Table 1). Some 82% of all farm families fall within the target group (Table 2). And 90% of all farms of less than 5 hectares have per capita incomes of less than $300 and qualify for the target population.

Furthermore, approximately 50-60% of families have a per capita income of less than half the $300 target group figure. Femrural estimates that 61.6% of all farm families

have this very low per capita income (less than ₲20,000, or $150). The Small Farmer Survey presents a slightly lower estimate of 50.6% of all small farm families. The Femrural income estimate, again, must be discounted to adjust for costs and inflated to adjust for home consumption. At these low income levels, home consumption is likely to be a larger percentage of income than it is at higher income levels; and, therefore, the net effect of both adjustments is most likely to raise the Femrural income estimate somewhat and, thereby, decrease the percentage of families with incomes lower than ₲20,000. The two estimates are reasonably in agreement, and the percentage of farm families with less than ₲20,000 per capita income is somewhere in between.

The percentage of small farms in the target population would be expected to decline as farm size increases (Table 3). The fact is that farms of between 5 and 10 hectares are slightly better off than farms of between 10 and 21 hectares. Much of this difference is explained below in Part II, in that there are regional differences in income levels of smaller farms. Basically, the explanation is that the smaller farms are located in an area where there are more off farm employment opportunities. It is worth noting here, however, that, in the aggregate, there is little difference in income distribution between farms of 5-10 hectares and those of 10-21 hectares.

Standard of Living - Housing Characteristics

It is apparent from the data in Tables 1, 2 and 3 that a large portion of the rural population of Eastern Paraguay can be

categorized as being in a low income or "target" group. Tables 4 and 5 describe, somewhat, the average features that characterize the house and household possessions of a Paraguayan. In Table 4, the occurence of the different characteristics at two levels of income is charted so that the relationship to income can be displayed to, at least, a limited degree.

An earthen floor is common to a large percentage of the families in Eastern Paraguay (66%). However, it would appear that families with higher incomes have improvements in this area. Only 51% of families with more than ₲20,000 per capita income have an earth floor, compared to 80% of families with incomes below ₲20,000.

The figures and conclusion are virtually identical in reference to the thatch roof. It is a housing feature that has an obvious connection to low income levels, and yet is a feature found on about 65% of houses.

About 80% of the population use a rustic type of latrine for a toilet facility. Although the Femrural report does not fully define a "rustic" versus "improved" latrine, it states that only 10% are improved. This seems to imply that as few as 10% of the latrines have any type of modern sanitary improvement. As many as one family in ten has no toilet facility at all. Again, families appear to make improvements in the toilet facility at higher levels of income. About 21% of families with incomes over ₲40,000 have improved latrines.

Perhaps the biggest difference among income levels can be seen in the type of cooking facility used. It would appear to be

Table 4

Housing Characteristics, Eastern Paraguay, 1977.
(by income level)

Housing Characteristic	Percentage of Families by Income (per capita ₲'s)			
	Total	Less than 20,000	More than 20,000	More than 40,000
Earth Floor	66.4	79.8	51.4	
Thatch Roof	64.6	78.3	49.0	
Toilet				
none	10.3	12.8		6.3
rustic latrine	79.2	81.4		71.6
improved latrine	10.1	5.4		20.9
Cooking Facility				
none (ground)	72.7	86.0		43.4
modern*	11.7	3.1		34.4
Water Supply				
river (or spring)	32.0	37.9		21.2
well	65.5	60.5		74.4
public	1.0	0.8		1.6

Source: Femrural Tables 4,5,6 and 26.

*Gas or firewood range.

an early investment for families with little money. Most families (73%) in Eastern Paraguay have no cooking facility (i.e. they cook on the ground). However, among families with incomes over ₲40,000 per capita, only 43% are still without a cooking facility, and 34% have a modern type of stove (that uses gas or firewood). The comparison to families with very low income (below ₲20,000 per capita) is dramatic. Of this low income group, 86% cook on the ground, and only 3% have a modern type stove.

Finally, at higher income levels, families appear to have more access to well water rather than river water, but the difference is not as dramatic as is the case for other housing characteristics. A very small percentage have access to a public water system (1%).

While the average figures in Table 5 do not say anything about the distribution of common household possessions among income groups, they are useful in understanding what types of things are owned. For example, it is apparent that very few families have a motor vehicle. Only 25% even have an animal-drawn cart. About 9% have a refigerator. Only 15% have some other type of food storage container. In Part III, several case studies show that this general lack of seemingly basic household needs extends to farm implements, also. It appears that incomes are low enough that families are constrained from making some elementary purchases.

Education

Generally, Eastern Paraguay displays a fairly high rate of illiteracy (about 22% - Table 6) and a low access to secondary

Table 5

Household Possessions, Eastern Paraguay, 1977.

Item	Percentage of Families with Item
Flashlight	79.6
Radio	79.2
Lantern	72.3
Earthen Pitcher	71.9
Pounding Mortar	67.0
Grinder (molinito)	58.2
Sewing Machine	28.2
Bullock or horse-drawn cart	25.4
Food Storage Container	14.1
Refigerator	8.8
Electricity	4.1
Motorcycle	3.5
Truck/Auto	3.0

Source: Femrural Table 3.

levels of education (around 4%). Again, educational achievement is linked to income level. The illiteracy rate drops from 26% to 10%, moving from the families with less than ₲20,000 per capita income to those with more than ₲40,000. At the same time the percentage of people with some secondary education increases from 2% to 12%.

Among small farmers, the rate of illiteracy is apparently slightly higher than for the population as a whole. The highest occurence of illiteracy is found amoung farmers who have fewer than 5 hectares, although this same group has greater access to secondary education than farmers with larger farms. This seeming contradiction can be explained, largely, by the location of most of the smaller farms in the older Minifundia region (see Part II).

Table 7 presents data on language use. It is very possible that language has a direct relationship to the quality or potential quality of education in Paraguay. There are two basic characteristics that prompt this conclusion. First, there is a high occurrence of families who speak only Guaraní at home (76%). Because Guaraní is only recently becoming a formalized, written language, it is possible that the heavy reliance upon it is an impediment to educational improvement. Secondly, there is a large number of families who speak only foreign languages at home. About 7% across the country, and 26% of wealthier families speak languages other than Spanish or Guaraní at home. This diversity could represent another barrier (especially in localized situations - see Part II) to educational opportunity.

Table 6

Educational Characteristics, Eastern Paraguay, 1976/1977.

Family Characteristic	Percentage of Population	
	Illiterate	Some Secondary Education
All Families[1]	22.3	4.2
Families with less than ₲20,000*	26.1	1.9
Families with more than ₲40,000*	10.7	12.5
Small Farm Families[2]		
0 - 4.9 Ha.	28.2	3.2
5 - 9.9 Ha.	23.9	3.7
10 - 20.9 Ha.	21.1	1.8
21 - 50.9 Ha.	22.6	1.4
All Strata	24.6	2.7

[1]Source: Femrural Table 7.

[2]Source: Invernizzi, Table 3.

*Per capita annual income.

Table 7

Language Use, Eastern Paraguay, 1977.
(by income level)

Language Used at Home	Percentage of Families (by per capita income level) Less than 20,000	More than 100,000	All Families
Only Guaraní	86.3	36.5	76.3
Only Spanish	2.2	9.5	4.1
Spanish and Guaraní	8.3	17.5	13.1
Portugese	2.8	9.5	5.0
Others	0.2	16.7	1.6

Source: Femrural Table 29.

Language use, like education, is directly related to levels of income. Whereas 86% of very poor Paraguayan families (incomes less than ₲20,000) speak only Guaraní at home, 64% of families with relatively high incomes (more than ₲100,000 per capita) speak some language other than Guaraní at home. Again, about 26% of rural Paraguayan families with incomes of more than ₲100,000 per capita speak a language other than Guaraní or Spanish at home.

Nutrition

Paraguayans have generally good nutrition, as measured by intake of nutrients. The fact that the primary cause of death is intestinal disorder takes some of the luster off these indications.*

Tables 8 and 9 show some of the results of 1965 and 1976 nutritional surveys. The percentage of families with totally adequate intake of the listed nutrients has increased significantly in almost every case.

Only 18.3% of the population have below adequate caloric intake, and only 3% of the population have less than 75% of adequate calories.

Some 93% of the population have adequate protein; 96% have enough iron.

Whereas only 61% of the population have an adequate intake of calcium, this is an improvement over the situation in 1965 (when only 49% had at least adequate calcium in their diet).

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*Diagnóstico de la Situación Alimentaria y Nutricional, Vol. I, p. 29.

Table 8

Distribution of (Families by levels of) Nutritional Adequacy, Paraguay, 1965.

Level of Adequacy	Percentage of Families (By Area) Urban	Semi-urban	Rural	Total
Calories				
100% and more	53	46	58	55
75% - 99%	36	33	34	34
50% - 74%	7	20	7	9
Under 50%	3	2	1	1
Protein				
100% and more	93	78	78	81
75% - 99%	5	7	15	12
50% - 74%	2	13	5	6
Under 50%	0	2	2	1
Calcium				
100% and more	66	35	47	49
75% - 99%	12	22	21	19
50% - 74%	9	24	22	19
Under 50%	14	20	10	12
Iron				
100% and more	83	76	91	87
75% - 99%	10	15	7	9
50% - 74%	5	4	2	3
Under 50%	2	4	1	1
Vitamin A				
100% and more	62	24	15	27
75% - 99%	5	4	12	9
50% - 74%	17	15	19	18
Under 50%	16	57	54	46

Source: Nutrition in Paraguay, Table 8.

Table 9

Distribution of Families by Levels of Nutritional Adequacy, Paraguay, 1976.

Level of Adequacy	Percentage of Families
Calories	
100% and more	81.7
75% - 99%	15.1
50% - 74%	3.1
Under 50%	0.0
Protein	
100% and more	93.1
75% - 99%	5.5
50% - 74%	1.3
Under 50%	0.0
Calcium	
100% and more	61.3
75% - 99%	20.6
50% - 74%	12.4
Under 50%	5.5
Iron	
100% and more	96.8
75% - 99%	2.4
50% - 74%	0.6
Under 50%	0.0
Vitamin A	
100% and more	29.0
75% - 99%	11.0
50% - 74%	16.0
Under 50%	44.0

Source: Encuesta Nacional de Nutrición, República de Paraguay, 1976, Table 15.

Only the deficiency in Vitamin A seems to have remained relatively unimproved between 1965 and 1976.

Table 8 indicates that nutrition is probably worst in the smaller cities (semi-urban areas), somewhat better in rural areas and best in urban areas (primarily Asunción). The 1976 survey concurs in this conclusion.[1]

In addition to improved nutrition, some health indicators appear to be improving. The mortality rate declined between 1960 and 1972 from 11.1 deaths per thousand to 9.1; and infant mortality declined from 92.7 per thousand live births to 84.0 per thousand in the same time period.[2]

Small Farm Characteristics

In the above discussion we have seen that about 90% of farms of less than 5 hectares fall below the target group definition of $300 per capita annual income. Only 73% of farms of more than 21 hectares fall in this same group (Table 3). To get a better understanding of the economic conditions facing small farmers, we can look at the distribution of land, the distribution of farms by type of land tenure, and characteristics of small farms such as distance to the road and type of vehicle used.

The great majority of Paraguayan farms are smaller than 21 hectares (over 91%). Almost 39% are smaller than 5 hectares.

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[1] Encuesta Nacional de Nutrición, República de Paraguay, p. 105.

[2] Diagnóstico de la Situación Alimentaria y Nutricional, p. 29.

Table 10

Land Use by Small Farms, Eastern Paraguay, 1976.

Farm Characteristic	Strata of Farm Size (in ha)				
	51 and Less	0.0-4.9	5.0-9.9	10-20.9	21-50.9
Number of Farms	173,480	67,529	34,260	55,575	15,116
Percentage of Total	100	38.9	20.3	32.0	8.7
Average Size of Farm (ha.)	9.5	2.1	6.8	14.1	32.0
Average Area in Crops (ha.)	3.4	1.4	3.3	4.6	8.1
Average Area in Pasture (ha.)	1.5	0.1	0.8	1.6	8.6

Source: Invernizzi, Table 11.

More importantly, however, is that fact that larger farms, on the average, have a much smaller percentage of land in crops than do smaller farms.

As mentioned, 39% of all farms are smaller than 5 hectares. These farms, on the average, have 1.4 hectares in crops. Another 20% of farms are between 5 and 10 hectares. These have an average of 3.3 hectare in crops. The next 32% are between 10 and 21 hectares in overall size, but the average land in crops is only 4.6 hectares in this group.

In fact, the distribution of income represented in Table 3 indicates that there is little difference between the second and third strata of farm size. The small difference in area under cultivation would appear consistent with this.

Again, as indicated in Table 3, there is little appreciable difference in income distribution between 5 and 21 hectares of farm size. Tables 10 and 11 indicate why this is so. The average area under cultivation for farms of between 10 and 21 hectares is still less than 5 hectares. Only in the strata of farms larger than 21 hectares is the average greater than 5 hectares in crops (8.1). Table 11 indicates that for farms with fewer than 5 hectares in crops, 91% are in the target group (i.e. below ¢40,000 per capita income). For farms with more than 5 hectares in crops, only 63% are in the target group.

Finally, over 35% of all farms have fewer than 3 hectares in crops. Of these farms 83% have income levels lower than ¢20,000 per capita (or half the amount indicated for target group inclusion).

Table 11

Distribution of Farm Families by Income and Area Cultivated, Eastern Paraguay, 1977.

Per Capita Income	Percentage of Farms (by area cultivated)			
	0-2.9 Ha.	3.0-4.9 Ha.	5.0 and More	Total
Less than ₲20,000	83.4	68.7	33.0	61.6
₲20,000 to 39,999	10.4	21.9	30.2	20.7
₲40,000 and above	6.2	9.4	36.8	17.7
Total*	35.5*	30.0*	34.5*	100.0

Source: Femrural Table 15.

*I.e. the percentage of farms of that size for all income levels.

In defining a farm's size, no mention was made, above, of how the farmland is held. How a farm is held can potentially be as important as the size, when a farmer tries to earn a living from it. The greatest constraint to farming land without title is the difficulty in obtaining credit with the land as security. Generally, moreover, insecurity of tenure is a symptom of a social poverty in which certain farmers do not have the same legal sense of belonging to the land as do others. Poorer farmers, in general, are less likely to have title to their property than are wealthier farmers.

Table 12 demonstrates the relationship between land tenure and income levels. On the average, almost 60% of families with incomes in excess of ₱40,000 per capita have title to their property. Only 15% of this group are mere occupants to their land, with no legal claim. For the very poor (incomes less than ₱20,000 per capita), only 41% own their land (with title), while 31% are mere occupants.

The data in Table 13 are a compilation of data from the Small Farmer Survey, and each category is made up from several subcategories of land tenure, as defined in that survey. For this reason, titled ownership is construed as title to all or some land, and occupancy of IBR land also refers to some or all of the farmer's land. "Occupants," however, are farmers that only occupy all of their land. The Femrural report did not define its terms as precisely, and, therefore, comparison is difficult. However, the figures seem compatible. 43% of small farmers (less than 5l

Table 12

Distribution of Families by Level of Income and Type of Land Tenure, Eastern Paraguay, 1977.

Type of Land Tenure	Percentage of Families (by per capita income)		
	All Families	Less than ₲20,000	More than ₲40,000
Titled	47.0	41.2	59.4
Litigation*	16.2	17.2	5.5
Occupants	25.6	30.7	15.3
Others	11.2	10.9	12.0

Source: Femrural Table 22.

*Including unsecured titles from IBR.

Table 13

Distribution of Small Farms by Type of Land Tenure, Eastern Paraguay, 1976.

Type of Land Tenure	Percentage of Farms (by number of hectares)				
	All Farms*	0.0-4.9 ha.	5.0-9.9 ha.	10.0-20.9 ha.	21.0-50.9 ha.
Titled*	43.3	36.1	39.9	51.5	48.8
Occupant only	27.5	42.2	33.1	11.7	6.2
Occupant of IBR Land*	18.0	5.7	16.7	30.1	31.3

Source: Invernizzi, Table 10.

*All or in part.

hectares) are titled landowners, 28% are mere occupants, and 18% are occupying land obtained from IBR (to which they will presumably obtain title).

Just as land tenure is related to income levels, it is also related to farm size. The percentage of farmers with title and the percentage with IBR land increases as farm size increases (Table 13). At the same time, the percentage of mere occupants drops sharply (from 42% for farms less than 5 hectares to only 6% for farms larger than 51 hectares).

As mentioned in the Preface, the definition of land tenure is complex. In Table 13, there is no way to determine what portion of land is held by title, for example. A farmer might have title to one hectare and occupy twenty, yet still be classified as an owner. The entire land tenure problem is taken up again in Part II and Part III.

Finally, another symptom and/or cause of poverty might be poor access to roads and markets. This transportation problem actually has two components - distance and means of transportation. Tables 14 and 15 show that, while smaller farms are somewhat closer to roads and markets, they are more reliant upon foot transportation, an animal without cart, or a rented car than are larger farms. The larger farms, conversely, are more reliant upon motor vehicles or an animal and cart which they own.

Conclusions

The above data come primarily from two recent surveys, the Small Farmer Survey (1976) and the Survey of Rural Women (1978).

Table 14

Characteristics of Small Farm Location, Eastern Paraguay, 1976.

Locational Characteristic	Strata of Farm Size				
	0.0-4.9 ha.	5.0-9.9 ha.	10.0-20.9 ha.	21.0-50.9 ha.	Total
Distance to Place of Sale (km.)	4.8	7.4	13.7	26.8	10.7
Distance to the Road (km.)	2.9	2.3	7.0	18.0	5.3
Percent of Farms on the Road	71.2	60.6	66.8	69.9	67.5

Source: Invernizzi, Table 8.

Table 15

Distribution of Farms by Type of Transport Used
Eastern Paraguay, 1976.

Type of Transport	Percentage of Farms (by size)				
	0.0-4.9 ha.	5.0-9.9 ha.	10.0-20.9 ha.	21.0-50.9 ha.	Total
Motor Vehicle					
Owned	0.3	0.0	0.1	2.8	0.4
Hired	10.6	10.9	15.6	16.3	13.0
Animal					
Owned	5.1	2.9	3.0	2.2	3.6
Rented	0.5	0.0	0.3	0.0	0.2
Animal and Cart					
Owned	8.1	18.1	21.2	31.7	17.1
Rented	20.7	17.1	13.9	8.6	16.4
On Foot	14.7	6.4	9.4	5.4	10.2

Source: Invernizzi, Table 9.

The data from preliminary reports from Nicanor Invernizzi and Judith Laird appear to be both internally consistent and compatible, one with the other. There is a different measurement of income in each case, but the adjustments needed to compare the two surveys leave the results virtually unchanged. For this reason, the data are used here as presented in the reports by Laird and Invernizzi.

Approximately 80% of the rural population of Eastern Paraguay belong to families with per capita incomes of less than the equivalent of $300 per capita annually.

About 90% of all farmers with fewer than 5 hectares are in the same category (i.e. the USAID target group).

Across Eastern Paraguay, income is distributed much the same among farmers with from 5-10 hectares as it is among farmers with 10-21 hectares. In fact, the latter group shows a slightly higher occurence of low levels of income (84% in the target group).

Somewhere between 50-60% of the population are in families with per capita annual incomes lower than the equivalent of $150 (half the target group figure).

The low levels of income experienced by Paraguayans are felt directly in terms of inability to purchase what could be considered some basic amenities. Characteristics associated with low income in Eastern Paraguay include: an earth floor and/or thatch roof, cocking on the ground, an unimproved latrine, and access to only well or river (and spring) water. About 25% of the families in Eastern Paraguay have an animal drawn cart. About

15% have food storage facilities. About 4% have electricity and 1% have access to a public water system.

Over 20% of the population of Eastern Paraguay is illiterate. About 4% have had some secondary education. Improved education is a characteristic of higher levels of income, but the size of a farm, above 5 hectares, has very little relation to education.

The exclusive use of the Guaraní language at home is a characteristic of lower income groups especially. A large percentage of wealthier families speak a language other than Guaraní or Spanish at home. It is possible that the diversity of languages used, and the high association with income levels, could create social fragementation and barriers to education.

Paraguayans, on the average, have adequate and improving nutrition. Nutrition is better in the urban areas than in rural or semi-urban areas. Health, as measured by mortality rates, appears to be improving.

Income is not as clearly associated with overall farm size as it is with area under cultivation. The reason for this is that larger farms, on the average, have a much smaller percentage of land cultivated than do smaller farms. There is, in fact, almost no difference in income distribution among farms of Strata II (5-10 hectares) and Strata III (10-21 hectares).

Farms of fewer than 5 hectares, however, which represent 39% of all farms, have a significantly higher percentage of low incomefarms than do other strata.

Farms of more than 21 hectares, which represent only 9% of all farms, have a relatively low percentage of farms with low levels of income.

Lack of title to land is a characteristic associated especially with low levels of income and smaller farms. Occupancy of land without title can be a constraint to improved levels of income because it is a barrier to obtaining credit.

About one family in four occupies its land in Eastern Paraguay without formal legal title or claim to the land.

About 42% of farms smaller than 5 hectares are occupied only. Moreover, only about 6% are in the process of obtaining title through IBR.

Among farms of more than 10 hectares, about half are held by title and another 30% are in the process of applying for title through IBR.

It is difficult to assess the distribution of farms according to their access to markets, because smaller farms are, on the average, closer to roads and markets, but larger farms, generally, have better modes of transportation.

PART TWO

REGIONAL CHARACTERISTICS

Introduction

Whereas Part One demonstrates that low levels of income are, on the average, widespread in Eastern Paraguay, there is no indication in the aggregate data as to what regional differences are found in levels of income and standards of living. Part Two, therefore, is an attempt to identify the salient features of five regions of Eastern Paraguay. First, the regions are examined for gross differences in population, population change, and agricultural production. Secondly, the regional characteristics of income levels, area in crops and land tenure are examined. Finally, the Minifundia region is singled out, and farm characteristics there are examined, in greater detail, in comparison to the rest of the country.

The regions considered are those traditionally used for socio-economic analysis: the Minifundia region, the Eje Norte, the area of Neo-Colonization, the Ganadero (or Livestock) region, and Itapuá.

Population - Distribution and Change

The last census in Paraguay was in 1972. Table 16 summarizes the relative size and population of each of the five regions, by Department, as of that date. While the population

figures are only a few years old, there are indications that there is enough internal migration in Paraguay to change the relative regional sizes, somewhat.

In 1972, about 50% of the population of Eastern Paraguay (excluding Asunción) lived in the Minifundia region, 20% lived in the Neo-Colonization area; 13% in the Eje Norte; 10% in Itapuá; and 7% in the Ganadero region (Table 16).

The main feature of Paraguay's population distribution, however, is its dynamic nature. There is significant internal migration, primarily a result of the official policy of population redistribution through colonization. When considering regional level data, then, the dynamics of population movement and colonization creates a situation of uncertainty regarding: 1) the actual, present population of each region, and 2) the differences in productivity and standard of living on a local level within the regions. That is, it is difficult to estimate the current rates of population change when previous rates were as extreme as 4% in some areas and 278% in others. Moreover, when there is an influx of population into an area, primarily through colonization, it is possible that local variations within the region will be greater than would be the case if the region were relatively stable.

No attempt is made here to provide a more current estimate of population distribution than above. The problem of local variations within the regions, particularly with regard to the characteristics of colonization areas is dealt with, to a degree, in Part Three.

Table 16

Regional Distribution of Population, Eastern Paraguay, 1972.

Region and Department	Area (km^2)	Population (1972)	Population Increase (% 1962-72)
Minifundia			
Caazapá	9,496	102,040	10.4
Central	2,465	309,070	34.9
Cordillera	4,948	197,150	4.7
Guairá	3,002	124,760	8.5
Paraguarí	8,705	211,030	4.0
TOTAL	28,616	944,050	5.1
Ganadero			
Misiones	7,835	66,990	12.8
Neembucú	13,868	73,540	27.0
TOTAL	21,703	140,530	19.8
Eje Norte			
San Pedro	20,002	137,840	50.2
Concepción	18,051	109,550	27.8
TOTAL	38,053	247,390	39.3
Itapuá	16,525	198,090	32.2
Neo-Colonization			
Amambay	12,933	63,540	84.2
Alto Paraná	20,247	90,800	278.3
Caaguazú	21,613	209,720	67.6
Canendiyú*	------	-------	-----
TOTAL	54,793	364,060	98.3

Source: 1962, 1972 Census.

*Canendiyú was created after 1972 out of parts of Alto Paraná and Caaguazú.

As mentioned above, there are extreme differences in the rates of population change among the regions of Eastern Paraguay.

The Minifundia region experienced the smallest rate of growth between 1962 and 1972 (5%), primarily due to heavy out-migration from Cordilleras and Paraguarí. Between 1967 and 1972 there was a net out-migration from the Minifundia area of 28,000 people.

The Neo-Colonization region experienced the highest rate of population growth between 1962 and 1972 (98%), with a net in-migration of 10,450 in the five years prior to 1972 (Table 17).

Itapuá had the second largest net in-migration, with a net of 2,970 between 1967 and 1972. Population in Itapuá increased by 32% between 1962 and 1972.

The Eje Norte region had a fairly large population increase (39%) between 1962 and 1972, but a small net out-migration in the last five years of this period.

The Ganadero region had a moderate population increase (19%) between 1962 and 1972, with a rather large net out-migration the last five years (6,290 people).

Again, much of the population shift can be explained by the policy of colonization (see Part Four). Between 1967 and 1972, 173,890 people migrated. The IBR established 41,625 family lots in 269 colonies between 1960 and 1973 (Table 18).

The Eje Norte was the site of most colonization between 1960 and 1973, with 77 colonies and 13,962 family lots.

The Neo-Colonization region saw 61 colonies established in that time period, with 9,881 family lots.

Table 17

Distribution of Migrants by Departments, 1967-1972.

Region and Department	In-migrants	Out-migrants	Net Migration
Nation	173,890	173,890	---
Minifundia			
Cordilleras	5,640	22,500	-16,860
Paraguarí	4,440	24,680	-20,240
Central	34,250	13,830	+20,420
Caazapá	2,000	8,480	- 6,480
Guairá	4,210	9,050	- 4,840
Neo Colonization			
Alto Paraná	14,620	3,590	+11,030
Amambay	3,640	2,900	+ 740
Caaguazú	14,430	15,750	- 1,320
Eje Norte			
Concepción	5,120	8,640	- 3,520
San Pedro	11,750	9,550	+ 2,200
Ganadero			
Misiones	2,310	7,020	- 4,710
Neembucú	1,390	2,970	- 1,580
Itapuá	8,400	5,430	+ 2,970

Source: Gillespie, Table 4-12 (from 1972 Census).

Table 18

Distribution of Colonies and Number of Family Lots Established by the IBR, By Selected Departments, 1960-1973.

Departments	Number of Colonies	Number of Family Lots
Minifundia	76	10,755
Cordilleras	18	1,735
Paraguarí	20	1,986
Central	10	1,264
Guairá	11	1,733
Caazapá	17	4,037
Neo-Colonization	61	9,881
Alto Paraná	17	4,268
Amambay	13	1,576
Caaguazú	31	4,037
Eje Norte	77	13,962
Concepción	31	5,908
San Pedro	46	8,054
Itapuá	16	2,979
All Other Depts.	39	4,048
TOTAL NATION	269	41,625

Source: Gillespie, Table 4-14, (from IBR).

While the Minifundia area lost more population than any other region through out-migration, there were still several, sonewhat smaller, colonies established throughout the area -- 76 colonies with 10,755 family lots. Over 37% of these lots were in Caazapá.

Finally, Table 19 reinforces the picture of an actively migratory population. The Minifundia and Ganadero regions show the most stable populations as measured by the percentage of population that has lived there always. No other region has as much as 40% permanent population. Almost half the population of the Neo-Colonization area has moved there in the last ten years. About a third of the population of Itapua has moved there within the last ten years.

Furthermore, almost one person in four speaks Portugese in the Neo-Colonization region, presumably concentrated most heavily around the border of Brazil. Almost 12% of the population of Itapuá, also, speak a foreign language.

To reiterate, Paraguay is experiencing a time of extremely high migration, including both internal migration and the immigration of foreigners. It is very difficult to make accurate, current socio-economic measurements under these circumstances. Moreover, the resultant complexity of the social structure makes socio-economic evaluation equally difficult.

Agricultural and Livestock Production

In order to appreciate the relative magnitudes of productive resources that are actually employed in each of the regions,

Table 19

Distribution of Families by Language and Length of Residence, Regional Breakdown, Eastern Paraguay, 1977.

Family Characteristic	Percentage of Families				
	Minifundia	Eje Norte	Ganadero	Itapuá	Neo-Colonization
Primary Language					
Only Guaraní	78.2	96.6	81.9	62.2	63.0
Portugese	-	-	-	-	23.6
Other (Japanese, German, Polish)	0.1	-	-	11.6	2.2
Length of Residence					
Less than 10 years	14.0	26.3	15.6	33.1	48.5
Always	62.9	36.9	64.9	29.7	18.2

Source: Femrural, Tables 11 and 27.

it is useful to examine crop production (Table 20) and livestock production (Table 21) data. No attempt is made here to evaluate the profitability of any enterprise or the distribution of production within a region. These figures represent regional aggregates only.

The Minifundia region, with about 50% of the population of Eastern Paraguay (excluding Asunción), grows about 73% of the sugarcane, 40% of the cotton, 33% of the corn, and 26% of the tobacco.

Itapuá, with only 10% of the population, grows 55% of the soybeans, 18% of the corn, and 13% of the cotton.

The Neo-Colonization area, with 20% of the population, grows 46% of the tobacco, 28% of the corn, 26% of the soybeans, 24% of the cotton, and 16% of the sugarcane.

The Eje Norte, with 13% of the population of the Eastern region, produces 13% of both corn and cotton, 25% of the region's tobacco, and only 4% of the soybeans and sugarcane.

The Ganadero region, with 7% of the population, produces cotton, corn, soybeans, and sugarcane in proportion to its share of the population.

Livestock production in Eastern Paraguay is primarily on very small subsistence or marginal ranches (Table 21). The distribution of production units is very similar in all parts of the country except for the Ganadero region where there are relatively more large ranches than in other areas.

The Ganadero region, with 7% of the population of Eastern Paraguay, accounts for 32% of the large commercial

Table 20
Regional Production of Selected Crops, 1975/76.

	Crop Production (1000 M.T.)				
Region	Corn	Cotton	Soybeans	Sugarcane	Tobacco
Minifundia					
Caazapá	18.2	3.8	4.1	71.8	2.8
Central	8.6	1.6	0.3	57.9	0.1
Cordillera	22.4	11.1	2.0	83.0	3.2
Guairá	20.7	4.7	4.8	576.9	1.3
Paraguarí	45.3	21.0	6.9	189.0	2.5
TOTAL	115.2	41.2	18.1	971.6	9.9
Ganadero					
Misiones	15.8	5.8	23.2	2.9	0.3
Neembucú	11.9	4.7	0.8	5.4	0.1
TOTAL	27.7	10.5	24.0	8.3	0.4
Eje Norte					
San Pedro	31.8	7.6	11.3	4.2	8.9
Concepción	16.3	6.4	0.9	1.3	0.9
TOTAL	47.1	14.0	12.2	5.5	9.8
Itapuá	63.6	13.5	156.7	1.0	0.9
Neo-Colonization					
Amambay	14.5	0.1	15.9	-	0.2
A. Paraná	33.1	3.6	41.6	0.7	5.7
Caaguazú	39.1	21.1	6.6	20.9	11.3
Canendiyú	9.3	0.2	8.3	-	0.3
TOTAL	96.0	25.0	72.4	21.6	17.5

Source: 1976 Encuesta Agropecuaria Por Muestro.

Table 21

Distribution of Ranches by Size and Department

Region	Subsistence (less than 20 head)		Marginal (20 to 99 head)		Small Commercial (100 to 1000 head)		Large Commercial (2000+ head)	
	#	%	#	%	#	%	#	%
Minifundia								
Caazapá	2170	51.6	1888	44.9	139	3.3	13	0.3
Central	5447	91.9	432	7.3	47	0.8	-	-
Cordillera	6832	80.7	1456	17.2	169	2.0	8	0.1
Guairá	7708	90.7	688	8.1	102	1.2	-	-
Paraguarí	12882	83.9	2119	13.8	353	2.3	-	-
TOTAL	35039	82.5	6583	15.5	810	1.9	21	0.0
Ganadero								
Misiones	3235	79.5	582	14.3	228	5.6	24	0.6
Neembucú	3528	50.6	2942	42.2	488	7.0	14	0.2
TOTAL	6763	61.3	3524	31.9	716	6.5	38	0.3
Eje Norte								
San Pedro	3615	68.9	1395	26.6	220	4.2	21	0.4
Concepción	4398	81.3	914	16.9	81	1.5	22	0.4
TOTAL	8013	75.1	2309	21.6	301	2.8	43	0.4
Itapuá	5304	83.8	893	14.1	120	1.9	13	0.2
Neo-Colonization								
Amambay	90	18.8	312	65.4	72	15.0	4	0.8
A. Paraná	1976	91.9	168	7.8	24	1.1	-	-
Caaguazú	7947	82.6	1520	15.8	154	1.6	-	-
Canendiyú*								
TOTAL	10013	81.6	2000	16.3	250	2.0	4	-

Source: Austin, Table 2.

*Canendiyú was not formed as a department until after 1972.

ranches (2000+ head of cattle), 33% of the small commercial ranches (100-1000 head), 23% of the marginal ranches (20-100 head), and 10% of the subsistence ranches (fewer than 20 head).

The Eje Norte, also, has a large number of ranches. About 36% of the large commercial ranches are there, and 13% of the small commercial, marginal, and subsistence ranches.

The Minifundia region has about 54% of the subsistence cattle operations in Eastern Paraguay, and about 43% of the marginal operations.

The Neo-Colonization region has very few large commercial ranches, but a percentage of all other sizes about equal to its percentage of the population.

Distribution of Land and Income

Table 22 presents data from the Femrural survey which gives an idea of how land and income are distributed within the various regions of Eastern Paraguay, and the relative frequency of farmers having title to their land. As mentioned above (Part One), area under cultivation is a better indicator of the effective distribution of land than is overall farm size. Moreover, an important qualification of land distribution is the way in which the land is held. Lack of title to property can diminish its long-term productive potential.

Itapuá stands out as an area with a relatively small percentage of target group families (i.e. incomes of less than ₲40,000 per capita) and a small percentage of very poor families (less than ₲20,000 per capita income).

Table 22

Distribution of Families by Income and Landholdings, Regional Breakdown, Eastern Paraguay, 1977.

Family Characteristic	Percentage of Families (by region)				
	Minifundia	Eje Norte	Ganadero	Itapuá	Neo-Colonization
Per Capita Income					
Less than ₲20,000	58.2	70.4	61.3	37.2	50.4
Less than ₲40,000	80.2	91.6	83.6	63.6	74.3
Per Capita Income Farms					
Less than ₲20,000	70.2	69.7	62.4	36.0	55.8
Less than ₲40,000	87.0	90.8	82.6	60.9	80.1
Area Cultivated (Farms)					
Less than 3 ha.	58.3	39.1	48.0	26.1	38.0
Less than 5 ha.	83.1	66.0	74.4	45.4	66.0
More than 10 ha.	2.8	4.0	10.5	24.3	10.9
Land Tenancy					
Titled	51.5	32.4	56.6	56.1	39.5
Occupant	37.7	65.5	28.3	40.4	46.7

Source: Femrural, Tables 9, 14, 16, 21.

The Eje Norte has the largest percentage of both the target group (92%) and the very poor (70%) in its general population.

The Neo-Colonization region has a somewhat lower percentage of low income families in its population than either the Minifundia or Ganadero regions, and when only farm families are considered, the gap widens.

The Eje Norte, then, has the highest percentage of low income families, followed by the Minifundia, the Ganadero, and the Neo-Colonization regions, respectively. Itapuá stands alone with a much lower occurence of poverty.

Looking at the Eastern region of Paraguay, then, it is possible to combine the regional distribution of income (Table 16) and the distribution of income within each sub-region (Table 22) to conclude that:

- the Minifundia region contains over 51% of the USAID target population in Eastern Paraguay.

- 15% of the target group families live in the Eje Norte, where they represent 92% of the population.

- 18% of the target group families live in the Neo-Colonization region.

- about 8% of the target population lives in both Itapuá and the Ganadero region. The former is relatively large and wealthy, the latter smaller and poorer.

As mentioned above (Part One) area under cultivation has a close relationship to income generated. The data in Table 22 demonstrate that, while this is generally true, there are regional

differences in the apparent relationship.

Generally, it appears that the distribution of land in the Eje Norte is much more even than the distribution of income, as compared to the situation in the Minfundia or Ganadero regions. That is, there is a relatively high percentage of farms in the Eje Norte with more than 5 hectares in crops (34%) as compared to the Minifundia or Ganadero regions (17% and 26%, respectively); and yet, the percentage of farm families with incomes of more than ₲40,000 per capita is lower in the Eje Norte (9%) than in the Minifundia (13%) or Ganadero (17%) regions. Two possible reasons would be that farms are more profitable in the latter regions and/or that there are more opportunities for off-farm employment.

The Minifundia region has the greatest percentage of small farms. Over 83% of the farms there have fewer than 5 hectares in crops.

Itapuá has the most even distribution of land, with 24% cultivating over 10 hectares, and only 26% cultivating fewer than 3 hectares.

The Ganadero region has a high percentage of small farms (75% have fewer than 5 hectares in crops), and as many as 10% with more than 10 hectares in crops.

The Eje Norte, while it appears to have a relatively high percentage of medium size farms, appears to have the highest percentage of land occupants and the lowest percentage of titled owners. This may, at least partially, explain the low levels of income that are generated in the area (i.e. the high percentage of target group population). Fewer than a third of the families have title

to their property, while almost two-thirds are occupants (including those with claims on IBR land).

The Ganadero region, which has a high percentage of lifetime residents, has the most secure land tenure conditions. Almost 57% are titled, while only 28% are occupants.

The area of Neo-Colonization follows the Eje Norte as having the least secure land tenure. Since these are both areas of heavy colonization, this result might be expected.

Itapuá and the Minifundia region both have over 50% titled owners and 40 and 30% occupants, falling in somewhere between the other regions.

Table 22, in sum, then, indicates that the Eje Norte has the highest percentage of low-income families and the worst land tenure conditions. The Minifundia region has a high percentage of target group families in the farm sector and the highest percentage of very small farms (both less than 3 and less than 5 hectares in crops). The Ganadero zone has the third highest percentage of target group farms and the second highest percentage of small farms. The Neo-Colonization region has poor land tenure conditions on relatively larger farms and has a substantial percentage of target group farm families. Itapuá has a relatively even distribution of land, a high percentage of titled landowners, and the lowest percentage of target group families.

Characteristics of Minifundia Farms

Because the Minifundia region contains over half of the people in Eastern Paraguay who are in families with less than $300

per capita annual income (i.e. the target group), and because the region is characterized by long-time residency on very small farms, it may be of some value to examine the characteristics of Minifundia farms, as compared to the rest of the country. Obviously, these are highly aggregated figures, again, which are necessarily somewhat limited in analytical value. However, it is possible that the Minifundia region is distinct enough that its characteristics will be apparent even from aggregate data. The following discussion examines: income distribution by farm size, off-farm income, education, location of the farm, land tenure, and distribution of capital by farm size.

Although not indicated in the following tables, the distribution of farms by size in the Minifundia and non-Minifundia regions is as follows (from Invernizzi; farms under 51 hectares only):

Minifundia:	52% are fewer than 5 hectares
	21% are between 5 and 10 hectares
	22% are between 10 and 21 hectares
	5% are between 21 and 51 hectares
Non-Minifundia:	25% are less than 5 hectares
	20% are between 5 and 10 hectares
	42% are between 10 and 21 hectares
	13% are between 21 and 51 hectares

It is apparent that land is much more evenly distributed outside of the Minifundia region. Table 23, however, indicates that the smaller farms in the Minifundia region are somewhat better off than their counterparts outside the region. Up to

21 hectares there is a smaller percentage of target group members in the Minifundia region at each strata of size. Larger farms, however, are relatively better off outside the Minifundia region (where only 71% are in the target group and 11% are relatively wealthy).

In brief, then, the percentage of target group members does not vary with farm size in the Minifundia area to the same extent that it does outside that region. Moreover, in both regions, there is no immediately apparent relationship between farm size and income within the range of 5 to 21 hectares. For the purposes of evaluation of income distribution, there appear to be three effective strata with the following relationships:

Taking strata of less than 5 hectares, 5 to 21 hectares, and 21 to 51 hectares: farm size in the Minifundia region is more directly related to the percentage of very poor (less then ¢20,000 per capita income) in the population than it is to the percentage of target group members. Moving from the first to the third strata, the former declines from 60% to 38%, while the latter declines from 88% to 80%. Outside the Minifundia region, however, farm size is more directly related to the percentage of target group members than it is to the percentage of very poor (especially in the first two strata).

Table 24 provides one possible explanation for some of the land/income relationships. Minifundia farms, generally, derive a greater percentage of their income from off-farm employment than do non-Minifundia farms. Farm size, then, is not as great a

Table 23

Distribution of Small Farms by Per Capita Income and Farm Size, Regional Breakdown, Eastern Paraguay, 1976.

Region and Farm Size	Percentage of Farms (by Income levels)		
	Less than ₲20,000	Less than ₲40,000	More than ₲100,000
Minifundia			
0.0 - 4.9 ha.	60.1	88.2	0.2
5.0 - 9.9 ha.	41.9	81.7	2.0
10.0 - 20.0 ha.	48.5	80.9	4.0
21.0 - 50.9 ha.	52.7	84.9	2.1
Non-Minifundia			
0.0 - 4.9 ha.	55.4	94.2	-
5.0 - 9.9 ha.	49.0	83.2	2.0
10.0 - 20.9 ha.	47.9	85.8	1.1
21.0 - 50.9 ha.	48.3	85.4	2.2

Source: Invernizzi, Tables 43 and 44.

Table 24

Off-Farm Income among Small Farms, Eastern Paraguay, 1977.

Region and Farm Size	Off-Farm Income As % of Total Income	Percent of Farms Reporting Off-Farm Income
Minifundia		
0.0 - 4.9 ha.	48.9	84.9
5.0 - 9.9 ha.	23.5	70.5
10.0 - 20.9 ha.	22.8	63.0
21.0 - 50.9 ha.	11.8	60.4
TOTAL	31.6	75.8
Non-Minifundia		
0.0 - 4.9 ha.	38.4	79.8
5.0 - 9.9 ha.	26.4	62.3
10.0 - 20.9 ha.	10.3	51.3
21.0 - 50.9 ha.	15.0	58.5
TOTAL	19.2	61.9

Source: Invernizzi, Tables 41 and 42.

constraint to income in the Minifundia region. Some 85% of farms less than 5 hectares in the Minifundia region derive an average of 49% of their family income from off-farm sources.

In both regions, off-farm income is, basically, a declining percentage of total income as farm size increases. The exception is the largest farms outside the Minifundia region, which derive 15% of their total income from off-farm sources. This may be due to special circumstances such as wealthy absentee ownership.

In addition to having more off-farm employment opportunities, Minifundia farms have generally better access to education than do non-Minifundia farms, except, again, among the largest strata. There is a significantly higher percentage of farmers with some secondary education in the Minifundia region (Table 25) and a slightly lower percentage of illiterates, considering farms of up to 21 hectares. Larger farms, again, are somewhat better off outside the Minifundia region.

As might be expected, due to the relatively high density of farms, Minifundia farms are closer to roads and to a place where they sell their products than farms outside the region. Moreover, there is much less variation between strata in distance to either road or place of sale in the Minifundia region (Table 26). Minifundia farms are more evenly distributed spatially than non-Minifundia farms.

The average distance to a place where the farmer sells his product in the Minifundia area is only 2.3 kilometers as compared to 14.1 kilometers outside the region. This has two implications for the small farmer. First, his transportation expense would obviously

Table 25

Distribution of Small Farm Families by Educational Attainment, Regional Breakdown, Eastern Paraguay, 1976.

Region and Farm Size	Percentage of Farmers	
	Some Secondary	Illiterate
Minifundia		
0.0 - 4.9 ha.	3.5	24.4
5.0 - 9.9 ha.	5.4	23.1
10.0 - 20.9 ha.	2.6	19.5
21.0 - 50.9 ha.	-	29.3
TOTAL	3.5	24.4
Non-Minifundia		
0.0 - 4.9 ha.	2.6	31.9
5.0 - 9.9 ha.	1.6	24.7
10.0 - 20.9 ha.	1.4	21.9
20.9 - 50.9 ha.	1.9	20.0
TOTAL	1.8	24.7

Source: Invernizzi, Tables 27 and 28.

Table 26

Locational Characteristics of Small Farms, Regional Breakdown, Eastern Paraguay, 1976.

Region and Farm Size	Average Distance to Place of Sale (km)	Average Distance to Road (km)	Percent of Farms on Road
Minifundia			
0.0 - 4.9 ha.	3.6	1.6	73.8
5.0 - 9.9 ha.	1.5	2.0	49.4
10.0 - 20.9 ha.	0.5	2.2	65.7
21.0 - 50.9 ha.	1.5	3.0	85.7
TOTAL	2.3	1.9	67.4
Non-Minifundia			
0.0 - 4.9 ha.	4.3	5.1	65.7
5.0 - 9.9 ha.	7.4	3.6	73.7
10.0 - 20.9 ha.	15.8	9.9	67.4
21.0 - 50.9 ha.	33.2	20.3	63.6
TOTAL	14.1	9.1	67.7

Source: Invernizzi, Tables 29 and 30.

be lower in the Minifundia region. Second, moreover, if the Minifundia farmer is less isolated from a market outlet than the non-Minifundia farmer, it might be possible that he has better access to more market outlets and can obtain a more competitive price for his product. In other words, the farmer outside the Minifundia region who owns between 10 and 21 hectares must travel an average distance of about 16 kilometers to sell his product. His options are few, and once he has taken the product that distance, he is unlikely to choose to take it home or to another distant market if the terms of the sale do not suit him. The Minifundia farmer with the same amount of land travels, on the average, only 0.5 kilometers to market. He would seem to have more options in trying to get the best price for his goods.

Table 27 confirms the conclusion drawn from Table 22, above, that the Minifundia area has a relatively high percentage of titled landowners. Because the two tables are taken from reports with different classifications of land tenure, it is difficult to translate them into two or three categories for comparison, but the general results seem to be compatible.

Outside the Minifundia region, about one-third of all farmers are living on land that is in the process of title transfer from IBR*. Another third already have title to their land.

Within the Minifundia region, over half of the farms are held by title. Only 5%, however, are involved in some form of title transfer from IBR.

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*They are, at least, living on land that may eventually be deeded by the IBR.

Table 27

Distribution of Small Farms by Type of Land Tenure, Regional Breakdown, Eastern Paraguay, 1976.

Region and Farm Size	Percentage of Farms		
	Titled*	Occupant Only	Occupant of IBR Land
Minifundia			
0.0 - 4.9 ha.	50.9	36.9	1.8
5.0 - 9.9 ha.	51.4	25.0	13.3
10.0 - 20.9 ha.	67.8	14.0	6.1
21.0 - 50.9 ha.	80.2	1.1	8.2
TOTAL	51.8	27.6	5.4
Non-Minifundia			
0.0 - 4.9 ha.	21.3	55.3	13.1
5.0 - 9.9 ha.	28.8	41.2	22.1
10.0 - 20.9 ha.	42.1	10.3	43.8
21.0 - 50.9 ha.	40.5	8.1	40.5
TOTAL	34.1	27.3	31.5

Source: Invernizzi, Tables 33 and 34.

* All or in part.

In both regions, larger farms, generally, are more likely to be titled and less likely merely occupied. The importance of having title in order to obtain credit has been previously mentioned. Lack of title is, then, another disadvantage of farmers outside the Minifundia region which might partially explain their relatively low incomes.

Finally, Table 28 describes the amount of land cultivated and the amount of capital available for each strata of farm size. Again, the difference between the middle two strata is much less than the difference between the first and second or third and fourth.

In both regions, farms of fewer than 5 hectares have very little land in crops and very little capital to work the land (between ¢2,500 and ¢2,900 per hectare cultivated - around $20 per hectare).

In both regions, farms of between 21 and 51 hectares have an average of about 8 hectares in crops, 5 to 6 times more area in crops than the smallest farms. They also have about 15 to 20 times as much capital to work with (i.e. fixed capital = machinery, equipment and fences), or about ¢9,800 per hectare cultivated in the Minifundia region and ¢7,500 per hectare cultivated outside the Minifundia area.

In all strata of farm size, the Minifundia farms are more heavily capitalized than the non-Minifundia farms. The difference is especially great when the value of land is considered, indicating that land values are somewhat higher in the Minifundia region.

Cole

Table 28

Characteristics of Capital and Land Use Among Small Farmers, Regional Breakdown, Eastern Paraguay, 1976.

Region and Farm Size	Area in Crops (ha.)	Average Value of Capital* (1000 ₲'s)	Average Value of** Fixed Capital (1000 ₲'s)
Minifundia			
0.0 - 4.9 ha.	1.3	50.8	3.8
5.0 - 9.9 ha.	3.2	319.6	15.5
10.0 - 20.9 ha.	4.5	420.5	26.6
21.0 - 50.9 ha.	7.9	1,554.4	77.5
TOTAL	2.7	261.3	14.9
Non-Minifundia			
0.0 - 4.9 ha.	1.6	44.0	4.0
5.0 - 9.9 ha.	3.4	166.3	21.6
10.0 - 20.9 ha.	4.6	251.7	16.1
21.0 - 50.9 ha.	8.2	660.8	61.1
TOTAL	4.1	235.9	20.0

Source: Invernizzi, Tables 35 and 36, 45 and 46.

*Sum of Land Value, Equipment, Inventory, and 50% of Expenses.

**Value of Machinery, Equipment and Fences.

Conclusions

Paraguay is a country that is experiencing relatively large population shifts, which are primarily due to a land redistribution program based upon colonization. Because of the dynamics of colonization, it is difficult to estimate current conditions based upon past trends. Moreover, in comparing regions of the country, it is important to note that local conditions may vary greatly due to different patterns of settlement. Despite these problems, certain basic regional features stand out.

Itapuá

Itapuá contains about 10% of the population of Eastern Paraguay (excluding Asunción). It contains about 8% of what is the A.I.D. target population and about 7% of the very poor (less than ₲20,000 per capita annual income) in Eastern Paraguay.

Itapuá is a large agricultural producer. With 55% of the nation's soybean production, it produces more tons of corn and soybeans than any other region.

Itapuá has the most even distribution of land and income of any region: 55% of all farms have more than 5 hectares cultivated, 24% more than 10, 40% of the population is in families with incomes greater than the equivalent of $300 per capita annually.

Itapuá is an area with many recent settlers and a high percentage of persons of foreign origin. One-third of the population has moved to Itapuá in the last ten years. About 12% speak a language at home other than Guaraní or Spanish.

Eje Norte

On the opposite end of the scale in terms of income distribution is the Eje Norte region. This area contains about 13% of the population of the five regions, about 15% of the A.I.D. target group, and about 16% of the very poor families.

The Eje Norte has been the site of a great deal of colonization since 1960, and there is a relatively high percentage of medium-size farms (30% cultivate between 5 and 10 hectares). However, this area has the largest percentage of target group members and of very poor families in its population: 92% of all families qualify for the USAID target group, and 70% of all families have less than half of that amount of income (i.e. they have less than ₲20,000 per capita annually).

Land tenure is least secure in the Eje Norte area. About one-third of families have title to their land and about two-thirds are mere occupants.

Agricultural and livestock production in the Eje Norte region is about proportional to the population size for corn, cotton and cattle. Soybean and sugarcane production is very small.

Ganadero

The Ganadero region is home to about 7% of the population of Eastern Paraguay (excluding Asunción). It contains about 8% of the USAID target population and 8% of the very poor.

About 30% of the cattle ranches of over 100 head are located here, and about 20% of the ranches of between 20 and 100 head are found in this region.

Farms are relatively small, land tenure relatively secure, and the population relatively stable. About 75% of all farms cultivate fewer than 5 hectares, 56% are held by title. Some 65% of all families have lived in the Ganadero region their entire lives.

Income distribution falls about in the middle for the five regions: 84% of the families would qualify for the USAID target group and 61% have incomes of less than half that amount.

Neo-Colonization

The Neo-Colonization region is the most difficult to evaluate because it is the area with the greatest amount of change. The population increased by 278% in Alto Paraná between 1962 and 1972. There were 33,000 immigrants to the area between 1967 and 1972. In the same period of time, about 22,000 people left the area. There were 61 colonies established in this area between 1960 and 1973, locating about 9,900 families there. Only 18% of the population has lived in the area their entire lifetime. Almost half have moved there within the last ten years. Over one family in four speaks a language other than Spanish or Guaraní at home (mostly Portugese).

Based upon the most recent census (1972), however, it appears that about 20% of the population of the Eastern region lives in the Neo-Colonization area. It accounts for 18% of the target population and the very poor in Eastern Paraguay (excluding, as always, Asunción).

Agricultural and livestock production is slightly greater than the proportion of population, and is relatively diverse.

After Itapuá, this region has the most even distribution of land and income: 34% of all farms cultivate more than 5 hectares, and 11% cultivate more than 10 hectares. One in four persons lives in a family with more than ₲40,000 per capita annual income.

Land tenure, however, is more insecure in the Neo-Colonization region than anywhere else except the Eje Norte. Only 40% of all farms are held by title.

Minifundia

The Minifundia area is the traditional site of small-farm agriculture in Eastern Paraguay. Farmers are leaving this area to settle in other parts of the the country. About 78,000 people left the area between 1967 and 1972. At the same time, about 50,000 people moved there (primarily to the area around Asunción). Still, 63% of the population are lifetime residents.

The Minifundia area contains about 50% of the population of Eastern Paraguay, 41% of the USAID target population, and 52% of the very poor.

Land is held in extremely small parcels: 83% of all farms cultivate less than 5 hectares, and 82% are less than 5 hectares in overall size. Only 3% of all farms in the region have more than 10 hectares in crops.

Sugarcane is the principal crop of the area, accounting for 73% of the country's production. There are about 35,000 subsistence cattle operations in the region, or 54% of the nation's total.

Despite having the poorest distribution of land in Eastern Paraguay, the Minifundia area has somewhat better

distribution of income than either the Eje Norte or Gandero regions: 20% of all families have per capita incomes greater than ¢40,000.

Although there is a much higher percentage of small farms in the Minifundia region than in the rest of the country, the Minifundia farms are somewhat better off up to 21 hectares in size. Above 21 hectares, farms outside the Minifundia region have higher incomes.

Small farms (below 21 hectares) in the Minifundia region, as compared to the rest of the country, tend to be more heavily capitalized, located closer to markets, and more often held by title. Furthermore, the farmer tends to have greater access to off-farm employment and to education.

PART THREE

CASE STUDIES

Introduction

The purpose of this section is to amplify the evaluation of Parts One and Two. None of these studies can be considered as representative of an entire regional population; but, instead, the case studies are most valuable as examples of local conditions. In the first two sections of this report, it was found that about 80% of the population of Eastern Paraguay are in target group families. Certain characteristics of the standard of living were mentioned, regional differences were examined, and small-farm characteristics were outlined. In looking at several case studies, an attempt will be made to: 1) evaluate the amount of local variation within a region, 2) examine, more closely, relationships such as that between land and income distribution, 3) provide more graphic illustrations of conditions associated with low levels of income, and 4) raise possible questions about the interpretation of aggregate or regional data.

The case studies include: 1) a 1976 survey of 15 colonies in Itapuá, 2) a 1974/75 survey of seven colonies in San Pedro (Eje Norte), 3) a 1975 study of three colonies located in Caaguazú and Alto Paraná between Asunción and Pte. Stroessner (Neo-Colonization) 4) a 1978 study of land redistribution beneficiaries in Oyopoi,

Cordillera (Minifundia), 5) a 1979 study of two colonies near Coronel Oviedo, Caaguazú (Neo-Colonization), 6) a 1977/78 study of program beneficiaries in 5 districts of the Central Department (Minifundia), and 7) a representative sample survey of the Department of Paraguarí (1978 - Minifundia). Evaluation of the reliability of this data is made, where possible.

Itapuá

Tables 29-31 are derived from an IBR survey of 15 colonies in Itapuá in 1976. The data are presented in a report by Ramón Fogel published by Centro Paraguayo de Estudios Sociológicos. It has not been possible to evaluate the reliability of the data.

Table 19, above, indicates that 61% of farm families in Itapuá have incomes of less than $40,000 per capita; 45% have less than 5 hectares in crops; and 56% are titled landowners. The data presented in Tables 29 and 30 indicate that, for the colonies studies, farms are smaller than indicated in Table 19; there are fewer titled landowners than reported above; and, within the region, there is a great deal of variation in the distribution of land. Table 31 describes the distribution of credit in the region, and permits the inference that credit is most available in colonies with larger farms.

The distribution of land as presented by Table 29 is, on the average, relatively even, as was found to be the case in Table 19. However, in the 14 study colonies there appears to be a higher percentage of small farms than was indicated

Table 29

Distribution of Land Cultivated, Itapuá, 1976.

	Percentage of Farms		
Colonia	Less than 2 has. cultivated	3-5 has. cultivated	6-9 has. cultivated
Edelira	25.8	42.7	4.8
Edelira I	42.33	39.63	7.65
Federico Chávez	26.71	34.9	17.5
Cap. Meza	35.4	31.2	15.2
Cap. Miranda	21.7	38.6	19.3
Hohenau	33.3	33.0	33.3
Dr. Esculies	38.1	28.6	19.4
Ape Aime	45.4	49.1	4.5
San Rafael	42.3	47.4	6.4
San Lorenzo	50.0	37.7	9.1
Triunfo	30.0	45.1	19.0
Mayor Otano	44.2	42.4	11.2
Cap Urbina	66.0	27.1	2.0
Carlos Antonio López	50.4	35.4	10.1

Source: Fogel, Annex Table 5.

Table 30

Distribution of Farmers According to Land Tenancy, Itapuá, 1976.

Tenancy	% of Farmers
Ownership	8.1
Occupant	18.6
IBR Land	
Occupant	29.5
Adjudicant	3.6
Solicitor	8.4
Other or No Response	31.8

Source: Fogel, Annex Table 15.

Table 31

Distribution of Farmers According to Access to Credit, Itapua, 1976.

Colonies	Percentage not Receiving Credit from BNF	Percentage not Receiving from other Banks
Edelira	99.01	99.75
Edelira I	95.49	98.64
Federico Chávez	88.10	95.62
Cap. Meza	89.20	99.80
Cap. Miranda	83.13	96.38
Hohenau	83.33	100.00
Yaguarazapa	100.00	100.00
Dr. Esculies	90.47	100.00
Ape Aime	99.62	100.00
San Rafael	100.00	100.00
San Lorenzo	97.98	100.00
Triunfo	99.35	99.81
Mayor Otano	99.62	100.00
Cap. Urbina	100.00	100.00
Carlos Antonio López	98.28	99.01

Source: Fogel, Annex Table 7.

previously. In every colony, at least 60% of the farmers cultivate less than 5 hectares. In seven colonies, over 80% are this size. The reason for this difference between Tables 19 and 29 could be in survey technique or in the different populations sampled. Without knowing more, its not possible to say.

More importantly, however, is the degree of variation indicated by Table 29. The percentage of very small farms in an area (i.e. less than 2 has. cultivated) ranges from 22% in Capitán Miranda to 66% in Capitán Urbina. The percentage of larger farms (6-9 hectares) ranges from 2% in Capitán Urbina to 33% in Hohenau. Because Itapuá is a relatively wealthy area of larger farms, it is possible that localities with smaller farms may be effectively blocked from the prosperity that characterizes Itapuá on the average. There may be distinct cases where the percentage of target group population, therefore, is very high.

Table 30 is somewhat unreliable since 32% of the people sampled were not in a response category. However, the data indicate that titled land ownership is lower than represented in Table 19. Again, the difference may be due to sampling errors, the difference in population sampled, the three intervening years, different land tenure definitions, or a combination of all. It appears, however, that land tenure in Itapuá is more complex than might be understood from Table 19. About 60% of the farms are held by some form of occupancy, and only 12% appear to be occupants with an immediate claim to IBR land. An 8% ownership rate appears very low. It is possible that this category includes only farmers who own all of their land.

As mentioned above, there is probably a strong relationship between land tenure and access to credit. Table 31 demonstrates that credit use is extremely limited in the colonies studied. Moreover, the very colonies with the most access to credit (i.e. more than 10% with credit) are the same colonies with the highest percentage of large farms.

This study of colonies in Itapuá indicates, then, that there is a great deal of variation of land distribution (and presumably income) in the region, that land tenure may be more unstable than indicated from the aggregate figures, and that credit use is very limited and most available in areas with larger farms. The data presented here, also, raise the question as to whether conditions in the colonies are substantially different from the aggregate for the region, especially regarding land distribution and tenure, or whether data differences are explained by different survey definitions or by statistical errors.

Caaguazú

Tables 32-35 are taken from a 1975 IBR survey of three older, well-established colonies in what is part of the Neo-Colonization area. Repatriación, J. L. Mallorquín, and Pastoreo lie, generally, along the road between Asunción and Pte. Stroessner. They were established around 1964 with relatively large lots of land. The data presented here is taken from the Fogel study. It is impossible to assess the reliability of the data.

Whereas the land would appear to be fairly evenly distributed, the study indicates that a small portion of the land

Table 32

Distribution of Farms by Size of Lots, Repatriación, J.L. Mallorquín, and Pastoreo, 1975.

Size of Lot	Percentage of Farms	Percentage of Land
0.0 - 4.0 has.	5.1	0.6
4.1 - 8.0 has.	9.1	4.5
8.1 - 13.0 has.	33.0	22.2
13.0 - 25.0 has.	49.3	63.3
25.1 and above	3.4	9.4

Source: Fogel, Annex Table 16. From Censo Socio-Económico de las Colonias, IBR, 1975.

Table 33

Distribution of Farms According to Amount of Land Cultivated, Repatriación, J. L. Mallorquín, and Pastoreo, 1974.

Area under Cultivation	Percentage of Farms
Less than 1 ha.	3.6
1 ha.	4.5
2 has.	16.3
3 has.	23.3
4 has.	20.4
5 has.	12.6
6 has.	7.5
6.1 - 10 has.	10.2
above 10 has.	1.6

Source: Fogel, Annex Table 6. From Censo Socio-Económico de las Colonias, IBR, 1975.

Table 34

Distribution of Farmers According to Land Tenancy, Repatriación, J.L. Mallorquín, and Pastoreo, 1975.

	Percentage of Farmers		
Type of Tenancy	Repatriación	J.L. Mallorquín	Pastoreo
Ownership	4.1	15.3	19.0
Occupant	67.4	54.2	53.9
IBR Land			
Solicitor	20.4	21.2	20.1
Adjudicant	4.9	4.6	2.8

Source: Fogel, Annex Table 14. From Censo Socio-Económico de las Colonias, IBR, April 1975.

Table 35

Availability of Equipment, Repatriación, J.L. Mallorquín, and Pastoreo, 1974.

Type of Equipment	Percentage of Farmers
Without iron plow	79.3
With wooden plow	5.9
Without discs	99.3
Wihtout sprayer	78.4
Without cart	78.5

Source: Fogel, Table 8. From Censo Socio-Económico de Las Colonias, IBR, April 1975.

is actually cultivated, land tenure is insecure, and many farms are without the basic implements needed to make a successful commercial farm.

Almost 50% of the farmers in these three colonies are on farms of between 13 and 25 hectares, controlling about 63% of the land. Another 33% of the farmers are on plots of between 8 and 13 hectares, accounting for 22% of the land. Only 14% are on farms smaller than 8 hectares, and 3% on farms of more than 25 hectares (Table 32).

The relatively even distribution of land, however, is of less importance when the amount of land cultivated is considered. About 80% of the farms have 5 or less hectares in crops. About 48% have 3 hectares or less cultivated. One farm in four has 2 hectares or less in crops.

Furthermore, the importance of farm size is further diminished because of the insecure land tenure conditions which prevail (Table 34). These colonies had been in existence for eleven years at the time of the survey, and, still, more than half of the farmers were occupants of their land. Only 4% of the farmers in Repatriación had title, and 13% and 19% in J.L. Mallorquín and Pastoreo, respectively. About 25% of the farmers were trying to obtain title through IBR.

Perhaps an explanation for the small amount of land cultivated by the farmers is the lack of proper implements. About 80% of the farmers were operating without an iron plow, a sprayer, and/or an animal-drawn cart. About 6% had a wooden plow.

These colonies, then, are characterized by large plots of land, insecure land tenure, a scarcity of basic farming tools, and a small amount of land actually cultivated.

Eje Norte

Tables 36 and 37 are taken from a 1974/75 survey of seven colonies in the southern part of San Pedro*. A 10% sample was taken, proportional to the population of each colony, for a total of 155 families. The data are presented only as an average for all areas. Because these are colonies especially chosen to represent a small area and for the purpose of following up an earlier study, the results are not representative of the region.

Land distribution in the colonies studies is reported as relatively even**: 80% of the families surveyed had more than 20 hectares, 12.5% had between 11 and 20 hectares, and only 7.5% had fewer than 10 hectares.

Tables 36 and 37 demonstrate that mere land distribution data can be misleading, taken alone. Of those farmers surveyed, only 27% had title to their property, over 50% were occupants with no immediate legal claim to their land, and the rest were in the process of obtaining land title from the IBR. The claim to property that the farmers have would appear very tentative.

Furthermore, only 4% of the farmers had a plow, 33% a sprayer, 17% a planter, and only 18% an animal drawn cart.

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*Evaluación, Programa de Desarrollo Rural Eje Norte de Colonización, CNPS, ONPS, Asunción, 1975.

**Evaluación. . ., p. 38.

Table 36

Distribution of Farms According to Type of Land Tenancy, Eje Norte, 1974.

Type of Tenancy	Percentage of Farms
Ownership	1.9
Occupants	50.3
IBR Land	
Adjudicants	2.6
Solicitors	45.2

Source: CNPS, Evaluación, p. 37.

Table 37

Distribution of Farms According to Ownership of Implements, Eje Norte, 1975.

Type of Implement	Percentage of Farms
Plow	4.5
Sprayer	33.5
Cart	18.1
Planter	16.8

Source: CNPS, Evaluación, p. 59.

The picture emerges from this very limited data of colonists with claim to medium or large parcels of land, but without the security of legal title to their land and without the proper implements to make the land more than marginally productive. Although no data as to the amount of land in crops are available, a reasonable inference would be that the situation is similar to that found in the three colonies above (Pastoreo, J.L. Mallorquín, and Repatriación).

Caaguazú

Tables 38-40 are taken from a 1979 report by IICA (Hauser, et. al.) based upon a 1978 census of two colonies near Coronel Oviedo (Tayao and T. Cora). Because these data represent a census count in the two colonies, it is presumably representative. The report demonstrates that: there is a relatively even distribution of land in both colonies, with about 75% of the farms between 6 and 31 hectares; larger farms have more secure tenure than do smaller farms; and larger farms have better access to credit and more farm implements than do smaller farms.

Table 38 demonstrates that there are a significant number of medium-size farms in both colonies. Only a very few farms are larger than 31 hectares, and relatively few are smaller than 6 hectares. More than 75% of the farms in both colonies are between 6 and 31 hectares. If land were the sole constraint to farm production, income would be fairly evenly distributed in these colonies.

Table 38

Distribution of Land, Tayao and T. Cora, 1978.

	Percentage of Farms		
Strata*	Tayao	T. Cora	Average Size
1	16	17	4
2	48	34	11
3	28	44	25
4	8	5	55

Source: Hauser, Page 7.

* Strata 1: between 0.0 and 6.25 hectares, averaging 4 has.
  Strata 2: between 6.25 and 18.25 hectares, averaging 11.5.
  Strata 3: between 18.25 and 31.25 hectares, averaging 24.
  Strata 4: above 31.25 hectares, averaging 55.

Table 39

Distribution of Farmers by Land Tenancy, Tayao and T. Cora, 1978.

	Percentage of Farmers		
Farm Size	Owners	Occupants	Claimants*
Strata 1	22.8	65.0	6.5
Strata 2	53.8	16.1	27.8
Strata 3	63.3	8.8	26.7
Strata 4	64.4	5.1	27.1

Source: Hauser, Page 9.

*To IBR Land.

Table 40

Ownership of Implements and Access to Credit, Tayao and T. Cora, 1978.

	Percentage of Farms with			
Strata	Plow	Barn	Credit	Cart
1	38	44	21	10
2	36	56	39	27
3	53	58	34	42
4	74	72	36	61

Source: Hauser, pps. 39, 40, 42, 44 and 87.

However, once again, the distribution of land is complicated by the distribution of title to the land. On the average for the two colonies, only 23% of the smallest farms are titled landowners as compared to 54% of the farmers with between 6 and 18 hectares. Only 6% of the smallest farms are on land being claimed from IBR as compared to about 27% for all other sizes. And, 65% of the farms smaller than 6 hectares are merely occupied as compared to 15% of those between 6 and 18 hectares.

Whereas there is a substantial difference in land tenure between the very smallest farms and all others, the conditions among the larger three strata are more similar. The percentage of titled landowners is higher on farms larger than 18 hectares than on those of between 6 and 18, but there is very little difference above 18 hectares.

Table 40 presents data relating to ownership of implements and access to credit. Again, there is a significant difference between the very smallest farms and all others, but not so clearly defined a difference among the larger three strata.

Only 21% of the smallest farms have credit, while 39% of the farms between 6 and 18 hectares do. Beyond 18 hectares, however, credit use remains about the same (actually a little less).

Below 18 hectares, only 36-38% of farms have a plow. More than half of the farms between 18 and 31 hectares have a plow, and three farms in four above 31 hectares own a plow. Likewise, about 3 in 4 of the largest farms have a barn, 56-58% of the farms between 6 and 18 hectares, and only 44% of the smallest farms.

Finally, ownership of a cart is most directly related to farm size. For whatever reason, this appears to be the thing that a larger farmer is more likely to invest in than a smaller farmer.

In brief, then, these two colonies appear to be relatively well off. There are many medium-sized landholders. At least 20% of the smallest farmers have credit, and 35-40% of the larger ones do. While there is a scarcity of implements, the percentage of owners of plows, barns, and carts is higher than some other areas. Moreover, there are very few mere occupants on land above 6 hectares. The only reservation is that the very small farmers appear very much more constrained than the larger farms, and only the very largest farms have what would appear to be an almost adequate supply of farm implements.

Cordillera

Tables 41 and 42 are taken from data from a 1979 report by the Centro Paraguayo de Estudios Sociológicos based upon a 1978 study of the colony OYOPOI, located near Pirebuy, Cordillera (Minifundia region). The survey is a representative, random sample of families who were part of a land redistribution program. The data in Table 41 demonstrate the differences in land and income distribution before and after the program. These data, then, are not representative of the larger region, but are useful for evaluating the short-term impact of land redistribution.

In 1975, prior to the reallocation of land, 41% of the farmers had fewer than 5 hectares and controlled only 11%

Table 41

Distribution of Land and Income, OYOPOI, 1975/76 and 1977/78

Farm Size (has.)	Percentage of Farms		Percentage of Land		Average Income (₡1000)	
	75/76	77/78	75/76	77/78	75/76	77/78
0 - 5	41.0	27.5	11.5	12.0	87.0	81.4
5 - 10	24.7	44.0	19.1	39.1	175.4	158.1
10 - 20	22.3	26.3	32.9	41.3	220.7	226.8
above 20	12.0	3.3	36.5	7.4	388.0	599.0

Source: Colonia OYOPOI, Galeano, Table 14.

Table 42

Distribution of Capital, OYOPOI, 1975/76.

Farm Income (1000 ₵'s)	Percentage of Farms	Percentage of Capital
0 - 20	17.0	1.1
20 -50	16.5	2.9
50 -100	15.1	6.1
100 - 200	20.6	17.0
200 - 500	24.2	44.4
above 500	6.7	28.5

Source: Colonia OYOPOI, Galeano, Table 18.

of the land in the area. At that time, over 36% of the land was held by 12% of the farmers, those with more than 20 hectares. It would appear to have been a characteristic Minifundia distribution (i.e. even the largest farms were relatively small). By 1978, land had been reallocated so that only 27% of the farmers were still on the smallest plots (controlling about the same percentage of land, i.e. their average farm size must have increased); 44% of the farmers were on farms of between 5 and 10 hectares, and, more importantly, they controlled almost 40% of the land. Another 20% (approximately) of the land was held by farmers with between 10 and 20 hectares (26% of the farmers). The share of the land controlled by the very large farms (over 20 hectares) dropped from 36% in 1975 to 7% in 1978, held by 3% of the farmers In 1975, 47% of the farms were between 5 and 10 hectares, accounting for 52% of the land. In 1978, 70% of the farms were between 5 and 10 hectares, accounting for 80% of the land.

In the process of land redistribution, the average income earned in each of the lower two strata declined, the average in the third increased slightly, and the average of the largest farms increased dramatically. These averages, naturally, do not indicate that any individual farmer necessarily prospered or suffered, only that there were, in 1978, more farmers in the second strata who earned less than the previous average income, and more farmers in the third strata who earned more than what had been the average income in 1975.

While it appears, in fact, that total (unadjusted) income did drop slightly between 1975 and 1978, it also appears that income was much more evenly distributed after the program. The weighted average income (i.e. the percentage of farmers per strata times the average income in that strata) for 1975/76 was ¢174,800 per farm. In 1977/78 the average had declined to ¢171,400. The difference may be related to price changes or to operational inefficiencies. However, by 1978, the 44% of farmers with between 5 and 10 hectares earned 40% of the income, and the 26% of farmers with between 10 and 20 hectares earned 35% of the income. Farms of between 5 and 20 hectares represented 70% of the total, accounted for 80% of the land, and earned 75% of the total income in 1978.

There are no data in the CPES report as to capital distribution in 1977/78. It is possible that land redistribution was accompanied by or will at least cause a mechanism (e.g. credit) for redistributing capital. The data from 1975/76 (Table 42) indicate a very unequal distribution of capital. The poorest 48% of the population controlled only 10% of the capital. The wealthiest 7% controlled 28%. The poorest 33% controlled a meager 4% of the capital. Again, there is no indication of whether this bias was adjusted between 1975 and 1978, but it would appear possible in light of the redistribution of income that was accomplished.

Central (Minifundia)

The data in Tables 43-46 are taken from a report by the

Misión de Amistad* concerning the socioeconomic conditions of small farmers, in five districts of the Central Department, who were involved in a development project. All of the farmers interviewed were members of the project (173 in all). The report does not specify the exact types of aid rendered the beneficiaries, but lists technical assistance, marketing, and credit as the primary objectives. These data, then, are in no way representative of the entire region, but are rather useful for examining the characteristics of small farmers who are presumably being rendered assistance.

The farms studied appear to be of the characteristic Minifundia distribution, but there are very few mere occupants, ownership of capital and farm implements is relatively good, and average incomes appear higher than average for the region.

Table 43 indicates that 53% of the farms are smaller than 5 hectares, and 85% are smaller than 10 hectares. The lowest 22% of farms control only 6% of the land, and the lowest 53% control only 25% of the land.

For all sizes of farms, however, over half of the farmers are titled. Of those farms larger than 10 hectares (only 15% of the total), 78% have title to at least some of their property. In all cases, the number of farmers with no claim to their land (occupants only) is less than 6%.

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*Estudio Socio-Económico de los Pequeños Productores de la Zona Central Beneficiarios del Programa, Misión de Amistad, Asunción, 1979.

Table 43

Distribution of Land Misión de Amistad 1978.

Farm Size (in has.)	Percentage of Farms	Percentage of Land
0 - 2.5	22.0	6.1
2.5 - 4.9	30.6	18.5
5.0 - 7.4	22.0	22.4
7.5 - 9.9	10.5	15.2
10 - 14.9	11.5	24.0
15 - 19.9	1.7	5.3
20 and above	1.7	8.4

Source: Misión de Amistad, Table 5.

Table 44

Distribution of Farms by Type of Land Tenure, Misión de Amistad

	Percentage of Farms		
Farm Size (in has.)	Owners*	Occupants	Claimants*
0 - 4.9	49.4	5.5	25.3
4.9 - 9.9	49.0	5.4	25.4
10.0 and more	78.0	3.7	14.8

Source: Misión de Amistad, Table 6.

*All or in part.

Table 45

Ownership of Implements, Misión de Amistad, 1978.

Farm Size (in has.)	Average Number of Implements/Farm		
	Cart	Plow	Sprayer
0.0 - 2.4	0.1	0.4	0.5
2.5 - 4.9	0.5	0.7	0.8
5.0 - 9.9	0.7	0.9	0.9
10.0 - 19.9	1.0	1.3	1.2
20.0 and more	1.3	2.7	1.7

Source: Misión de Amistad, Table 16.

Table 46

Characteristics of Small Farms, Misión de Amistad, 1978.

Farm Size (in has.)	Average Gross Income (₡1000's)	Average Capital (₡1000's)
0 - 2.4	235	280
2.5 - 4.9	230	484
5.0 - 9.9	333	942
10.0 - 19.9	448	1145
20 and more	1288	5181

Source: Misión de Amistad, Tables 7 and 15.

Additionally, about 40% of the smallest farmers have plows, and about 50% of that category have sprayers. For farms of between 2.5 and 10 hectares, 70-90% have plows and/or sprayers. Those farms over 10 hectares have, on the average, more than one cart, plow, and sprayer per farm. These are well equipped small farmers, presumably due to the credit extended by the program.

It is not surprising, then, that income is relatively evenly distributed. The smallest 22% of farms average ₡235,000 per farm, the next 30% (i.e. 2.5-4.9 hectares) average ₡230,000, and the next 32% (i.e. 8-10 hectares) average ₡330,000 per farm. Among the smallest 85%, the average income does not increase dramatically for larger farms (i.e. the farms in the third group might have about 400% of the land of the first group and 150% of the income).

While income is relatively evenly distributed, capital is much more directly related to farm size. Without knowing more about the actual production patterns, it is not possible to evaluate the reason for the difference in capitalization and income earned. Off-farm income could be an explanation; labor-intensive horicultural crops could be another, and there are undoubtedly others.

The picture drawn by Tables 43-46, however, is of a group of farmers with a high percentage of smaller farms, many owned, with relatively adequate equipment, and with higher than average incomes which are relatively evenly distributed.*

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*The distribution of income works out as: the poorest 22% have 16% of the income, the poorest 53% - 39%, 85% - 74%, 98% - 93%, and 2% have 7% of the income.

Paraguarí

Tables 47-49 are derived from data in a 1979 report by the O.A.S. (Technical Group) on a 1978 survey of farmers in Paraguay. There were 42 different locations in the sample (out of 1972 in the entire list for Paraguarí) with a random sample of 17 or 18 small farmers in each location. While there are a substantial number of interviews (747), it is not apparent from the survey methodology description that the sample was proportionate to the population of each location. However, the data is certainly more representative of small farmers in Paraguarí than any other source (i.e. it is the only source).

Table 47 indicates that for all strata, there are very few farms in Paraguarí that are involved in IBR colonization activity. There are more titled owners and fewer occupants among the larger than among the smaller farms, and there are more (a higher percentage of titled owners among primarily agricultural farms as compared to primarily livestock-suited farms.

In all, about 46% are owners and 31% are mere occupants. These figures are roughly in line with the data in Table 22 for the entire Minifundia region (51% and 38%, respectively).

In Table 30, above, it was shown that the value of fixed capital per hectare cultivated (Minifundia farms) increases as farm size increases. This means that larger farms on the average, have more equipment available per hectare cultivated than do smaller farms. The data in Table 48 substantially agrees with these findings. While the value of capital per hectare of overall farm size actually

Table 47

Distribution of Farms by Tenancy Status, Paraguarí, 1978.

Type of Tenancy	Percentage of Farms				
	Total	1*	2*	3*	4*
Owners	45.7	30.7	45.5	48.3	53.5
Occupants	30.8	43.9	29.5	30.9	24.5
Colonists (IBR)	2.6	0.4	1.2	5.6	3.8

Source: Encuesta Socio-Económica en la Población Meta de Productores Minifundarios, page 15.

*Strata: 1 - between 1 and 5 has. of land suitable primarily for livestock.

2 - between 1 and 5 has. of land suitable primarily for agriculture.

3 - between 5 and 20 has. of land suitable primarily for livestock.

4 - between 5 and 20 has. of land suitable primarily for agriculture.

Table 48

Area Cultivated and Capital Available, Paraguarí, 1978.

Size and Type of Farm	Average Total Farm Size	Average Area in rops	Average Value of Capital*		Capital Index (₲'s per ha.)
Strata 1	3.1	2.3	70.1	(7.4)	22.6
Strata 2	3.0	2.6	103.8	(14.6)	34.6
Strata 3	10.2	5.2	195.1	(27.3)	19.1
Strata 4	10.5	5.6	211.9	(34.7)	20.2
TOTAL	6.4	3.9	144.6	(21.4)	22.6

Source: Encuesta Socio Económico . . ., pps. 21, 26.

*Value of animal inventory and farm equipment; farm equipment only in parentheses.

Table 49

Average Farm Income, by Farm Size, Paraguarí, 1978.

Size of Farm	Monetary Income (1000 ₲'s)	Value of Consumption (1000 ₲'s)	Total Income	Per Capita Income
Strata 1	96.0	84.6	180.6	30.6
Strata 2	123.0	85.2	208.2	35.3
Strata 3	201.3	144.2	345.5	55.7
Strata 4	213.0	147.8	360.8	54.7

Source: Encuesta Socio Económico. . ., p. 31.

declines in the larger farms as compared to the smaller, the value of equipment per hectare cultivated increases from ¢3,200 in Strata 1 to ¢6,200 in Strata 4. These figures are very close to the Table 30 estimates of ¢2,900 and ¢5,900 for the same size farms.

Most importantly, perhaps, is the absolute values of equipment. Even the largest farms (i.e. 5-20 hectares) have an average of only ¢6,200 worth of equipment. This is the equivalent of about $260, or $46 per hectare cultivated.

Table 49, then, demonstrates that per capita income on those farms averaging 4.6 hectares in crops is about 60% greater than per capita income on those farms averaging 2.6 hectares. Monetary income and home consumption increase is about the same proportion, which would indicate that the smaller farms have an unsatisfied demand for food which is just as important as the need for money.

Despite the fact that the larger farms have more capital available per hectare cultivated, the income earned per hectare cultivated is, on the average, larger among the smaller farms than among the larger (about ¢80,000 for Strata 1 and 2 as compared to ¢64,000 for Strata 3 and 4). Again, the difference may be due to off-farm income.

Summary

The above case studies are not representative of a large enough area to permit firm conclusions about the distribution of income or resources solely on the basis of the data presented. They do not change the results of Parts One or Two except to

the extent that they indicate the degree of variation or diversity that exists within the aggregate results. These studies do, however, provide some further insight into the relationships of factors which may account for income distribution, and they do provide an illustration of implement scarcity, for example.

While the distribution of land is an important factor in the distribution of income (e.g. in OYOPOI), several studies indicate that land tenure insecurity, lack of credit, and insufficient capital (especially farm implements) limit the number of hectares cultivated and have an adverse impact on income.

Generally, access to credit, capital, and land title was found to be positively related to farm size. However, the amount of land cultivated and the income earned from the land are not necessarily proportional to the overall farm size. In one Minifundia study (Misión de Amistad) the smallest farms (less than 2.5 hectares) had higher average incomes than somewhat larger farms. These same farms had a much higher average of farm implements than were found in the colonies of San Pedro or Caaguazú, for example.

At least one case study, OYOPOI, indicates that income can be redistributed in the short run, even if at a loss of total income, through land redistribution. The situations found in several more remote colonies (Eje Norte and Caaguazú) indicate that mere land reform might not be sufficient for redistribution of income if small farmers still lack land title, credit, and a few basic tools.

PART FOUR

INCOME DISTRIBUTION POLICY

RECOMMENDATIONS FOR FURTHER STUDY

This section will briefly discuss Paraguayan policy for improvement of land distribution and recommendations for further research. The two are mentioned together because they are related. Further research in the area of income distribution should be directed toward an evaluation of the success of colonization as a policy. Little is known about the distribution of income in the colonies; and it is colonization which is the major tool of the Paraguayan government.

The above discussion of income distribution draws a picture of a country with fairly high percentages of low income families. Far from being homogenous, the country is composed of several distinct regions; and, in its dynamic state, Paraguay is a country of population movement. Whereas there are undoubtedly many auxiliary programs of credit, education, health care, etc., the main Paraguayan program directed at redistribution of income is this movement of people - out of the older areas around Asunción and into the less developed regions of the Eje Norte, Caaguazú, and Alto Paraná. This evaluation of Paraguayan income distribution policy, then, considers primarily the potential effects of moving the small farmers out into colonization areas.

Other programs are considered as variables - they may or may not be enacted and pursued, but colonization will continue.

The theory behind colonization as an effective policy of income redistribution is simple: farm incomes are low because farmers have too few hectares in crops and on relatively unproductive land; therefore, if they were to have more land available and more fertile land, their incomes would increase. Without more explanation, it can be said that this might very well be true. The Paraguayan government appears to lean heavily on the argument. There are, however, several qualifications to the theory of the program that merit attention: 1) it is possible that, without proper aid, small farmers will simply move their Minifundia farming conditions to other parts of the country, 2) it is possible that, in moving to remote areas of the country, families will suffer more from sociological disruption than they gain in monetary benefits, and 3) it is possible that the intent of the Paraguayan government is not redistribution of income, but rather simply the redistribution of population.

First, it is possible that the colonization policy will only transfer the Minifundia poverty to another part of the country. As is evident from a couple of the above case studies, farmers often arrive to colonization areas without money or tools. They have a claim to some twenty hectares, but not title, no credit, and no tools. They are able to clear about one hectare per year by hand, and they must eventually reach a limit at which they can clear no more land while working what is already

cleared. At the same time, there are Brazilian immigrants moving in from the east and Japanese colonists in Itapuá. These colonists are buying large parcels of land and farming them with modern implements. The question must arise: how can the small farmer colonist compete against mechanized agriculture in a remote area where he has little access to credit or technical assistance?

If, in fact, large-scale farming in the colonization areas reaches significant proportions in several years, then the small farmer will find himself in a market where commodity prices will be based upon the economics of large-scale production and distribution. He will be unable to compete with small-scale technology and little land. Market channels will be developed to handle the commodities of larger farms, and the small farmer will have to take whatever price his small supply will bring.

Moreover, in leaving the older Minifundia areas, the small farmer will have given up off-farm employment opportunities and the alternative markets for horicultural crops that are available around Asunción. He will be even more dependent upon his farm income than before.

At the same time, in moving from the traditional Minifundia areas, the small farmer sacrifices social stability and access to some public services. In the colonization areas, the family becomes a work unit. Whereas in areas nearer Asunción there may have been opportunities for small crafts or other non-farm activities for the wife, for example, in the colonization regions she becomes another laborer. Also, the capability to reach families with

education and health services is greatly reduced in more remote areas. These will be sacrificed in the move to farm more land.

The colonization policy, then, is based upon the idea that increased land will mean increased production and improved income. The policy could be unsuccessful if large-scale production creates a market situation (i.e. larger supply and lower prices) in which small-scale farming is not profitable. Or, even if incomes are raised somewhat, there are sacrifices inherent in the move to a remote area (access to markets, services, alternative employment) which may be greater than monetary benefits.

While it is difficult to evaluate political motives, that is the basis of evaluating the potential success of a policy. If the Colorado Party wants the colonization program to work, there are probably ways to avoid the above problems. The colonization areas would need significant assistance directed toward the small farmer. If, however, the Party is primarily interested in maintaining control over the country, redistributing population away from the one potential area of social unrest--Asunción, lowering the access to education and public communication in order to maintain the country at its present level of social naïveté, and maintaining the present distribution of income, then the policy of colonization could serve those purposes as well.

The IBR has recently completed studies of socio-economic conditions in colonization areas. As of this writing the data are not available. However, future research in income distribution in Paraguay should be concerned with the above raised questions:

Will small farmers in the colonies be able to apply a level of technology that will make their farms significantly more productive than the small Minifundia farm? Will there be a market for his goods? Will large-scale agriculture significantly affect the prices paid for commodities in colonization areas? Will the monetary gains, if any, offset losses in public services and off-farm alternative employment? What will be the sociological impact of the move to colonization areas? Is there any evidence that the government of Paraguay is interested in more than a redistribution of population?

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