

Rural Poverty and Labor Markets in Argentina

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ARGENTINA



1. Introduction

In 2001, rural poverty is significantly higher in rural areas than in urban areas. One poverty indicator such as unmet basic needs (UBN) reveals that; 33 percent of the rural population in Argentina have UBN—compared 14 percent in urban areas. A rural poverty rate of 33 percent is a very high figure for a middle-income country like Argentina. Measured by unmet basic needs, the rural poor account for 19 percent of all poor people, although the rural population only account for 11 percent of the total population in Argentina.

In part, the rural-urban wedge in Argentina is the consequence of the highly skewed public investment distribution that disfavors rural people and provinces, combined with, during many years, underinvestment in agricultural and policies suppressing the rural terms-of-trade. Moreover, the rural public service provision is scarce in areas such as education and health care, infrastructure, and transfer programs. Moreover, the lack of public investments and services in rural areas have hit the rural poor the hardest as they cannot afford to buy privately provided services such as health and education as they do not have the assets, incomes, etc.

The rural population has different livelihood strategies. There are at least three types of rural poor livelihood strategies in Argentina: (i) on-farm—agricultural based livelihood; (ii) off-farm—agricultural and nonagricultural employment and subsidies; and (iii) a combination of (i) and (ii). Poor households' assets, social capital, access to markets and services, existing institutions are important when addressing the livelihood of poor.

The rural sector is important for the macro economy and micro economy in Argentina. Agriculture and agrobased industry account for 57 percent of all exports, 36 percent of employment, and 18 percent of GDP. The rural poor and nonpoor receive the largest share of their total income—54 and 68 percent respectively—from agricultural activities such as farming and agricultural labor. The rural nonfarm sector is also important for income and employment. The poor and nonpoor in dispersed rural areas receive less than 20 percent of their total income nonfarm. Remittances and transfers account for 27 and 19 percent of the poor and nonpoor's total income, respectively. This information motivates this paper, and the paper tries to shed some empirical light on poverty, income generation, and employment in the agricultural and nonagricultural sectors in rural Argentina.

The analyses of rural poverty in broad sense undertaken in this paper are based on existing literature and available data. The poverty analysis in rural areas includes an overview of poverty and inequality, social programs and services, employment on- and off-farm, and wages and income in agricultural and other rural activities. Some of the main findings from this paper are reported below.

Rural income poverty is widespread and deep and it is especially extensive in the Northeast and Northwest Argentina. By the income measure of extreme poverty nearly 40 percent of rural households are in extreme poverty, compared to just over 30 percent in urban areas.² The rural extreme poor account around 1.2 million people or around 200,000 households.

In the beginning of the twentieth century, the structure of poverty is clear in rural Argentina: larger households are poorer than smaller households, female headed households are poorer than male headed households, young households/household heads are poorer than older households/household heads, the poor tend to work more in the informal sector, and a greater share of those engaged in agriculture are poor. Poverty is, however, by no means strictly an agricultural problem, as Wiens (1998) also noted in his analysis of the early and mid 1990s. Furthermore, the deepest poverty is among the poorly educated and young household heads with children. Without interventions to improve their opportunities and assets, their plight is likely to worsen. Moreover, labor market analyses reveal that education is key to increase productivity, wages, and incomes for rural Argentines. Moreover, rural-dwellers that hold land are slightly less likely to seek employment off-farm in low productivity jobs ; the labor market pays lower returns to poorer women than richer; the importance of nonagricultural income and employment is highly correlated with gender, age, household size, and education; agricultural producers' income are monotonically increasing in land size and education level and positively correlated with road access and use of electricity, fertilizer, and irrigation.

Poverty seems feasible and sensible to tackle via government programs. For comparison, the direct cost of eliminating the income gap between the rural poor population's current income and the extreme poverty line is roughly 0.1 percent of GDP.³ The challenge is not to transfer these resources, however, but to help poor families to build the assets to permanently escape from poverty. This will require a rural poverty reduction strategy tailored to the specific characteristics of the rural poor taking into account the rural population's lack of skills; social capital (networks), and opportunities in addition to cultural and ethnic differences. The strategy needs to include education and cash transfer programs, but it needs to go much further. The case of the rural poor in Chile is a good example of how despite an aggressive development of the agricultural sector, investment in education, targeted social protection programs and incentives for exiting rural areas, there still remains a significant segment of rural poor that has been unable to benefit from the growth in the sector and public programs for facilitating their transition out of agriculture and rural areas.

² These poverty rate comparisons refer to income poverty because consumption poverty estimates are not available for urban areas (see Section 3 for definition). Consumption poverty measures give a better picture of the true status of household poverty in rural areas and therefore consumption poverty rates is used in the rest of the paper unless stated differently.

³ The numbers are based on consumption poverty calculated in Section 4 and expanded to Argentina as a whole. The main idea is to calculate the cost of lifting all rural-dwellers above the indigence poverty line. The cost of administration and other related costs would have to be added to achieve the total cost.

This paper suggests that government programs to alleviate rural poverty needs a comprehensive strategy that include different types of components such as employment generation and safety nets related to secondary and tertiary education and elements to increase the indigents' broader asset base. Moreover, improving the rural-dwellers' connections with towns is key for speeding up rural and semi-rural area relations. This paper follow official Argentine statistical classification methods; rural areas are disaggregated into two categories: i) grouped rural areas with under 2,000 inhabitants and ii) dispersed rural areas or open countryside.

The paper is organized as follows. Section 2 addresses demographic changes and section 3 presents data and methodologies applied in the following sections. Section 4 addresses poverty, income inequality and unmet basic needs (UBN) and section 5 presents a poverty profile. Section 6 addresses access to selected services and assets. Section 7 presents analyses of the rural labor force and addresses correlates of nonfarm employment, the likelihood of being employed in the high/low productivity sectors, and the composition of rural income generation. Finally, section 8 concludes and gives policy recommendations.

2. Population

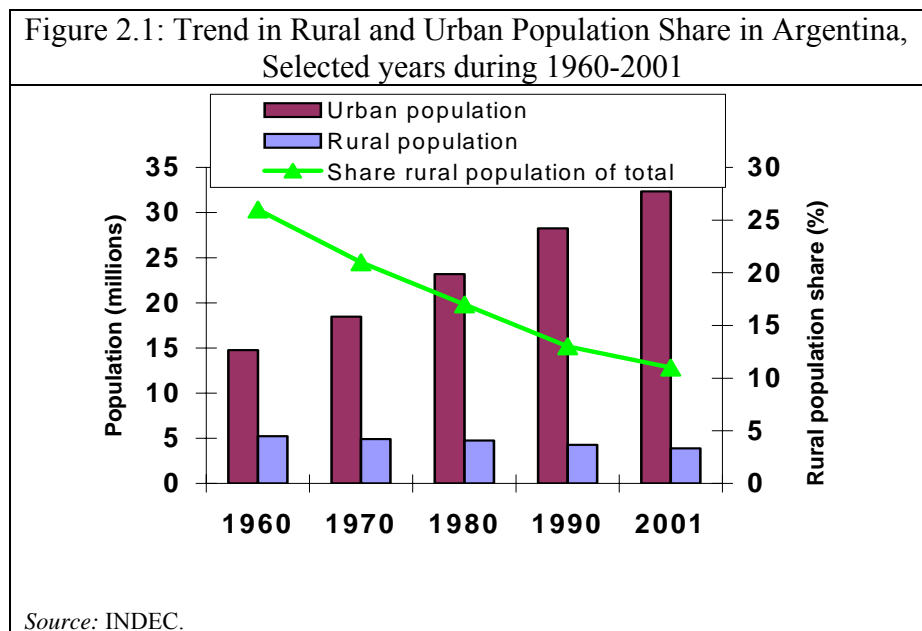
Demographic factors have direct and indirect impacts on prices and poverty. As the size and age composition of the population changes, the relative size of the labor force and the number of dependents also change. This modifies the dependency ratio of families and therefore their level of poverty. This is the direct effect of demographic changes. It captures the effect that demographic changes have on quantities: number of children, size of the labor force, and the number of elderly people. These changes in quantities, however, will in general influence prices in the economy. In particular, changes in the rate of growth of the population and in the age structure may have important impacts on labor supplies, savings, household production decisions, and migration. As a consequence, demographic changes may have considerable impact on the level of wages and on interest rates. Since these prices are important determinants of family income, they are bound to have a profound influence on the level of poverty. These are the indirect impacts of demographic changes on poverty, which occur through the effects of demographic changes on savings, wages, production decisions, and interest rates.

Changing demographics can also have important impacts on the demand for public sector investments and public services, incentives for private sector investments, political power, and on labor markets. As a result, it is important to look at recent changes in demographic patterns in rural Argentina. The following overview describes demographic changes between rural and urban areas that have taken place from 1960 to 2001 and section 7 addresses rural labor markets.

Overview of demographic changes

Argentina is in the middle of a baby bust. After expanding at 16.4 percent between 1980 and 1991, Argentina's population increased by 11.2 percent or 3.6 million people during 1991-2001 and reached 35.9 million in 2001 (Table 2.1).⁴ The main explanation is the sharp drop in the birth rate and some emigration.

During 1960-2001 Argentina has become highly urbanized as the largest population growth has taken place in urban areas. Data reveal that the poorest regions experienced a higher population growth rate than average of Argentina as a whole during 1991-2001. The Northwest and Northeast regions reached a population growth rate of 21 and 19 percent, respectively. This compares to the Cuyo region where the population only expanded by 15 percent and the city of Buenos Aires that lost 6 percent of its population during 1991-2001.



Sixty-seven percent of the Argentine population lives in the Pampeana region, mainly in the province of Buenos Aires. The highest population density is in the metropolitan areas of Buenos Aires where 45.8 percent of Argentines live. Of the five regions the Pampeana region has the largest population share (34.9 percent). The other four regions each have a much lower population share: Northeast (12 percent), Northwest (9 percent), Cuyo (7 percent), and Patagonia (5 percent).

⁴ The most recent Population Census was undertaken in 2001.

The rural population, defined for census purposes as people living in communities with population under 2,000 or in the open countryside, represented 11 percent of total population in 2001; down from 13 percent in 1991 and 28 percent in 1960. Hence, currently rural Argentina is home to around 3.9 million rural-dwellers, although the population was reduced by 8.4 percent during 1991-2001 (Figure 2.1 and Table 2.1). Moreover, demographic developments in rural areas have been little homogeneous in the last decade. The rural Northeast region experienced a population net out-migration (12.1 percent) while the rural Northwest experienced population growth and some in-migration (1.4 percent). Some provinces, such as Mendoza, Catamarca, and Tierra del Fuego experienced positive rural population growth rates of 4.5, 8.9, and 43.7 percent, respectively. This compares to Chaco and Santa Cruz that experienced negative rural population growth rates of 24.3 and 44.8 percent, respectively.

Data presented in Table 2.1 show dispersed rural areas lost 14.5 percent of its population over the last decade reaching 2.6 million in 2001, compared to grouped rural areas that experienced an 8 percent increase and reached 1.2 million. Large demographic changes are taking place in and across regions.

Table 2.1: Population in Argentina and its Regions, 1991 and 2001

	1991					2001				
	Total	Urban as a share of total	Rural as a share of total	Grouped rural as a share of total rural	Dispersed rural as a share of total rural	Total	Urban as a share of total	Rural as a share of total	Grouped rural as a share of total rural	Dispersed rural as a share of total rural
Pampeana region										
Buenos Aires	12,594,974	95.2	5.1	29.8	70.2	13,827,203	96.4	3.8	40.3	59.7
Entre Ríos	1,020,257	77.6	28.9	21.7	78.3	1,158,147	82.5	21.2	28.8	71.2
La Pampa	259,996	74.2	34.8	55.3	44.7	299,294	81.3	23.0	61.8	38.2
Córdoba	2,766,683	86.0	16.2	38.2	61.8	3,066,801	88.7	12.7	45.9	54.1
Cdad Bs. Aires	2,965,403	100.0	0.0	0.0	0.0	2,776,138	100.0	0.0	0.0	0.0
Santa Fe	2,798,422	86.8	15.2	40.7	59.3	3,000,701	89.2	12.2	47.1	52.9
Total Pampeana	19,440,332	91.5	9.3	34.1	65.9	24,128,284	94.1	6.3	42.4	57.6
Cuyo region										
Mendoza	1,412,481	77.8	28.5	13.1	86.9	1,579,651	79.3	26.1	16.6	83.4
San Juan	528,715	80.3	24.6	35.0	65.0	620,023	86.0	16.3	35.2	64.8
San Luis	286,458	81.1	23.3	42.3	57.7	367,933	87.1	14.8	51.9	48.1
Total Cuyo	2,227,654	78.8	26.8	21.3	78.7	2,567,607	82.0	21.9	23.7	76.3
Northwest region										
Catamarca	264,234	69.8	43.2	66.0	34.0	334,568	74.0	35.0	68.9	31.1
Jujuy	512,329	81.6	22.5	32.7	67.3	611,888	85.0	17.7	40.3	59.7
La Rioja	220,729	75.7	32.1	63.9	36.1	289,983	83.1	20.3	62.0	38.0
Salta	866,153	79.0	26.6	25.6	74.4	1,079,051	83.4	19.9	34.3	65.7
Santiago del Estero	671,988	60.7	64.8	22.7	77.3	804,457	66.1	51.3	24.0	76.0
Tucumán	1,142,105	76.6	30.5	13.9	86.1	1,338,523	79.5	25.8	15.9	84.1
Total North West	3,677,538	74.4	34.4	27.8	72.2	4,458,470	78.6	27.2	31.2	68.8
Northeast region										
Corrientes	795,594	74.1	34.9	15.3	84.7	930,991	79.4	26.0	16.3	83.7
Chaco	839,677	68.6	45.8	11.9	88.1	984,446	79.7	25.5	17.8	82.2
Formosa	398,413	67.8	47.5	14.4	85.6	486,559	77.7	28.7	15.4	84.6
Misiones	788,915	62.5	59.9	15.0	85.0	965,522	70.4	42.0	15.0	85.0
Total North East	2,822,599	68.3	46.3	14.1	85.9	3,367,518	76.7	30.4	16.1	83.9
Patagonia region										
Chubut	357,189	87.8	13.9	48.8	51.2	413,237	89.5	11.7	54.9	45.1
Neuquen	388,833	86.3	15.9	30.0	70.0	474,155	88.6	12.9	33.4	66.6
Río Negro	506,772	79.9	25.1	35.4	64.6	552,822	84.4	18.5	42.0	58.0
Santa Cruz	159,839	91.4	9.4	49.9	50.1	196,958	96.1	4.0	38.7	61.3
Tierra del Fuego	69,369	97.0	3.1	23.8	76.2	101,079	97.1	3.0	42.9	57.1
Total Patagonia	1,482,002	85.5	16.9	37.6	62.4	1,738,251	88.8	12.6	42.4	57.6
Total Argentina	32,615,528	87.2	14.7	27.1	72.9	36,260,130	89.4	11.8	32.0	68.0

Source: INDEC, National Population Census 1991 and 2001.

In 2001, dispersed rural areas had 68 percent of rural population. Around 400,000 people left dispersed rural areas during 1991-2001. Roughly speaking, some 25 percent may have moved to grouped rural areas and the rest may have moved to urban areas.⁵ The Pampeana region experienced a fall of 24.6 percent and the Cuyo region of 5.1 percent in the dispersed rural population. In the latter region, Mendoza province is an outlier as it experienced a population increase of 0.3 percent in dispersed rural areas and 32.2 percent in grouped rural areas.

What is driving the heterogeneous population growth pattern rural Argentina is experiencing? There are various reasons for the demographically changing pattern in rural Argentina and many relates to economic opportunities, and lack of access to services change in crop structures. For example, it is clear that living conditions in rural Chaco are inferior to rural Mendoza. In Mendoza, in the Cuyo region, a large part of the agricultural and nonfarm sector is highly labor intensive and expanding, while in Chaco, in the Northeast region, capital intensive agriculture is moving into the south of the province and northern parts of the province experience recurrent droughts and floods that push population out of rural areas. In the Pampeana region, jobs are becoming scarce in the agricultural sector. The change in production technology towards more capital intensive methods, for example in the soybean sector, may explain a significant part of the large reduction in the rural population in the Pampeana region (see Box 1).

The share of children in total population is falling. In 1991, in urban and rural areas, children aged 14 and under accounted for 30 and 36 percent and people aged 65 and over accounted for 9 and 7 percent, respectively. In 2001, the share of children aged 14 and under was down to 28 percent, which is lower than other middle-income countries in Latin America. At the same time, the number of elderly dependents has not caught up with the reduction in children's share in the population. In 2001, 10 and 8 percent of the population was 65 or older in urban and rural areas respectively (Table 2.2). These trends are likely to continue. This will have a significant effect on the country's efforts to reduce poverty. For the next few decades, the ratio of children to working age population will decline, while the number of retirees will remain relatively small. As a result, not only will dependency ratios fall, but also the amount the state must spend on expanding the quantity of social services will decline. This will free up resources to spend on improving the quality of these services and other poverty reduction efforts.

Table 2.2 shows that there are regional and rural-urban differences in the aging pattern. In Northwest and Northeast regions more than 34 and 36 percent, respectively, of the population are under age 15, compared to 28 percent of total population. This compares to 26 percent in the Pampeana region. Moreover, there is a higher population share of working age in the latter region and therefore the Pampeana region is able to better feed the region's children compared to northern regions. This demographic pattern is even more widespread when comparing regional rural to urban areas in the regions. In the Northeast,

⁵ This analysis is not taking into account demographical changes that may account for part of the changes referred to.

58 percent of the rural population is below 25 years of age and 35 percent is of working age, roughly speaking.⁶ This compares to 44 and 44 percent, respectively, in the Pampeana region. Moreover, findings indicate that 60 percent of the rural Argentine population consists of children, youth and old people in rural Argentina. Hence, the overall dependency ratio is larger in rural than in urban areas.

	Age Cohorts			
	0-14	15-24	25-64	65+
Total Argentina				
Total Argentina	28.3	17.6	44.2	9.9
Total Pampeana	25.6	17.1	45.9	11.4
Total Cuyo	29.8	17.9	43.4	8.8
Total Northwest	34.1	19.3	39.9	6.7
Total Northeast	36.4	18.8	38.8	6.1
Total Patagonia	31.5	17.9	44.5	6.0
Urban Argentina				
Total Urban Argentina	27.6	17.6	44.7	10.1
Urban Pampeana	25.4	17.2	45.9	11.5
Urban Cuyo	28.9	17.9	44.1	9.1
Urban Northwest	33.0	19.5	40.9	6.6
Urban Northeast	35.3	19.1	39.7	6.0
Urban Patagonia	31.6	18.1	44.5	5.8
Total Rural Argentina				
Total Rural Argentina	34.2	17.3	40.1	8.3
Total Pampeana	28.9	16.0	44.7	10.5
Total Cuyo	34.1	18.2	40.4	7.3
Total Northwest	38.2	18.4	36.1	7.3
Total Northeast	40.0	18.1	35.6	6.2
Total Patagonia	31.4	17.0	43.9	7.7
Grouped Rural Argentina				
Total Grouped Rural Argentina	33.0	17.1	40.5	9.4
Total Pampeana	28.2	15.8	43.6	12.4
Total Cuyo	33.6	18.3	40.7	7.4
Total Northwest	38.5	18.6	36.3	6.5
Total Northeast	40.9	18.1	35.2	5.8
Total Patagonia	36.5	17.5	40.3	5.7
Dispersed Rural Argentina				
Total Dispersed Rural Argentina	34.8	17.4	40.0	7.8
Total Pampeana	29.4	16.1	45.5	9.1
Total Cuyo	34.3	18.2	40.3	7.2
Total Northwest	38.0	18.3	36.0	7.7
Total Northeast	39.9	18.1	35.7	6.3
Total Patagonia	27.7	16.6	46.6	9.1

Source: Own calculations based on INDEC National Population Census, 2001.

⁶ In Jujuy, Misiones, Salta, and Santiago del Estero less than 35 percent of the population is in their prime working age (see Appendix A).

Average Household Size					Average # of Household Members <15				
POOR									
Mendoza	Santiago del Estero	Chaco	Santa Fe	Total	Mendoza	Santiago del Estero	Chaco	Santa Fe	Total
5.8 (2.1)	6.5 (2.4)	5.7 (2.2)	5.5 (2.0)	5.8 (2.3)	1.8 (1.7)	2.3 (1.8)	2.0 (1.7)	2.0 (1.6)	2.1 (1.7)
NONPOOR									
3.6 (1.4)	3.1 (2.1)	3.4 (1.9)	3.9 (1.7)	3.6 (1.8)	1.1 (1.2)	.84 (1.3)	1.0 (1.6)	1.1 (1.3)	1.1 (1.4)
TOTAL SAMPLE									
4.6 (2.0)	5.4 (2.8)	4.4 (2.3)	4.2 (1.9)	4.6 (2.3)	1.6 (1.5)	1.9 (1.7)	1.4 (1.7)	1.3 (1.4)	1.5 (1.6)

Note: Standard deviations in parenthesis.
Source: Own calculation based on RHS 2003.

Demographic trends have lowered the dependency ratio, and may lead to a reduction in headcount poverty. This trend is likely to deepen further in the future as Argentina's poorer regions, such as the Northeast and Northwest experience lower fertility rates. Unfortunately, urban-rural disaggregated fertility data are not available in Argentina.

The typical poor person lives in a larger household with more children than the nonpoor. In Argentina, poor households in dispersed rural areas have on average 5.8 individuals in 2003 (Table 2.3). Poor households have 2.2 individuals more than nonpoor households. Moreover, the average number of household members below age 15 is also higher in poor households than in nonpoor. Poor households have on average 2.1 children below 15 years of age, nearly the double of those of the nonpoor. The dependency ratio is also much higher in poor households (Table 2.4). Each worker in a poor household supports 2.9 family members, compared to the nonpoor worker that supports 1.9 family members.

	Total Sample		Poor Households		Nonpoor Households	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	Dependency	2.4	2.1	2.9	2.4	1.9
Household size	4.7	2.3	5.8	2.3	3.6	1.8
# of household members with a job	1.7	1.1	2.0	1.3	1.5	0.8
# of household members without a job	3.1	2.2	3.9	2.2	2.3	1.7

Note: Dependency rate is defined as the total number of household members without a job relative to the total number of household members with a job.
Source: Own calculation based on RHS 2003.

Fecundity--measured as the number of children per mother--dropped from 2.8 in 1991 to 2.4 in 2001 (University of La Plata 2004). Women's increased participation in the labor market is an important factor contributing to the reduction in the fertility rate, which also produced a sharp drop in the dependency rate. However, fecundity is not homogeneous across Argentina's provinces. The poorer provinces have a higher fertility rate than richer provinces; for example, Santiago del Estero, Misiones, and Formosa have a fertility rate above 3.2. Total desired fertility rate in poor provinces are lower than the actual fertility rate according to the author's field visits in Chaco and Santiago del Estero. Similar findings are presented in Gacitua et al (2001) for Salta and Misiones provinces. This would indicate that there is still a substantial unmet demand for high quality and reliable family planning services, information, and resources.

Table 2.5: Average Number of Children of Household Heads
By Education Attainment in Dispersed Rural Areas in Argentina, 2003

	Total	Nonpoor	Poor	Indigent
No education	1.8 (1.9)	0.89 (1.5)	2.5 (1.9)	3.6 (1.8)
Primary complete	1.9 (1.8)	1.4 (1.5)	2.6 (2.0)	3.2 (2.2)
Secondary complete	1.7 (1.4)	1.3 (1.2)	3.8 (.98)	3.0 (0.0)
University complete	1.1 (0.8)	1.3 (0.8)	NA	NA

Note: Standard deviations in parenthesis. Children are defined as people below age 18.

Source: Own calculation based on RHS 2003.

Another important development is the decline in the fertility differential between more educated and less educated household heads. Survey data from four provinces (Chaco, Santa Fe, Santiago del Estero, and Mendoza, see Section 3 for more information on the survey) show that parents with no or incomplete primary education have 1.8 children while those with complete tertiary education have 1.1 children (Table 2.5). Hence, education plays a key role both directly via increased income and wages (see Sections 5 and 6) and indirectly via the reduced fertility rate in poverty reduction.

Box 1: The Growth of Soybeans Production a Blessing and for Some a Curse

Steady growth in soybeans production to service expanding export markets is putting greater pressure on fragile ecosystems and their inhabitants in Argentina as elsewhere in South America (specifically Brazil). Argentina is the world's third largest soybeans producer, accounting for 17 percent of global output (after the U.S. and Brazil with 35 and 27 percent respectively) and also the third largest exporter with 28 percent of the market. At least 98 percent of Argentina's soybeans production is genetically modified (GM) and exports are directed primarily to the growing Asian market.

While soybeans cultivation delivers economic benefits, there is increasing evidence that expansion of this crop is having negative social impacts. Social impacts include loss of livelihood security (especially for local populations dependent on natural forest and aquatic resources) and limited employment opportunities.⁷

Soybeans were introduced in the 1980s and now occupy over 14 million hectares, more than all other crops combined. Soybeans were until recently concentrated in Buenos Aires, Cordoba and Santa Fe provinces, employing mechanized GM technology and replacing other crops. Initial impacts of the conversion of the Pampas to arable farming took the form of soil erosion and degradation, causing river and flooding. Since the late 1990s, some 10 percent of production has spread to Entre Ríos, Chaco, Santiago del Estero, Salta and Tucumán provinces, at the expense of Chacos' bush savannahs and the Yungas subtropical forests. In Chaco, 2.4 million hectares have been cleared to make way for soybeans. Soil erosion, sedimentation and increased risk of flooding have accompanied soybeans expansion. Deforestation caused by soybeans expansion will compromise this stock of natural capital including a forest loss rate of 10,000 hectares a year. Moreover, soybeans have overtaken sugar and tobacco, two key crops of small farmers, and plantation forest as the main driver of deforestation.

The loss of land and livelihood experienced by small farmers squeezed out through land speculation and concentration is not easily quantified. A further consideration is that large scale mechanized soybeans farming predominates in Argentina, generating only one job per 200 hectares, compared with one job per eight hectares for typical smallholder operations. This induces a process of rural out-migration and a destabilization of livelihoods, which have much wider impacts, including loss of food security and urban overpopulation (see also Section 6).

Source: Oxford Analytica; <http://www.oxweb.com>

⁷ In addition to the social consequences of soybean production exist also ecological consequences including deforestation, soil erosion, river sedimentation and pollution by agro-toxics as well as loss of natural habitats and biodiversity.

3. Data and Methodology

This section presents data sources and methodologies used in this paper to analyze poverty and labor markets in rural Argentina.

Data

Argentina does not have a comprehensive household survey that covers both rural and urban areas. Therefore, analyses in this paper are based on available data: urban households survey (EPH) from 1990 to 2003; Censuses (1991 and 2001); educational data from the Ministry of Education, and health data from the Ministry of Health. The Agricultural Census was sparsely used in this paper, as we could not get access to the micro dataset but only tabulations that were severely inconsistent.

Additionally, this paper applies information from a special rural household survey (RHS) undertaken by the World Bank in 2003 in dispersed rural areas. The survey was undertaken in four provinces: Chaco, Santa Fe, Santiago del Estero, and Mendoza and it covers a third of the rural population in Argentina. The RHS includes 441 households.⁸ Data provided by RHS is critical for making informed decision on alleviating rural poverty in Argentina. It is the first time in Argentina's history that a survey of this magnitude has been conducted.⁹

Consumption data in the RHS is measured in broad sense, i.e. it includes self-consumption and any kind of consumption including clothes, food, rent, gas, etc. The consumption series are developed using the "Guidelines for constructing consumption aggregates for welfare analysis" or LSM135.¹⁰ The reason for analyzing consumption in this way is that people tend to easier recall what they consume than what they earn. The income measure includes all income sources such as transfers, remittances, self-consumption, labor income, and production income. The way that the consumption and income data are constructed may explain why consumption poverty is higher than income poverty in some provinces (see Section 4), as it is well known that income often tend to be under reported.

The RHS also includes information on demographics, employment, education, and health for all household members. Furthermore, a special module with agricultural production questions was applied to farming households. The survey was conducted with the aim of assessing the impact of Argentina's 2001 crisis. Fieldwork for the RHS was

⁸ To design the sample, a database with the fractions and radius of each department in each province was considered. In each fraction, a random weighted raffle of 8 to 10 sample points, depending on the number of rural people in the province, was conducted. Once the fraction and points sampled were identified the final sample points were defined considering the number of rural inhabitants in each radius.

⁹ Previous studies on livelihoods in rural areas used small samples of data, and they, therefore, take more the form of case studies, for example the study of citrus workers or of a geographic area.

¹⁰ Another recent study using this approach is "Panama Poverty Assessment: Priorities and Strategies for Poverty Reduction" (SKU 14716).

conducted in the end of 2002 and beginning of 2003.¹¹ The survey was collected in the middle of a crisis and, therefore, data reflect the specific and peculiar situation among the rural population at that time. Hence, we do not make predictions or extrapolates the future or the past from the series. Due to the small size of provincial samples disaggregated information from the sample should be analyzed cautiously.

Methodology

Income-poverty measures are designed to count the poor and to diagnose the extent and distribution of poverty. Income-poverty measures proposed by Foster, Geer, and Thorbecke (1984) are used throughout the paper. These are the headcount rate (P0), poverty gap (P1), and squared poverty gap (P2) measures. The former measures the magnitude of poverty and the latter two poverty measures assess both poverty magnitude and intensity.

The headcount rate is defined as the proportion of people below the poverty line. One concern applying the P0 measure is that each individual below the poverty line is weighted equally and, therefore, the principle of transfers is violated. A limitation of the measure is illustrated by the fact that it would be possible to reduce the P0 measure of poverty by transferring money from the very poor to lift some richer poor out of poverty, hence increasing social welfare according to the measure. P0 takes no account of the degree of poverty and it is unaltered by policies that lead to the poor becoming even poorer.

One measure of poverty that takes this latter point into account (at least in weak form) is the poverty gap measure (P1). P1 is the product of incidence and the average distance between the incomes of the poor and the poverty line. It can be interpreted as a per capita measure of the total economic shortfall relative to population. P1 distinguishes the poor from the not-so-poor and corresponds to the average distance to the poverty line of the poor. One problem with the poverty gap, as an indicator of welfare is that, poverty will increase by transfers of money from extreme poor to less poor (who become nonpoor), and from poor to nonpoor. Furthermore, transfers among the poor have no effect on the poverty gap measure.

The P2 measure of poverty is sensitive to the distribution among the poor as more weight is given to the poorest below the poverty line. P2 corresponds to the squared distance of income of the poor to the poverty line. Hence, moving from P0 towards P2 gives more weight to the poorest in the population.

¹¹ In Mendoza information was gathered between the 5th and 30th of December, in Santiago del Estero between the 7th and 19th of December, in Chaco between December 27th and January 15th and in Santa Fe between the 7th and 30th of December.

This paper sets its poverty bar very low. To define “extreme poverty” it uses the indigence, or “food only” poverty line; those with sufficient income to buy a basic food basket are above the line. The poverty line is based on the monetary value of food items only. This measure is based on the cost of a “minimum food-basket” equal to a minimum caloric intake of 2,700 kcal daily per household member.

The poverty lines used for the rural household survey were constructed based on the consumption patterns of households located in the three lowest deciles of the consumption distribution. The observed consumption patterns were translated to a basic food basket (BFB) that fulfills the caloric requirement for an adult equivalent. Moreover, the basic food basket was expanded with nonfood services, considering the service consumption patterns of the total population. In this way, a total basic basket (TBB) was constructed. To place a value on the TBB, the weight of the food component in the TBB for the total population (Engel coefficient) was calculated. Finally, the BFB was multiplied by the inverse of the Engel coefficient. Thus, the poverty line was set at AR\$118.61 (approx. US\$40) and the indigence line or the extreme poverty line at AR\$69.65 (approx. US\$21) per adult equivalent (Gerardi 2003).

The analysis of labor market activity is based on a multivariate analysis using probit regression techniques simultaneously for all provinces. Analyses of producer and labor incomes are based on nonlinear ordinary least square (OLS) and quantile regression (QL) techniques.

Quantile Regressions

Economic model

The underlying economic model used in the analysis will simply follow Mincer’s (1974) human capital earnings function extended to control for a number of other variables that relate to location. In particular, we apply a semi-logarithmic framework that has the form:

$$\ln y_i = \varphi(x_i, z_i) + u_i \quad (1)$$

where $\ln y_i$ is the log of earnings or wages for an individual, i ; x_i is a measure of a number of personal characteristics including human capital variables, etc.; and z_i represents location specific variables. The functional form is left unspecified in equation (1). The empirical work makes extensive use of dummy variables in order to catch nonlinearities in returns to years of schooling, tenure, and other quantitative variables. The last component, u_i , is a random disturbance term that captures unobserved characteristics.

Quantile regressions

Labor market studies usually make use of conditional mean regression estimators, such as OLS. This technique is subject to criticism because of several, usually, heroic

assumptions underlying the approach. One is the assumption of homoskedasticity in the distribution of error terms. If the sample is not completely homogenous, this approach, by forcing the parameters to be the same across the entire distribution of individuals may be too restrictive and may hide important information.

The method applied in this paper is quantile regression. The idea is that one can choose any quantile and thus obtain many different parameter estimates on the same variable. In this manner, the entire conditional distribution can be explored. By testing, whether coefficients for a given variable across different quantiles are significantly different, one implicitly also tests for conditional heteroskedasticity across the wage distribution. This is particularly interesting for developing countries such as Argentina where wage disparities are huge and returns to, for example, human capital may vary across the distribution.

The method has many other virtues apart from being robust to heteroskedasticity. When the error term is nonnormal, for instance, quantile regression estimators may be more efficient than least square estimators. Furthermore, since the quantile regression objective function is a weighted sum of absolute deviations, one obtains a robust measure of location in the distribution and, as a consequence the estimated coefficient vector is not sensitive to outlier observations on the dependent variable.¹²

The main advantage of quantile regressions is the semi-parametric nature of the approach, which relaxes restrictions on parameters to be fixed across the entire distribution. Intuitively, quantile regression estimates convey information on wage differentials arising from nonobservable characteristics among individuals otherwise observationally equivalent. In other words, by using quantile regressions, we can determine if individuals that rank in different positions in the conditional distribution (i.e., individuals that have higher or lower wages than predicted by observable characteristics) receive different premiums to education, tenure, or to other relevant observable variables.

Formally,¹³ the method, first developed by Koenker and Basset (1978), can be formulated as

$$y_i = x_i' \beta_\theta + u_{\theta i} = \text{Quant}_\theta(y_i | x_i) = x_i' \beta_\theta \quad (2)$$

¹² That is, if $y_i - x_i' \hat{\beta}_\theta > 0$ then y_i can be increasing towards $+\infty$, or if $y_i - x_i' \hat{\beta}_\theta < 0$, y_i can be decreasing towards $-\infty$, without altering the solution $\hat{\beta}_\theta$. In other words, it is not the *magnitude* of the dependent variable that matters but on which *side* of the estimated hyperplane the observation is. This is most easily seen by considering the first-order-condition, which can be shown to be given as (see Buchinsky 1998)

$$\frac{1}{n} \sum_{i=1}^n (\theta - \frac{1}{2} + \frac{1}{2} \text{sgn}(y_i - x_i' \hat{\beta}_\theta)) x_i = 0.$$

This can be seen both as a strength and weakness of the method. To the extent that a given outlier represents a feature of “the true” distribution of the population, one would prefer the estimator to be sensitive, at least to a certain degree, to such an outlier.

¹³ See Buchinsky (1998).

where $\text{Quant}_\theta(y_i | x_i)$ denotes the θ^{th} conditional quantile of y given x , and i denotes an index over all individuals, $i = 1, \dots, n$.

In general, the θ^{th} sample quantile ($0 < \theta < 1$) of y solves

$$\min_{\beta} = \frac{1}{n} \left\{ \sum_{i: y_i \geq x_i' \beta} \theta |y_i - x_i' \beta| + \sum_{i: y_i < x_i' \beta} (1 - \theta) |y_i - x_i' \beta| \right\} \quad (3)$$

Buchinsky (1998) examines various estimators for the asymptotic covariance matrix and concludes that the design matrix bootstrap performs the best. In this paper, the standard errors are obtained by bootstrapping using 200 repetitions. This is in line with the literature.

4. Poverty, Income Inequality, and Unmet Basic Needs

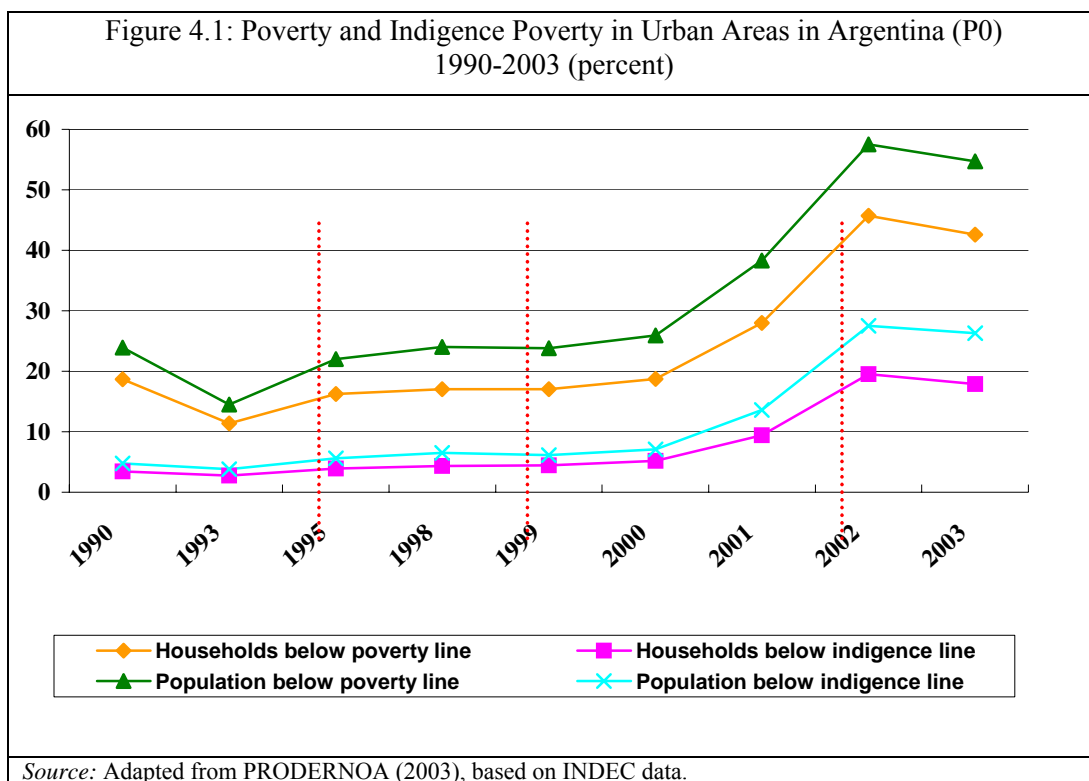
Social programs are needed to ensure that the poor can take advantage of job opportunities and to protect some vulnerable groups that are not able to participate fully in the economy. In order to design these programs, information on the poor is needed. This section addresses headcount income poverty and its depth, other poverty indicators, income inequality, and UBN but does not attempt a more comprehensive quantitative and qualitative analysis of other forms of deprivation or social exclusion. Due to lack of data and information, this section does not address the broader issues of inequality of assets and opportunities. Assets inequalities are addressed in section 6.

In rural and urban Argentina, extreme monetary poverty has increased rapidly in the last decade and currently affects around 10.8 million Argentines. This means that around 28.7 percent of the Argentine population did not have sufficient income to buy a minimum basket of food in 2003. Around 15 percent of the extreme poor people in Argentina live in rural dispersed areas. The following paragraphs present general information and analyses of rural and urban poverty that is behind findings presented in this paragraph.

The Argentine income poverty trend has been fairly volatile during 1990-2003. During 1990-94, GDP expanded rapidly (25 percent during the period) and poverty declined in Argentina. When the Mexican crises hit in 1994 and unemployment reached more than 18 percent of the active population, the declining trend experienced in the previous years reversed. The headcount poverty rate started climbing in tandem with the increase in the number of informal sector jobs and unemployment. The economic crisis was further aggravated in 1999-2001 and ended in a devaluation of the currency and hence poverty continued climbing in the end of the 1990s and early 2000. The sharp rise in poverty after the 2001 crisis has in great part been due to the rise in prices of foods (their prices rose with the devaluation), a major portion of expenditures of the poor (World Bank 2003). Moreover, inflation reduced real wages substantially as the break with the Convertibility Plan meant that labor market adjustment occurred more through wages,

rather than through increased unemployment. Unemployment arose largely from the formal sector, with an increase in employment in the informal sector and particularly in low paid temporary jobs. In late 2001, the government introduced the safety-net program *Plan Jefas y Jefes de Hogar Desocupado* (Jefas) leading to a slight reduction in extreme urban income poverty in Argentina (Galasso and Ravallion 2004). Finally, in 2003, the economy started picking up, new employment began to be created, and prices stabilized.

In terms of location, poverty is distributed roughly along two dimensions in Argentina; (1) within provinces along a population density gradient running from dispersed rural to urban, and (2) across regions. Argentina has fairly steep declining gradients in conditions of living from more developed urban areas, through the urban periphery and smaller towns (grouped rural areas), through to the more remote rural areas. This poverty location pattern is similar to other countries in Latin America, for example Mexico. In rural localities in Mexico with less than 2,500 people, more than 40 percent were extremely poor compared with those localities with 2,500-15,000 people where 21 percent were poor in 2002 (Verner 2005).



In the last decade, urban poverty in Argentina has increased dramatically. During 1992-2003, the indigence poverty, measured by P0, increased by 23.8 percentage points in

urban areas.¹⁴ The largest increase occurred after the 2001 crises. Indigent poverty in urban areas is still very high at 28.0 percent. This translates to over 9.1 million people in urban areas who live in extreme poverty, which means that they do not have sufficient income to buy a minimum basket of food. This is almost seven times higher than the poverty rate of 4.2 percent in 1992 (see also Figure 4.1).

In Argentina, the rural population is more affected by poverty than the urban population. Since the 1980s, the rural poverty incidence is higher than the urban poverty incidence (Murmis 1996). In 2003, extreme poverty, measured by consumption, affected 30.9 percent of the rural-dwellers in dispersed rural areas in Chaco, Santa Fe, Santiago del Estero, and Mendoza (Table 4.1). Applying the extreme poverty rates for these provinces to their respective regional populations yields a total of some 800,000 extreme poor living in dispersed rural areas.¹⁵ Assuming as an upper bound (in the absence of reliable information on poverty in grouped areas) that extreme poverty is the same in grouped areas yields 1.2 million people live in extreme poverty in rural Argentina. It is clear that assuming poverty rates are similar in dispersed and grouped rural areas overestimates poverty in grouped rural areas as we expect P0 in grouped areas to be lower than in dispersed rural areas. Furthermore, this in line with other social indicators in Argentina shows that people in grouped areas are better off or less poor than people in dispersed rural areas. Additionally, studies from other countries such as Mexico show that poverty rates are higher in dispersed areas as compared to grouped rural or urban areas. Therefore in reality the share of the extreme poor rural-dwellers accounts for less than 1.2 million or 15 percent of Argentina's extreme poor population. Hence, with good policies rural extreme poverty should be fairly easy to alleviate, in the short-run by introducing good safety-nets and having high quality service available for these people so they can build assets and skills and therefore escape poverty all together in the medium to long-run.

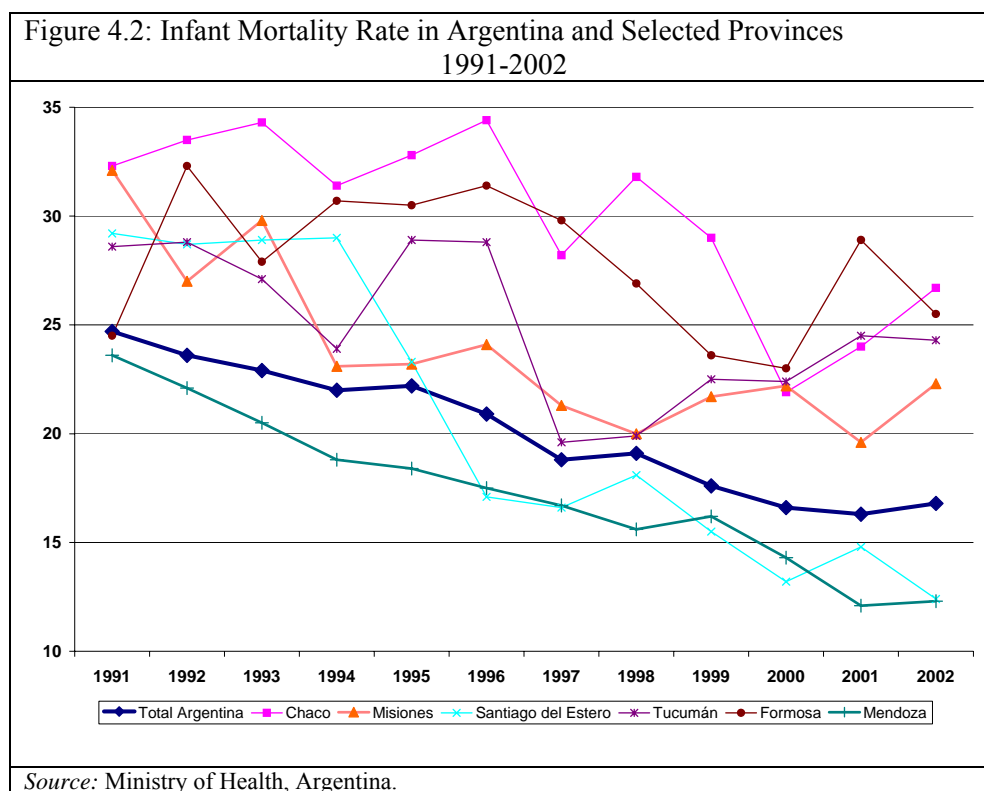
Geographic factors are important when analyzing poverty in Argentina. Living in a poor area can make a profound difference to well-being and life prospects. There are large differences in consumption poverty between different regions, with a not-so-straight gradient from south to north. In 2003, the headcount indigence rate in rural areas in Santa Fe in the Pampeana region reached 7.6 percent, nearly a fourth of that in Santiago del Estero in the Northeast region where 29.1 percent were extremely poor. Chaco in the Northwest region experienced an extreme poverty headcount of 20.7 percent and Mendoza in the Cuyo region of 26.6 percent. The latter finding may surprise the reader, but considering the fact that many agricultural workers face seasonal employment constraints the finding is less surprising. Agricultural workers in for example garlic, wine, and herbs work 4-6 months a year and not continuously.

¹⁴The numbers used are based on calculations from University of La Plata, CEDLA 2004 (http://www.depeco.econo.unlp.edu.ar/cedlas/monitoreo/excels/argentina/poverty/extreme_official.xls).

¹⁵ In the absence of household survey data for Patagonia, the weighted average of the poverty rate of the other regions was applied to Patagonia.

	Mendoza	Santiago del Estero	Chaco	Santa Fe	Total
Poor and indigent HOUSEHOLDS measured by CONSUMPTION:					
Indigent	26.6	29.1	20.7	7.6	21.6
Poor	60.8	67.7	42.3	18.6	48.7
Poor and indigent PEOPLE measured by CONSUMPTION:					
Indigent	38.5	36.6	31.4	11.2	30.9
Poor	70.1	80.6	54.9	25.1	60.6
Poor and indigent HOUSEHOLDS measured by INCOME:					
Indigent	38.3	31.2	46.7	15.4	33.2
Poor	57.5	60.4	65.3	34.1	54.3
Poor and indigent PEOPLE measured by INCOME:					
Indigent (%)	43.8	34.9	56.2	18.8	38.8
Poor (%)	67.3	69.6	75.2	42.7	64.3

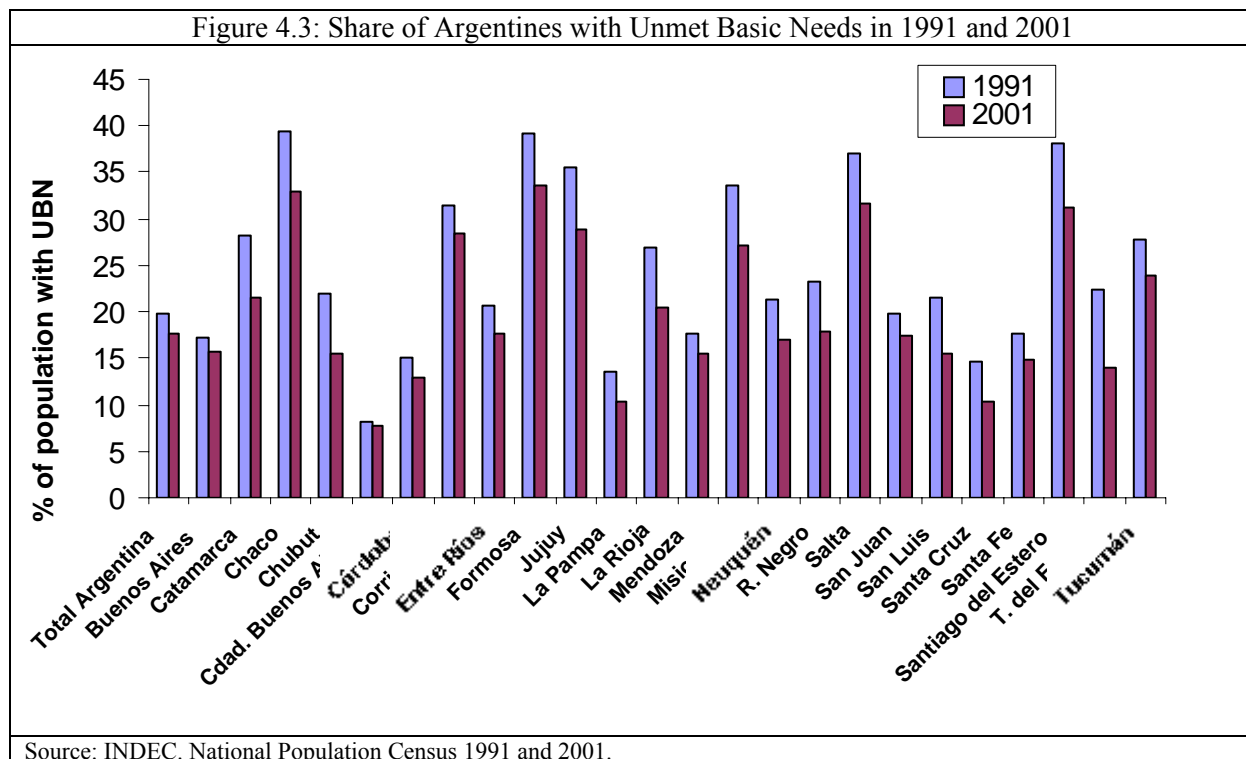
Note: Poverty line AR\$118.61 per adult equivalent. Indigence line AR\$69.65 per adult equivalent. See Section 3 for information on poverty measurement.
Source: Own calculation based on RHS 2003.



Not all poverty related indicators follow the income poverty pattern. The fall in Argentina's social indicators such as infant mortality during 1991-2002 contradicts the

deterioration in measured income poverty. The infant mortality rate dropped dramatically from 24.7 per 1,000 live births in 1991 to 16.7 per 1,000 live births in 2002 (Figure 4.2). Today the infant mortality rate in Argentina is one of the smallest among middle-income countries and mainly a rural phenomenon. The positive trend in falling infant mortality rate from 1991-2002 occurred in all provinces. However, the poorer provinces, such as Chaco and Formosa, experienced a short-run trend that can be characterized as a slippery slope. These provinces experienced an increase in infant mortality after each economic crisis occurred in Argentina and some provinces had children dying of hunger (see Box 2). Large and steady advances have taken place in richer provinces, such as Mendoza. Advances can be attributed to an improved health care system, increased access to water, urbanization, and past investments in education (see Section 6), and other social programs. Hence, to further reduce the infant mortality rate in order to reach levels of Uruguay (13.5), Chile (8.9), or high-income OECD countries (5.0), especially in rural areas, further actions are called for. These include general livelihood improvements such as access to clean water and sanitation, high quality education and health care, and a daily caloric intake sufficient to cover basic needs. Moreover, Filmer and Pritchett (1997) find that a 10 percent increase in income is associated with a 6 percent lower infant mortality rate. Hence, economic growth is key for infant mortality reduction.

Figure 4.3: Share of Argentines with Unmet Basic Needs in 1991 and 2001



Source: INDEC. National Population Census 1991 and 2001.

The share of the Argentine population with UBN took the same declining path as infant mortality. During 1991–2001 the share with UBN fell 2 percentage points (Figure 4.3), reaching 17.7 percent of the population (6.3 million Argentines or 1.4 million

households) in 2001 that is before the largest and deepest crisis in Argentine history. The number of people and households with UBN fell in all provinces including the poorest provinces. However, the cross province inequality in UBN is high—in Formosa, Salta, and Santiago del Estero 31 percent of the population had UBN compared to Buenos Aires City where only 8 percent had UBN.

A larger share of the rural than urban population faces UBN. Disaggregate data from the Population Census of 2001 on the situation in rural and urban areas is now available. In rural areas 19 percent of the population or 1.2 million people had UBN in 2001.

The variation in UBN across provinces is large. Data from 2001 reveal that Northeast and Northwest regions have the largest share of the rural population with UBN. For example, in Salta and Formosa more than 50 percent of the rural population have UBN while only around 15 percent of the rural population in Buenos Aires and the Pampa provinces face this situation.

Box 2: Children Die of Hunger Despite Argentina is One of the World's Largest Food Producers

Since October 2001, poverty has increased by 40 percent and the number of unemployed has risen by 450,000. The 2001 crisis has magnified long-standing inequalities and has shocked society into recognizing problems of malnutrition, which has often been given little attention. Not all state subsidies to unemployed heads of household and other aid programs have managed to alleviate poverty neither before nor after the 2001 crisis. It is estimated that up to 25 percent of those under five are suffering from malnutrition. According to estimates, three children per day now die of malnutrition or related diseases, most of them in the northern parts of Argentina. In Misiones province, around 50 children died of malnutrition in 2002. In Tucuman, the revelation that eight children have died of malnutrition in one week focused attention on the provincial government's failure to provide adequate poverty relief. Tucuman, which has one of the highest poverty rates in the country, is an example of the pauperization that has occurred in Argentina in the past years.

Poverty in Tucuman has remained at extremely high levels since at least 1930, when the sugar industry on which its economy is based entered severe decline. Much of the provincial economy has survived since then on state subsidies to maintain the sugar industry, which is unprofitable but labor-intensive, in a densely populated province characterized by high unemployment -- and on other federal subsidies that serve to buy votes for both the provincial and national governments. Cases of malnutrition in Tucuman are occurring among the 'structural poor' -- doctors in the province note that malnutrition has affected two earlier generations, and the current rise in deaths is attributable to an exacerbation of the poverty situation, rather than a previously unknown problem.

Source: Oxford Analytica; <http://www.oxweb.com>.

Poverty Depth

The share of rural population living in extreme monetary or consumption poverty is not only broad but also deep. P0 measures the proportion of people below a certain poverty line, but takes no account of how far they are below that line i.e. the degree of poverty. To address the situation of the poorest, the squared poverty gap measure (or P2) is used. This takes into account the degree of poverty, because it gives more weight to the poorest and most vulnerable. The P2 poverty measure reveals that the extreme consumption poverty depth reached 10.2 percent in 2003 (Table 4.2).¹⁶ The squared consumption poverty gap measure reveals that poverty was deeper in Santiago del Estero (14.2 percent) than in Mendoza (12.2), Chaco (9.8) and Santa Fe (3.1). Hence, not only does Santa Fe in the Pampeana region have a lower poverty rate than the other provinces, but also poverty is less deep.

	Mendoza	Santiago del Estero	Chaco	Santa Fe	Total Sample
Income Poverty Gap (P1)	31.7	26.7	36.9	14.8	27.8
Consumption Poverty Gap (P1)	23.6	27.3	18.1	6.7	19.4
Squared Income Poverty Gap (P2)	22.1	16.4	24.9	9.2	18.4
Squared Consumption Poverty Gap (P2)	12.2	14.7	9.8	3.1	10.2

Source: Own calculation based on RHS 2003.

Data reveal that in 2003, the median income of extremely poor households in dispersed rural areas was AR\$228.4 per month; slightly above half of the median income of the nonpoor (AR\$392.3). In addition, the income of indigent households in Chaco, in the Northwest region, is lower than Mendoza in the Cuyo region and Santa Fe in the Pampeana region.

In 2003, the median monthly income of the nonpoor was highest in Santa Fe in the Pampeana region (AR\$593.6) and it was more than double that in Santiago del Estero in the Northeast region. This pattern also holds for the extreme poor households and it is clear that monetary income is severely lacking in poor households in Santiago del Estero where average monthly income is only AR\$191.9. Comparing Tables 4.2 and 2.4, it becomes clear that one factor that is driving poverty in disperse rural areas is the large number of members in poor and indigent households given the monthly median household income that often is more unstable for poor households. In Santiago del Estero the medium income of the poor households is AR\$382, more than AR\$100 higher than the median income of the nonpoor. Hence the large average number of household members (3.5 in Santiago del Estero) is what is the main explanatory factor explaining the difference between the poor and nonpoor households. Moreover, if the poor and extreme poor households in Santiago

¹⁶ That the P2 is systematically lower than P1 is simply a mathematical property of the way the indices are constructed. Moreover, P1 and P2 are not a percentage of anything. A common interpretation is that it is the product of the headcount and the average distance between the incomes of the poor and the poverty line.

del Estero and the other three provinces had the same number of members as the nonpoor households in the respective provinces only 30.2 and 17.1 percent of households would be below the poverty line as compared to currently 48.7 and 21.6 percent, respectively.

Table 4.3: Median Monthly Household Income in Dispersed Rural Areas of Argentina, 2003 (AR\$)

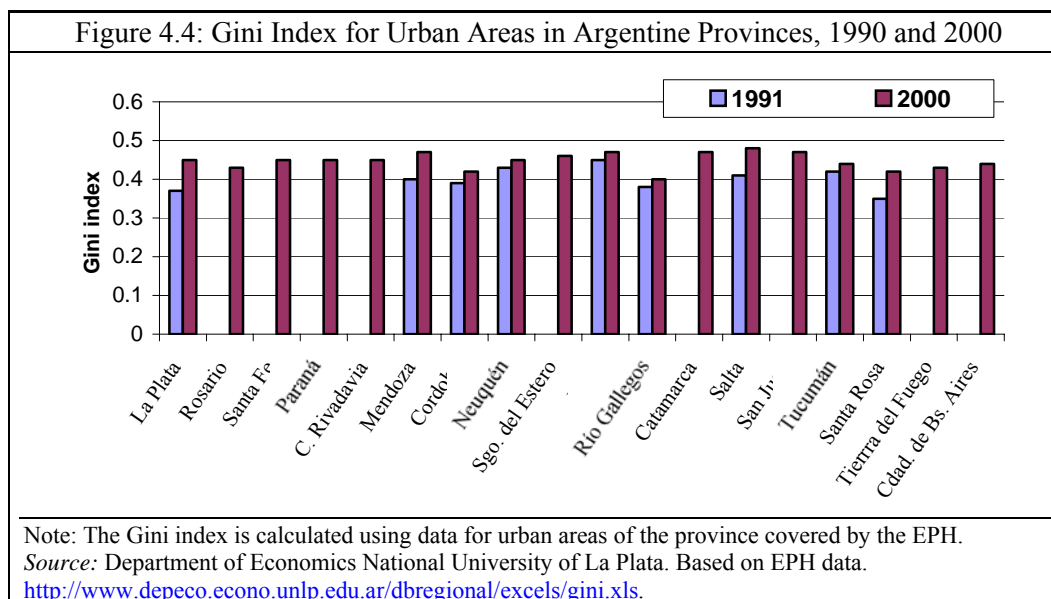
	Mendoza	Santiago del Estero	Chaco	Santa Fe	Total
Nonpoor households	318.1	270.7	258.2	593.6	392.3
Poor households	330.7	381.5	213.2	373.4	300.0
Indigent households	291.5	191.9	222.6	373.4	228.4

Note: Poverty measured by consumption.

Source: Own calculation based on RHS 2003.

Income inequality

Part of the reason why the poverty indicators of rural Argentina and those of the nation as a whole are worse than in other countries with similar per capita incomes is income inequality. Moreover, the country's income inequality became worse during the last decade. In 2000, the average Gini index for Argentina's urban areas was 0.45 (Figure 4.4).



Income inequality is significantly higher in dispersed rural areas than in urban areas. Data for the four provinces show a Gini index of 0.74 (Table 4.4). This high income inequality probably reflects the large range of livelihood strategies of the dispersed population ranging from heavy reliance on subsistence agriculture, with little earned income to complete reliance on wage labor. This hypothesis is supported by the significantly lower consumption inequality of 0.43, which is roughly equal to that in urban

areas It is worth noting that international research shows that the more unequal income is distributed the less effective is economic growth in reducing poverty (Lustig et al 2001).

High return rural nonfarm occupations in Argentina were mostly taken up by the comparatively better off, however, although the poor have also participated to some extent (see Section 7). Hence, it is likely that the impact has not been equalizing, and the rural nonfarm sector has contributed in some measure to the worsening of the rural income distribution. Private transfers (and too a much less extend public transfers) have definitely helped the poor more than other groups, and have therefore had an equalizing impact (See Section 7)

The problem of poverty and inequality in rural Argentina largely reflects disparities in opportunities. The distribution of key productive assets – jobs, human capital, physical assets, financial assets, and social capital – is highly unequal, both among provinces and between provinces. These disparities are greatest between the poor and nonpoor, but also manifest themselves differently by geographic area. In addition, access to services is unequal.

Table 4.4: Gini Index in Disperse Rural Areas of Argentina, 2003

	Mendoza	Santiago del Estero	Chaco	Santa Fe	Total
Income	0.50	0.48	0.79	0.76	0.74
Consumption	0.37	0.37	0.48	0.35	0.43

Source: Own calculation based on RHS 2003.

Changes in inequality are typically very slow, except during periods of radical social and institutional change. Where inequality has fallen, it has usually happened in association with major expansion and equalization in educational attainment, as in Korea and Malaysia in the 1970s and 1980s. Education is also unequally distributed and international research shows that this can more easily be reduced than income inequality. However, research also shows that a reduction in education inequality affects the income distribution very little in the short run (Ferreira 2002).

5. Poverty Profile

After counting the rural poor, we need to know who they are, where they live, and what they do. Comparing average levels of poverty for different categories is useful for learning about which population groups are falling behind or catching up in terms of poverty. This is useful for the design of policies: we would like to know whether, for example, more or less educated people are more likely to be poor in rural Argentina. Unfortunately, data do not allow for analyzing how the relative odds of being poor have evolved for these groups since data are only available for 2003. The poverty profile constructed is based on data from the RHS (Table 5.1). In the following the indigent poverty line and consumption poverty is referred to in the text. The main questions

addressed are: (1) who are the poor?, (2) what are the characteristics of poor households?, (3) where do they live?, and (4) where do they work?

The structure of poverty is clear in rural Argentina: (a) female headed households are poorer than male headed households, (b) young households/household heads are poorer than older households/household heads, (c) the poor tend to work more in the informal sector, (d) a greater share of those engaged in agriculture are poor, (e) larger households are poorer than smaller households, and (f) small landholders tend to be poorer than landless and large landholders. Furthermore, the deepest poverty is among the poorly educated, and young household heads with children. Without interventions to improve their opportunities and assets, their plight is likely to worsen.

From the standpoint of policy development the following three features of rural poverty in Argentina are most salient to emerge from this study: (1) poverty is concentrated in young families and is transitory, (2) poverty is concentrated where provision of services is most difficult, and (3) small landholdings are a poverty anchor.

Poverty is concentrated in younger households. Data reveal that all households headed by a person younger than age 25 are extremely poor and poverty drops off as the family ages in dispersed rural areas in Argentina. Probit regression analysis presented in Table 5.2 of the correlation of indigent poverty in dispersed area shows that the probability of being indigent falls by 0.2 percent for every year older the household head gets. The fact that poverty declines with increasing age of household head is strongly related to the average number of children in the household (see Table 5.2 and figure 5.1). Table 5.2 shows that indigent poverty falls by 39 percent when the dependency ratio falls by one percent and Figure 5.1 shows that from age 45 of the household head the average number of children of the head of the household and the average number of children under age 15 decreases drastically with increasing age of the head. As children leave the household they continue to contribute significantly to their parent's households (see Section 7). For poor households 27 percent of household income comes in the form of transfers and remittances. These transfers are almost completely private. The survey found that government transfers basically did not reach the poor in dispersed rural areas. The pattern of large, young families, high rate of departure of the children from the household and significant remittances is key in explaining the observed reduction in poverty with household age.

Young parents with low income, low level of education, and few assets may also suffer poor health, as access to quality health care is very limited in remote rural areas (2.6 million of the rural populations do not have health insurance—more so in the Northeast and Northwest). Their children receive low quality education, and parents have no access to kindergartens for the youngest offspring. Such young parents face a high probability of being unemployed or active only in the household, and have no access to employment benefits or other social benefits, except in a few cases to Jefas. Data from RHS show that in dispersed rural areas only 3.9 percent of household heads receive Jefas (see also Section 6). There is considerable evidence from other settings that benefits associated with early

childhood interventions are very high indeed, especially for children from disadvantaged backgrounds, both because this is a critical stage in child development and because returns to any productive investment in children accrue over a much longer period of time than returns to productive investments in adults (see Heckman 1999; Currie 2001). This suggests that interventions that benefit children should receive high priority. In addition, targeted social protection measures that relate to youth employment, family planning, and preschool programs could help improve employment prospects of young people.

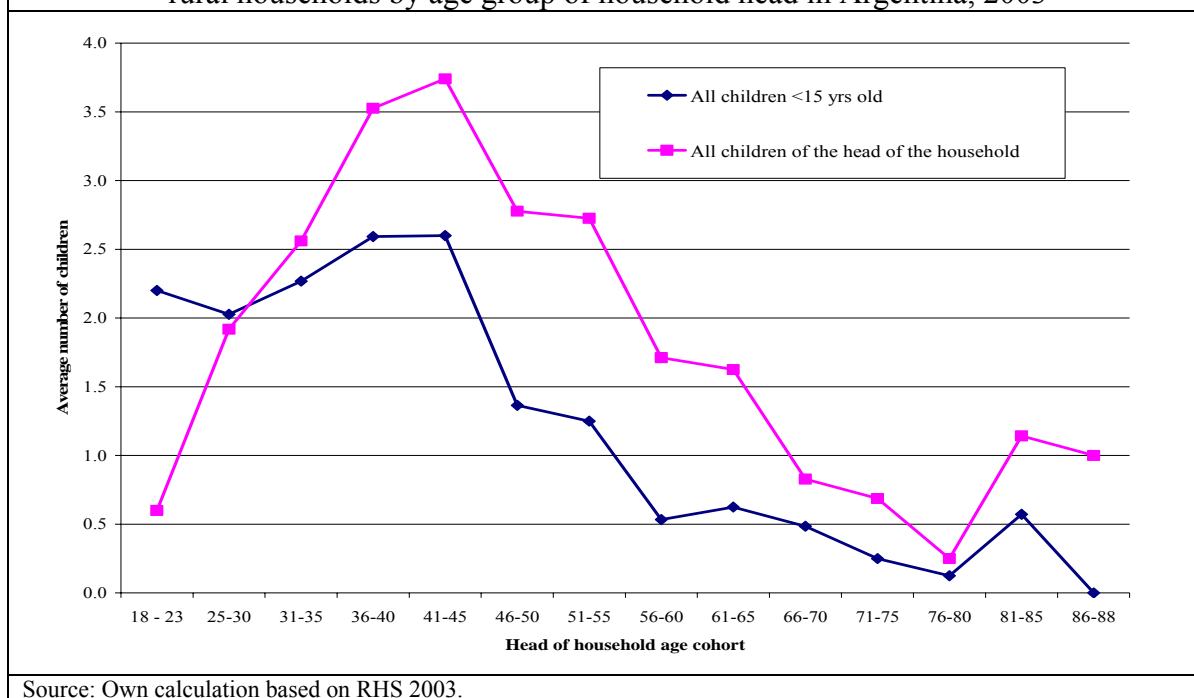
Table 5.1: Poverty Profile by Four Measures of Poverty (P0)
Dispersed Rural Areas of Argentina, 2003

		Consumption Poor	Consumption Indigent	Income Poor	Income Indigent
Gender:	Male	45.4	20.4	54.4	32.7
	Female	64.4	27.0	54.2	35.5
Age:	<25	100.0	100.0	82.3	61.4
	25-44	46.5	24.3	62.2	39.5
	45-65	54.4	22.9	56.6	34.1
	>65	37.1	8.9	29.6	15.4
Literacy:	Literate	47.2	20.3	53.1	31.2
	Illiterate	60.8	33.8	65.6	50.5
Years of schooling:					
	None or less than 1	66.0	31.5	64.3	43.9
	1-4	56.6	25.2	54.4	33.4
	5-8	45.8	20.5	56	34.6
	9-12	30.3	10.7	38.2	14.9
	More than 12 years	0.0	0.0	40.7	29.2
Labor status:	Economic Inactive	52.2	43.6	43.5	23.4
	Economic Active	61.4	17.9	95.5	77.7
	Employed	46.8	20.7	53.4	31.7
Work position:	Wage-worker	53.3	23.2	59.4	33.6
	Self-employed	43.1	18.7	45.9	25.9
	Piece-worker	50.9	26.0	69.8	46.2
	Employer	14.8	4.4	38.3	24.1
Work sector:					
	Agriculture & Livestock	43.3	24.5	51.2	31.9
	Industry	51.6	5.2	57.7	20.0
	Commerce & Services	54.9	25.7	54.9	24.8
	Other sectors	57.6	0.0	69.4	33.4
	Public Administration	62.6	23.4	69.2	25.2
Work condition:					
	Formal	38.6	21.2	44.8	18.8
	Informal	50.1	14.6	56.7	38.8
Family size:	1-3 members	23.2	4.1	31.7	20.9
	4-5 members	44.2	14.8	56.1	34.5
	More than 5 members	80.5	47.4	76.6	44.8
Land tenure:	No land	45.0	12.9	56.9	33.0
	0-1 ha	74.9	23.8	70.5	40.6
	1.1-10 ha	62.8	18.4	55.1	30.5
	10.1-35 ha	26.4	30.8	40.1	29.3
	35.1-100 ha	8.9	30.5	35.9	20.1
	100.1-250 ha	16.4	13.3	33.4	16.8
	More than 250 ha	11.4	2.6	24.8	9.3

Source: Own calculation based on RHS 2003.

Table 5.2: Probability of being Indigent in Argentina Household Heads in Dispersed Rural Areas, 2003			
	dF/dx	P> z	x-bar
<i>Skill characteristics</i>			
Age	-0.002	0.000	48.87
Education	-0.022	0.000	5.84
<i>Gender</i>			
Male	-0.058	0.000	0.87
<i>Family characteristics</i>			
Nonworking children <15 years of age/total number of members in the household	0.386	0.000	0.25
<i>Land Holdings*</i>			
0.1–100 ha.	0.057	0.000	0.633
100.1–250 ha.	-0.014	0.003	0.089
>250 ha.	-0.025	0.000	0.059
<i>Pseudo R2: 0.1173</i>			
<i>Observed P: 0.189</i>			
<i>Predicted P: 0.160</i>			
<i>Note: Excluded categories. No land</i>			
<i>Source: Own calculation based on World Bank survey 2003.</i>			

Figure 5.1: Average number of children (all ages) and children under 15 years of age in rural households by age group of household head in Argentina, 2003



Elder household heads are far less likely to experience poverty than younger household heads. Only 8.9 percent of those households headed by a member older than age 65 are below the indigent poverty line in 2003. Additionally, this group has the highest average income of any age group, which may be explained in part by pension reforms. The P0 of the population groups aged 25 to 44 and 45 to 64 reached 24.3 and 22.9 percent respectively. Thus the younger the head of household, the more likely the individual is to be poor. This lifecycle profile of poverty illustrates that many households are born poor (mainly due to inadequate assets), with some escaping poverty as they accumulate more assets or as their household size shrinks. Nowhere exists perfect credit markets that can ensure a permanent income over the lifecycle, that is poor household heads cannot borrow against future household income that according to data on average are higher later rather than earlier on in the lifecycle. Moreover, households with children and an older head may be better off as the other adults in the household can work outside the home while the older head mind the young children or take care of the household. Finally, findings in Table 5.2 indicate that a large family size for households with few assets (controlled for by education as this is the most poverty reducing asset in rural Argentina—see Section 7) is not a successful strategy in itself to guarantee the well-being of the household.

The size of household is positively correlated with poverty. Household size in dispersed rural areas in Argentina is positively correlated with the incidence of poverty. Hence, the larger the household, the more poverty prone it is. Households with 1-3 members have a poverty rate of 4.1 percent, with 4-5 members 14.8 percent are poor, and for households with more than 5 members as many as 47.4 percent are poor. This is not simply reflecting age of the household head as smaller households have fewer children left in the household and have more grown children potentially contributing. When taking into account age, gender, and education level of the household head by performing a multivariate conditional probit regression, findings suggesting that households with a large non-working children under 15 years of age to overall household size are more poverty prone still stands (see Table 5.2).

Female headed households are more likely to be poor than male headed households, with 27.0 percent and 20.4 percent of female and male headed households, respectively, likely to be poor. When controlling for age, education, etc. findings reveal that the result still holds, as male headed households are less likely to be poorer than female headed households (Table 5.2). Other authors studying Argentina find similar results. Forni and Neiman (1994) find that female-headed households are poorer than male-headed households. Forni and Neiman also mentioned that women's role varies with farm type (crops produced, family circumstances, etc.) and women's participation in the productive cycle is linked to the poverty condition of the household. Women have lower educational attainment than men do and, moreover, of children that do not attend school, girls are the majority. Finally, migration has left women in charge of farming activities.

The abovementioned poverty figures are, however, only part of the myriad of factors that affect a poor woman's well-being. Data do not reveal anything about domestic violence and other types of discrimination that women often face. Social policies favoring

women, such as conditional-cash-transfer programs such as Bolsa Familia in Brazil where the mother receives the benefit should be considered (see Section 6). Furthermore, introducing more kindergarten and childcare facilities introduced for poor mothers could facilitate poor women's labor market participation.

Education levels are strongly related to poverty. That is, being able to read and write is important in determining the likelihood of being poor. In dispersed rural areas, the P0 is 20.3 percent for household heads that are literate, and 33.8 percent for those that are illiterate. There appears to be a relatively large difference in P0 already between household heads with no education (31.5 percent) and household heads with 1-4 years of primary education. Nevertheless, household heads that have completed secondary education are much better off (10.7 percent are indigent) than those with only primary education (20.5 percent). Of the household heads with more than 12 years of schooling, which are very few, no rural-dweller was extremely poor in 2003. These findings indicate that education is a very important key to poverty reduction in rural Argentina (see also Section 7).¹⁷ Policy interventions that facilitate poor rural people's access to basic services and expanding high quality rural education are central to poverty reduction in rural Argentina.

Argentina, together with Chile, is well known for its relatively well-educated population compared to other nations in Latin America. Tremendous strides have been made in improving access of the poor to basic education. However, there exist large disparities between rural and urban areas and across regions. Children in dispersed areas often face a long travel time to go to school and for the poor this is especially so, as they often have to go by foot or horse.

Labor market connection is important for the probability of falling into poverty. Economically active heads face more poverty than employed heads do. The difference between the two has to do with unemployment, as there are unemployed heads searching for work included in the former category. That also explains why active household heads face less consumption poverty than income poverty as the unemployed heads may cultivate for self-consumption and therefore be less consumption poor than income poor.

Informal workers suffer more poverty than formal workers (79.7 and 20.3 percent are employed in the respective sectors). The P0 for informal workers is high, 21.2 percent compared to 14.6 percent for formal workers. In dispersed rural areas, only 20.3 percent of household heads are engaged in the formal labor market, while 79.7 percent are engaged in the informal labor market.

¹⁷ Clearly, it is valid to question causality. Moreover, the education-poverty literature has still not uncovered this. It is surely the case that many children received a good education because their parents had a good education and income. Hence one direction of causation flows from well-off or better-educated parents to better-educated children. How strong is the education effect when the previous generation was poor and uneducated. Access to education has also shown to be important. Unfortunately, our data set cannot shed further light on this question.

The informal poor face risks in the form of unemployment and overall economic downturns, earn a low and irregular income, own very few assets, and have no insurance against poverty, such as unemployment benefits. At the same time, it should be recognized that since very few people work in the formal labor market, social policies tied to formal employment or unemployment will have only very limited reach among the poor. Moreover, informal mechanisms of risk sharing in dispersed rural areas are limited as covariate risk (such as climate) is high and, therefore, there is limited potential for informal risk sharing. This puts a premium on migration diversification strategies, such as sending a few children to urban informal markets.

The labor category contributing the largest share to overall poverty is employees with salary as a percent of sales or production (26 percent are indigent). This contrasts with the self-employed and waged worker categories where 18.7 and 23.2 percent are extremely poor, respectively.

Those who work in agriculture and services are more likely to be poor than workers in industry. This suggests that productivity in agriculture and services is lower than in industry. It also suggests a more competitive wage environment among more highly educated workers in the industrial sector. The P0 is 24.5 percent in agriculture, 25.7 percent among service workers and 5.2 percent among industrial workers.

Historically, poverty in Argentina has been associated with agriculture. In 2003, more than 75 percent of the extreme poor household heads in dispersed rural areas cited agriculture as their primary form of employment. One explanation for the indigent poverty rate in agriculture can be traced to migration out of the sector as the most educated rural-dwellers leave, in part due to the structure of land ownership, the quality of land and lack of credit and other productive inputs. Rural land ownership is characterized by a high degree of concentration of land in few large establishments and a large number of small farms with an insufficient area to sustain a family by agricultural employment alone.

In the last 10 years, the land concentration increased. During 1988–2001, the planted area increased by 8 percent, while the number of farm enterprises decreased by 21 percent (Agricultural Census, 2001). Table 5.3 indicates the land distribution as of 2003 in dispersed rural areas in Argentina. The table shows that nearly half of the land holdings (49 percent) are smaller than 10 hectares and 19 percent are larger than 100 hectares.

Hectares	Total	Cumulative
0–1	27.6	27.6
1.12-10	21.7	49.3
10.1–35	17.9	67.2
35.1-100	14.2	81.4
100.1-250	10.8	92.2
More than 250	7.8	100.0

Source: Own calculation based on RHS 2003.

Extreme poverty among landless rural-dwellers is not necessarily higher than among households with land. P0 for landless households is 12.9 percent compared to 23.8 and 30.8 percent for landholders of less than one hectare and 10-35 hectares, respectively. Only households with more than 250 hectares experience less consumption poverty than landless households. Extreme poverty is decreasing from households with more than 10 hectares onwards. However, income poverty is higher for households with 1-250 hectares than it is for households with no land holdings (Table 5.1).

In dispersed rural areas the majority of the population lives with limited access to basic infrastructure and services. The rural poor are primarily smallholders, sharecroppers, and informal wagedworkers that depend on a diverse strategy of income-generating activities in which subsistence production predominates. The varying soil quality and climatic conditions (76 percent of Argentina is arid or semi-arid) explain why crops and livestock of the poor vary across the country. In the *precordillera* (mountainous areas) goat rearing is the main occupation of farmers. Poor farmers cultivate corn, cotton, wool, tobacco, or sugar cane and, furthermore, in the North pepper and peas are produced. In addition, a few vegetables and fruits are grown mainly for subsistence.

In semi-arid/dessert and transition zones, rainfall is scarce and highly irregular, yielding crops of low quality and low income generating capacity. These small farmers lack modern production technology, basic infrastructure to store harvests to take advantage of cyclical price fluctuations, technical assistance to improve productivity, and organized marketing facilities. Family income is therefore highly variable and there is little opportunity for saving. They have very few assets, including education, and are very vulnerable. How to best address poverty in rural Argentina? There are three dimensions to any rural poverty reduction strategy: (1) improve the mobility of the poor, in order to help them to move to areas with better employment opportunities, (2) create jobs accessible to the poor, and (3) strengthen safety nets to help them wherever they may be found. The best option for Argentina is a strategy that (1) emphasizes rural employment growth, (2) combines safety net transfers with incentives for improved secondary and tertiary school attendance, and (3) strives to strengthen links between families living in dispersed areas with the closest grouped areas.

6. Access to Services and Assets

The well being and value of goods produced by the rural population is closely linked to availability of assets and infrastructure, which is discussed in this section. Production capacity and the quality of products increases, production value improves, and so does household incomes of the rural population with increased access to better irrigation systems, flood control, energy, regular land tenure and roads of good condition. Lack of education and good health for the rural population is another factor causing poverty.

The problem of poverty and inequality in rural Argentina largely reflects disparities in opportunities and assets. The distribution of key productive assets – labor, human capital, physical assets, financial assets, and social capital – is highly unequal. These

disparities are greatest between the poor and nonpoor, but also manifest themselves differently by geographic area. In addition, access to services is unequal. This section addresses a few of these areas, namely education, basic infrastructure services, and social assistance. The following sections address employment and wage and therefore also the importance of education and other assets in employment, wage, and income determination.

Education

Education is key to poverty reduction. Increased educational attainment can improve the livelihoods of the poor and reduce the likelihood of becoming poor as shown in Section 5. More education is also a key factor in obtaining a higher income (see Section 7). Furthermore, education is associated with fertility, i.e. the more education a woman attains, the lower her fertility rate, and therefore the lower the dependency ratio and the lower the likelihood of falling into poverty as each year of schooling yields an increase in hourly earnings (as shown in Section 7). Therefore, a clear message is that the rural-dwellers in Argentina need to be brought up the educational ladder to escape poverty.

Argentina, together with Chile, is well known for its relatively well-educated population compared to other nations in Latin America. However, there exist large disparities between rural and urban areas and across regions. Tremendous strides have been made in improving access of the poor to basic education. However, inequalities remain between rural and urban dwellers. In urban areas, 98.5 percent of the 6-11 year olds attend school. In grouped rural areas, also 98.5 percent of the 6-11 year olds attend school, but the number falls to 95.5 in dispersed rural areas (Table 6.1). The 12-14 and 15-17 year olds in dispersed rural areas fall more behind their peers in urban areas; 12 and 20 percentage points respectively. Moreover, children and youth in the poorest provinces fall even further behind. For example, 91 percent of the 6-11 year olds in dispersed rural areas attend school in Chaco and Misiones compared to 98 percent in Buenos Aires, Cordoba and Santa Fe. Of the 15-17 year olds, only 28 percent attend school in Santiago del Estero compared to 72 percent in the province of Buenos Aires. Moreover, education quality is often lower in dispersed rural areas and children often face a long travel time go to school and for the poor this is specially so, as they often have to go by foot or horse.

What causes the falloff in school enrollment after 11 years of age in the dispersed rural areas? Is it a supply constraint or lack of demand? Is the reason cost of schooling in dispersed areas or lack of economic value for education above primary level for children in dispersed areas? To answer these questions more research is needed.

	Age (years)					
	3-4	5	6-11	12-14	15-7	18-24
Total	39.1	78.8	98.2	95.1	79.4	36.9
Total Urban Argentina	42.0	80.8	98.5	96.2	82.4	39.1
Total Rural Argentina	20.4	65.9	96.4	87.2	56.1	16.5
Total Grouped Rural Argentina	29.3	78.2	98.5	93.2	70.9	23.2
Total Dispersed Rural Argentina	16.6	60.6	95.5	84.4	49.1	13.5

Source: Own calculations based on INDEC National Population Census 2001.

Rural-dwellers of working age (15 years and above) have accumulated far less human capital than their peers in urban areas (Table 6.2). As many as 43 percent of rural-dwellers have not completed primary school, this compares to only 16 percent of working age urbanites.

Disparities are even larger for completed secondary school, which 9 percent of rural dwellers of working age have completed, compared to 26 percent in urban areas. Moreover, data reveal that rural-dwellers in dispersed areas have attained much less education than their peers in grouped rural areas; for completed secondary, numbers are 7 and 13 percent respectively.

	No education or primary incomplete	Primary complete or secondary incomplete	Secondary complete or tertiary incomplete	Tertiary complete
Total Argentina	17.9	48.9	24.5	8.7
Total Urban Argentina	15.6	49.0	26.1	9.4
Total Rural Argentina	38.6	49.2	9.2	3.1
Total Grouped Rural Argentina	29.9	52.9	12.8	4.4
Total Dispersed Rural Argentina	42.8	47.5	7.3	2.4

Source: Own calculations based on INDEC National Population Census 2001.

School attendance of poor students still lags in rural Argentina. In dispersed rural areas, children from richer households have on average a higher school attendance, are less likely to repeat a school year, and have more completed years of schooling than children from poor households. Furthermore, data reveal a negative correlation between poverty and educational attainment in rural Argentina. The level of education of the extremely poor is the lowest, and it is also increasing more slowly than average.

5 (richest)	91.1
4	91.6
3	90.4
2	92.5
1 (poorest)	86.3

Source: Own calculation based on RHS 2003.

The incidence of education is fairly equal across income quintiles. As Table 6.3 shows, the trend is only slightly increasing for successively higher income quintiles, indicating a slightly regressive nature of benefit incidence in primary education. The first quintile receives 86 percent of primary school services while the fourth and fifth quintile

each receives more than 91 percent. Compared to other countries in the region this seems is surprisingly equal. The big policy question is whether the lower participation of the lowest quintile is supply or demand driven. If the problem is related to lack of demand a program like *Bolsa Escola* in Brazil may increase school attendance of the poor. Most regions do have schools, but the students' travel time to get to the school may be significant in particular in Northwest and Northeast Argentina.

Education seems to reduce the risk of falling into poverty in Argentina (World Bank 2003). Large gaps exist in school attendance between the poor and nonpoor. Since the number of those under age 14 is not growing (see Section 2), Argentina has been presented with an excellent opportunity to increase access of the poor to primary school (there are lower rates of participation of the first quintile than other quintiles) and above primary school and improve the quality of education. Policies to improve access of the poor to secondary and higher education linked with improved quality of education and increased focus on technical skills should be one of the key pillars of the government's rural poverty reduction strategy.

Basic Infrastructure Services

Basic infrastructure services contribute to higher welfare and productivity. Some services such as potable water and sanitation contribute directly to overall welfare and health status. Others such as electricity and telephones help households use their homes productively for income generation. Research reveals that access to basic services is highly correlated with a lower probability of being poor. Inequities in access to such services abound in rural Argentina, both between the poor and nonpoor and by geographical area. Key gaps for the rural poor exist in energy and potable water.

Access to public infrastructure services is poor for many services in rural Argentina and the rural and urban services gap is large. Argentina's rural population has little access to safe water; only 30 percent have access compared to 85 percent in urban areas. Rural-dwellers in Argentina have less access to safe water than do some of their peers in rural Africa such as Kenya (31 percent), Nigeria (39 percent), and Uganda (46 percent)¹⁸, a fact having to do with the highly dispersed nature of Argentina's rural poor population, especially compared to Africa's village based rural population. Moreover, the supply of services is seriously lacking in dispersed rural areas compared to national averages. In dispersed rural areas, only 21 percent of households have access to safe water, 7 percent to trash collection, 16 percent to paved roads, and 7 percent to a fixed telephone (Table 6.4).¹⁹

¹⁸ Source: Unicef database (2000).

¹⁹ There may be representative problems at provincial level in the data set.

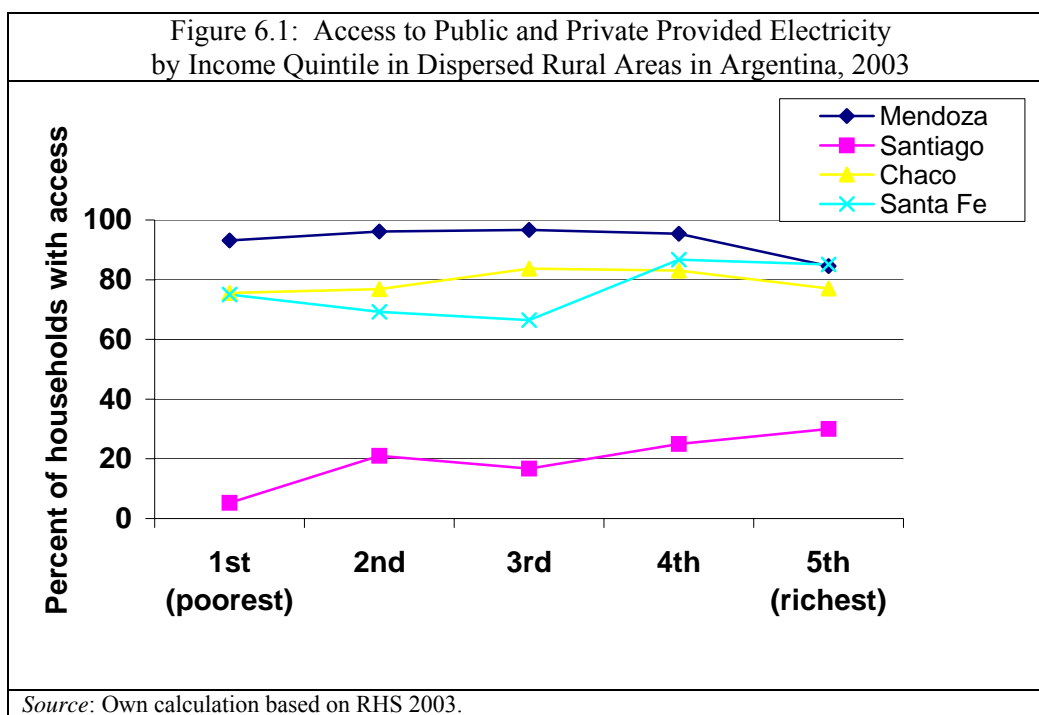
	Mendoza	Santiago del Estero	Chaco	Santa Fe	Total
Electricity	94.2	18.8	78.2	79.6	70.8
Water	43.4	10.4	18.2	0.8	21.0
Trash collection	15.0	0.0	6.6	0.8	6.6
Paved road	43.4	4.2	0.0	3.3	16.0
Public lighting	40.0	0.0	21.2	5.6	19.2
Fixed telephone	7.5	0.0	2.0	17.8	7.1
Mobil phone	18.3	3.1	6.7	31.6	15.6

Source: Own calculation based on RHS 2003.

Large differences exist in access to energy and electricity in rural Argentina. Energy and rural electrification contribute to the improvement of living conditions in rural areas. It facilitates social integration, contributes to increase production value, and promotes diversification. Some houses, most of them in dispersed areas and small localities far from main roads, use diesel generators. Large differences exist among provinces with regard to access to the electrical network and the type of energy used, a commonly used energy source for cooking for rural residents is firewood or charcoal. In dispersed rural areas, public electricity connection reach from 5.1 percent for the poorest quintile in Santiago del Estero to 85.1 percent for the wealthiest quintile in Santa Fe in 2003 (Figure 6.1 and Table 6.5). Hence, there are extreme differences across the income distribution and across provinces in access to electricity. The general trend is increasing for successively higher income quintiles, indicating the regressive nature of electrification in Chaco, Mendoza, Santiago del Estero, and Santa Fe. The clearest regressive pattern in incidence benefits is seen in Santiago del Estero. In Chaco and Santiago del Estero and other provinces, it would not take a great deal of effort to increase access to electricity because in many places the electricity line runs directly over the lot, but the dwelling is not connected to the grid. The rural-dwellers mentioned during field visit that it is a question of a one-time fee of AR\$750-1100 for connecting the household to the electricity grid.

Quintile	Electricity	Water	Trash collection	Paved road	Public lighting
5 (richest)	67.6	20.0	6.3	15.9	22.5
4	70.8	19.3	8.2	15.9	27.9
3	67.7	28.3	10.5	17.4	17.4
2	71.8	23.2	6.1	20.5	16.1
1 (poorest)	76.6	12.9	1.5	10.9	11.4

Source: Own calculation based on RHS 2003.

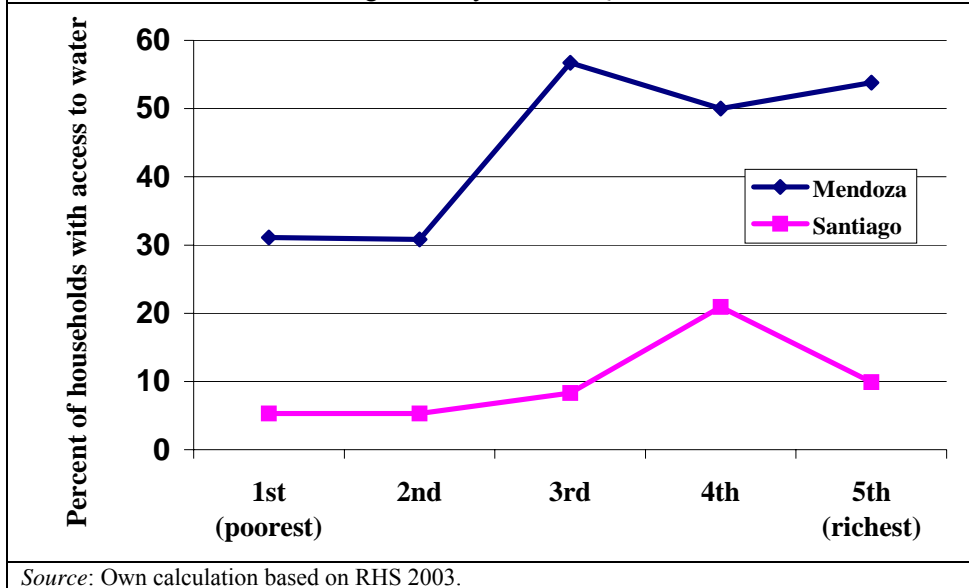


The incidence of water access varies among rich and poor and provinces. Overall, two-thirds of rural drinking water service is provided by neighborhood groups and cooperatives and one-third is provided by official agencies provincial and municipal (World Bank 2004). As Figure 6.2 shows, access to water varies across income groups. The trend is increasing for successively higher income quintiles in Mendoza. The first and second quintiles receive around 31 percent of the water services while the fourth and fifth receive more than 50 percent each.²⁰ The benefit incidence of water in Santiago del Estero is concentrated in the fourth quintile. In Chaco, the first quintile receives 20.3 percent of the service while the fourth only 15.3 percent; hence the trend seems more progressive. However, the RHS may not be representative at provincial level for all provinces; hence, more research is needed in order to check the robustness of this finding.

If one considers that the provision of drinking water, sewerage networks, and electricity to a dispersed rural population would be particularly costly, efforts should first be aimed at the agglomerated population in localities and in regions and provinces with the most acute level and high density of poverty. At the same time, special programs should be defined, using appropriate technologies that improve the access to water of the dispersed rural population.

²⁰ In Mendoza, although households have access to water in some places it is contaminated and unsuitable for drinking.

Figure 6.2: Access to Public and Private provided Water in Dispersed Rural Areas in Argentina by Income Quintile, 2003



Social and Productive Assistance

Recognizing that economic growth and social investment in education (and health) will still leave many in extreme poverty, the province and federal governments have a variety of programs aimed at reducing economic insecurity and targeted poverty reduction. Programs fall into three categories: (i) those dealing with lifecycle considerations such as social security and pensions; (ii) those dealing with income volatility such as unemployment insurance; and (iii) those dealing with social protection, aimed at improving the well-being of specific vulnerable groups.

Social protection programs specifically targeted at rural-dwellers do not exist in Argentina. Social protection programs in rural areas are rural extension of nationwide programs. These include cash-transfer schemes as well as employment and income generating programs.

This section describes some of the social protection issues and addresses policies of the government in dealing with them. In doing so, it focuses on one major social protection program: Jefas. Additionally, rural development programs and programs targeted to indigenous peoples are briefly addressed.

Many existing social programs find it difficult to reach the very poorest. A recent study for Brazil found that of the total spent on social programs, 14 percent accrued to the first quintile of the income distribution (World Bank 2001). Many programs lack broad reach amongst the poor, good targeting, or both. Some guidelines for the design of good social programs are provided in Box 4.

Social programs are plentiful in Argentina. Different ministries administer a large number of programs, such as the Ministries of Labor (5 employment programs), Social Assistance (22 programs), Education (2 compensatory education programs), Health (29 programs), and Agriculture (9 rural development programs). It is clear that fewer, stronger, and more consolidated programs are needed to assist the poor in building key assets and provide social protection. The current government has recently initiated this process, but so far no particular attention has been given to the rural population and their needs.

The federal financed workfare program, Jefas, is the largest social program in Argentina. Jefas was the main public safety-net response to the severe economic and political crises at the end of 2001. It is designed to provide direct income support (a monthly subsidy of 150 pesos or 55 dollars) for unemployed heads of household that abide by certain rules. The target group is unemployed heads of household with children under 18 or disabled children of any age and single mothers.²¹

The Jefas program represents recognition of the fact that the 2001 recession has increased official unemployment and a large share of the population fell below the poverty line and the indigent line. The Jefas program imposes a number of conditions aimed at ensuring its effectiveness and reducing corruption: (1) applicants must present a sworn statement demonstrating that they are unemployed, as well as certificates to prove that their children are attending school and have received their vaccinations; (2) applicants must register for the subsidy in person, rather than through intermediaries; (3) beneficiaries will be required to carry out community work for four hours per day and/or participate in training courses designed to increase their employment prospects; (4) small companies which offer jobs to unemployed heads of household will be required to sign a six-month contract with the employee, in exchange for which the company will receive the 150 peso subsidy in partial payment of the individual's salary; and (5) representatives of local government, the UN, church bodies, trade unions, neighborhood groups and nongovernmental organizations (NGOs) will participate in local consultative councils to review applications and ensure that subsidies are not granted to individuals who are employed or who already receive pensions or other unemployment benefits. A conservative estimate of the annual cost of the subsidy is 1.3 billion pesos.

In order to finance the program, export taxes on grains and oilseeds were increased from 10 to 20 percent, and those applied to vegetable oils and meals increased from 5 to 20 percent in 2002. The government anticipated that these increases would generate at least US\$1 billion per year in additional revenues, nearly sufficient to finance the subsidy.

The Jefas program represents recognition of the state's obligation to provide a minimum safety net to alleviate poverty. If it is successful in avoiding past practices of corruption and political patronage, it may help to stimulate a modest rise in consumer demand and lessen the impact of the present crisis. The Jefas program is widely seen as successful as it reduced aggregate unemployment, although it moved as many people into

²¹ It is planned to extend Jefas to unemployed youths and to those over 60 who do not receive pensions.

the workforce from inactivity as it did people who would otherwise have been unemployed (Galasso and Ravallion 2003).²² The authors also find that the Jefas program partially compensated losers from the crisis and reduced extreme poverty (the research was undertaken with the household survey dataset that only cover urban areas).

With support from the World Bank, the program expanded rapidly to cover about two million households by late 2002. Despite Jefas being the program with the best monitoring system, the information gathered by the program does not allow disaggregation of coverage into rural and urban areas.

Provinces in Argentina are divided in departments and departmental information indicates that the coverage of Jefas is highest in departments with 2,000-6,000 inhabitants where 7 percent of dwellers are covered and lowest in departments with less than 2,000 inhabitants where 4 percent of dwellers are covered (Table 6.6). In dispersed rural areas, only 3.9 percent of household heads received Jefas in 2003, 4.2 percent of male heads and 3.5 percent of female heads (see Table 6.7). Data also reveal that large variations exist across provinces. Provinces with the least rural poverty received less Jefas than other provinces. In Santa Fe and Mendoza provinces, 1.0 and 2.5 percent of the household heads received Jefas while in Santiago del Estero and Chaco 5.6 and 7.3 percent, respectively, received Jefas. Moreover, 1.3 percent of nonpoor household heads (measured by income) received Jefas and 5.4 percent of income poor heads received Jefas. These findings together with findings from Section 4 (P0 for rural households are much larger than for urban) indicate that rural areas are under covered compared to urban areas in Argentina. Field visits to rural areas in Chaco, Mendoza, and Santiago del Estero confirm this observation.

Table 6.6: Coverage of Jefas by Departmental Population, Argentina, 2003

Inhabitants in departments	Beneficiaries	Coverage
Less than 2,000	0.03	0.04
2,001 – 6,000	0.10	0.07
6,001 – 10,000	0.12	0.05
10,001 – 20,000	0.22	0.06
20,001 – 40,000	0.18	0.05
40,001 – 80,000	0.16	0.05
80,001 – 120,000	0.06	0.04
More than 120,000	0.14	0.05

Source: Own calculations based on data from Ministry of Employment. Coverage= #beneficiaries/total

²² Galasso and Ravallion (2003) assesses the Jefas program in urban areas only due to lack of data on rural households.

Table 6.7: Share of Household Heads Receiving Jefas in 2003
Dispersed Rural Areas in Argentina, (Percent)

	Mendoza	Santiago del Estero	Chaco	Santa Fe	Total
Share of Household Heads Receiving Jefas	2.5	5.6	7.3	1.0	3.9

Source: Own calculation based on RHS 2003.

In Argentina, rural development programs are managed by the Agricultural secretariat (SAGPyA), Ministry of production, and the National Institute of Agricultural Technology (INTA). The majority of rural development programs emerged in the 1990s and aimed at assisting small farmers in order to increase production. Rural development programs provide subsidies, credits, technical assistance, training, and organizational capacity. National rural development programs PSA, PROINDER (see Box 3), PRODERNOA, and PRODERNEA use a holistic approach to improve the livelihood of small farmers by providing several tools simultaneously to improve their production and living conditions. PROINDER, PRODERNEA, and PRODERNOA are specifically targeting the rural poor, identified by households with UBN. The program's technical staff is extremely committed to reduce rural poverty, but programs lack resources to reach all needy households. Programs may benefit from evaluation and improved coordination. Apart from national level programs, provinces also have their own rural development programs. For example, programs in Chaco province are primarily devoted to livestock and agriculture development.^{23 24}

Social or rural development programs lack for rural workers. Rural work is regulated by specific resolutions passed by the National Commission for Agricultural Work (Comisión Nacional de Trabajo Agrario, CNTA) and approved by the National Congress. CNTA is an autonomous agency composed by representatives of the national government, employers, and employees. In 1999, the national congress passed the "rural

²³ For example, *Programa Hortícola para el Este Provincial* (Horticulture program for the east of the province) aimed at developing 5.000 ha of crops through investments in irrigation systems and machinery, *El Programa Frutícola para el Este Provincial* (Fruit program for the east of the province) aimed at planting 1.000 ha of citrus and other species, *Programa Frutícola para El Impenetrable* (Fruit program for the impenetrable region) aimed at investing on 200 fruit farms, and *Programa Provincial de Siembra Directa* (Direct sowing program) aimed at modernizing farm technology. Moreover, Chaco has forestry, desertification, protection, and fishery programs. Chaco is also implementing a program to formalize and regularize the use and tenure of fiscal lands.

²⁴ For example: *Programa Ganadero del Noroeste* (Livestock program for the Northeast) aimed at improving the socioeconomic situation of 700 small goat farmers, *Proyecto Apícola* (apicultural project) that promotes apicultural development, *Programa de Desarrollo de la Producción Láctea* (dairy development program) focused on middle size producers. It contemplates the construction of one model dairy farm and investments on 80 dairy farms and two milk fields. It is also aimed at building six farmyards to host livestock at emergencies, *Programa de manejo de aguas superficiales en campos de pastoreo* (superficial water management program), and *Programa de pastoreo racional intensivo* (program for intensive grazing).

worker license” law (Law 25,191), aimed at regulating different aspects of the hiring process of permanent, temporary, and harvest workers. Law 25,191 filled a vacuum in the agricultural labor legislation, because the previous law (22,248) only regulated labor conditions for permanent workers. Law 25,191 also established unemployment insurance for rural workers funded by employers’ contribution. Before the act/law rural workers lacked unemployment benefits because they were not included in the labor law that regulated other sectors of the economy. In 2001, the national congress established the National Record Office of Rural Employers and Workers (RENATRE) in charge of making effective the rural worker license. The objective has been to combat informal employment and increase protection of workers. Brondo and Luparia (2001) estimates that 1.5 million agricultural workers are engaged in the informal sector, but recognizes the difficulties of getting accurate data. Neiman (2003) finds that for a sample of five provinces, more than half of the rural workers have salaries 30 percent below the minimum salary established by law, about 25 percent receive salaries according to the maximum and minimal legal levels, while 20 percent earn salaries above the maximum legal threshold.²⁵ The RHS reveals that only 17.5 of workers in the agricultural and livestock sector were engaged in formal employment in dispersed rural areas.

²⁵ This does not mean that approximately half of rural workers are formal (paying contributions to social security).

Box 3: PROINDER's principal achievement in terms of improving living and productive conditions for the beneficiaries of the PROINDER programs

Direct financing to beneficiaries through the *Programa Social Agropecuario's* Rural Initiatives Support Fund (FAIR) took place from 2000 to May 2005, in 5861 subprojects involving 40,843 families of small farmers and agricultural migrant workers in 21 provinces. An evaluation carried out in 2002 based on a sampling of these subprojects, a year and a half after their start-up, showed the following results:²⁶

- **Evolution of the social and organizational level of groups:** the organizational level of 39% of the groups has increased. They have progressed from being groups with no prior organization, to stages with an early level of organization, and to a lesser extent a consolidated organization, which provides them with greater management capacity to advance their interests in political and commercial arenas.
- **Joint purchase of goods or joint sale of products:** the number of groups that purchased and/or sold jointly increased by 36%. Joint purchases of goods, even among different groups of producers, resulted in a lowering of the costs foreseen in the original design of the subprojects, which also permitted an increase in goods purchased and/or in improvements made.
- **Investments in productive infrastructure:** stemming from investments financed through different types of subprojects, the productive infrastructure owned by groups increased by 22%, reaching as high as 39% in some provinces. Taking into account the limited on-farm investments at the start-up of each subproject, the investments in productive infrastructure are considered to have enabled significant increases in productivity such as those listed below:
 - **Number of products for on-farm consumption:** the number of products increased by 46%. This indicator relates directly to the existence of improvements in the quality of life at the family level, since it allows the diet to be diversified and increases on-farm "non-monetary income" (valuing of on-farm consumption).
 - **Equivalent amount of production for on-farm consumption:** the increase in the value of production for on-farm consumption totaled 34%.
 - **Number of products for sale:** the number of products and/or by-products for sale increased by 32%, which clearly indicates an increase in productive diversification.
 - **Income from sales:** with regard to the amount of income obtained from marketed products market, a positive trend is observed throughout the entire country, totaling 11%. However, this result stems from a high level of inter-provincial variability, linked to various reasons: (i) provinces where products slated for market were few and are increasing, consequently the increased amount obtained from sales expands; (ii) provinces in which commercial products predominate but faced a crisis in prices and where it has been difficult to sustain income from sales even though additional products have been incorporated into the livelihood strategy. Despite these results, producers state that, without the subproject, their situation would be one of a serious deterioration of their income level.

Another significant contribution to the improvement in productivity was the PROINDER's subcomponent of Research in Appropriate Technologies for Small Farmers, which carried out 33 adaptive research studies between 2001 and 2004. An analysis of the research results, using 4 basic indicators (increase in income, productivity and/or quality of production, savings in labor and/or inputs, and improvement in the sustainable use of natural resources) shows the following results:

- 70% of projects produced some improvement in a given indicator.
- 45% of projects showed simultaneous improvements in more than one indicator.
- 44% of projects showed increases in income.
- In 60% of projects, productivity and/or quality of production increased.
- 28% produced some type of savings (labor and/or inputs).
- 35% increased the sustainability of natural resource use.

Source: Aparicio and Tapella (2002)

Box 4: Design of Social Programs

Better targeting requires different approaches for different programs. For universal programs, such as education, health, and urban services, the targeting of public spending can be improved without abandoning universality. True universalization of services from which the poor are mostly excluded is, in fact, synonymous with targeting the poor for service expansion.

Several principles are useful to follow. First, public spending should focus on spending items that disproportionately benefit the poor (such as schools, health facilities, and water supply in poor areas, or education initiatives targeted at reducing repetition rates in school). Second, some government services could require cost recovery for the nonpoor. For insurance programs, such as pensions and unemployment insurance, contributions and benefits should be set such that public funds are used only for transfers targeted to the poor. Income transfers and related programs should be strictly tied to a means-testing procedure. In particular, public spending for income transfer programs should be focused on the very poorest. Third, often an effective way of targeting the poor is to provide goods, which are not well liked by the nonpoor, such as cheap but nutritious food.

There needs to be rigorous monitoring of the efficiency and effectiveness of social programs. Demand and willingness to pay serve as the basic guidelines to estimate program benefits. Investments and current transfers should be compared based on cost-benefit and transfer effectiveness analyses. Redistributive objectives should not be used to justify bad investments. Social investments should pass an efficiency test demonstrating that they are more cost-effective than income transfer programs in bringing monetary or nonmonetary benefits to the poor.

The design of social programs should correspond to the demand of the beneficiary population and include genuine beneficiary participation. In general, this implies that service provision should be at the level of willingness to pay. Cash and voucher programs are preferable to in-kind service provision, unless better targeting or externalities justify the latter. In some cases, a switch from in-kind to voucher financing can be an effective mean to increase transparency, consumer choice, competition, and internal efficiency. Beneficiary participation in program design, implementation, monitoring, and evolution is essential.

An increasing share of social policy is implemented at the provincial and municipal level, especially in education, health, and social assistance. Thus, any social spending reform must include reforms at the state and municipal level. Social spending reform at the provincial and municipal level revolves around three objectives. First, reforms should improve incentives for providing service to the poor. This could include conditional cash transfers. Second, the responsibilities of the different levels of government should be clarified where they are unclear. Finally, reforms must attempt to strengthen the capacity of states and municipalities to deal with poverty-related issues.

Source: World Bank (2001).

Argentina has 17 indigenous peoples' groups distributed throughout the country. The most important indigenous peoples are Kolla, Mapuche, Toba, and Tupi-Guarani. The National Population Census of 2001 included a specific question on self-identification of ethnicity. Preliminary figures indicate that 3.5 percent of households recognize the presence of an indigenous member. Hence, nearly 100,000 households have at least one indigenous member.

The majority of indigenous peoples live in rural areas and their living conditions are worse than other rural-dwellers. Health agents argue that infant mortality is about 30 percent among indigenous people. Despite important improvements at the national and provincial levels in recognizing indigenous peoples' rights and land regularization, there are few other effective policy actions aimed at improving their livelihood. At the national level, four programs specifically target indigenous people, and the largest is *Desarrollo de Comunidades Indígenas* (indigenous communities development), which is aimed at community development and natural resource management in indigenous communities. The pilot project is implemented in Salta, Neuquén, and Tucumán. Finally, indigenous people are also reached by social protection and rural development programs such as PSA (Box 5), Pro-Huerta, Jefas, and pensions. However, coverage information for indigenous peoples is not available. Since rural dwellers are under covered, it seems likely that indigenous people are also. Field visits to Chaco and Mendoza confirmed this hypothesis.

Box 5: Experiences with indigenous peoples, woman and youth groups since the start of PSA-PROINDER

Indigenous Peoples

PROINDER continues and expands upon the work that, since the establishment of the Social Program for Agriculture (PSA) in 1993, had been started with indigenous communities. PSA-PROINDER is considered the only program that offers aboriginal beneficiaries the opportunity to participate in decision-making. Nationwide, 5500 indigenous people participate in on-farm consumption and infrastructure investment subprojects, especially for irrigation water, handicrafts centers, and land improvements. Over half of these beneficiaries are from the Province of Salta, with aboriginal communities representing 70% of this province's total beneficiaries.

Formosa's Provincial Coordination Unit, which evaluates and approves subprojects, has 20 indigenous delegates. From 1998 to 2001 the Project for Experimentation and Provision of Water to Aboriginal Communities was carried out, benefiting 768 families (around 3840 people) with hydraulic works in 34 communities. This signified the resolution of water problems in the communities, and the training of 30 indigenous technicians from different ethnic groups in drilling and in the design and generation of appropriate technology. The project was executed by means of coordinated efforts among the region's NGOs (APCD, the Zonal Training Center-CECAZO, the Parochial Team for Aboriginal Pastoral Issues-EPPA, the Institute of Popular Culture-INCUPO, the National Institute of Indigenous Affairs-INAI-), and the National University of Formosa.

Rural Women

As of the year 2000, women beneficiaries of PSA totaled 10,000 throughout the country, representing 28% of all recipients of financing both for subprojects supporting production for on-farm consumption and for sale. From 2001 to 2005, PROINDER was able to benefit 20,000 rural women, representing 40% of the country's total beneficiaries. In parallel, it helped them increase their participation, managerial and organizational capacity, resulting in concrete achievements with regard to productive issues (greater participation by women with their products being presented at regional and provincial fairs) and other aspects of quality of life (housing, schools, health centers, scholarships, etc.).

Systematic work has also contributed to a marked increase in women's self-esteem and sense of self-worth, together with a recognition of the rights of women in general and of rural women in particular. Over the years, this process has become institutionalized. Currently, a peasant woman and a technician are participating in the Coordination Unit of the Latin American Network of Rural Women. This unit also coordinates the National Network of Female Technicians and Institutions working with Rural Women—TRAMA—which brings together 100 female agricultural technicians from 27 governmental and non-governmental institutions. In 2004, the PSA introduced an exclusive line of financing for groups of women, stemming from the recognition of their double role as producer and housewife, with the objective of alleviating their housework. Over 50 subprojects are currently being formulated throughout the country, out of the 150 planned for 2005.

Youth

With regard to youth, systematic work began in 2004, and rural youth were incorporated as specific actors, to be financed by PSA-PROINDER, since PROINDER's original formulation did not include financing for this group. The PSA-PROINDER work process showed a clear need to incorporate an exclusive line of subprojects for youth. Since that time and to date human resources have been trained (technicians as well as youth) on productive issues (agricultural and non-agricultural) and on youth-specific issues. This process is accompanied by the development and dissemination of specific materials (specific teaching material, dissemination of existing studies and bibliographic material). Sixty subprojects, out of the 150 planned for 2005, are in the process of being formulated and appraised.

Source: PROINDER (2005)

Two issues, targeting and institutional arrangements, arise in the implementation of the poverty alleviation strategy. Targeting seeks to reduce costs by limiting benefits only to the desired beneficiary group. Clearly, for targeting to be efficient the administrative mechanism must not be so costly that it offsets savings from excluding the nonneedy. In Argentina, targeting can be effective if based on individual or family characteristics.

The seriousness of the poverty in rural Argentina calls for the active participation of all resources, including NGOs. According to *Organizaciones de la Comunidad* (CENOC) 2615 civil society organizations are operating in rural areas in Argentina and 38 percent are located in the Pampeana region, 25 percent in the Northwest, 14 percent in the Northeast, 12 percent in the Cuyo region, and 11 percent in Patagonia. NGOs in rural Argentina cover different fields, such as *Fundación Solidarida* that assists groups of rural-dwellers in improving their production and livelihood, and *Fundapaz* that provides technical assistance and economic support to small farmers.

Responde is another important NGO that works on recuperating villages at risk of disappearing, by for example assisting in improving the livelihood of rural-dwellers. Communities at risk of disappearing exist in all provinces, but they are highly concentrated in the Pampeana region and surrounding provinces (Box 6). Reasons for their disappearance are multifold, but the main reasons are: (i) termination of key economic activities, (ii) closing of railway stations, (iii) isolation from paved roads, and (iv) lack of employment opportunities.

Box 6: Villages at Risk of Disappearing in Argentina



Source: RESPONDE www.responde.org.ar

Nussbaumer (2004) studies reasons for out-migration and changing settlement patterns in rural locations in Chaco province. The majority of the recorded migrant population left their communities of origin due to lack of employment opportunities and the low household consumption level and poverty that followed. Owners of large farms (more than 1,000 ha) used to have many families working and living on the farm. Other factors were the disappearance of typical peasant agrarian products such as cattle, goats, poultry, charcoal, and timber as local stores closed, lack of road maintenance of roads, lack of access to water, reduced health assistance (it used to be common to find at least a sanitary agency in the majority of *parajes*²⁷). far away from secondary schools and communication services. Finally, loneliness and changing cultural patterns among generations has also been mentioned as key factors for depopulation in rural Argentina. In sum, the people leave rural areas due to the deterioration of the living conditions that is said to be mirroring the lack of developing strategies.

7. Labor Markets and Income Generation in Rural Areas

Labor is poor people's most abundant asset and it accounts for the majority of their total income. Nonetheless, the poor are constrained in their labor use in a number of ways: lack of jobs, low wages, and wage discrimination especially for female and indigenous workers. The poverty analysis reveals that many workers in Argentina, particularly those in the informal sector, are poor despite full-time work (Section 5). The challenge of creating employment is therefore to increase worker productivity and tighten the labor market for competitive wages to lift the employee's household out of poverty.

Rural labor markets are important for poverty reduction in rural Argentina. Employment is key to lifting poor rural families out of poverty. Rural labor markets can be analyzed in many ways. One way is to consider the agricultural and nonagricultural sector or the nonfarm sector. Rural nonfarm employment has been traditionally seen as a low productivity sector, producing low quality goods. The sector, in this view, is expected to shrink as the economy develops and incomes increase. However, recent research shows that the rural nonfarm sector has a positive role in absorbing a growing rural labor force and slowing rural-urban migration. Moreover, the nonagricultural sector contributes to national income growth and in promoting a more equitable distribution of income (Lanjouw and Lanjouw 2001). Lanjouw and Lanjouw also find that the nonagricultural sector is large and growing in developing countries. In Latin America alone 47 percent of the labor force in rural settlements and rural towns are employed in off-farm activities. Moreover, 79 percent of women in the Latin American rural labor force are employed in off-farm activities. In terms of income the rural nonfarm sector is providing more income to the poor than to the nonpoor.

In order to have a good understanding of the livelihood of rural poor it is necessary to address their different livelihood strategies. This has crucial importance for policy recommendations. There are at least three types of rural poor livelihood strategies in Argentina: (i) on-farm—agricultural based livelihood—where 15 percent of the total population (16 and 84 percent poor and nonpoor respectively) are engaged full time; (ii) off-farm—agricultural and nonagricultural employment and subsidies—where 21 percent of the total population (59 and 41 percent poor and nonpoor respectively) are engaged full time; and (iii) a combination of (i) and (ii) where 65 percent of the total population (53 and 47 percent poor and nonpoor respectively).²⁸ Unfortunately, no data for poor rural people in Argentina are available on social capital, access to markets and institutions therefore these areas are not included in the analysis. This section attempts to address these three livelihood strategies and it is organized in three subsections addressing: first, characteristics of the rural labor force; second, rural employment, including correlates of participation in rural nonfarm employment; and, third, wages and income in rural areas, including factors explaining rural labor income and the agricultural sector and factors explaining agricultural producer income.

Findings from this section show that the poor allocate a lower share of their labor to farm sectors than nonpoor do, but still around 70 percent work in agriculture, and the vast

majority of rural workers are engaged in the informal sector. Employment analyses show that women have higher probability than men to participate in rural nonfarm activities and they are not confined to low-return employment. Moreover, involvement in the nonfarm sector is related to education attainment; as it increases so does the likelihood of being employed in the nonfarm sector. Workers living in poorer regions with land access are less likely to be employed in the nonfarm sector. Labor income analyses reveal that labor markets pay lower returns to poorer than to richer women and returns to education are increasing with increased level of completed education and income level. Moreover, employment analyses show that nonfarm income and employment is highly correlated with gender, skills, household size, and education. Finally, agricultural producer income analyses reveal that producers' income is monotonically increasing with land size and with completed education level, and positively correlated with road access and use of electricity, fertilizer, and irrigation.

CHARACTERISTICS OF THE RURAL LABOR FORCE

The rural labor force is highly feminized. Women are highly engaged in the rural labor market in Argentina; 47.6 percent of the rural labor force is women (Table 7.1). The participation of family and unpaid workers is relatively low in Argentina compared to other developing countries.

The skill level of the rural labor force is low in dispersed rural areas. The average years of education of the employed in dispersed rural labor force reached 6.7 years in 2003. The male and female workers that completed at least primary education reached 64.2 percent (Table 7.1). Only 8.5 percent of the rural labor force completed secondary school in dispersed rural areas.

Table 7.1: Labor force in Dispersed Rural Areas in Argentina, 2003 (percent)

Gender	
Male	52.4
Female	47.6
Labor Status	
Salaried worker	41.5
Self-employed	46.3
Employer	8.4
Family & Unpaid Workers	3.7
Education	
No Education & Primary Incomplete	35.7
Primary Complete	52.7
Secondary Complete	7.6
Higher Education Complete	3.9

Source: Own calculation based on RHS 2003.

Self-employment is widespread in rural areas. Table 7.1 reveals information on the labor status of the rural population. In 2003, self-employed accounted for 46.3 percent of the employed labor force, salaried workers for 41.5 percent, employers for 8.4 percent while unpaid family workers accounted for 3.7 percent.

RURAL EMPLOYMENT

Agricultural employment has fallen since the early 1990s. According to demographic censuses agricultural employment has roughly fallen by 34 percent from 1991 to 2001. Moreover, agricultural labor markets are highly seasonal in Argentina and, many rural workers are employed only part-time in agriculture.

Table 7.2: Distribution of Workers among Sectors Dispersed Rural Areas in Argentina, 2003 (percent)

	Male	Female	Total Sample
Industry	4.2	5.8	4.4
Services and Commerce	9.8	36.0	15.3
Agriculture and Livestock	77.1	50.4	71.6
Public Administration	3.4	6.3	4.0
Other Sectors	5.6	1.5	4.7
Total	100	100	100

Source: Own calculation based on RHS 2003.

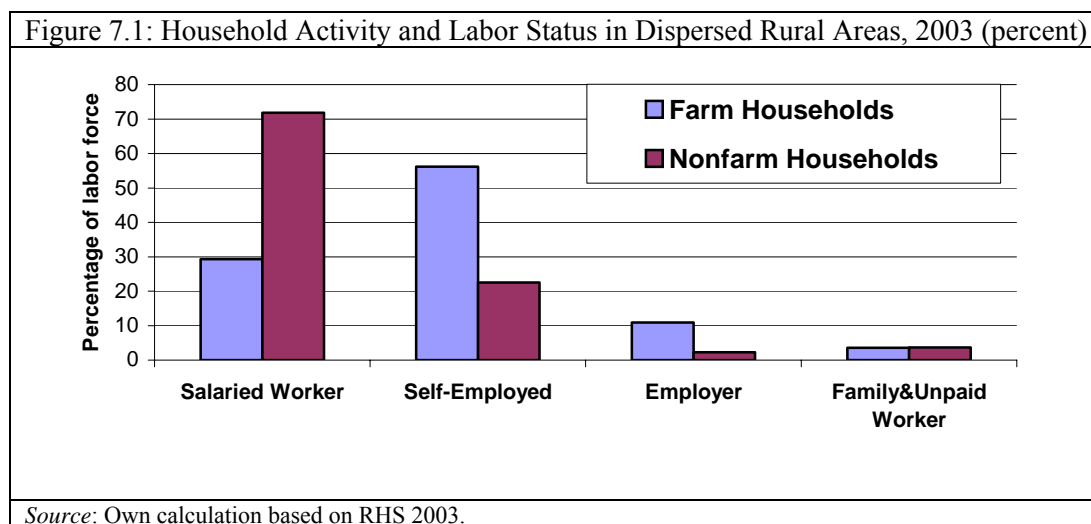
Agriculture is still the main employer in dispersed rural areas. In Table 7.2, the economically active population in dispersed rural areas is broken down by sector of principal activity (occupation). In 2003, 71.6 percent of the working population was engaged in agricultural activities, the vast majority in cultivation. Moreover, the greater part was males, 77.1 and 50.4 percent of the rural males and females respectively were employed in agricultural activities (Table 7.2). Turning to rural nonfarm activities, we observe that 4.4 percent of the working age population was primarily engaged in manufacturing, 15.3 percent in services and commerce, and 4.0 percent in the public administration in 2003.²⁹ In total, about 28.4 percent of the rural working population was engaged in nonagricultural activities as a primary activity. These estimates are likely to be conservative estimates of the importance of nonagricultural activities because they do not include nonfarm activities that are secondary.

The nonpoor people are slightly more likely to be employed in agricultural activities than the poor and indigent in dispersed rural areas. While 67.6 percent of the working poor are employed in agricultural activities, more than 76 percent of the nonpoor are active in this sector (Table 7.3).

	Indigent	Poor	Nonpoor
Industry	4.7	5.4	2.9
Services and Commerce	16.7	15.9	14.6
Agriculture and Livestock	71.2	67.6	76.3
Public Administration	1.9	4.3	3.6
Other Sectors	5.5	6.5	2.6

Source: Own calculation based on RHS 2003.

Considering the distribution of rural labor by status and farm and nonfarm households, the RHS reveals that the majority of household heads of the nonfarm households are salaried workers and a few are self-employed (Figure 7.1). Of the farm households 30 percent of household heads also offer their labor to the market.



The majority of jobs in dispersed rural areas are informal in nature. The share of the rural workforce engaged in the formal sector is affected by crises and stagnation in production, as these events tend to increase both unemployment and informality. In 2003, only 28.3 percent of Argentina's heads of household in dispersed rural areas was engaged in the formal labor market.

The rural nonfarm sector is very important for income, employment and poverty reduction in Argentina. The significance of rural nonfarm activities is being increasingly recognized in the development literature and in applied programs.³⁰ Today's industrialized countries have highly diversified rural areas, with agriculture as only one of many economic activities. Also, rural nonfarm incomes and employment have expanded rapidly in middle income countries. According to Reardon, Berdegúe, and Escobar (2001), in the 1990s, incomes in the rural nonfarm sector accounted on average for around 40 percent of

rural incomes in Latin America. In Argentina both the poor and nonpoor receive a large share of their incomes from the rural nonfarm sector; 46 and 32 percent respectively (see below).

The rural nonfarm sector is key to solve a series of issues in rural areas. According to Lanjouw and Lanjow (2001) these are: first, the rural nonfarm sector has a potential to absorb a growing rural labor force; second, the rural nonfarm sector can slow down rural-urban migration; third, the rural nonfarm sector's contribution to national growth; and fourth the rural nonfarm sector can promote a more equitable distribution of income. In the following subsection nonfarm employment and incomes is addressed in more detail.

Rural nonfarm activities account for an important share of employment in rural areas in Argentina. In 2003, about 25 percent of the rural working population declared nonfarm activities as their primary source of employment (see above). These figures are likely to be highly conservative estimates of the importance of RNF activities because they do not take into account seasonality and do not consider secondary occupations. Also, the figures refer to a definition of rural as dispersed areas. Including grouped or semi-urban areas, the share of workers declaring nonfarm activities as their primary occupation would rise significantly. In Mexico, for example the number increases from 44 to 55 percent.

Correlates of Participation in Rural Nonfarm Employment

What determines what type of workers is most likely to seek employment outside the agricultural sector? This section examines factors, which are associated with employment in nonagricultural activities in dispersed rural areas in Argentina. We present an exercise carried out on the basis of the RNS 2003, using a probit model to determine the probability of individual involvement in non-farm activities as primary occupation, conditional on a range of personal, household and geographical characteristics. The specification of the model draws on findings from the poverty analysis, which suggests that the choice of primary occupation is affected by for example education and gender. Rather than reporting the parameter estimates, which are difficult to interpret on their own, Table 7.4 presents the marginal effects associated with each explanatory variable. These can be interpreted as indicating the effect of a percentage change in the explanatory variable on the probability of involvement in nonfarm business activities, taking all other variables in the specification at their means.³¹ Because of limitations in the RNS survey, some important variables cannot be considered, including ethnicity and social networks.

Table 7.4: Probability of being Employed in the Nonagricultural Sector,
Rural Dispersed Areas in Argentina, 2003

Worker Characteristics:	Nonagricultural Employment		Low-productivity Nonagricultural Employment ₁		High-productivity Nonagricultural Employment ₂	
	dF/dx	P> z	dF/dx	P> z	DF/dx	P> z
<i>Education</i>						
Primary complete	0.069	0.000	-0.075	0.000	0.186	0.000
Secondary complete	0.189	0.000	-0.076	0.000	0.389	0.000
University complete	0.434	0.000	-0.041	0.000	0.524	0.000
<i>Skills</i>						
Age	0.010	0.000	-0.003	0.000	0.002	0.000
<i>Gender</i>						
Male	-0.202	0.000	-0.246	0.000	-0.017	0.000
<i>Land</i>						
Land per capita	-0.001	0.000	-0.001	0.000	0.000	0.660
<i>Family characteristics</i>						
Family size	-0.013	0.000	-0.013	0.000	-0.003	0.000
<i>Region</i>						
Mendoza	0.055	0.000	-0.033	0.000	0.102	0.000
Santiago del Estero	0.196	0.000	0.135	0.000	0.108	0.000
Chaco	0.288	0.000	0.172	0.000	0.187	0.000
Pseudos R2:	0.118		0.160		0.074	

Notes: Excluded categories: No education or primary incomplete and Santa Fe.

(1) Low-productivity nonagricultural employment: average monthly nonagricultural labor income is below the poverty line (2) High-productivity nonagricultural employment: average monthly nonagricultural labor income is above the poverty line

Source: Own calculation based on RHS 2003.

Findings from above and recent research have shown that the nonfarm sector can often be seen as a source of both high-return employment as well as a “last resort” option (see Ferreira and Lanjouw 2001). Therefore, following Ferreira and Lanjouw, this paper presents estimations of two additional models with the same specification of regressor, but differentiating between high-return nonfarm activities as opposed to low-return nonfarm activities. The nonfarm subsectors are designated as either high return or low return depending on the average monthly earnings accruing to the individuals whose primary occupation is in that sector. If the average monthly labor income is below the poverty line (see Section 3), the sub-sector is designated as low return, or low productivity sector. Conversely, if the average monthly return from a sub-sector is above the poverty line, the sub-sector is designated as high return.

Poor households are often involved in low-return nonfarm occupations. This may be seen as the equivalent of subsistence farming as mentioned by Reardon, Berdegúe and Escobar (2001); low productivity, low wage, rather unstable, and with low growth potential. These occupations serve as a survival mechanism for poor households with few assets.

Table 7.4 presents three probit models linking the probability of a worker having primary employment in nonagricultural wage-labor occupation to a range of explanatory variables (age, gender, schooling variables, land, household size, and regional dummies) included in the analysis. In the first model, comprising all combined nonfarm activities in dispersed rural Argentina, the dependent variable takes the value of one if the worker is primarily employed in nonagricultural labor and zero if the worker is primarily employed in agricultural labor. The second and third model split those employed in the nonagricultural labor force into two groups; those with a low productivity (low-return) job and those with a high productivity (high-return) job.

Women have considerable higher probability than men to participate in rural nonfarm activities, but men are more likely to be employed in high-return than low return occupations. Considering all nonfarm employment together, men are significantly less heavily represented in the nonfarm wage-labor force than women, controlling for all other variables (Table 7.4). This finding is different from the poor Northeast Brazil where women are more likely to be represented in the agricultural sector (see Ferreira and Lanjouw 2001), but in line with findings from rural Mexico (Verner 2004). After dividing the types of occupation into two groups depending on whether earnings are lower or higher than the poverty line, men are significantly less likely than women to be employed in low-return nonagricultural activities. This is also the case for high-return nonagricultural activities, but the effect is much lower, i.e. the difference between male and female participation rates is leveling out in the high-productivity nonfarm sector. Hence women do not have more limited access to high return occupations and are not confined to low return ones in rural Argentina (which is the case in rural Mexico). However, men are more likely to be employed in high-return than low return nonfarm jobs.

The probability of nonfarm employment rises with increased skill level (proxied by age), controlling for other characteristics. It is positively associated with nonagricultural employment in general and high productivity non-agricultural employment, while it is negatively associated with low productivity nonagricultural employment. Moreover, there is no evidence that participation begins to decline at a certain skill level or age in rural Argentina. This finding contrasts with findings from Brazil where older workers have a smaller probability of being employed off-farm (Ferreira and Lanjouw 2001). However, in rural Argentina the older workers have a smaller probability of being employed in the low-productivity off-farm sector than do younger workers. This is contrary to what occurred in the high productivity off-farm sector.

Involvement in the nonfarm sector is significantly related to education attainment. As education levels rise, so does the probability of being employed in the high return sector. Findings in Table 7.4 show that the probability of involvement in the nonfarm sector is positively and significantly related to education levels in rural Argentina. Relative to the non-educated, those with education are generally more likely to find employment in the nonagricultural sector, controlling for other variables.

As education attainment rises, so does the probability of being employed in the nonagricultural sector (Table 7.4). In the high productivity jobs, the completed primary, secondary, and tertiary education variables are all statistically significant and positive. At average values of other variables, having completed primary education raises the probability of employment in high-return jobs to 19 percent. Raising the level of attained education to the secondary level increases it even more. A high school educated workers is more than twice as likely to be employed in the high-return nonfarm employment as primary educated workers. Moreover, university graduates have a much larger probability of working in high-return nonfarm jobs than do secondary school graduates (13 percentage points). It is important to acknowledge that the exogeneity of education in these models can be questioned so more research would be needed to understand employment possibilities in high-productive sectors.

Workers with land access are slightly less likely to be employed in the rural nonfarm sector. Access to land is also an important factor to determine sector of labor market participation. In fact, Finan, Sodoulet and de Janvry (2002) find that young educated men from land-poor households in Mexico are more likely to participate in off-farm nonagricultural employment. For Argentina, the regression analysis presented in Table 7.4 reveals that at average values of other variables, increasing the land holding by one hectare reduces the probability of employment in the nonfarm sector and low-return jobs by 0.1 percent, which is very little. However, landholders are not significantly more or less likely to be employed in the high-return rural nonfarm sector than people that are landless

Workers in regions with higher poverty rates are less likely to participate in rural nonfarm activities. Spatial heterogeneity is large within rural Argentina. Geography influences probabilities of nonfarm sector participation even after controlling for other characteristics. Relative to those living in Santa Fe, workers living in Chaco, Mendoza, and Santiago del Estero are *more* likely to be employed in high-productive nonagricultural sectors and nonagricultural sectors generally, controlling for individual characteristics. Mendoza's rural-dwellers are less likely than those in the Santa Fe to be employed in low-productivity nonagricultural activities. This indicates that workers in dispersed rural localities are not stuck with cultivation only as wage employment opportunities do exist. Improving transport infrastructure that provides access to more inhabited rural or urban centers may translate into better access to off-farm jobs. For Mexico, Araujo (2003) finds that interventions in roads are more effective in reducing poverty, through nonfarm rural employment in rural municipalities with low value agriculture outputs, but high productivity of labor.

Rural poor families seem to have benefited from the opportunities opened by the rural nonfarm economy. However, data do not reveal if these opportunities were taken up because of the fall in other sources of income, thus substituting for them, or were an addition to these sources. If they were not additional, the conclusion is that they did not serve to reduce poverty.

High return rural nonfarm occupations were mostly taken up by the comparatively better off, however, although the poor have also participated in them to some extent. Hence, it is likely that the impact has not been equalizing, and the rural nonfarm sector has contributed in some measure to the worsening of the rural income distribution. Public and private transfers are a different case. These have definitely helped the poor more than other groups, and have therefore had an equalizing impact.

WAGES AND INCOMES IN RURAL AREAS

This subsection addresses firstly the levels and sources of wages and income in rural Argentina, secondly determinants of wages and earnings for wage workers, and thirdly determinants of incomes of agricultural producers.

In the longer term, the slowdown in Argentina's rural population growth (see Section 2) will affect poverty through its broader effects on the labor market. The population growth experienced in previous decades has resulted in an elastic supply of unskilled labor. Moreover, the type of technical change taking place and crop mix chosen by farmers in Argentina is labor augmenting. As a result wage levels have remained low, except for high skilled, well-educated workers, even in times of relatively high economic growth.

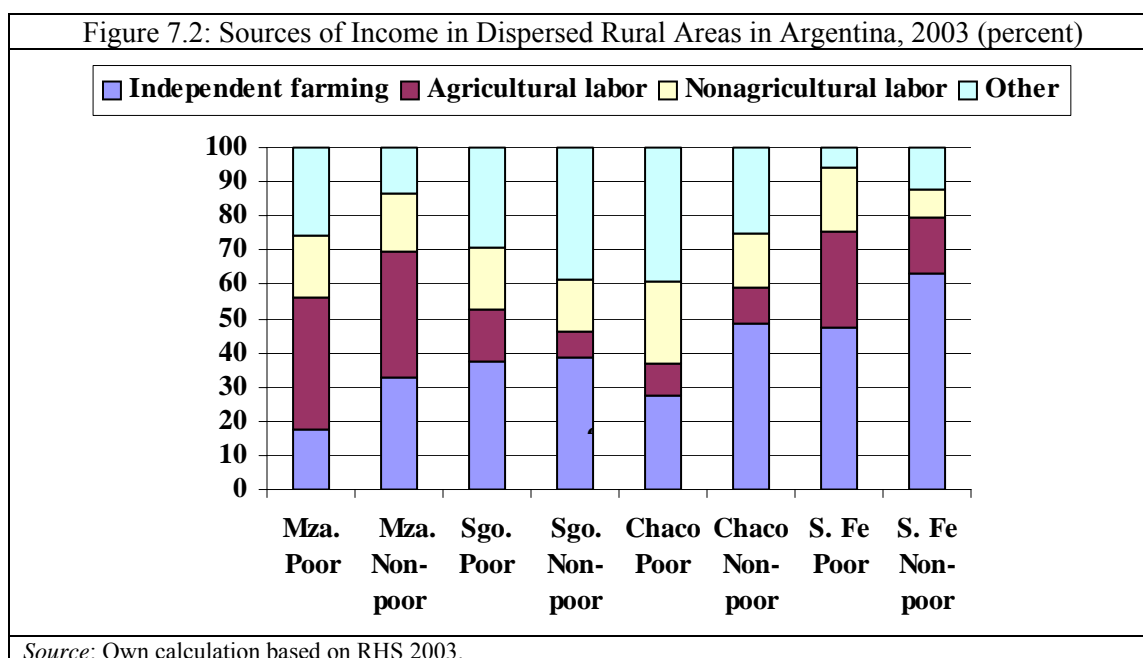
Wages and incomes are key to escaping poverty in rural Argentina as elsewhere. Table 7.5 shows (i) rural farm and nonfarm wages or entrepreneurial earnings and (2) income from public and private transfers. Both are incomes and the former may indicate certain dynamism of the rural economy, while the latter points to an expansion of private and public social protection in rural areas

Farm income is still the most important income source for rural-dwellers in Argentina. The poor and nonpoor in dispersed rural areas receive the largest share of their total income (53.6 and 68.2 percent) from agricultural activities such as farming and agricultural labor (Table 7.5). The rural-dwellers also work as laborers in the nonfarm sector; the poor and nonpoor receive 12.8 and 19.8 percent respectively of their total income off-farm. Remittances and transfers are a significant source of income in general in rural areas; accounting for 19 percent of the poor's total income, or 7 percentage points more than the nonpoor that receive 12.8 percent of their total income from these sources. Hence, in total the nonfarm income account for 14 percentage points more of the poor's income than of the nonpoor's income.

	Poor	Nonpoor
Independent farming	28.7	50.4
Agricultural labor	24.9	17.8
Total agricultural Income	53.6	68.2
Non-agricultural labor	19.8	12.8
Other Sources (transfers and remittances)	26.6	19.0
Total nonagricultural Income	46.4	31.8

Source: Own calculation based on RHS 2003.

Rural-dwellers have a different income source pattern dependent on the region where they live. Figure 7.2 shows that poor and nonpoor households in Mendoza receive the largest share of their income from agricultural labor. For the poor in Mendoza the share of income from farm labor is 139, 249, and 434 percent higher than in Santa Fe, Santiago del Estero, and Chaco respectively. Moreover, rural-dwellers in the poorer provinces receive a much larger share of their income from remittances and transfers than their peers in richer provinces do. Figure 7.2 also shows that independent farming is more important for the nonpoor than for the poor as the share of total income is always higher.



Wages are related to labor status. Formal sector workers, defined as workers that contribute to the pension system, earned more than their peers in the informal sector in 2003. Moreover, permanent workers earn more than temporary workers in dispersed rural areas (Table 7.6). Moreover, employers earn significantly more than self-employed and wage earners in both the formal and informal sector. In the formal sector, employers earn

roughly double that of self-employed and four times more than wageworkers. Not only do protected formal sector workers receive benefits in form of pensions, but also average wages are significantly higher compared to those of unprotected informal workers. In the informal sector, wages are more aligned (Table 7.6).

	Permanent	Temporary	Formal	Informal
	Total Sample			
Self-employed	4,325.2	1,441.7	7,895.1	2,602.5
Wageworker	3,811.4	1,507.7	4,122.8	2,061.8

Source: Own calculation based on RHS 2003.

Male wages are highest in industry, followed by the public administration and agriculture (Table 7.7). Services pay the lowest wages both to the male and female workers. The highest female wages are paid in the public administration followed by agriculture.

	Male		Female	
	Wageworkers	Self-employed	Wageworkers	Self-employed
Agriculture & Livestock	3,018.8	3,283.3	3,742.3	1,174.932
Industry	3,650.4	1,335.8	1,513.9	4,834.8
Services & Commerce	1,729.5	4,295.5	1,475.6	1,729.5
Public Administration	3,483.9	NA	4,037.6	NA
Other	2,258.2	1,649.6	2,400.0	600

Notes: Exchange rate US\$=3 Argentinean pesos (approximation).
Source: Own calculation based on RHS 2003.

Formal sector workers receive not only higher wages than do the informal workers; they also receive benefits. More than half of the formal sector workers receive some form of benefits. Of the individual benefits, bonuses and paid holidays are the most important; 37 percent of the workers receive this benefit.

Child labor still exist in disperse rural areas of Argentina, but at much lower extent than other countries in the region. International evidence shows that child workers tend to be poor and complete fewer years of schooling than their nonpoor counterparts. Children should not have to work, but an estimated 250 million children are working worldwide. Data reveal that 4 percent of children in Mendoza and Chaco worked in 2003. Hence, child labor is not a serious problem in rural Argentina and, furthermore, the majority of children may be both working and studying.

Factors Explaining Rural Labor Income

After a short and simple presentation of wages and incomes, this section addresses determinants of wages in dispersed rural areas in Argentina. It looks at factors determining rural wages and investigates the characteristics that differentiate low and high paid workers. Section 5 showed the importance of education and other personal characteristics as correlates of poverty. Here the focus is instead on the impact of these characteristics and other context variables on rural wages.

Workers located at different points in the wage distribution are compared to analyze this issue, using a quantile regression methodology based on the RHS from 2003. Wages are compared across workers grouped by gender, education, experience, labor status, and location. Findings indicate that wages are by no means determined in the same way for high and low paid workers. For example, female workers are paid much less than males working in the high end of the wage distribution relative to their peers in the low end of the distribution, and returns to lower levels of education are far smaller in the upper income quantiles than in the lower ones.

The quantile regression methodology characterizes the distribution of labor income in more detail than traditional ordinary least squares (OLS) and two stage least squares (2SLS) regressions, as it makes it possible to break down the wage determination process across the entire wage distribution. Specifically, this section addresses the determinants of rural labor incomes of employees and self-employed, including investigations of differences between low and high paid workers (the next section addresses agricultural producer incomes). Comparisons of workers age—14 and older—located at different locations in the labor income distribution shed light on these questions. Labor incomes are compared across workers organized by gender, education, skills, labor status, sector, and location.

Labor incomes are modeled by using log annual labor incomes as the dependent variable. The general model contains explanatory variables in levels and allows for nonlinearities in the data. For example, the log labor income equation is found to be nonlinear in education. In addition, the model contains dummy variables that take the value of one if, for example, a worker holds a job in the formal sector, and zero otherwise. Such a dummy variable may reveal whether there is an income premium related to formal sector employment. The 25th, 50th, 75th, and 90th quantiles are used in the analysis. Findings indicate that labor incomes are by no means determined in the same way for high and low paid workers. Findings for dispersed rural areas in Argentina are presented in Table 7.8.

All of the included variables are significantly different from zero for all quantiles. Each explanatory variable will now be discussed in turn: education, experience, labor market association and status, sector, gender, and geographical location.

Having completed primary education contributes to better wages, and the premium increases rapidly with the level of education attainment. Better-educated individuals in rural Argentina earn much higher wages than their less-educated counterparts. In 2003, the association with the wage level of primary, secondary, secondary, and tertiary education relative to no or incomplete primary education was positive at all quantiles, controlling for other individual characteristics. Compared to the wages of non-educated workers and those with incomplete primary, median wages of workers with complete tertiary education were 136 percent higher; the comparable premium for secondary schooling was 72 percent. Workers with complete primary education received a 27 percent higher return compared to peers with no complete education.³²

Returns across the wage distribution vary a lot for workers with complete upper secondary and tertiary education; i.e. workers with completed primary education (secondary and tertiary education) in the low end of the income distribution are being paid comparatively less (more) than their peers in the high end. This would seem to indicate that: (1) there is wide heterogeneity in the quality of education in rural areas across the wage distribution, and (2) the capacity of workers to convert their educational capital into higher earnings through labor market networks is not very similar for poorer and richer workers. Hence, poor people with secondary education seem to benefit more from good labor market connections or social networks than richer people.³³

Workers with complete secondary and tertiary education face decreasing returns across the wage distribution, however: those at the low end are paid proportionally more than those at the high end, indicating that workers with the same level of education are not compensated equally. The poorest (25th quantile) receive a wage premium when completing secondary education of 150 percent, while the richest (90th quantile) receive only 89 percent. One possible explanation is that social networks that facilitate labor market connections operate better among the poorer than the richer segments of the rural labor force.

Table 7.8: Determinants of Labor Income in Disperse Rural Areas of Argentina,
OLS and Quantile Regressions, 2003

Dependent variable: Log labor income										
	OLS		25th		50th		75th		90th	
	Return %	P> t	Return %	P> t	Return %	P> t	Return %	P> t	Return %	P> t
Age	0.30	0.00	0.30	0.00	1.21	0.00	0.80	0.00	1.11	0.00
Female	-53.51	0.00	-43.33	0.00	-35.21	0.00	-34.56	0.00	-17.06	0.00
<i>Education</i>										
Primary education complete	7.79	0.00	9.75	0.00	27.12	0.00	25.99	0.00	15.60	0.00
Secondary education complete	144.49	0.00	58.57	0.00	72.12	0.00	55.89	0.00	88.89	0.00
University education complete	353.13	0.00	192.41	0.00	135.84	0.00	92.13	0.00	52.50	0.00
<i>Labor status</i>										
Has a permanent job	121.00	0.00	138.69	0.00	42.19	0.00	34.72	0.00	54.19	0.00
Has a formal job	149.93	0.00	66.36	0.00	59.84	0.00	40.07	0.00	16.53	0.00
Self-employed	-23.43	0.00	-35.60	0.00	-26.36	0.00	4.50	0.00	24.23	0.00
Wageworker	-16.14	0.00	-5.45	0.00	-3.34	0.00	12.30	0.00	-7.96	0.00
<i>Sector</i>										
Commerce and Services	-72.11	0.00	-43.62	0.00	-22.59	0.00	-21.96	0.00	-9.06	0.00
Agriculture and Livestock	-71.75	0.00	-35.92	0.00	-27.67	0.00	-21.26	0.00	-13.24	0.00
Other sector	-13.93	0.00	2.74	0.00	-15.72	0.00	-15.21	0.00	-9.43	0.00
Public Administration	-81.33	0.00	-36.87	0.00	-31.55	0.00	-27.82	0.00	-12.89	0.00
<i>Province</i>										
Santiago del Estero	-33.44	0.00	-18.37	0.00	-25.40	0.00	-32.23	0.00	-46.74	0.00
Chaco	-68.75	0.00	-83.29	0.00	-43.62	0.00	-36.43	0.00	-55.34	0.00
Mendoza	-20.23	0.00	1.82	0.00	-26.36	0.00	-33.77	0.00	-48.93	0.00
Constant	222286	0.00	103177	0.00	156612	0.00	262705	0.00	436673	0.00
Adjusted R2 (OLS) and Pseudo R2 (Quantile Regression)	0.13		0.085		0.097		0.103		0.136	

Notes: Excluded categories: no education or primary incomplete, piece-worker, industrial sector, and Santa Fe province. The percentage return is calculated as $(\exp(\text{coefficient estimate}) - 1) * 100$. Number of observations: 514 (weighted: 209,984)
Source: Own calculation based on RHS 2003.

There are several reasons for including experience characteristics in the analysis. One such reason is that a trained and educated workforce provides flexibility in adapting to changes in technology or other economic changes. Experience and years of schooling are widely used in analyses of income determination (see Mincer 1974, and Levy and Murnane 1992). The measure of experience included in this analysis is general experience measured by the age of the worker.³⁴

General experience—here proxied by the age of the worker—increases wages. Two questions are addressed: (1) is experience important in the wage determination process? and (2) are returns to experience homogeneous across workers? According to the findings presented in Table 7.8, the answer is yes to the first question and no to the second one. The experience variable is statistically significant for all reported quantiles, controlling for other individual characteristics. Returns to experience are low and first increasing and then roughly falling across the income distribution in rural Argentina. Returns to measured annual experience are 0.3 percent in the 25th quantile and 1.2 percent in the 50th and 1.1 percent in the 90th quantile.

Workers in the formal sector obtain a significantly higher pay after controlling for other variables. Labor market association is measured by the formality of a worker's job status. That is, whether a worker is engaged in the formal or informal sector. The positive impact on incomes of formality is decreasing across the distribution; a worker placed in the 25th quantile obtains an income premium of 66 percent whereas a worker in the 90th quantile and above receives a 17 percent premium. The formal sector generally provides higher quality jobs than the informal one. Since higher quality jobs may require more skills, the informal sector variable may be capturing skill differences not signaled by other variables included in the regression. The wage gap may also be due to lower productivity in the informal sector relative to the formal one not captured by education and experience. Hence, workers in the informal sector are disadvantaged in at least two ways: first, they do not have access to social security; and second, they obtain lower incomes, which evidently do not compensate informal workers for the absence of social security. Informal sector workers are not only disfavored in terms of incomes and social security, but they may also work in an environment where they are more exposed to the risk of accidents occurring and seasonality.

The labor status of workers is another important determinant of wages. All the included occupational groups are statistically significant and different from zero. Looking at the median of the distribution, piece-workers (the reference group) receive 3 percent more than wagedworkers do and 26 percent more than self-employed, controlling for other factors such as level of human capital. For the 75th and 90th quantile, the premium-gap changes in favor of the self-employed; the average self-employed earn a 5 and 24 percent premium, respectively. Hence, regarding labor status there exist substantial differences across the income distribution.

Discrimination at an individual level is said to arise if an otherwise identical person is treated differently by virtue of that person's ethnicity or gender, and ethnicity or gender by themselves have no direct effect on productivity. Under perfect competition in the capital and labor markets, equivalent employees in equivalent jobs are compensated equally, that is, there is no discrimination.

The estimation of discrimination is difficult. Worker productivity is seldom observed directly, so data must be used to proxy for the relevant productivity characteristics. The main debate occurs over whether relevant omitted characteristics differ between ethnicity, and between gender, and whether certain included characteristics capture productivity

differences or instead are a proxy for ethnicity or gender. The following section reports findings on gender differences. Due to lack of data on ethnic origin in RHS, no findings are reported on ethnicity.

Large measurable inequalities persist in rural areas between men and women. Female wages are statistically significant and lower than male wages at all quantiles, controlling for other characteristics. Moreover, findings also suggest that the gender gap is heterogeneous across quantiles, i.e. decreasing across the 25th- 90th quantiles. The largest income gap appears at the lower end (25th) of the distribution where women receive around 43 percent lower returns than their male peers. The gap narrows at the top end of the distribution and reaches 17 percent at the 90th quantile.

The gender-earning gap may, to some degree, be explained by choice of jobs chosen by women. Women are more likely than men to select jobs, which are more flexible in nature. For example, women may choose part time jobs or jobs with lower working hours than men. A second factor may be gender differences in unmeasured skills, but they may very well be under capitalized too in terms of experience. Additionally, many women choose professions where they are less forced to capitalize, for example, they work more often in teaching than male peers do. Hence, direct discrimination may be less strong than it appears according to findings presented in Table 7.8.

In general Santa Fe enjoys a wage premium with respect to the other provinces, i.e. geography matters. In general, workers in dispersed rural areas in Santa Fe are paid significantly more than workers in Chaco, Santiago del Estero, and Mendoza, controlling for other characteristics. However, poorer workers in Mendoza are paid 2 percent more than their peers in Santa Fe, while in Chaco peers are paid 83 percent less. In the top end of the income distribution, workers in Chaco, Mendoza, and Santiago del Estero are being paid 47-55 percent less than their peers in Santa Fe.

The Agricultural Sector and Factors Explaining Agricultural Producer Income

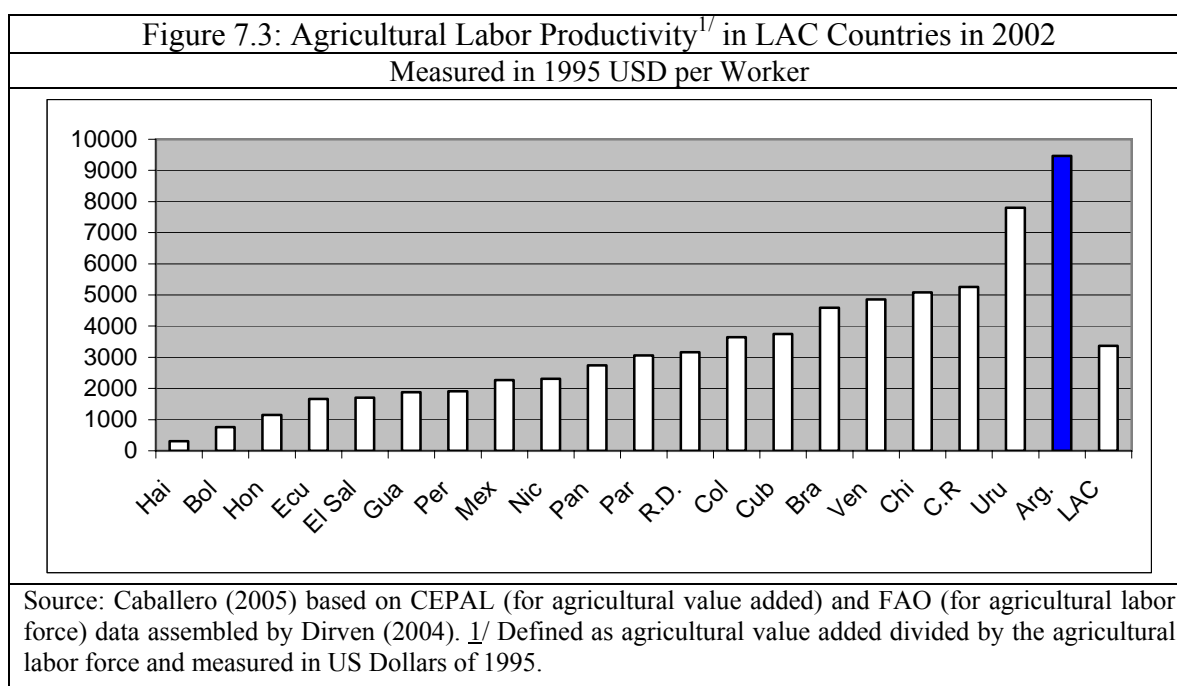
Agricultural growth can affect poverty through several mechanisms as described in López (2002): higher output of poor farmers, higher wages for unskilled labor, indirect demand for rural non-farm activities, lower food prices, and inter-industry linkages, both upstream, e.g. fertilizers, machines, and downstream, e.g. food-processing industries. Whether agricultural growth is actually poverty reducing will depend on how and where growth takes place, however.

Argentina is able to produce most field crop at top technical levels. It surpasses the average of the region in all crops mentioned in Table 7.9—except wheat and soybeans which is surprising—and it surpassing Chile in rice and citrus. However, not a single field crop surpasses the USA yield. LAC averages are a modest standard, however, for a middle income country with very favorable natural conditions and a long farming tradition.

	Mexico	Argentina	Chile	Brazil	LAC	USA	EU	India	China
Cereals	2.8	3.4	4.9	2.9	2.9	5.8	5.6	2.3	4.8
Maize	2.6	5.8	9.8	3.0	3.0	8.5	9.1	1.9	4.7
Wheat	4.9	2.3	4.1	1.6	2.4	2.6	5.7	2.7	3.8
Rice	4.3	5.3	5.1	3.2	3.8	7.2	6.4	2.9	6.3
Sugar Cane	74.1	65.4	--	69.6	64.9	77.2	--	67.3	61.3
Cotton (Seed)	3.3	1.3	--	2.7	2.1	1.9	3.3	0.6	3.3
Coffee (Green)	0.4	--	--	0.9	0.8	--	--	1.0	--
Citrus	12.4	20.1	15.4	22.0	17.0	34.7	18.3	17.8	8.2
Pulses	0.8	1.1	1.6	0.7	0.8	1.9	2.7	0.6	1.4
Vegetables	16.5	17.2	25.6	17.9	14.9	27.1	26.7	12.9	19.2
Soybeans	1.6	2.5	0.0	2.6	2.5	2.6	3.3	0.8	1.7

Source: Caballero (2005)--calculations based on FAO's AGROSTAT.

Labor productivity in Argentina's agricultural sector is the highest in the region and way above the average for LAC countries. Labor productivity is compared across the LAC region in Figure 7.3. Argentina and Uruguay, both land-abundant countries, have the highest labor productivity, with a labor productivity of US\$ 9,461 and US\$ 7,807, respectively, which is far more than double the LAC average of US\$ 3,368. The high agricultural labor productivity in Argentina are mainly due to factors other than public expenditure in the sector, which are only \$136 per worker and lower the average for Latin America of US\$ 146 per agricultural worker (calculations made in Caballero 2005).



According to an *agricultural orientation* index Argentina practices expenditure discrimination against the farming sector. The index is constructed by dividing the share of agricultural spending in total spending by the share of agriculture in GDP (Table 7.10). The index measures the intensity of the fiscal effort in agriculture relative to the economic importance of the sector. Argentina has an agriculture orientation index of 0.07, or a fifth of the average of the LAC region (0.33). Argentina, hence, practices public expenditure discrimination against its agriculture.

Table 7.10: Public Expenditure in Agriculture as Percentage of Total Public Expenditure in LAC Countries, Average 1996-2000

Brazil	0.23
Mexico	1.79
Bolivia	0.41
Colombia	0.06
Peru	0.19
Argentina	0.07
Chile	0.37
Costa Rica	0.12
El Salvador	0.08
Guatemala	0.07
Nicaragua	0.20
Dominican Republic	0.37
Average LAC	0.33

Source: Caballero (2005) based on data from Kerrigan (2001).

After addressing briefly the agricultural sector as a whole, this sub-section addresses the determinants of producer households' income from farm activities in dispersed rural areas and analyzes whether various individual, sectorial, production, infrastructural, and geographical characteristics are important for the generation of agricultural producer incomes.

Rural producer incomes generated in agriculture are analyzed by applying an augmented earnings function method. Producer incomes from farm activities are modeled by using log annual incomes drawn from farming activities as the dependent variable. The general model contains explanatory variables in levels and allows for nonlinearities in data. Findings are presented in Table 7.11. All included explanatory variables have the expected signs and they all are statistically significantly different from zero. Each explanatory variable will now be discussed in turn: (1) education; (2) gender; (3) farm size; (4) access to infrastructure, and (5) access to production techniques.

Are returns to education for producers in dispersed rural areas constant over different education levels?³⁵ According to the findings presented in Table 7.11, the answer is no. Findings allow for comparison of producers with no completed level of education (the reference group) with peers who have completed primary, secondary, and tertiary education. In 2003, returns to primary, secondary, and tertiary education in rural Argentina

were statistically significantly different from zero and positive, controlling for other characteristics. Moreover, the premium is rapidly increasing with attained education. In rural Argentina, an average producer experiences an impact on income of 11, 124, and 185 percent for completed primary, secondary, and tertiary education respectively.³⁶ Hence, more-educated producers earn significantly higher incomes than do their less educated peers. Given the large difference between returns to completed primary and secondary education, one could suspect that there that some omitted human capital variable is being picked up by education.

Table 7.11: Determinants of Producer Income in Dispersed Rural Areas of Argentina, 2003		
Dependent variable: Log Household Farm Income		
	Marginal impact (%)	P> t
<i>Gender</i>		
Male	-7.13	0.00
<i>Education</i>		
Primary education complete	10.96	0.00
Secondary complete	124.34	0.00
University studies	185.48	0.00
<i>Land</i>		
2-10 hectares	100.77	0.00
11-35 hectares	283.44	0.00
36-100 hectares	312.06	0.00
101-250 hectares	877.67	0.00
More than 250 hectars	1880.63	0.00
% rented hectares/ total hectares	0.10	0.00
% owned hectares/ total hectares	0.00	0.01
% shared hectares/ total hectares	-1.09	0.00
% occupied hectares/ total hectares	0.40	0.00
<i>Infrastructure and production inputs</i>		
Access to a paved road	29.30	0.00
Access to electricity	43.48	0.00
Use fertilizer	25.61	0.00
Access to irrigation	28.27	0.00
Constant	63170.23	0.00
Adjusted R2: 0.35		
Notes: Excluded variables: No education or primary incomplete and 0-1 hectares. The marginal impact/percentage return is calculated as (exp (coefficient estimate) – 1) * 100. Number of observations: 124.		
Source: Own calculation based on RHS 2003.		

The size of the producer household's land holdings is also important for the income generated on the farm. The farm size variables are all statistically significant and positive. The regression analysis presented in Table 7.11 reveals that at average values of other variables, income increases with farm size, in a nonlinear fashion. In rural Argentina, an average producer experiences an increase in income of 101, 283, 312, 878 and 1881 percent for holding 2-10, 11-35, 36-100, 101-250, and 250 or more hectares respectively, compared to farmers with only one hectare of land. Hence larger farms earn dramatically higher incomes than do their counterparts with smaller farms. However, whether the farmland is rented or owned has very little measurable effect on incomes.

Farms run by women are *more* productive (7 percent) than farms run by men in disperse rural areas (Table 7.11). The dummy variable included for male head of households is negative and significantly different from zero.

Access to infrastructural services is important for income generation in disperse rural areas of Argentina. Farmers with access to paved road and electricity are more productive and earn statistically significantly higher incomes than do farmers without access. Access to paved road or electricity increase income by 29 and 44 percent respectively.

The use of productivity enhancing production techniques such as fertilizers and irrigation are also important for increasing income in rural Argentina. Fertilizer use and access to irrigation are both significantly positive determinants of farm income, although there may be possible endogeneity at play. Farms that apply these productivity enhancing technologies such as irrigation and fertilizers experience 28 and 26 percent higher incomes than farms that do not use or have access to irrigation or fertilizers respectively.

Summary of Findings

A comprehensive vision of rural development beyond sectoral approaches is forming. The rural world is not only an agricultural world—although it more so in Argentina than in for example Mexico—and the rural economy is not only an agricultural economy; indeed, the combination of economic activities is the dominant characteristic of rural households and communities. Unfortunately, the governments in Argentina have still not embraced a more comprehensive view of the rural world, including by changing the institutional set up.

The demographic changes and those in the characteristics of the labor force reflect a rural society in transformation—a view reinforced by the increasing extent of migration (see Section 2). When examining correlates of nonfarm employment in rural Argentina, findings suggest that a key determinant of access to employment and productivity in nonfarm activities is education, skills, land access, location and gender. There is strong evidence that educated people have better prospects in both the farm and nonfarm sectors. This is emphasized when nonfarm activities are divided into low return and high return activities. Education is a particularly important determinant of employment in the better-paid nonfarm activities. Furthermore, the labor income analysis shows a rather heterogeneous impact pattern of individual characteristics across the income distribution.

That is, the magnitude of the affect of an income determinant is different depending on the worker being rich, poor or placed in the median of the income distribution. The agricultural producer income analyses reveal that education is also essential for producers to earning higher incomes.

It is key that governments assist in augmenting the human capital of the rural-dwellers in more dispersed rural areas so they can improve their productivity. Secondary education has been repeatedly found to be strongly linked to participation in the rural economy, and also to enhance the income obtained from a variety of occupations and technical training. This is one more reason to expand the coverage and quality of secondary education in rural areas, in particular for those who are falling behind such as the extreme poor, indigenous groups, and residents of remote areas. Quality is probably as important or more than quantity if we want to increase the impact of education.

The agricultural producer income analyses for rural Argentina reveal that farms operated by women are slightly more productive than farms operated by men. Moreover, the size of the producer household's land holdings is important for the income generated on the farm and at average values of other variables, income increases with farm size. As larger farms earn dramatically higher incomes than do their counterparts with smaller farms. However, whether the farmland is rented or owned have very little measurable effect on incomes. Additionally, access to infrastructural services (paved roads and electricity) and use of productivity enhancing production techniques (fertilizers and irrigation) are important for income generation. Farmers with access to paved roads and electricity earn significantly higher incomes than do farmers without access.

Infrastructure and location characteristics are other important correlates of rural nonfarm participation where policy makers can intervene. Road connections, communications, and energy have been shown to be important for the development of the rural economy. The lack of key infrastructural services is systematically associated with lower incomes and employment opportunities. This is another reason why raising the low levels of investment in rural infrastructure, in particular in grouped rural areas, could pay off. Potentially gains from a spatial policy that favor the concentration of investment and services and the establishment of links between these and their rural hinterlands are so far untapped in rural Argentina.

Pursuing rural nonfarm growth should not be seen as an impediment or an alternative to pursuing agricultural development; there are strong synergies between the farm and nonfarm sectors. In signaling the importance of the rural nonfarm sector and advocating for more policy focus on the nonfarm economy, this does not mean that the importance of agricultural development is reduced. There is no contradiction between the development of the farm and non-farm sectors as shown in Lanjouw and Lanjouw (2001). What is needed is a comprehensive rural development policy where farm and nonfarm can coexist and their connections enhance productivity in both sectors.

Poor small farmers need assistance to improve productivity and an important factor would be the presence of extensive and well functioning research and extension, increased access to land, and rural finance systems. Moreover, poorer farmers tend to face more market failures and need to have services like research and extension, as well as rural finance or credit, tailored to their needs. Finally, small farmers and rural poor in Argentina have never received much attention from governments—they are too few and therefore supply few votes. Government expenditure on agriculture and nonagricultural activities is low in Argentina, reflecting the traditional neglect by governments of rural areas, particularly the rural poor and small farmers, despite a fairly strong labor productivity performance of the sector. Hence a rural development strategy is called for that includes specific recommendations for small farmers and other poor people. In this regard, PROINDER has demonstrated that: (i) strategies need to be tailored to the regional and local characteristics of the rural poor and that (ii) interventions aimed at increasing the productivity and sustainability of poor small farmers are viable provided that there is institutional support available to them. PROINDER's data suggest that the approach followed has yielded positive results, both in terms of the welfare status of the families participating in the program as well as from the institutional side, with the establishment of the Comisión de Desarrollo Rural and the drafting of provincial rural development strategies.

8. Conclusion

The analyses of demographic trends, the poverty profile, and labor markets provide guidance on a social inclusion and poverty alleviation strategy for rural Argentina. Rural poverty remains a crucial part of the poverty story in Argentina. Although Argentina is a largely urbanized country, extreme income poverty in rural areas reached 39 percent of the people or 200-250,000 indigent families. These families tend to: (1) be large, and young, and to escape from poverty as they mature and children leave the household (life-cycle); (2) live largely in dispersed areas where basic service provision is often weak and delivery is difficult (in particular education attendance beyond 11 years of age falls off very rapidly compared to grouped rural or urban areas); (3) be more likely to be small landholders than landless laborers.

These findings suggest that a rural poverty strategy should be well-focused on the truly poor families, and on helping young families to make the transition to life in grouped or urban areas. This will require a more targeted focus on education for poor families and on the acquisition of skills required to compete in an increasingly urban world.

Importantly, this strategy would be in concert with the underlying demographic and economic forces affecting the distribution of population among rural dispersed, rural grouped, and urban areas. Dispersed areas lost 14.5 percent of its population over the last decade reaching 2.6 million in 2001, compared to grouped rural areas that experienced an 8 percent increase and reached 1.2 million in 2001. Around 400,000 people left the dispersed rural areas during 1991-2001. Roughly speaking, some 25 percent may have

moved to grouped rural areas and the rest may have moved to urban areas. The Pampeana region experienced a fall of 24.6 percent and the Cuyo region of 5.1 percent in the dispersed rural population. In the latter region, Mendoza province is an outlier as it experienced a population increase of 0.3 percent in dispersed rural areas and 32.2 percent in grouped rural areas.

The described distribution profile reveals that poor Argentines tend to earn a large share of their incomes from wage labor activities. For the poor, low return/productivity wage labor activities are important. The rural nonfarm sector is heterogeneous and includes a great variety of activities and productivity levels across nonfarm jobs. Moreover, nonfarm sector can reduce poverty in a couple of distinct but qualitatively important ways. First, high productivity activities seem to provide rural-dwellers with sufficient income to escape poverty. Second, vulnerable segments of the population, such as women and many of the poorest tend to be concentrated in the low or less productive rural nonagricultural activities, mainly due to lack of skills, educational deficiencies, and location disadvantages. These low productivity/return occupations nevertheless provide a critical contribution to their livelihoods preventing further destitution.

The labor income analysis for rural Argentina shows a rather heterogeneous impact pattern of individual characteristics across the income distribution. That is, the magnitude of the affect of an income determinant is different depending on the worker being rich, poor or placed in the median of the income distribution. Findings reveal that education is key to earning higher incomes; more educated workers earn higher incomes than their less educated peers.

The agricultural producer income analyses for rural Argentina reveal that also for producers' education is key to earning higher incomes; more educated producers earn higher incomes than their less educated peers, and farms operated by women are slightly more productive than farms operated by men. Moreover, the size of the producer household's land holdings is important for the income generated on the farm and at average values of other variables, income increases with farm size. As larger farms earn dramatically higher incomes than do their counterparts with smaller farms. However, whether the farmland is rented or owned have very little measurable effect on incomes. Finally, access to infrastructural services (paved roads and electricity) and use of productivity enhancing production techniques (fertilizers and irrigation) are important for income generation. Farmers with access to paved roads and electricity earn significantly higher incomes than do farmers without access.

When examining correlates of nonfarm employment in rural Argentina, findings suggest that a key determinant of access to employment and productivity in nonfarm activities is education. There is strong evidence that the educated have better prospects in both the farm and nonfarm sector. This is emphasized when nonfarm activities are divided into low return and high return activities. Education is a particularly important determinant of employment in the better-paid nonfarm activities. It is key that governments assist in

augmenting the human capital of the rural-dwellers in more dispersed rural areas so they can improve their productivity, move, and take advantage of increased job opportunities in other locations than dispersed rural Argentina.

Four-pronged approach to poverty reduction in dispersed rural areas in Argentina

Poverty in dispersed rural areas is maybe not a big problem, but lack of human capital is. The above-mentioned findings indicate that poverty is a transitory phase, as mobility does exist in rural areas. After the childrearing phase, families “grow” out of poverty as people in the active-age move out and away from dispersed rural areas. Moreover, households with a small landholding are tired down as they are less productive than non-smallholders i.e. landless or large landholders (with more than 250 hectares). Furthermore, there is little access to services, especially education and health in dispersed rural areas. It is important that the government assists rural-dwellers in moving up the education and health ladder in order to increase their asset base. This will make the rural-dwellers more productive, both if they decide to stay in rural areas or move to urban areas and also reduce or eliminate the opportunity cost of farming own land. Moreover, enhancing the human capital stock of rural-dwellers will make them more likely to escape extreme poverty.

With good policies, rural extreme poverty should be fairly easy to alleviate by investing in children and families and making grouped rural areas more attractive by increasing the quality of services in grouped rural areas.

It is recommended that the government improve the access and quality of rural education and reproductive health-care and expand the rural development programs so that the indigent eventually would leave the social programs. Moreover, improving the rural-dwellers’ connections with towns (even in the same rural space, grouped rural areas) is key for speeding up migration from dispersed rural areas where public services are scarce and expensive to supply to all dwellers.

The strategic principles for reducing rural poverty involve seeking to strengthen the key assets of the poor, taking into account geographic differences in the poverty situation and priorities. The government of Argentina could apply a four-pronged poverty reduction approach:

First, improve the asset base of the poor households. This requires improvements in social policies and access to public services. Extreme poor and poor households are at great risk of poor or low human capital accumulation. That includes poor health and undesired pregnancies because they lack access to family planning (and clean water and sanitation facilities) and low quality education and education attainment. Target indigent and poor families with transfers linked to education through the secondary level—along the lines of the Brazilian *Bolsa Escola* for primary education. Improved quality of education and access to education can reduce the likelihood of becoming poor, as more

education is a key factor in obtaining a higher income in both the farm and nonfarm sectors. Furthermore, education is associated with fertility: the more education a woman attains, the lower her fertility rate and, therefore, the lower the dependency ratio and the lower the likelihood of falling into poverty and, therefore, the lower the dependency ratio and the likelihood of falling into poverty. Special efforts should be made to increase the level of human capital including: (i) ensure access to high quality healthcare including reproductive health; and (ii) ensure access to high quality education and primary and secondary education adapted to the realities in rural areas; including technical or vocational training components at the end of primary school.

Second, create jobs. Many households are poor because they are trapped on low-productivity land or are in low-paying, low-productivity jobs in the informal sector or unemployed. The workers need more productive jobs and tighter labor markets to raise their income above the poverty level. It should be recognized that since very few people work in the formal labor market, social policies tied to formal employment or unemployment will have only very limited reach among the poor. Special efforts should be made to assist in generating rural employment. Much high productivity, labor intensive jobs can be created in the regional economies through improving the provision of public goods and improving the environment for collective action in irrigated agriculture among other things.

Third, facilitate migration to higher opportunity areas, i.e. grouped or urban areas. In addition to education, other mechanisms should be explored to facilitate the on-going migration out of dispersed areas. This could range from efforts to improve social linkages or capital between households in dispersed areas to a program to ensure titling of land for indigent farmers on dispersed lands. In the absence of titles a farmer on dispersed land has little chance to benefit from the undertaken land improvements were the farmer to choose to move to higher opportunity areas.

Fourth, target carefully. Poverty interventions need to target the poor population as effectively as possible. In view of the trend of population movement out of dispersed areas, the much lower prospects for the development of human capital in these areas, and the very high cost of providing public goods, government should, to the extent possible, invest in the people, not in the area. The government needs to develop a poverty monitoring system to track living conditions and provide data for (1) impact evaluation of interventions and (2) improving the targeting of interventions. The government should also seek to develop a key set of indicators for monitoring actions to reduce poverty. This may require including rural areas in the annual household survey or introducing an annual rural household survey.

Fifth, increase sectoral integration. For the poverty reduction strategy to be effective, a high level of sectoral integration is needed at all levels of government. It is of utmost importance that the Secretariat of Economy works closely with other secretariats in the country so that all changes in poverty indicators, etc. are reflected in the social programs. Finally, in Argentina rural development is a small part of the Ministry of

Agriculture. In order to serve other sectors than agriculture a new model is called for with a clear rural strategy or a national policy to address rural issues including rural poverty.³⁷ One option is to create a Sub-secretariat or Secretariat of Rural Development, as has been implemented in other countries in the region for example in Brazil. This together with increased coordination of programs would increase the impacts individual programs can achieve. Moreover, the government should establish clear and efficient mechanisms for NGO collaboration. Emerging NGO consortia provide one mechanism, which should be explored for fostering greater coordination, dialogue, and joint planning with the government.

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