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Working Paper

Rural-urban migración in Bolivia: Advantages and disadvantages

Documento de Trabajo, No. 05/02

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Suggested Citation: Andersen, Lykke E. (2002) : Rural-urban migración in Bolivia: Advantages and disadvantages, Documento de Trabajo, No. 05/02, Universidad Católica Boliviana, Instituto de Investigaciones Socio-Económicas (IISEC), La Paz

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Instituto de Investigaciones Socio Económicas

Documento de Trabajo No. 05/02
Febrero 2002

**Rural-Urban Migration in Bolivia:
Advantages and Disadvantages**

por
Lykke E. Andersen

Rural-Urban Migration in Bolivia: Advantages and Disadvantages¹

by

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(15 February 2002)

Summary:

This paper discusses the advantages and disadvantages of rural-urban migration, and shows that the costs of increased urbanization (crime, pollution, congestion, etc) in Bolivia are rather small compared to the costs experienced in other Latin American countries. The benefits, on the other hand, may be large. Encouraging rural-urban migration may be one of the cheapest ways of reducing poverty in Bolivia because it is so much cheaper to provide basic services like electricity, piped water, schools, and health services to people when they are gathered in towns or cities. In addition, economies of scale in the cities bring economic opportunities and increase people's income.

¹ This paper is part of a joint research project between the Kiel Institute of World Economics, the Institute for Socio-Economic Research, and the Institución Internacional de Economía y Empresa on "Poverty Impacts of Macroeconomic Reforms: Stabilization and Structural Adjustment Programs in Bolivia". Financial assistance from the Kreditanstalt für Wiederaufbau in Germany is gratefully appreciated, as are comments and suggestions from Ralph Hakkert, Rainer Schweickert, Rainer Thiele, Martin Thomas, Günther Shultz-Heiss, and Manfred Wiebelt.

“The bourgeoisie has subjected the country to the rule of the towns. It has created enormous cities, has greatly increased the urban population as compared with the rural, and has thus rescued a considerable part of the population from the idiocy of rural life.”

Karl Marx, the Communist Manifesto, 1848

1. Introduction

Rapid rural-urban migration is often perceived as a problem in developing countries (e.g. Todaro 1989, Ruel *et al* 1998), but this paper will argue that in Bolivia it may instead be a solution to many of the country's problems.

The main problem in Bolivia is the persistently high level of poverty, especially in rural areas. Urban poverty rates seem to have fallen by about 10 percent over the past decade from slightly over 50 percent by the beginning of the 1990s to slightly under 50 percent in the late 1990s (e.g. Antelo 2000; World Bank 2000). Rural poverty rates, on the other hand, have fallen much less and were still above 80 percent in 1999 (World Bank 2000).

The main reason for the high rural poverty levels is the low level of productivity, which is associated with a lack of basic services, such as health services, education, electricity, piped water, and road access. One of the reasons that these basic services are lacking in rural Bolivia is that the rural population is scattered over vast areas of mountainous or forested terrain. Bolivia's population density is only about 8 persons per square kilometer, which is among the lowest in the world². This makes it very expensive to extend basic services to everybody. The only feasible way to extend basic services to almost all Bolivians is to make them move to locations where it is possible to deliver these services at a reasonable cost. This means urbanization.

Section two of this paper shows that Bolivia's geography, its historical background, and its distinct ethnic populations make rural-urban migration a much smaller problem in Bolivia than in many other developing countries.

Section three discusses some of the major costs of urbanization, and shows that the problems associated with urban growth in Bolivia appear to be much smaller than in many other Latin American countries.

Section four discusses the reasons for migration, using people's own stated reasons from household surveys. Migrants are grouped according to the reasons for migration, and the situation and performance of each group of migrants is analyzed in detail.

Section five discusses the difference between good and bad types of migration, and suggests policies that can help encourage good migration and discourage bad migration.

Section six concludes.

¹ Number 214 out of 232 according to http://www.leksikon.org/html/dk/sort_stat_9.htm.

2. Migration patterns in Bolivia

Bolivia can be divided into three distinct regions: the highlands, the valley region, and the lowlands. These three regions have very different climates and vegetation and they attract different types of people. From pre-Columbian times till now, Aymara people have dominated the highlands, while the Quechua-speaking Incas dominate the valley region. The lowland region was originally sparsely inhabited by a number of smaller rainforest tribes, but now has a relatively large population of European descent. Even by 1997, less than 4 percent of people in the lowland and valley regions spoke Aymara (Urquiola *et al* 2000), indicating the low mobility of people, at least from the highlands to the lowlands.

Each of the three regions has an urban center. El Alto and La Paz in the highlands mainly attract migrants from the rural highlands. Cochabamba in the valley region provides an urban magnet that can easily compete with the country's capital. Tarija is also a rapidly growing valley city due to the natural gas boom in the department of Tarija. Finally, Santa Cruz in the lowlands has been growing faster than any other city in Bolivia during the last 50 years (see Table 1).

Table 1: Bolivia's seven largest cities and population by census year (thousands)

City	1950	1976	1992	2001	Average annual growth rate 1950-2001 (%)
La Paz – El Alto	267.0	635.3	1118.9	1487.2	3.4
Cochabamba	86.5	229.7	515.7	778.4	4.4
Oruro	58.6	124.2	183.4	202.0	2.5
Potosí	43.3	77.4	112.1	133.3	2.2
Santa Cruz	41.5	254.7	697.3	1114.1	6.7
Sucre	38.4	63.6	131.8	194.9	3.2
Tarija	16.4	38.9	90.1	135.7	4.2
The 7 biggest cities	551.7	1423.8	2849.3	4045.6	4.0

Source: Urquiola *et al* (2000) for 1950, 1976, and 1992 data and http://www.ine.gov.bo/Censo_2001/Preliminar_01.htm for 2001 data.

The existence of several competing urban magnets in Bolivia implies that no one city has yet reached mega-city dimensions. It also means that, in contrast to most other developing countries, the largest city in the country is losing its supremacy. In 1950, La Paz – El Alto accounted for almost 40 percent of the urban population in Bolivia. By 2001 that percentage had dropped to 32 percent. In a cross-country empirical investigation on the optimal degree of urban concentration³ (given income levels and country size), Henderson (2001) shows that the degree of urban concentration is satisfactory in Bolivia. This is in contrast to most other Latin American countries, which have excessive degrees of concentration (Argentina, Chile, Costa Rica, Dominican Republic, El Salvador, Guatemala, Nicaragua, Panama, Paraguay, Peru, and Uruguay). Thus, as long as Bolivia keeps urbanizing in a decentralized manner, as it has been doing during the last 50 years, Bolivia is unlikely to suffer from excessive urban concentration and mega-city problems.

The distribution of migrants across several urban centers means that the inflow of migrants into each city is manageable. Table 2 compares the level of basic services in the 10

³ Urban concentration measures the size of the population in the country's biggest city divided by the total urban population. It is thus possible to have increasing urbanization ratios and at the same time decreasing concentration ratios, as is the case in Bolivia.

major cities in Bolivia (the nine department capitals plus El Alto) with the situation in the remaining 301 municipalities. While the 10 cities only manage to provide for all basic needs for about 46 percent of the population, the remaining municipalities are doing considerably worse. Among the poorest half of the remaining municipalities virtually the whole population (98 percent) are classified as having unsatisfied basic needs.

More than 95 percent of the population in the 10 biggest cities have electricity installed in their houses and 84 percent have piped water. Sanitation systems cover more than half the cities' populations, while they are rare outside the 10 major cities.

Table 2: Basic services indicators (1992), by municipality group

Municipality group	% of pop with unsatisfied basic needs	% of pop with piped water	% of pop with electricity	% of pop with sanitation
10 major cities	53.7	83.8	95.2	51.4
Richest 150 municipalities	84.9	52.4	52.5	14.9
Poorest 151 municipalities	98.1	31.3	17.5	3.3
Average (over municipals)	90.3	43.2	36.9	10.5

Source: Andersen & Nina (2001). The richest and poorest municipalities do not include the 10 municipalities containing the 10 major cities.

One of the reasons that basic needs are better provided for in the cities is that it is much cheaper to provide these services when people are concentrated in cities. The decentralization law in Bolivia requires that federal funds are distributed according to the number of inhabitants in each municipality. This means that the expenditure per capita on basic services is very similar across all municipalities, but the funds clearly have a much larger impact in the cities⁴.

Another reason is that only the main cities manage to collect significant local tax revenues to augment the federal transfers. In 1997, the three departments on the Central Axis (La Paz, Cochabamba, and Santa Cruz) collected 83.2 percent of all municipal taxes, leaving only 16.2 percent to the remaining six departments. Within the three rich departments about three quarters of tax income was raised in the four municipalities containing the main cities (MDSP 2000). Thus, four municipalities collected about 63 percent of all municipal taxes, while the remaining 307 municipalities together collected only 37 percent.

The concentration of tax revenues is a strong indication of a concentration of profitable activities, which in turn is evidence of economies of urbanization as well as agglomeration externalities. This suggests that productive activities will benefit from further urbanization and that the average costs of providing basic services will fall with further urbanization.

3. Costs of rural-urban migration

The costs of urbanization that people are generally worried about include increased crime, increased pollution, congestion, loosening of family bonds, and loss of traditional cultural practices and values.

⁴ Actually the funds have for years been distributed according to the distribution of the population in the census year 1992. This means that rapidly growing urban centers like El Alto and Santa Cruz de la Sierra, instead of receiving more money to cope with the increasing needs for services actually receive even less than their proportional share.

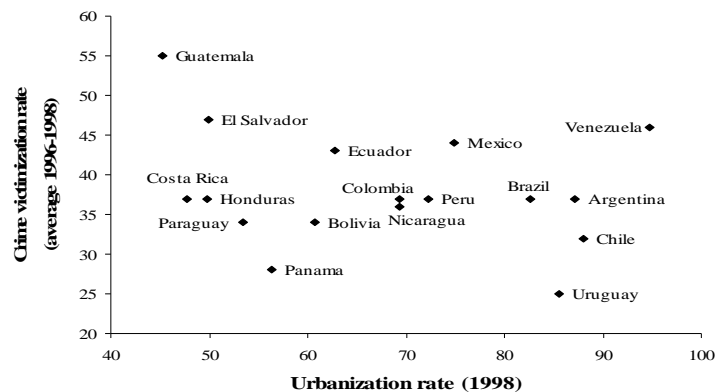
Crime

In Bolivia, violent crime is mainly connected to drug-trafficking in rural areas. The crime rate in large cities is lower in Bolivia than in any other of the Latin American countries where data is available, except Chile (Gaviria & Pagés 1999, Table 4).

Across Latin American countries there is little evidence that higher urbanization ratios should lead to more crime. If anything, the opposite seems to be the case (See Figure 1, the correlation is -0.25). Guatemala has one of the lowest urbanization ratios in Latin America and at the same time one of the highest crime victimization rates, while Uruguay has one of the highest urbanization levels and the lowest crime rate.

While crime rates generally are substantially higher in cities larger than 1 million than in cities with less than 1 million inhabitants, this is only marginally so in Bolivia. Gaviria & Pagés (1999) show that the crime victimization rate in medium sized cities (100.000 – 1 million inhabitants) in Bolivia is 33.94 while it is 35.48 in large cities (more than 1 million inhabitants)⁵.

Figure 1: Urbanization ratios and crime victimization rates in Latin America



Source: Author's elaboration based on crime information in Gaviria & Pagés (1999) and urbanization information from the Statistics section of the Inter-American Development Bank's homepage. Crime information is based on household surveys rather than reported crime, and should therefore be reasonably comparable across countries.

The admittedly limited empirical evidence on crime in Bolivia and Latin America thus suggests that crime is not presently a large problem in Bolivia and that the crime rate will not necessarily increase with increased urbanization.

Pollution

Since pollution is not perceived as a major problem in Bolivia, there are hardly any studies on pollution in Bolivia and very little quantitative data to base an analysis on.

Pollution of rivers is likely to be the main problem in Bolivia. Most sewage is released directly into the river system without any treatment. This means that river water is certainly not usable for drinking after the river has passed a main city, and it is not attractive

⁵ There was only one large city in Bolivia at the time of the survey, though (La Paz-El Alto).

for most other uses either. The lack of access to clean drinking water is mainly a problem in rural communities and small towns where the provision of clean water may be deficient both in quality and quantity. The lack of access to clean water is one of the main causes of excessive child mortality.

Urban air pollution problems in Bolivia are limited to the most congested avenues in the major cities, and it probably has no measurable effect on public health.

The main environmental problems mentioned in relation to Bolivia are usually rural and include deforestation due to agricultural expansion (e.g. Kaimowitz, Thiele & Pacheco 1997), soil erosion due to inappropriate agricultural techniques (e.g. Ellis-Jones & Mason 1999), pollution from mining operations (e.g. Evia & Molina 1997), mercury pollution of rivers due to gold mining (e.g. Maurice-Bourgoin *et al* 1999), and dumping of precursor chemicals (lime, sodium carbonate, sulfuric acid and kerosene) used in the processing of coca (e.g. Armstead 1992).

Congestion

Congestion in many Latin American cities is a serious problem with commute times being several times higher than necessary, even though car ownership rates are still very low compared to Europe and United States.

In 1980 the number of cars per person in European cities like Amsterdam, Brussels, Copenhagen, Frankfurt, London, Stuttgart, and Paris varied between 0.23 and 0.43 (Thomson & Bull 2001). Even 20 years later, the car ownership rate in Bolivian cities remain substantially lower. In La Paz and Santa Cruz the car ownership rate is at most 0.08, while in Cochabamba it is at most 0.10⁶.

In Bolivia congestion is mainly a problem in La Paz, which is located on steep mountain sides with little room for road expansions and parking lots. The natural geographical restrictions are obvious to the citizens of La Paz and El Alto who normally use public transportation to get to work, even if they do own a car themselves. The very efficient and very extensive public transportation system together with people's restraint in using their own cars for work commutes limits the congestion problem.

As the city grows and people become richer the use of private cars is likely to go up, however, and congestion could quickly become an unbearable problem. This has to be averted with incentives that make public transportation relatively more attractive and the use of private cars less attractive. Taxes on private cars and gasoline are very helpful to reduce congestion and pollution externalities as well as for raising revenues for improving infrastructure and subsidizing public transportation.

Santa Cruz, which is by far the most rapidly growing city in Bolivia, enjoys the advantage of a flat geography. At the same time it is organized in concentric rings which makes even rapid expansion relatively organized and commutes relatively easy.

Cultural change

Probably one of the most important negative implications of rural-urban migration in Bolivia is the diminishment of traditional indigenous cultures in Bolivia. When migrating to one of

⁶ Calculations based on total number of cars in department divided by population in city according to Instituto Nacional de Estadística (INE).

the main urban centers, people tend to adjust their habits and belief systems, if not immediately, then at least over a generation or two. These changes include changes in religion, changes in clothing, changes in ceremonies, changes in sexual habits, etc.

These changes are not necessarily negative, though. Rural, indigenous people in Bolivia tend to live in a state of extreme poverty with very high levels of child mortality and a lack of access to most basic services such as electricity, piped water, schools, and health services. They have few economic opportunities besides subsistence farming and mining. Due to the division of plots between children, many land holdings, especially in the highlands, have become too small to support a family and land degradation is a serious problem in many areas. This situation does not seem to be improving much over time.

It is clearly necessary for some of the young people in the rural highlands to leave agriculture, because there is simply not enough agricultural land to support them. They have two main options. One is to move to the rural lowlands, where land is more abundant and forest can be cleared to create even more agricultural land. The other option is to move to a city and try a new style of life.

Critics of rural-urban migration often assume that migrants have to give up the good features of their old culture and adopt the bad features of city life. This appears to be quite an illogical assumption. Migration, and change in general, allows some choices that a small, stable, and static society doesn't. Presented with these new choices, it seems more likely that people would adopt good features and reject bad features, rather than vice versa.

One example of the bad-feature-assumption is highlighted in the following quote from Villarreal (1998):

“The process of urbanization and the increasing influences of western cultural precepts on many population groups, but especially the young, are seen to be responsible for the breakdown of traditional customs. In this sense, the increase in premarital sexuality and the increase in unmarried teenage pregnancy is seen by many authors as a consequence of the introduction of “western” values and ways of conduct, which expand more easily in the urban context and through the media available in this context.”

However, in virtually every developing country in the world, including Bolivia, the rate of teenage⁷ pregnancy is substantially higher in rural areas than in urban areas. In Bolivia, about 22 percent of rural teenagers below 20 have been pregnant at least once, while this is only the case for about 15 percent of urban teenagers (Villarreal 1998). In rural areas these teenage pregnancies tend to be more socially accepted, however. Indeed in some Andean communities, the custom of *serviñacu* is applied as a sort of trial period before marriage (about one year) to prove the fitness of the couple, fertility being one core aspect. Thus, pregnancy is sometimes a precondition for marriage (Balán 1996).

In general, people would not move if they didn't expect that it would improve the situation for themselves or their children, so migration is certainly privately beneficial. As we have seen above, migrants do not seem to impose significant negative externalities on the host cities. More likely, migrants bring positive benefits to the cities, as they contribute to a critical mass of consumers and a pool of cheap labor. At the same time they reduce the pressure on the environment and the degradation of agricultural land and forest.

One real problem may be, however, that it is the most educated and most able persons that migrate from rural to urban areas, leaving behind very weak rural communities

⁷ 15-19 year olds.

composed of elderly and uneducated people who are unable to fight poverty effectively. This problem is equivalent to the problem of brain drain from developing countries. While both types of migration contribute to overall growth and development by employing human resources where they are most productive, it also contributes to an increase in the disparities of living standards between the source regions and the destinations of the migrants.

Remittances from family members who have moved might help those left behind, but according to household survey data in Bolivia⁸ such remittances are not common. Less than 10 percent of rural households receive transfers from family members in other parts of the country. For those that do receive transfers from family members, however, these transfers tend to account for an important part of total household income – on average 33 percent.

4. Rural-urban migration analyzed by reason for migration

The 1999 MECOVI survey covering both rural and urban households in Bolivia contains a section on migration. The survey covered 13,031 persons and weights were provided to make estimates for the whole Bolivian population. We will use this data to discuss the reasons for migration in Bolivia and to try to distinguish between ‘good’ and ‘bad’ types of migration.

According to the survey, 9.0 percent of the population (or approximately 722,621 persons) moved within the previous 5 years. Out of these 243,301 were rural-urban migrants, and these are the ones we will focus on in the following. Table 3 shows the reasons they stated for leaving their previous rural residence in favor of their new urban residence.

Table 3: Reasons for rural-urban migration

Reason stated in survey	%
1. Job search	18.2
2. Job moved	3.9
3. Education	25.6
4. Health	2.2
5. Family reasons	50.1
Total	100.0

Source: Author’s calculations based on the 1999 MECOVI survey.

The reasons for migration naturally divide the migrants into different groups. Let us have a closer look at the three large groups: Those who moved to look for job, those who moved to receive education, and those who moved for family reasons.

Job-seeking rural-urban migrants

A little less than a fifth said they migrated from rural to urban areas in order to look for work. They seem to have been quite successful at that in the sense that only 4.8 percent of them were still looking for work the week before the survey. The average monthly labor income of those who worked was Bs. 1080. This is almost the same as the Bs. 1092 that the average urban worker receives. This is quite impressive considered the fact that the migrants have significantly less education. None of the migrants have a university degree, for example, while 14.1 percent of all urban workers do.

⁸ MECOVI 1999.

The empirical evidence thus shows that the migrants who moved to a city to look for work were generally successful in finding one. Even though most jobs were informal, they were reasonably well paid compared to urban workers in Bolivia in general, and more than four times better paid than rural workers were.

Education seeking rural-urban migrants

More than a quarter of all rural-urban migration is explained by the need for education facilities. Table 4 shows that more than three-quarters of this group of migrants did attend school in 1999. Around 40 percent of these attended primary school, while 60 percent received more advanced education (secondary education, higher education, or adult education).

Table 4: Level of education received by education seeking rural-urban migrants

Level of education enrolled at	Number	%
1. Pre-school	905	1.9
2. Primary	18,284	38.9
3. Secondary	13,057	27.8
4. Higher education	11,188	23.7
5. Adult education and other courses	3,570	7.5
Total	47,004	100.0

Source: Author's calculations based on the 1999 MECOVI survey.

Migrants moving for family reasons

About half of all rural-urban migrants moved for family reasons, making this by far the most important explanation. This is mainly because when the family head decides to move, the rest of the family normally follows. The size of this category is quite important because it may cover a lot of less desirable migration, as will be discussed in the following section.

Table 5 takes a closer look at the sub-group of rural-urban migrants who moved for family reasons (171,797 persons).

Table 5: Composition of those moving for family reasons

Relation to head of household	%
1. Head of household	12.1
2. Spouse	17.9
3. Child	58.7
4. Other relative	10.1
5. Other non-relative	1.2
Total	100.0

Source: Author's calculations based on the 1999 MECOVI survey.

Table 5 shows that 58.7 percent of the rural-urban migrants who moved for family reasons were children of the head of household. These are presumably not problematic migrants as they are young and can easily adjust to the new life style and take advantage of the better education opportunities. In addition, they live with their parents and thus receive family support. This leaves 41.3 percent who are potentially 'bad' migrants, since they have no particular reason for moving to the city and they are relatively old and may experience significant adjustment problems. Out of these 49.7 percent had a job in the week before the

interview, so presumably they have overcome any initial problems they may have had finding urban employment.

This leaves 23,370 potentially ‘bad’ rural-urban migrants. About these we know the following:

- The average age is 41 years with a distribution as shown in Figure 2. Those who are above 30 are more likely to have difficulties adjusting to the new urban life style, but the young people may also be at risk since they don’t live with their immediate parents but rather with more distant relatives or non-relatives. They are likely to receive less education than if they were the biological children of the head of household (e.g. Andersen 2001) and may be more likely to be forced to work at an early age.
- Almost forty percent of the potentially ‘bad’ migrants did not learn Castellano as their first language, and may therefore experience some language problems in their new urban environment.
- 71.8 percent of them belong to one of the ethnic minorities.
- 27 percent don’t know how to read and write, which must be considered a major disadvantage and a potential problem. Two thirds have no or only the most basic education.
- 73.2 percent are women.

Figure 2: Age distribution for potentially ‘bad’ migrants

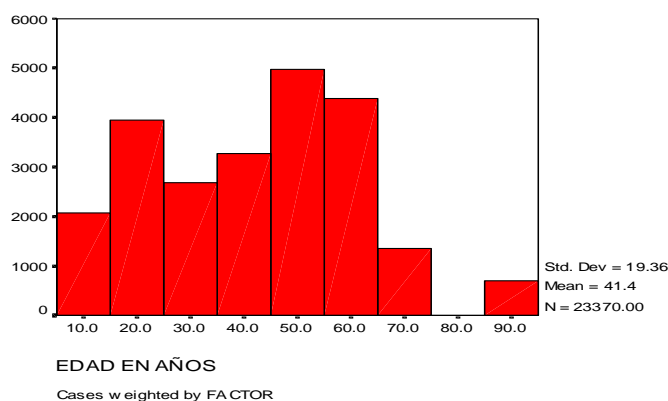


Table 6: Status of potentially ‘bad’ migrants

Relation to head of household	%
1. Retired	16.0
2. Student	3.4
3. Housewife	70.6
4. Other	10.0
Total	100.0

Source: Author’s calculations based on the 1999 MECOVI survey.

Table 6 shows that 70.6 percent of these migrants with potential problems are housewives and another 16.0 percent are retired. The average monthly per capita household income for these potentially ‘bad’ migrants were 469 Bs. which compares quite favorably to the national average of 360 Bs. and very favorably to the rural average of 140 Bs.

While these income measures are supposed to measure all income, both monetary and non-monetary⁹, it is notoriously difficult to compare incomes between rural and urban areas, because the costs of living differ so much. In rural areas, for example, school dues can sometimes be paid in off-season labor instead of cash. Since the place of work usually coincides with home, rural people don't spend as much money on commuting as urban people do¹⁰. Rural teenagers don't spend money on movies and video games since the option is simply not available, and hardly any rural people feel deprived because they don't have access to a computer with Internet connection.

5. 'Good' and 'bad' rural-urban migration

Many people instinctively find rural-urban migration wrong and would prefer to improve the conditions for poor rural people at their location in order to induce them to stay in the countryside. A good example is the Bolivian NGO "Fundación Pueblo" which has initiated several programs to help the rural population. One of their programs is an education program with family-boarding. The idea is that children who do not live near a school can live with a host family in the nearest town and attend school intensively 5 days a week and then stay at home with their own family during the weekend. In that way the children are secured a decent basic education while their families are not required to migrate for that purpose.

Such a scheme looks very promising. It does not necessarily reduce migration, but it provides a mechanism with which to separate those who really want to migrate in order to increase their opportunities from those who have to migrate to improve the opportunities for their children at the expense of their own opportunities and life style. Rural children who have received decent basic education are very likely to want to migrate to a bigger city in order to receive more education, so in that way migration may be encouraged by this rural education scheme. This is quite desirable. The undesirable aspect of migration is when entire families have to move to cities in order to secure decent education for the children. The adult family members who usually have little or no education are not well equipped for urban employment and the transition from a rural to an urban life style is considerably more difficult for them than for young people seeking education.

It is important to separate desirable rural-urban migration from undesirable, and find mechanisms to encourage the former and discourage the latter. The family-boarding education scheme discussed above may be a good example of such a mechanism, and it deserves wider application and a thorough investigation into the costs and benefits.

The conclusion of this analysis of rural-urban migration is that there is a small group of recent migrants who are relatively old, have little or no education, do not work, and did not move for his/her own personal reasons. These characteristics imply that the migrants may have little to offer the urban community and they may thus contribute to undesirable urbanization. Personally they may also experience considerable psychological and cultural problems due to the dramatic change in life style, which they are not well equipped to deal with. These vulnerable migrants constitute about 10 percent of all rural-urban migrants.

However, on average their economic situation, as measured by average monthly per capita household income, is substantially better than the average in rural areas, and even better than the national average. Since even the worst group of migrants we could identify is

⁹ E.g. the value of auto-consumption of agricultural products in rural areas or the value of gifts in kind.

¹⁰ Urban persons spend an average of 21 Bs. per month on public transportation while rural persons spend an average of 1.2 Bs. according to the MECOVI 1999 survey.

relatively well off by Bolivian standards, we must conclude that rural-urban migration is not much of a problem in Bolivia.

6. Conclusions and recommendations

This paper has shown that rural-urban migration is not much of a problem in Bolivia, neither for the migrants nor for the host cities. By encouraging rural-urban migration with sensible policies, it may be possible to reduce several of the problems facing Bolivia.

First, basic needs such as electricity, piped water, schools, and health services are not available for a large part of the rural population, and they cannot be made available due to the extremely high costs of extending these services to all rural communities. In urban areas, these public services can be provided much more efficiently and at a much lower cost per person (e.g. Andersen & Nina 2001).

Second, agricultural land in the highlands is severely degraded and cannot support the present size of the rural population (e.g. Morales et al 2000). Many young farmers would like to sell their small plots, but cannot do so because they do not have formal title to the land. Rather than just abandoning their land, they choose to stay with the one limited asset that they do have. By giving land titles to all informal landowners, the land market would become much more liquid and many small farmers trapped on their little plot of land could sell and facilitate a consolidation and modernization of agriculture in the highlands. If the excess rural population in the highlands left the region, it would allow those who remained to increase their standard of living through more optimal farm sizes.

Third, public forests in the valleys and lowlands are threatened by the expansion of agriculture (e.g. Pacheco 1998). Encouraging rural-urban migration would relieve some of this pressure, which ought to please environmentalists. If Bolivia wants to develop the image of a bio-diversity haven and an eco-tourism paradise that it certainly has the natural advantages to do, it is important that these environmental assets are protected from the expansion of agriculture.

The following are examples of appropriate policies to encourage beneficial migration:

First, cities need to be capable of providing basic services to new arrivals. This means efficient city planning, especially in new and rapidly growing neighborhoods. The location of streets and public areas need to be planned and these plans need to be available to the public, so that they can build their houses in sensible places. Roads, electricity and piped water need to be extended to new neighborhoods quickly to make the plots attractive and a good investment for new arrivals. The delivery of these services do not necessarily need to be subsidized, but there need to be public administrative support for the implementation of effective services, and bureaucratic hurdles need to be eliminated.

Second, the funds distributed from federal to municipal governments through the Ley de Participación Popular should be allocated not only on the basis of the population size at last census, but also according to population growth rates. Municipalities that attract a lot of migrants have much higher needs for funds to invest in expanding public services than municipalities with stable populations. It is important that successful municipalities with relatively favorable economic opportunities for their inhabitants are not punished with disproportionately small federal transfers.

Third, boarding schools of various types may provide a good option for encouraging 'good' migration and preventing 'bad' migration. There are several examples of highly successful boarding schools in Bolivia, and they deserve more widespread application.

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