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# Abstract

Over half of Bolivian heads of household are lifetime migrants. This paper looks at the long term impact of internal migration over human development in Bolivia. Three issues frame these effects. First, twenty five years of rural to urban migration have transformed the demographic profile of Bolivian society. The new middle third is younger, more bilingual and better educated, with more access to social services than in the past. The poorest of the poor, however, did not migrate to the extent of the non-poor. Second, urban workers make approximately four times as much wages as identical workers in rural areas, controlling for age, ethnicity, and years of schooling. Two caveats dampen this place premium effect: schooling quality and informal insurance mechanisms that make migration more costly. Third, increases in human development can be associated to an “urbanization dividend” that made social services more accessible to first and second generation migrants over a twenty-five year period. Future increases in human development, however, are likely to depend on providing quality services and expanding social services to the rural poor, rather on gains from urbanization. The key policy challenges of the future include both an expansion of services to the poorest of the poor in rural areas and breaking down discrimination barriers against women and indigenous people in urban labor markets.

Keywords: Migration, human development, poverty, employment, schooling.

JEL Classification: J11, O15, I32

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## 1. Introduction

Bolivia is a country of migrants. Approximately 53% of heads of household are lifetime migrants. Studies of internal migration in Bolivia have described demographic change over time, estimated push-and-pull factors for migrants and analyzed the welfare impact of migration over income and access to social services (see Andersen 2002, Urquiola et al 1999, Tannuri-Pianto et al 2004, O'Hare and Rivas 2007). In recent years, attention has shifted to external migration and remittances effects (see Clemens 2008 et al, Fajnzylber and Lopez, 2007, World Bank 2008). However, few studies have pieced together the impacts of migration on human development over the long run.

This paper focuses on how migration shapes human development in Bolivia. From a capabilities perspective, migration has been important because it has enabled a greater degree of agency for vast sectors of the population, but also because it has transformed the nature of incentives to self-invest (privately) and invest (publicly) in human capital over time. While past achievements in Bolivian human development have been closely linked to urbanization, future achievements are likely to require more than merely expanding access to social services –including explicit policies of affirmative action in education and labor markets.

From a long-term perspective, internal migration has transformed Bolivian society. The country has moved from being a predominantly rural to being a predominantly urban society in less than three decades. Close to 3 million first- or second-generation migrants make up a new demographic middle in Bolivia today. The “moving middle” is younger, more urban, more intercultural and better educated, than in the past. Despite the structural nature of demographic change, enduring forms of discrimination, based on ethnicity and gender, continue to affect the new demographic profile.

This paper proceeds in four parts. The first part considers how migration has transformed the demographic profile in Bolivia. This involves describing population change since the 1970s. It also involves describing how the “middle third” of the population has changed. The second part of the paper describes the characteristics of migrants and looks into determinants of internal migration in Bolivia. The third part looks a little closer at the incentives to migrate. We report place premiums for migrants and discuss the selectivity bias of unobservable characteristics that

induce migration. We also estimate determinants of migration by quartiles of the income distribution to further assess the differentiated process of migration. The fourth part of the paper considers the human development implications of accelerated migration in Bolivia. We look at two issues: the extent to which past human development achievements were driven by urbanization and the limits of this strategy in the future.

### *1.1 The Data*

This paper uses two sources of data. The first part of the paper, which focuses on the changing demographic profile, uses census data from 1976 and 2001. The second part of the paper, which analyzes the determinants of migration and place premiums, uses the MECOVI household survey of 2000. We chose to use this MECOVI survey because it is the only household survey that registers lifetime data on migration. Following Bell's (2008) discussion on cross-national definitions of internal migration, we use place-of-birth (lifetime) migration data in both parts of the paper, both for consistency and because we are interested in the long-run effects and determinants of migration in Bolivia.

We believe there are two advantages to using place-of-birth data over five-year migration data. First, as noted by Bell, "birthplace data capture lifetime migration which reflects long-run settlement trends" (p. 2). Given the structural nature of long-run demographic shifts, we are interested in approximating historical trends as closely as possible. Second, the birthplace data are not affected by "repeat" and "return" migration trends which tend to be relatively high over short-time intervals (Borjas 1999). Over a twenty-five year period, what interests us is whether human development characteristics have changed regardless of interval-specific residence patterns.

The census data for 1976 and 2001 are used to describe demographic change and track urban and rural employment over time. Social stratification pyramids allow a structured comparison of employment patterns in the inter-census period. We use the research of Espinoza (2008) and Ocampo (2008) to compare the 1976 and 2001 censuses by employment categories and by comparable socio-economic status indices. Ocampo (2008) estimates a basic needs index for both censuses that is presented by deciles on the vertical axis. Espinoza estimates comparable

employment categories on the horizontal axis. The pyramids are further disaggregated by ethnicity, gender and occupational groups.

The MECOVI 2000 data are used to analyze determinants of migration and place premiums for migrant heads of household. The MECOVIs are multi-thematic household surveys that collect information on income and employment. The 2000 survey sample is representative of urban and rural households, and draws a sample of 5,032 household units, with a 5% estimated sampling error. We report data on heads of households (3,802 observations between the ages of 15 and 65). While some households migrate together, we assume that heads of household typically initiate migration and are followed by other members of the family. Head of household income estimates includes wage and non-wage monetary income. The non-wage component imputes monetary value to food consumption in rural areas, but does not capture forms of group insurance –loans, sharing assets, group labor—that are common in rural communities. This problem is discussed later in the paper.

## **2. The Making of a New Middle**

### *2.1 Migration has produced a New Demographic Middle in Bolivia*

While Bolivian was predominantly rural in 1976 (42% urban), it became predominantly urban by 2001 (62% urban). Urbanization accelerated in the 1980s and changed the demographic profile of the country. Fertility rates declined, infant and child mortality rates declined and life expectancy increased. Unlike other Latin countries, however, Bolivian urbanization proceeded in a number of cities, rather than in a single hub (Urquiola et al 1999). The cities of La Paz/El Alto, Cochabamba and Santa Cruz today make up two-thirds of the total population. Most rural-urban migrants left the rural highlands for better life opportunities in these three cities. Population growth has accelerated in the seven largest cities since 1950. The cities of Santa Cruz and El Alto showed the highest population growth in recent years. A look at recent household data show that most internal migration involves families and individuals moving from rural areas to capital cities (52%), followed by individuals moving from small towns to capital cities (27%).

The story behind rural-to-urban migration accelerates rapidly after two exogenous shocks in the 1980s. The first shock is a nationwide drought in 1982-1983 that affected both the highland



altiplano regions of Oruro and Potosi, as well as the valley regions of Cochabamba and Chuquisaca. While neither census nor household surveys captured the population shifts that followed, there is considerable qualitative literature on the rapid influx of displaced rural-migrants (Sandoval, Albo and Greaves, 1981, 1982, 1983 and 1987), and the growth of the outskirts of the cities of La Paz and Santa Cruz. Sandoval et al, in particular, suggest that rural aymara and quechua migrants were “riding between two worlds”, during this period: rural community life and urban squatter neighborhoods. The “ruralization” of urban life is an important theme of the early 1980s drought wave.

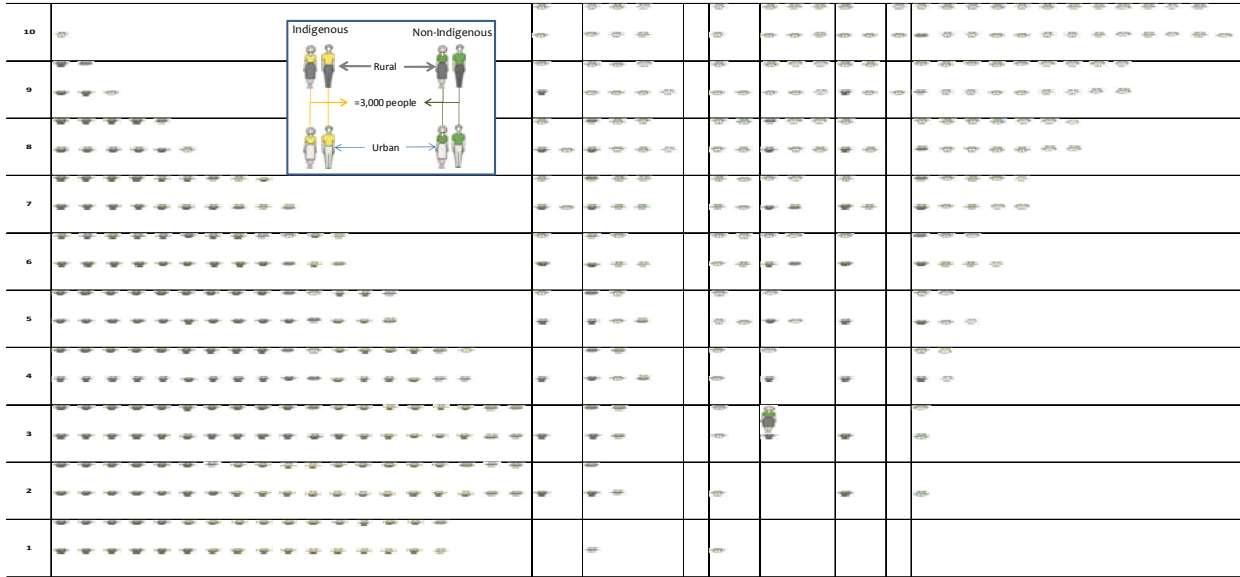
The second shock is an economic growth collapse in 1985-1986, caused by the decline of tin prices and a generalized contraction of the economy, following hyperinflation and adjustment in the late-1980s (see Hausmann, Gray Molina and Rodriguez, forthcoming). The growth collapse affected the heavily populated mining of northern Potosi and southern Oruro. The literature of the period describes a relatively rapid process of forced resettlement of as many as 30,000 miner families, spurred by compensation policies that provided a lump-sum grant to retired miners of COMIBOL, the state mining enterprise (Morales and Sachs 1988).

Graph 1 and 2 describe the structure of employment over a twenty-five year period. The graphs show the economically active population by deciles of basic needs (from poorest to richest). As discussed by Espinoza (2008), the pyramid suggests two significant structural shifts in Bolivian demographics. The first characteristic is that the new middle is no longer rural, but urban, tied to first and second generation migration. The “new middle” moved from working in agricultural and mining to working in commerce, industry and a growing informal service sector (see UNDP 2005 and IADB 2008). The second characteristic is that migration has changed the ethnic and regional composition of the eastern lowlands (Santa Cruz) and southern regions of the country (Tarija). Over time, migrants moved from relatively closed communities to more open engagement. Hence, the middle is also more bilingual (Spanish and aymara or quechua-speaking) than in the past, and has constructed an intercultural public sphere, based on fragments of urban *mestizo* culture and rural aymara and quechua identity.

The new middle has attracted considerable sociological attention in Bolivia both for its social/ethnic and political effects. The key social/ethnic debate has focused on *mestizaje* and indigenous identity (see Crabtree and Whitehead 2008). On the one hand, there is ample evidence that indigenous self-identification has increased, even as language loss increased for urban populations (see Albo 2008, Molina and Albo 2006). On the other hand, however, there is evidence that most urban indigenous populations also self-identify as *mestizo* and acquire many of the social markers associated with *mestizo* social mobility –a high social premium for increased education and a large increase in female labor participation (see Toranzo 2008 and Zavaleta 2008).

On the political side, scholars have traced the emergence of new urban social movements to first- and second-generation migrants in the new middle (Garcia Linera 2008). There is a broad consensus that current collective action, based on vibrant grassroots movements can be historically tracked to earlier forms of collective action of agrarian and mining unions in the 1950s (see Whitehead and Gray Molina 2002 and Gray Molina 2001), and in, some instances, to republican and colonial remnants of indigenous organizations (Albo 2008, Hylton and Thomson 2006). Recent decentralization and popular participation reforms in the 1990s provided a framework for social mobilization that revived old forms of collective action (unions) and provided new forms (neighborhood councils) with a link to state fiscal resources . The political effects of these reforms have shaped recent political history in Bolivia, including, the rise of national social and indigenous movements (Van Cott 2008; Gray Molina 2004).

**Graph 1: Economically Active Population by Decile of Basic Needs, 1976**

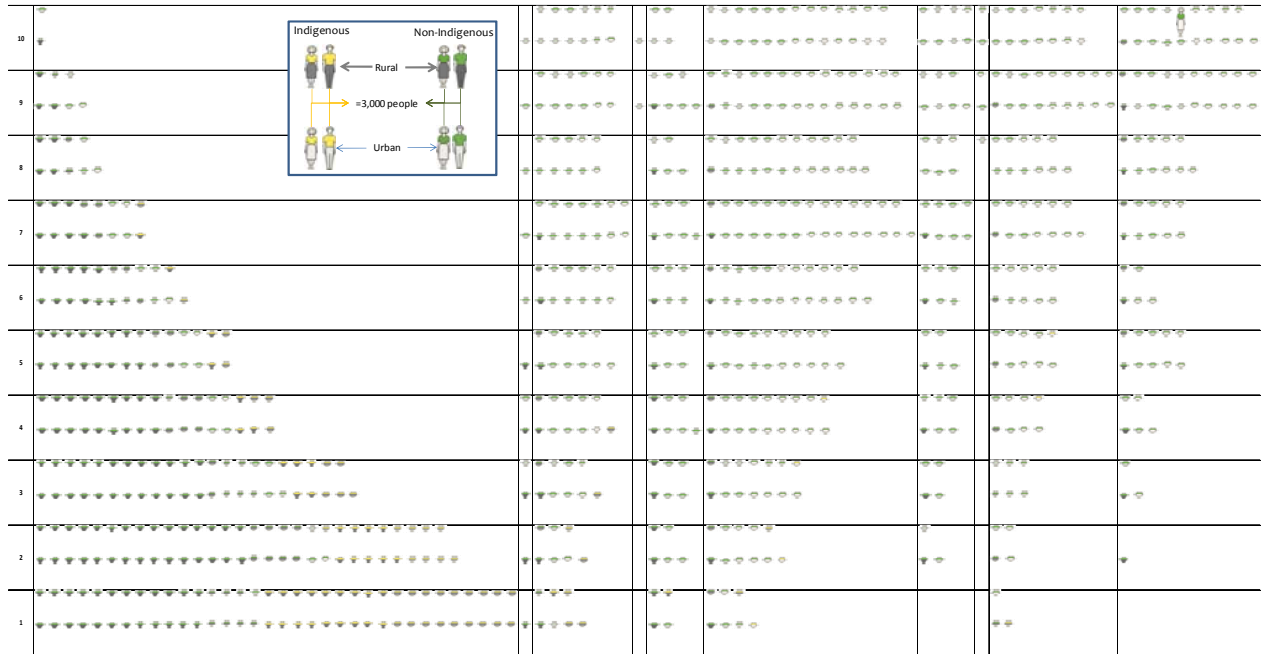


Agriculture, fishing, hunting

- (a) Manufactures
- (b) Constr.Commerce Transp
- (c) Services
- (a) Mining
- (b) Electricity
- (c) Financial Services

Source: Espinoza (2008)

**Graph 2: Economically Active Population by Decile of Basic Needs, 2001**



Agriculture, fishing, hunting

- (a) Manufactures
- (b) Construc. Commerce Transport
- (c) Services Government
- (d) Mining
- (e) Electricity
- (f) Financial Services

Source: Espinoza (2008)

*2.2 Descriptive: Migrants are more Educated, Female, Younger and Bilingual*

The demographic profile changed rapidly since the 1970s. Available household data sources only allow us to look into determinants of migration since the early 2000s. Table 1 shows the descriptive characteristics of lifetime migrants, as structured by place of origin. Two characteristics stand out. First, there is a very high number of household heads migrating (52% of the total). As discussed in the literature, most household heads migrate alone, at first, and are

then followed by other members. Second, most lifetime migrants move from rural areas to capital cities (52%), followed by small town migrants moving to capital cities (27%).

**Table 1: Lifetime Rural-Urban Migrants (Household Heads, 15 to 65 years old)**

<b>CATEGORY</b>	<b>NUMBER OF PEOPLE</b>	<b>%</b>
<b>Total non-migrants heads of household</b>	792,044	47.1
<b>From capital cities</b>	364,730	46.1
<b>From other urban areas</b>	76,944	9.7
<b>From rural areas</b>	350,370	44.2
<b>Total migrant heads of household</b>	889,501	52.9
<b>From capital cities</b>	185,059	20.8
<b>From other urban areas</b>	241,465	27.2
<b>From rural areas</b>	462,977	52.0
<b>TOTAL HEADS OF HOUSEHOLD</b>	1,681,545	100

Source: Own, based on MECOVI (2000).

Table 2 shows additional information on migrant characteristics. First, migrants are more educated than non-migrants. Rural migrants have, on average 3 more years of schooling than non-migrants, while small-town migrants have on average 2 years more schooling than non-migrants. Second, the average age of migrants is a year younger compared to non-migrants. Third, migrants are more female than non-migrants. Close to 17% of migrant heads of household is female, compared to 13% of non-migrants heads of household. Finally, migrants are more bilingual than non-migrants. Close to 81% of household heads speak an Indigenous language, while it is 83% for non-migrants. The overall migrant profile matches the characteristics of the middle of the population pyramid –the poorer strata of urban population.

**Table 2: Migrant Characteristics, (heads of household)**

	Migrants		Non-Migrants		
	Rural	Other Urban	Rural	Other Urban	Capital Cities
Age (average)	41,3 (12.0)	38,9 (11.3)	42,7 (12.3)	39,8 (12.7)	40,9 (11.3)
Female (%)	17,5 (0.37)	14,4 (0.36)	13,6 (0.34)	22,16 (0.41)	23,7 (0.42)
Ethnicity (% indigenous language)	81,2 (0.39)	52,6 (0.49)	83,6 (0.37)	39,8 (0.49)	44,5 (0.49)
Civil Status (% married)	80,9 (0.40)	81,3 (0.39)	83,0 (0.37)	76,1 (0.42)	76,1 (0.42)
Number of member in hh	4,7 (2.20)	4,3 (2.09)	4,7 (2.30)	4,6 (2.33)	4,3 (1.96)
Years of schooling (average)	7,4 (4.55)	10,3 (4.62)	4,2 (3.48)	8,4 (4.21)	10,9 (4.58)
None Completed (%)	8,1 (0.33)	0,5 (0.18)	20,6 (0.40)	4,3 (0.20)	2,8 (0.16)
Primary Completed (%)	56,1 (0.48)	34,1 (0.49)	68,7 (0.46)	47,6 (0.50)	25,8 (0.43)
Secondary Completed (%)	24,6 (0.38)	39,2 (0.47)	8,7 (0.28)	35,8 (0.47)	37,5 (0.48)
Technical Education Completed (%)	2,1 (0.11)	5,3 (0.18)	0,3 (0.05)	4,5 (0.20)	7,1 (0.25)
Superior Education Completed (%)	9,1 (0.25)	20,9 (0.36)	1,7 (0.12)	7,8 (0.26)	26,8 (0.44)
Income of hh (average, bs)	1.547,2 (1632)	1.994,3 (2026)	477,2 (1215)	1.561,3 (1962)	2.505,8 (3403)
Income <sub>pc</sub> of hh (average, bs)	381,5 (419)	549,1 (637)	137,5 (771)	468,4 (1075)	719,6 (1207)

Source: Own, based on MECOVI (2000).

## First and Second Generation Migrants

“The moment I began to make some money, old and new friends started to ask me to be a *padrino* and give a *preste*. I was and still am invited to all the weddings and birthdays in the neighbourhood even from people I never met, maybe they were expecting a nice gift -laughs-...”

### ***Paulino, 57 years old, 1<sup>st</sup>. Generation Migrant***

“Economically speaking my situation has not changed. I used to make more money working as a manual worker than as a nurse. Here my wage is low. There are no patients. However I feel better now because working in a factory is not the same as having a proper job. Sometimes I attend the patients myself when the doctor is not here. I have authority and that fulfils my spirit. As a worker I had to obey the bosses while making golden chains; it was not a very nice job...”

### ***Marta, 41 years old. 1<sup>st</sup>. Generation Migrant***

“... What gives prestige is education; that is fundamental. I have a profession and that gives me a little prestige. Also, we cannot deny the economic side of education, having a degree is worthless if one does not have a ‘spot to drop dead’ [*un lugar donde caerse muerto*]. For me both of them make prestige, although I would give more weight to education.”

### ***Juan, 42 years old. 2<sup>nd</sup>. Generation Migrant***

“I am really confused, all these changes have befuddled me, I thought I knew but I don’t; I’m not a politician or an intellectual, I am not a farmer, neither a miner nor a city dweller... I don’t feel different from you but what is going to happen to me - to us now? This should be the time when we define ourselves as a nation but which will be my identity in this entire context? How can I have a saying in all of these changes?”

### ***Ernesto, 50 years old, 1<sup>st</sup>. Generation migrant***

‘Above me are the intellectuals, having a bachelor degree is always better than being an auxiliary... I consider you an intellectual. We are not equal, I always see you above me but your presence does not make me uncomfortable’

*Marta, 41 years old. 1<sup>st</sup>. Generation migrant*

Source: Espinoza (2008).

### 2.3 Analytic: Determinants of Migration

We tackle the determinants of migration question in two steps. In the first step, we estimate probabilistic models for rural-urban migration for the whole sample, including regressors for observed characteristics (age, experience, education, wealth, civil status) In the second step, we address the self-selection problem, by including the residuals of the selection equation estimate thus capturing the effects of non-observable characteristics (skill, luck or talent). With this second step, which only includes migrants, we provide a non-biased estimate of the impact of migration over earnings in the place of destination. In the following section we’ll return to this issue focusing more attention on the place premium for migrants.

**Table 3: Determinants of rural-urban migration, probit model**

Migrants	Rural-capital flow		Urban-capital flow	
	Coefficient	Standard Error	Coefficient	Standard Error
Female	-0,054	0,1903	-0,155	0,2231
Age	0,023	0,0373	0,055	0,0380
Age <sup>2</sup>	0,000	0,0004	-0,001	0,0005
Indigenous	0,021	0,2375	0,023	0,1961
Married	-0,378*	0,1998	-0,140	0,2241
Years of Schooling	0,086***	0,0150	0,042**	0,0164
Number of members in hh	0,005	0,0285	-0,046	0,0340
Income Logarithm of hh	0,494***	0,0530	0,214***	0,0594



Deficit in Basic Services	0,020	0,0246	-0,016	0,0158
Deficit in Education	-0,007	0,0183	0,033*	0,0175
Constant	-5,125**	2,5127	-3,665**	1,7233
N	634		415	
Prob > chi2	0.000		0.000	
PseudoR2	0.355		0.101	

Deficit in basic services means lack of running water and/or lack of toilet in the household (place of origin). Deficit in education means that at least one member of the household is illiterate and/or is not attending school if in schooling age (place of origin).

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Source:** Own, based on MECOVI (2000).

Table 3 shows the first-step probit model. Three determinants are statistically significant in our sample. First, being married reduced the probability of migrating. This makes sense given what we know about the migration process: typically, heads of household migrate first, make a foothold and eventually are followed by spouse and children. In some cases, this eventually includes extended family and friends (see Albo and Sandoval 1983). Second, higher levels of education predict a higher probability of migration. This also fits in well with what is known from past studies (Andersen 2002). Education levels allow a transition from rural to urban labor markets, from low-paying jobs to higher paying jobs. Third, the higher the family's level of wealth, the higher the probability of migrating. In the Bolivian case, the poorest do not migrate. This is indicative of high internal migration costs. Only the better-off can take on the risk and associated costs of migration (see Tannuri-Pianto et al 2005). One important omission in the probit model is the non-statistical significance of indicators that measure the provision of local social services. This would tend to reassert the “pull” factor of urban settings rather than “push” factors from rural communities.

**Table 4: Two-step Heckman, pooled data**

Ln (monthly labor income)	OLS		Selection Equation		Results Equation	
	Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error
Female	-0,301**	0,1253	-0,394	0,2548	-0,361***	0,1358
Age	0,101***	0,0179	0,150***	0,0341	0,130***	0,0257
Age <sup>2</sup>	-0,001***	0,0002	-0,002***	0,0004	-0,001***	0,0003
Ethnic origin	-0,358***	0,0858	0,059	0,2319	-0,368***	0,0906
Indigenous woman	-0,296*	0,1543	-0,032	0,2876	-0,317**	0,1605
Ethnic migrant rural	0,132	0,1547	-0,065	0,3390	0,122	0,1624
Ethnic migrant urban	0,118	0,1541	0,310	0,3431	0,193	0,1680
Years of schooling	0,096***	0,0091	0,037*	0,0216	0,101***	0,0100
Urban migrant	0,370*	0,2269	0,572	0,5318	0,461*	0,2457
Schooling * Urban Migrant	-0,038**	0,0170	-0,083**	0,0393	-0,052***	0,0199
Rural migrant	0,523**	0,2084	0,423	0,4570	0,596***	0,2235
Schooling * Rural migrant	-0,053***	0,0145	-0,052*	0,0315	-0,061***	0,0160
Female migrant	-0,098	0,1560	-0,265	0,2922	-0,174	0,1689
Sucre			-0,035	0,4437		
La Paz/El Alto			0,376	0,4147		
Cochabamba			0,347	0,4343		
Oruro			0,021	0,4314		
Potosí			-0,280	0,4420		
Tarija			0,784	0,5250		
Santa Cruz			0,203	0,4091		
Trinidad			0,337	0,4846		
Constant	4,212***	0,3981	-1,404	0,8686	3,584***	0,5668
Lambda					0,800*	0,4827
Rho					0,840	
Sigma					0,952	
N	1002		1077		1002	

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Note:** This simple excludes the migrant population coming from “other capital cities”.

**Source:** Own, based on MECOVI (2000).

Table 4 shows a Mincer regression, after correcting for selection bias. The key results are also three. First, earnings increase with schooling. However, the joint effect of schooling and being a

migrant is negative. We hypothesize that this might reflect poor schooling quality in rural or other urban towns, which do not result in higher earnings in capital-city labor markets. The effect of schooling quality is something we return to when estimating place premiums. Second, earnings decrease for women and decrease even further for indigenous women. Both the gender and ethnic biases are reported in other studies on urban earnings in Bolivia. We will also look at this in more detail with the quantile regressions that disaggregate gender and ethnic biases by income level. Finally, being older increases earnings up to a point, and then moves in the other direction. This is also widely documented in the literature on migration in Bolivia. Younger migrants tend to have a better chance of moving up the earnings ladder over time.

### **3. Explaining the New Middle: Place Premiums, Education and Labor Markets**

A vast literature models migration as an equalization process where regions with less economic opportunities send migrants to more dynamic regions (see Lall et al, 2006). In the human capital view, migration is seen as a self-investment decision, whereas in the risk literature, it is modeled as a household decision that shapes the behavior of family members differently (Deaton 1997). We build upon both approaches, incorporating selection bias and place premiums into the analysis. Recent analytical work has shed more light on the economics of discrimination from differences in location (Clemens et al 2008). This is a promising route to explaining the micro foundations of demographic change over the long run.

#### *3.1 Incentives to Migrate: Place Premiums*

The place premium approach allows us to estimate wage differences for otherwise identical workers in rural and urban areas, and see how much of the difference is based on observable (education, gender, ethnicity) or unobservable differences (skill, talent, ability). The “place premium” is the wage difference attributable to geographic place of residence alone, after controlling for observable and unobservable effects. It reflects a powerful incentive for migration, both at the individual and at the household level.

To model this incentive, we run through some steps before reaching the empirical estimates. We assume that A is the region of origin of a migrant and the B is the region of destination. Their wages can be described by the following identities:

$$w_A = \theta_A(X_i) \phi_A(X_i') \quad (1)$$

$$w_B = \theta_B(X_i) \phi_B(X_i') \quad (2)$$

Where  $\theta_A(X_i)$  and  $\theta_B(X_i)$  are vectors of individual characteristics of individual  $i$  in region A and region B, and  $\phi_A(X_i')$  and  $\phi_B(X_i')$  are vectors that reflect non-observable determinants of wages. If this is the case, the migration decision can be described as:

$$w_B = w_A(1 + \delta) \quad \delta \geq 0 \quad (3)$$

Where  $\delta$  is defined as:

$$(1 + \delta) \equiv (1 + \delta_n)(1 + \delta_p) \quad (4)$$

A  $\delta_n$  are costs associated with natural barriers such as transportation costs, differences in language, costs of looking for a job, and so forth, and  $\delta_p$  are costs associated with policies that restrict the free movement of people from one place to the next.

According to (3), individuals will migrate from A to B, until the wage in B equals the wage in A plus the migration costs. Migrants will move as long as there is a premium to do so. One way of approximating this premium is to compare the wages of someone who was born and works in B ( $w_{BB}$ ) with the wages of a migrant who was born in A, but who now works in B ( $w_{AB}$ ). With this information:

$$E[R_i] = W \left[ \frac{w_{BB}}{w_{AB}} \right] = (1 + \delta_n)(1 + \delta_p) \quad (5)$$

Three assumptions are relevant to our analysis of rural-urban migration in Bolivia. First, for simplicity, we assume zero costs for internal migration. In other words, coefficient  $\delta_p$  is zero.

Hence,  $\mathbf{R}$  will reflect only those costs associated with natural barriers. We will revisit this assumption when discussing caveats to our estimates. Equation 5 thus looks this:

$$E[R_i] = W \left[ \frac{w_{BB}}{w_{AB}} \right] = (1 + \delta_n) \quad (5')$$

Second, estimating (5') presents some difficulties because although we can observe the wages made by a migrant in B, we don't know what the counter-factual wage would be if he or she stayed in A. Finally, we need to deal with the self-selection problem that might bias our estimate of wage differences.

To estimate (5'), and following Clemens et al (2008), we assume:

- i) The wages of migrants can be approximated by both the observable characteristics of migrant  $[\hat{\theta}_A(X_i)]$  and the non-observable characteristics  $[\hat{\phi}_A(X_i)]$  of individuals who migrated to B.
- ii) The non-observed characteristics of a typical migrant do not differ from the non-observable characteristics of a typical non-migrant.
- iii) The correlation between wages and non-observable characteristics in A is independent from the non-observable characteristics in B.

Then, equation (5') for the marginal migrant can be summed up by:

$$R_{ie} \equiv \frac{\hat{\theta}_{BB}(X_i) \hat{\phi}_{BB}(X_i)}{\theta_{AB}(X_i) \phi_{AB}(X_i)} \quad (6)$$

Equation (6) reflects the ratio of wages before and after migration for a typical migrant. However, the selection problem is still present. A number of additional assumptions are made to address the selection problem:

- i) The characteristics of migrants (age, education, gender, among others) have the same correlation that non-migrant characteristics have on wages.
- ii) The mean contribution to wages of non-observable characteristics does not differ between regions A and B on the basis of cultural factors.

- iii) The association between wages and non-observable characteristics in A is independent from the association between wages and non-observable characteristics in B.

Under these revised assumptions, equation (5') can be summarized by:

$$E[R'_i] = \frac{\theta_{AA}(X_i)}{\theta_{BB}(X_i)} \quad (7)$$

Equation (7) is the expected ratio of wages before and after migration for an individual chosen randomly to migrate. It represents the ratio of the wages of a person born and working in A ( $w_{AA}$ ) with the wages of a person born and working in B ( $w_{BB}$ ). In this case, the selection problem cancels out, so that the comparison between (6) and (7) is an approximation for the over- or under- estimation in (6). The following specification is used to estimate (8):

$$\ln W_{ij} = X_{ij}\varphi + \begin{bmatrix} \delta_0 + \beta_0 E_{ij} \\ \delta_j^r + \beta_j^r E_{ij} \\ \delta_j^{re} + \beta_j^{re} E_{ij} \end{bmatrix} \begin{bmatrix} 1 \\ M_{ij}^r \\ M_{ij}^{mig} \end{bmatrix} + \varepsilon_{ij} \quad (8)$$

Where  $W_{ij}$  is the wage of person  $i$  in region  $j$ ,  $X_{ij}$  is a vector of attributes such as age, age squared, gender and ethnic origin.  $E_{ij}$  reflects years of schooling,  $M_{ij}^r$  is a dummy variable, where 1=non-migrant, 0=other cases.  $M_{ij}^{mig}$  is a dummy variable where 1=migrant, 0=other cases;  $\varphi, \delta$  y  $\beta$  are parameters to be estimated and  $\varepsilon_{ij}$  is a random error term.

Table 5 shows the ratio of wages for a male, indigenous individual, of 30 years of age. For the first migration path (rural to capital city), the ratio is highest for lowest levels of education. This result is robust to changes in specification. For the second migration path (small town to capital city), the wage premium is also higher as education increases, but not as high as in the first case. The wage premium is relatively smaller than it is for rural migrants. In both cases, the wage premium makes migration attractive.

**Table 5: Wage ratios, Migrants versus Non-migrants (heads of hh , 15 to 65 years old)**

Schooling	Rural Migrants		Other Urban Migrants	
	Place Premium I	Place Premium II	Place Premium I	Place Premium II
5 years of schooling*	4,56	4,69	1,23	1,31
11 years of schooling*	2,87	2,85	1,29	1,17
16 years of schooling*	1,95	1,25	1,34	1,81

**Source:** Own, based on MECOVI 2000.

### 3.2 Two Caveats on Place Premium Estimates

Given the relatively high place premium estimated above, the key question is why isn't there more rural-to-urban migration in Bolivia, in particular, more migration of the poor. We expect migration to continue until the payoff for migration is higher than its costs. In addition, rural and urban wages are expected to converge to some equilibrium level –where there is no more payoff for further migration. Following Borjas' (1999) comparative analysis of internal migration, “costs” can themselves be decomposed into measured costs of migration (such as travel and adjustment costs, waiting costs, and so on) and non-measured costs (such as the loss of family or community safety nets, and other self-insurance mechanisms that are unique to rural residence). Two issues may dampen the effects of the place premium estimates presented above.

The first issue is that our estimates should account for differences in the quality of education between rural and urban areas. Once we consider the differences in returns of rural and urban years of schooling, we estimate the ratio of parameters  $\beta_j^t$  and  $\beta_0$  described in (8). The new level of schooling of a migrant will be estimated by the product of schooling years times the ratio of urban/rural returns:

$$S = \text{Schooling} * B_{jt}/B_0 \quad (9)$$

Table 6 shows this correction for the first column. For the rural/capital-city migration pathway, we observe that ratios are higher for higher levels of education than for lower levels of education. For the small-town/capital-city pathway, the ratios are lower for all levels of education. These results suggest a positive selection bias for urban migrants and a negative one

for rural migrants. Rural migrants come from the bottom tail of the schooling distribution, while small-town migrants come from the higher end.

**Table 6: Wage ratio, corrected by Schooling Quality (Head of hh, 15 to 65 years of age)**

Schooling	Rural migrants	Ratio	Other	urban
	Model I		migrants Model I	Ratio
<b>5 years of schooling*</b>	4,54	1.00	1,16	1.06
<b>11 years of schooling*</b>	3,93	0.73	1,26	1.02
<b>16 year of schooling*</b>	3,48	0.56	1,30	1.03

**Source:** Own, based on MECOVI 2000 survey.

The second issue is the weight of non-measured costs for rural migrants. For many migrants, informal insurance mechanisms (such as self-insurance in the form of savings in cattle, a small plot of land or access to farm machinery), and group-insurance mechanisms (such as extended family, friends and community savings), might smoothen consumption and income ups and downs (see Morduch 1995; Rosenzweig and Wolpin 1993). Available estimates on the monetary value of informal insurance mechanisms move from a third of monetary income, to lesser values depending on depth and length of income shocks.

In the Bolivian case, informal insurance mechanisms have been significantly linked to successful rotating savings and credit mechanisms (Gray Molina et al 2000) and the broader success of microcredit schemes in rural and impoverished urban areas (Morduch 1999). It is likely that the cost of leaving effective safety nets in rural areas, for uncertain mechanisms in urban areas, could act as a significant migrant cost. Unfortunately, available surveys do not allow us to estimate these effects on the cost of migration in Bolivia.

If we were able to fully account for schooling quality and informal insurance mechanisms, the urban/rural place premium would likely decrease. However, even if we could control for unmeasured effects, the urban/rural premium is still likely to be relatively high. High premiums are not unusual in the comparative literature. Borjas (1999) reports a ratio of two for Puerto Rican and mainland workers within the United States. Clemens et al (2008) estimate a ratio of six for Bolivian workers in the United States, adjusting for measurable migration costs. In

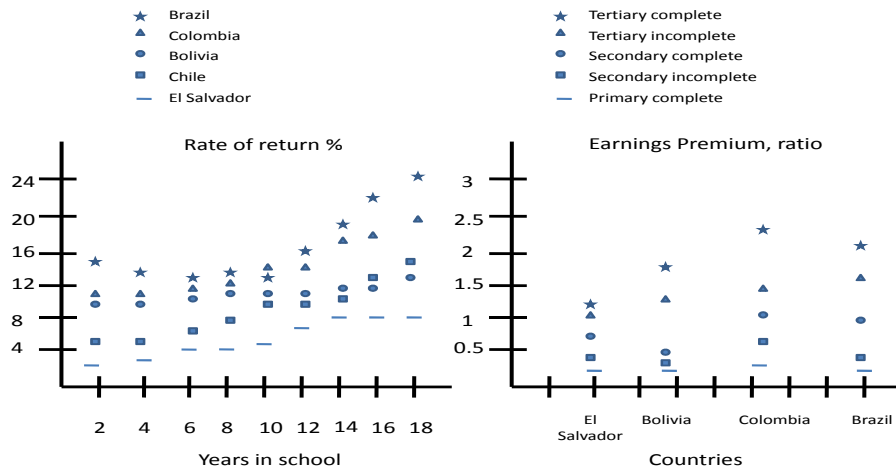


general terms, the place premium approach suggests a gradual convergence of internal wages, but does not assume that convergence is absolute –the equilibrium level is likely to be non-zero given the multiple market failures that characterize labor markets.

### 3.3 Incentives to Self-Invest: Educational Returns and Migration

Besides incentives to migrate, high place premiums pose an additional puzzle. If returns to education are high and increasing, why do we not see many more Bolivian children moving up to the top of the education ladder? The literature on education returns has focused on two types of explanation (see Perry et al 2006; Bourguignon et al 2005). First, given that returns to education are lumpy, and diplomas often matter a great deal, education seems attractive only when the long-term investments needed to complete at least a full course of secondary and some tertiary education can be realized. Second, in most countries the high average returns to schooling are not available to everyone; in particular, poor families tend to accrue returns to their investments in higher levels of education that are significantly below the average market return.

**Graph 3: Returns to Education in Bolivia**



Source: Perry (2006), et al, p 182

The first question, linked to returns to education, can be addressed looking at comparative data on returns to education in Bolivia, compared to other countries. Graph 3 contrasts Bolivia with other countries, and confirms the Latin American pattern.

The second question, regarding the likeliness that returns to education vary by position on the income distribution pyramid, can be addressed by estimating quantile regressions for different income groups. The selection problem is handled by estimating, first a selection equation on determinants of being employed, followed by a pooled Mincer with the error terms as a regressor.

Table 7 shows a quantile regression specification that corrects for selection bias. Three things stand out. First, that schooling matters positively for all deciles of income distribution, but the highest positive impact on income is for the poorest decile. Second, age is also positively correlated with income, but age has more of an impact in poorer deciles than in richer ones. Third, migration would seem to matter differently for the rich and poor. On the one hand, rural-to-capital city migration is positively associated with income for the poorest decile and the median decile, but not statistically significant for the richest decile. On the other hand, small-town to capital-city migration is positively associated with income only for the richest and median decile, but not for the poorest.

The quantile regression suggests something that has been noticed in the pooled probit and Mincer models. Migrants from rural areas sort into the bottom of the urban distribution (the “new middle”), while migrants from small towns sort into the middle and top portions of the urban distribution (the “new top”). Given the size of rural migration over the past three decades, this provides additional evidence that the middle of the population distribution is made up of first and second generation rural migrants. Finally, both urban and rural migrants find that additional years of schooling above the mean do not increase income, for the richest and the poorest deciles. The new middle provides social mobility for migrants, but is not a seamless ladder of mobility.

Table 7 also describes negative income effects for women heads of household and indigenous heads of household from both sexes. Being female is negatively associated with income for the poorest and median deciles, but is not significant for the richest decile. Being female *and* indigenous is only significant (negatively) for the richest decile. Being indigenous is negatively associated with income for the richest and median deciles, but is not significant for the poorest decile. In all regressions, the lambda regressor (that picks up selection bias) is positive and significant. Migrants are systematically different from non-migrants on non-observed characteristics, and drive the real wage premium down.

The regression results presented in Table 7 supports other studies that have studied gender and ethnic discrimination in Bolivia. In particular, Andersen et al (2005) find that indigenous workers in rural labor markets do not face wage discrimination, once schooling quality is accounted for, but do face discrimination in specific urban labor markets (in the commerce and service sectors). A similar study on wage discrimination by regions, finds that ethnic discrimination is statistically significant and positive in the lowlands and valley regions, but not in the Andean highlands, where the unexplained wage difference is close to zero (Villegas and Nunez 2005).

**Table 7: Quantile regression, corrected for selection bias, pooled data (heads of hh, 15 to 65 years of age)**

	10mo (richest)		50vo		90vo (poorest)	
Lambda	5,748***	1,8590	2,890***	0,6888	4,409***	1,1606
Lambda <sup>2</sup>	-	1,7355	-2,534***	0,6945	-	1,0742
Female	-0,354	0,2925	-0,416***	0,1163	-0,500**	0,1967
Indigenous Female	-	0,3155	-0,214	0,1346	-0,374	0,2408
Age	0,177***	0,0588	0,149***	0,0228	0,182***	0,0416
Age <sup>2</sup>	-	0,0007	-0,002***	0,0003	-	0,0005
Years of Schooling	0,088***	0,0195	0,099***	0,0085	0,118***	0,0187
Indigenous	-	0,1836	-0,484***	0,0755	-0,100	0,1366
Rural Migrant	0,530	0,3817	0,553***	0,1859	0,984**	0,4214
Urban Migrant	0,790*	0,4450	0,530***	0,2041	0,123	0,4268

Schooling Migrant	*	Rural	-0,060**	0281	-0,065***	0,0133	-	0,085***	0,0280
Schooling Migrant	*	Urban	-0,088**	0,0379	-0,073***	0,0172	-0,052		0,0352
Female Migrant			-0,066	0,3309	-0,250*	0,1416	0,017		0,2552
Indigenous Migrant			0,059	0,3101	0,264*	0,1352	-0,424		0,2751
Indigenous Migrant			0,067	0,3583	0,472***	0,1427	0,345		0,2579
Constant			1,442	1,2936	3,243***	0,5072	3,122***		0,9269
N			1002						

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Note:** This simple excludes the migrant population coming from “other capital cities”.

**Source:** Own, based on MECOVI (2000).

### Box 1

#### The Value of Education

“I could not finish primary school...I quit studying because my father always thought that women should not study... right after I finished sixth grade he told me I should start working to pay for my clothing... He was frustrated because one of my brothers did not want to study. After ten years I went back to school by my own means.

I studied in the school my parents used to work in... there I could finish my primary studies... after that, when I went to study, I had to go to night school. I also did some courses on office techniques. After that I went to university, but before that I began an auxiliary nursing course.

I finish studying nursing and worked in a hospital for many years. At the same time I was studying in university. When working as a nurse I remember I was discriminated because I refused to stop wearing my *polleras*... they did not accept a woman with *pollera* working in that place... But I was able to get over all that... then I started working and I did well at the hospital, I was in various sections. I had the night shifts to have the days off to study. I did everything I had to do at the hospital to leave quickly and go to study.

I started working formally when I was 25 years old, although I started at 12 doing embroideries, knitting, those things. This because as I told you my father took me out of school to work... in

that time I used to read secretly novels...I used to hide my book under my embroidery... I liked reading.

The education I received from university has always left me unsatisfied. Where I truly found sense of my profession was in practicing it. Everything else was monotonous. During university, I remember, I did not make much money as a nurse... it was just enough for transport... I had milk and *marraqueta* for lunch... those things thought me to make great sacrifices. I studied little by little. It took me many years but I am happy because it is not the only profession I have. Besides, I know how to do lots of other things.

With respect to my first job, I improved a lot because from selling, from performing manual jobs like the embroidery, I jumped to work as a nurse and later as a professional. Then I worked as a technician in several places; that was a huge step. Afterwards I worked in several NGOs, then I was offered a scholarship but I was dumb and I did not take it. I worked in many places and I think I have learned a lot. Subsequently, I coursed a postgraduate degree that opened the doors for me.

In my case, in order to get a job I think that is important not only to have a profession but acquaintances [contacts], who might help you entering into certain spaces. Now, it is also good to get known by participating in different activities. It is good to participate. I had many opportunities to prepare myself and achieve a good curriculum.

El Alto is rich in opportunities. There are a lot of things that one can do in this city, but the problem is people's poor conditions make the best out of these opportunities. Opportunities are not the same for all. It is not the same, for instance, if you have had professional parents. To us, even learn how to speak was very hard. Opportunities are not the same.”

*(Sonia, 51 years old)*

Source: Espinoza (2008).

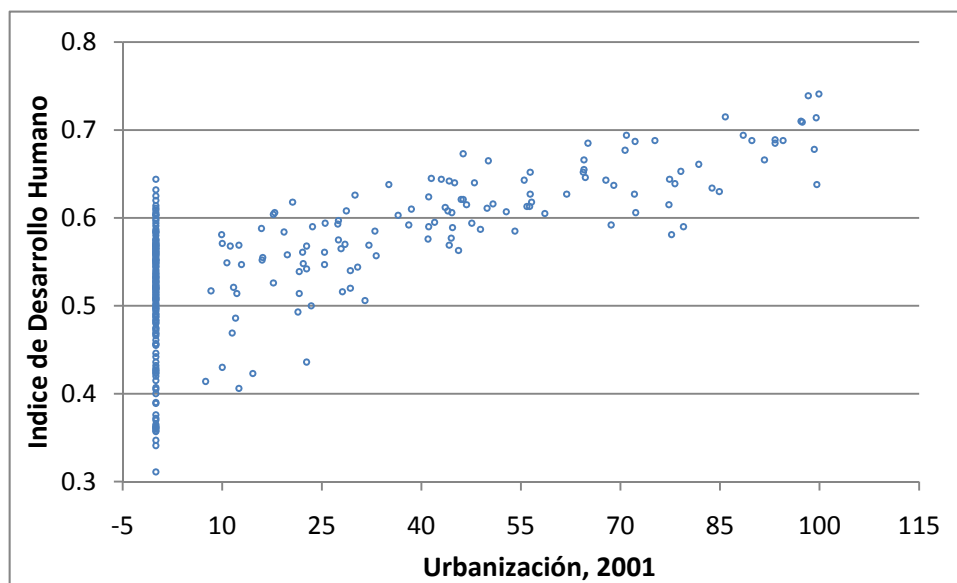
#### 4. The Capabilities Challenge in Bolivia

What does the slow emergence of a new demographic middle in Bolivia –more mobile, more educated, younger and more bilingual—mean for human development? On the one hand, migration has certainly increased access to social services for wave after wave of rural migrants since the 1970s. On the other hand, however, increases in human capital have not always translated into better paid jobs, or even the chance of getting a job at all. This section takes a look at the “capabilities challenge” in Bolivia.

##### *4.1 Past HD Achievements have been largely driven by migration*

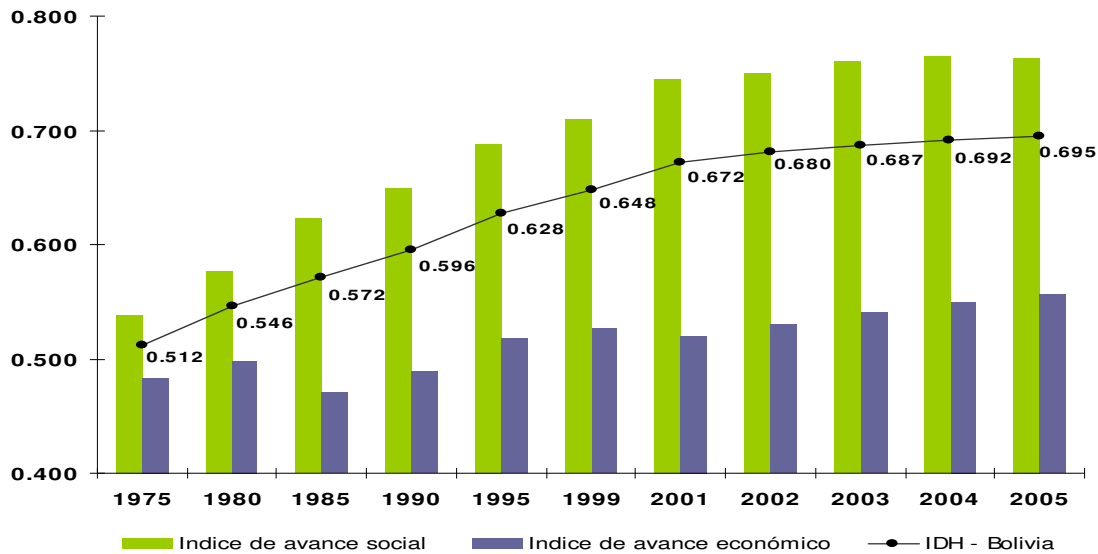
Graph 4 shows a scatter plot of urbanization and the Human Development Index, for 2001 data. The graph shows a very strong association between high human development rates and high levels of urbanization. Andersen (2002) and O’Hare and Rivas (2005) test whether the urbanization process merely “urbanized rural poverty” or actually reduced poverty over time. They both find that poverty rates decrease both in absolute and relative terms in urban areas, despite a temporary increase in extreme poverty in the key cities between 1992 and 2001.

**Graph 4: Urbanization and Human Development, Municipal Data**



Own, based on UDAPE-IDH (2005)

**Graph 5: Human Development is Slowing in Bolivia**



Source: Own, based on UNDP-Bolivia (2008)

A different way of looking at the same problem is tracking the improvements in human development over time. Graph 5 shows a disaggregation of the human development index by five-year increments since 1975. Two things are clear from the tracking exercise. First, that most changes in human development have been driven by the educational and life expectancy components of the index, but not by the income component. In the human development literature, Bolivia has consistently been lop-sided towards social achievement –having a higher level of educational attainment and life expectancy than predicted by its income level (see Ramirez, Stewart and Ranis, 2003).

The second thing that stands from Graph 5 is that most gains in human development were made in the 1970s and 1980s, but have virtually run out by the 2000s. The gains from migration and urbanization slowed down in the late 1990s, and stalled over the past few years. Spatially, this has meant that each “marginal” increase in human development has become more expensive, as the need to reach scattered rural populations and increase social service quality in urban areas is more expensive than simply expanding services during the urbanization process.

The policy impact of internal migration is hard to estimate (see Grindle 2000, Lora 1997 and Morley, et al 1999). Policy reform in the 1980s and 1990s was largely endogenous to demands

that arose with rapid urbanization, so it is difficult to determine the specific policy cause or effect of migration, urbanization and changing human development demands. Reforms such as decentralization, education and primary health reform in the 1990s, were aimed at expanding social services to rural areas, and could thus be plausibly characterized as migration-reducing reforms. However, to the extent that internal migration continued throughout this period, the reforms are more likely to have accelerated migration by upgrading the human capabilities of potential migrants.

The 1980s and 1990s reforms stand in contrast to the more structured colonization efforts of the 1950s and 1960s. The early colonization policies were designed to settle the eastern lowlands, and succeeded in opening up frontier towns in the Chapare, northern La Paz and northern Santa Cruz (see Gill 1987, Maclean Stearman 1984). The unintended effects of these policies, however, often led to environmental degradation and impoverishment that spurred second and third repeat waves of migration to city centers rather than to the planned colonization settlements intended by reformers. The historical record suggests that the migration-inducing effects of better human development conditions may have outweighed the migration-reducing effects intended by structured colonization and patterned population settlements. In the long run, this may have turned out to be a welfare-improving side-effect of past reform efforts.

#### *4.2 Future HD increases are more dependent on accelerating social mobility*

This brings us to the present –and the future—of human development in Bolivia. The available data on basic needs, human development and income suggest that improvements in well-being are closely tied to the urbanization process –there seems to be enough evidence of a modest “urbanization dividend” over the past 30 years. The key question is whether this dividend will continue to improve well-being in the future, or whether the gains from migration are running out (see Andersen 2002).

Two issues are likely to affect this forward-looking question. The first is the extent to which returns to education will continue to show a flat curve prior to the tertiary level –as is common in most of Latin America. In this case, the current wage premium over-estimates the incentives to migrate and seek a new job in urban areas in the future. The gains from migration will not



resume unless something significant changes with urban labor markets in what today are mostly informal and linked to the service sectors of the economy (see Perry et al, 2007).

The second issue is whether ethnic and gender-based discrimination will drop, thus expanding opportunities for a new cohort of rural and migrant workers in the future. We know that educational achievement is increasing for younger cohorts, and that horizontal inequalities between indigenous and non-indigenous groups are decreasing for educational achievement (see Gray Molina, Yanez and Espinoza 2007). We also know that women and indigenous individuals continue to hit a glass ceiling in the labor market in Bolivia. Without active affirmative action or diversity-hiring practices this is unlikely to change in the future.

#### *4. 3 From Internal to External Migration*

This paper has focused on internal migration and its effects over human development. In recent years, however, academic attention has shifted to external migration, both for its implications at home and abroad (see Clemens et al 2008; Fajnzylber and Lopez 2008, World Bank 2009). Unfortunately, there is no single source of data that tracks both internal and external migration data for Bolivia. While internal migration data are drawn from census and household surveys in Bolivia, external migration data are drawn from census data from the US and OECD countries.

Three characteristics stand out from the comparative data on external migration for Bolivia. The first has to do with the Bolivian migrant profile. Niimi and Ozden (2008) show comparative information for Bolivia with respect to other Latin American countries, using US historical data on migration. Although the number of Bolivian migrants is not high (about 80,000 captured by the 2000 US Census), the typical Bolivian migrant tends to have a higher than average degree of education (with respect to non-migrant Bolivians) and tends to be employed in higher skilled jobs (with respect to home). The age and gender composition of Bolivian migrants is mostly average for Latin American migrants to the US.

The second issue is the link between external migration and remittances. Acosta et al (2008) analyze the effects of migrant remittances over poverty. Levels of remittances have increased significantly over the past five years, from \$ us 159 million in 2003 to an estimated \$ us 927

million in 2008 (World Bank 2008). In general terms, the size of remittances is moderate in Latin American terms (between 5% and 10% of GDP), but in absolute terms, remittances are second only to gas exports by volume of foreign currency receipts. Acosta et al estimate, using 2002 household and remittance data, that Bolivian remittances account for a relatively small share of poverty reduction (0.4 percent reduction) and inequality reduction (0.002 of the gini coefficient reduction).

The relatively small impact might be affected by two measurement issues that have affected comparable studies in Bolivia. The first is sampling. The MECOVI surveys are designed to produce robust estimates of urban and rural income, but tend to underestimate the number of household receiving remittances from abroad. The second problem is with the question that aims to capture remittances, because the wording of the remittances question is not immediately assimilated with transfers from family members by check, wire or cash. Besides measurement problems, the MECOVI surveys suggest remittances are received by middle and upper thirds of the income distribution, rather than the poorest third. This is consistent with the migrant profile which tends to show the poorest individuals in Bolivia do not migrate internally or externally to the extent of the non-poor.

The third issue is the analysis of place premiums for external migration. Clemens et al (2008) estimate place premiums for a Bolivian workers in the US. A typical Bolivian-born, Bolivian educated, urban male, formal-sector wage worker with moderate schooling makes 4 times as much in the US as in Bolivia. The paper adjusts for selectivity and compensation differentials, using a selection model to estimate how migrants' wage gains depend on their position in the distribution of unobserved wage determinants both at the origin and at the destination, as well as the relationship between these positions. Following all adjustments, Clemens et al estimate that the wages of a Bolivian worker of equal productivity, willing to move, would be higher by a factor of 2.7 solely by working in the United States. This result builds tacitly upon the rural-to-urban place premiums discussed in this paper. In both cases, the poorest Bolivians do not migrate to the extent predicted by place premiums. Migration costs are likely to be relatively high in both cases and difficult to capture with available household data in both countries.

**The Power of Social Capital**

“Unlike my parents I had the chance to finish school and the opportunity to continue at university level but given that I had to study and work at the same time I just couldn’t afford the expenses and had to drop it.... Another reason why I quit my studies was that I got very ill...and at that time I had no-one's support and had to live by myself and I needed to work to be able to subsist. I had been working since I was in early school but this time I was alone... A few years later I took courses on office assistance and general computing...through my political affiliation I was able to take courses on leadership and others. These courses have helped me to make connections and learn skills to find a job.

I’ve been working all my life (she says with displeasure)... when I was a child I was already selling on the streets, my mother made me sell ever since I was very little...after that and for a while I worked as an office assistant... My salary was between 200 and 300 Bolivianos a month and sometimes they wouldn’t even pay. So I had to quit that job and for a while I worked as a receptionist.

Now I work in trading. I make more money than when I was an employee, furthermore I can lay out my own time and no-one tells me what to do, this is good because now I have time to take more courses and since I am in the local council I have enough time to do politics and assist to meetings and other activities. My work in trading has given me many satisfactions, especially because I ended up as leader of the trade union and that helped me to achieve many things that other people could not. I believe my success has been shaped thanks to my skills on how to talk, how to be a good trader and that I knew how to become an important leader of my sector. I have now much more than I really need.

I am part of the trade union and active participant on the local council, I have been involved on the first group ever since I was a child and I enjoy my participation in the council because there are always necessities in our neighborhood and we have to take care of those necessities. I have improved my economic and educational situation based on my work as a trade union and local council leader. Both my parents where illiterate, they only

knew the basics on how to work to subsist, my mother selling on the streets and my father doing anything he could while he was alive.

My influence over the grassroots is related to the educational level that I had the chance to complete; a person that goes to university can express himself better and persuade the rest just by talking. My economic situation has improved very much and I have the people's acknowledge now, all of this thanks to my political participation that has led me to meet very influential people, which have helped me to become a head of the sector".

*Maria Julia, 46 years old*

Source: Espinoza (2008).

## **5. Conclusions**

### *Findings*

This paper started by describing a macro trend in human development in Bolivia –the emergence of a new demographic middle. Thirty years ago, the demographic middle third of the income pyramid was mostly rural, based on agricultural, with low levels of schooling attainment and low life expectancies. Today, the middle is mostly urban, working in the service and commerce sectors, with some secondary schooling, and a higher life expectancy. The new middle is also the locus of social and political activism. The middle of the population pyramid stretches across the regional and ethnic divide and provides a common popular identity to many groups and individuals (see UNDP 2007a and UNDP 2007b).

We then look at the micro determinants of migration through the prism of place premiums. Three results stand out from our analysis. First, rural-to-urban migration in Bolivia is largely driven by a wage premium of approximately 2 for people with 5 years of schooling and 4 for people with 16 years of schooling. Two caveats apply to our estimate. The first is that the premium is likely to be lower if we could account for schooling quality. A preliminary test of this effect suggests that premiums declines from 4 to 3.5 for rural migrants with more than 12 years of education. The second caveat is that non-measured costs such as informal insurance mechanisms are likely

to further dampen incentives to migrate. While data on insurance mechanisms are unavailable for the MECOVI household survey, the secondary literature on consumption and income smoothing in Bolivia suggests this might impose a significant cost over rural migrants. Both caveats begin to explain why we don't see more internal migration in Bolivia.

Second, migrants are usually younger, more female, more educated and more bilingual than non-migrants from rural areas. This means that the poorest of the poor do not migrate from rural to urban areas. We use quantile regression to analyze the determinants of income for the richest and poorest deciles of income. Being indigenous and residing in a rural area results in a wage-penalty for the richest decile, but not for the poorest decile. Gender and ethnic discrimination are entrenched in selected urban labor markets, particularly in the lowlands and valleys.

Third, we end the paper by looking at macro trends again, this time linked to the challenge of building human development capabilities in the future. We discuss two main findings. First, Bolivia has benefitted from an "urbanization dividend" over the past few decades. Rapid rural-to-urban migration resulted in significant increases in educational and life expectancy indicators, but not in income indicators. Second, a look at the trajectory of 30 years of the human development index suggests that the "urbanization dividend" is mostly over. Future increases in human development will be need to increase the quality of services in urban areas and expand more costly services to rural areas, where need is the highest.

### *Implications*

We believe there are two policy implications from the preceding analysis. The first is that if a modest "urbanization dividend" is running out in Bolivia, it is time to look at alternative ways of improving welfare for the poorest population that never migrated. Despite achievements in human development, there remain pockets of enduring poverty in rural areas and in urban areas, affecting women and indigenous people disproportionately. The recent push for an anti-poverty plan directed towards the poorest of the poor in rural Bolivia is therefore, a move in the right direction (Government of Bolivia 2007). However, there is a significant dearth of policy initiatives to help the urban poor on creating new jobs, upgrading existing job-skills and creating the conditions for broad-based economic growth in the future. There is also a significant absence

of affirmative action policies specifically oriented to women and indigenous people in urban educational and labor markets.

The second implication is more global. If local place premiums have mostly run their course, shouldn't we expect the international place premiums to continue to induce high-skilled migration, this time beyond Bolivian borders? The spotty evidence on external migration over the past decade would tend to support this view. More and more Bolivians with relatively high levels of human capital are leaving the country. There is, however, no policy framework in place either to facilitate migration or to avoid a brain drain altogether. Bolivia, for example, continues to subsidize tertiary education at the expense of primary or secondary education that could be absorbed by domestic labor markets. It also lacks structured placement policies for return students or high-skilled laborers who return from abroad. The global policy dimensions of migration clearly beyond the scope of this paper, but the facts of increased external migration require a fresh look at this new policy challenge.

Overall, the challenge of raising human development in Bolivia enters a new stage in the future. Past achievements were relatively inexpensive and not as institutionally complex as future gains promise to be. Investments in raising the quality of education and health services in Bolivia will require both creating positive incentives for upgrading service skills and neutralizing the negative incentives for service users and providers. Investments in employment and industrial policy will also require a range of expertise in small and medium enterprise development, technological transfers and global marketing that is currently missing. Both challenges are likely to be the dominant themes of the moving middle this decade.

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