

*Wiley-Liss Plenary Symposium***Rural-to-Urban Migration in Latin America: An Update and Thoughts on the Model**

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**ABSTRACT** Urbanization is an important demographic phenomenon, and in Latin America it transformed the settlement pattern from rural to predominantly urban in less than 50 years. Understanding the biological consequences of this change in settlement pattern is an important challenge for human biologists. One approach to understanding the effects of urban environments on human biology has been to study rural-to-urban migrants. In Latin America this research has shown that 1) the fertility of migrants tends to be intermediate between that of rural and urban populations, and 2) migrants tend to suffer higher rates of mortality and morbidity, at least initially, than long-term urban residents. There is some indication that the actual physical conditions under which migrants live in urban areas—and these tend to be among the most impoverished—are more important variables than migrant status per se. Studying rural-to-urban migrants requires careful attention to a number of conceptual issues. One issue is the definition of rural and urban. These two types of settlements are no longer as distinct as they once were, and “urban” can mean very different things in different places. Another issue is the complexity of current migration patterns. The classic case of people moving from a distinctly rural setting to a distinctly urban one and staying there for the remainder of their lives is not the norm. Third, the urban environments of large cities are extraordinarily heterogeneous environments with enormous socioeconomic differentials in health. Hence, it matters where in the urban environment the migrants live. *Am. J. Hum. Biol.* 16:395–404, 2004. © 2004 Wiley-Liss, Inc.

In 1967 the Colombian writer Gabriel Garcia Marquez published a novel, *One Hundred Years of Solitude*, destined to become the best-known novel in all of Latin America and win him a Nobel Prize in literature. It was a story of life in a small rural town, not unlike Garcia Marquez’s hometown. Today, Colombian novelists like Jorge Franco and Hector Abad write about the grit and bitterness of cities because they live in a Colombia far more urbanized than the one Garcia Marquez grew up in. When Garcia Marquez began writing, 30% of all Colombians lived in cities, and 70% in the countryside. Now those figures are reversed—more than 70% of all Colombians live in the cities. This dramatic demographic transformation was of course driven, in large part, by the migration of people from the rural countryside to the cities.

Rural-to-urban migration has historically been one of the most important kinds of migration worldwide (Smith, 1984, cited in Bogin, 1988). It is the kind of migration that has occurred as long as there have been urban centers, and in Latin America urban centers date to pre-Colonial times. Historians

like McNeill (1979) have argued that the early cities, like those of Europe, could not sustain themselves because of the extraordinarily high mortality, and depended on a constant influx of people from the rural countryside. This situation changed when urban centers solved some of the problems related to sanitation and water supply. Cities then became self-sustaining and began to increase in size. The historical scenario for Latin American cities is less well documented. However, we do know that the pace of rural-to-urban migration accelerated markedly in the 20th century, and in a period of about 50 years, Latin America went from predominantly rural to predominantly urban. The overall rate of urbanization (percent of population living in urban settlements) is considerably higher in Latin America (75%)

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than it is in either Africa (38%) or Asia (38%) (Haddad, 1999).

Anthropologists, demographers, and other researchers who have studied rural-to-urban migration have focused on a number of different questions. Why did people migrate? Who (age, sex, ethnicity, etc.) migrated? Were the migrants a select group or a representative sample of the local population ("sedentes"). What were the economic, social, political, and biological consequences of migration? Biological anthropologists have focused on the last of these, i.e., the biological consequences of migration (Bogin, 1988). In effect, rural-to-urban migration has been used as a natural experiment to compare the effects of two different environments, the rural and the urban, on certain aspects of the phenotype.

Migration as a natural experiment was used as a research design as early as the end of the 19th century with the work of Livi (1896, cited in Boas, 1912) and Ammon (1899, cited in Boas, 1912). In both studies the researchers found that migrants were taller than the rural sedentes (i.e., those who did not migrate). Livi (1896, cited in Boas, 1912) suggested that this difference was due to heterosis, while Ammon suggested that the change was due to the forces of natural selection. It was the now classic study of Franz Boas (1912) which looked at changes in growth and body shape between European-raised immigrants and their U.S. born/raised offspring that caused a major paradigm shift from the prevalent view of "fixity of types" to the concept of phenotypic or developmental "plasticity" (Lasker and Mascie-Taylor, 1988). While today there remains some debate regarding the relative plasticity of different parts of the human body (Gravlee et al., 2003; Sparks and Jantz, 2002), the concept of developmental plasticity is taken for granted.

Thus, the question of whether or not the human phenotype is malleable has been answered and contemporary research is focused on understanding which aspects of the phenotype (growth and development, fertility, general health, etc.) change after migration, and on identifying the factors in the new environment that are responsible for those changes. In the case of rural-to-urban migration, the factors assumed to be different in the new (i.e., urban) environment are many. They include qualitative and quantitative changes in diet, a decrease

in the level of physical activity, a greater dependence on a cash income for access to food and nonfood items, the greater availability of health care and public services, weaker informal safety nets, increased participation of women in the workforce, and increased exposure to environmental contaminants and the stress and violence that accompany high population densities (Ruel et al., 1999). Urban environments are "new" environments for humans both in the historical and evolutionary senses, and therefore understanding the effects of them on human biology is an important challenge for biological anthropology.

The purpose of this article is three-fold: 1) to briefly review historical and current patterns of rural-to-urban migration in Latin America; 2) to review what we know about the biological consequences of rural-to-urban migration in Latin America; and 3) to rethink our conceptualization of the rural-to-urban migration model for understanding biological responses to a change of environment.

## HISTORICAL PERSPECTIVES

In the early 1900s most Latin Americans lived in rural agricultural settings. The minority, who lived in cities, were concentrated in a single city, usually the capital city of the country (Merrick, 1998). This situation began to change during the 1930s with the movement of people from the rural countryside to the cities. The pace of migration increased dramatically after World War II and was at its peak in the 1950s (De Oliveira and Roberts, 1998). This phenomenon shifted the greater proportion of the population from rural to urban areas. Now the majority (>75%) of Latin Americans live in urban areas.

Urbanization in Latin America proceeded along different timelines in different countries (Fig. 1). It was most rapid in Argentina, Venezuela, and Chile, and in these countries 85–90% of the population now lives in urban areas (PAHO, 1998a). Urbanization was slowest in Paraguay, Ecuador, and Bolivia, where only 58–67% of the population now lives in urban areas (PAHO, 1998a). The least urbanized countries are now the ones showing the most rapid increases in urbanization: Paraguay (3.7%/yr), Bolivia (3.4%/yr), and Ecuador (3.3%/yr). Even the most quintessentially rural of all places in South America, the Brazilian Amazon, has become

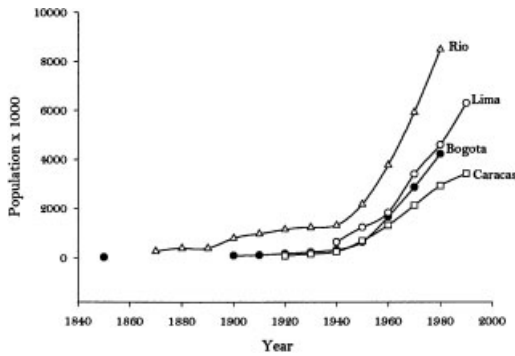


Fig. 1. Percent of population in urban settlements in Latin American countries. Data from Gilbert (1997).

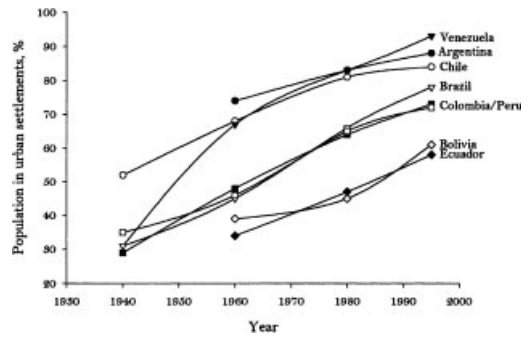


Fig. 2. Population growth of selected capital cities. Data sources: Brazil (Greenfield, 1994a), Colombia (Greenfield, 1994b), Peru (Kent, 1994), Venezuela (Greenfield, 1994c). For missing data between any two 10-year intervals, data was extrapolated.

urbanized (Browder and Godfrey, 1997), and today 58% of the population lives in urban areas (IBGE, 2003). The growth rates of urban areas in the Amazon region were double those seen in Brazil as a whole in the late 1980s and early 1990s (Browder and Godfrey, 1997).

The factors driving the migration to urban areas between the 1930s and 1960s are thought to have been the relatively rapid population increases in rural areas, the large-scale commercialization and mechanization of agriculture, the development of more export-driven economies, and industrialization. Together these processes reduced the demand for farm labor and created demands for labor in urban centers (Greenfield, 1994). In Colombia, "La Violencia," the period of violence in rural areas between about 1946 and 1958, also drove many rural inhabitants to the cities. Between the 1930s and 1960s most of the rural migrants appear to have bypassed the small cities and migrated directly to the capital cities (De Oliveira and Roberts, 1996), or primary cities. Some of these grew at phenomenal rates (Fig. 2). For example, Caracas went from a city of 694,000 in 1950 to one of 1,336,000 in 1961 (Greenfield, 1994c) an increase of nearly 200%, and between 1940 and 1961 Lima showed an increase of 286% (Kent, 1994).

Latin American cities did not have the housing or infrastructure to support the rapid influx of migrants. Many migrants used mechanisms like land invasions or squatting to secure housing. Land invasions were typically organized at the local level by activists who semilegally or illegally subdivided agricultural or other unoccupied land

and sold the lots. They then organized the simultaneous overnight arrival of new landowners to take possession of their lots by erecting a shelter on the site. These invasions could include hundreds of families, and local governments were usually powerless to stop them. The new landowners then began the long, difficult process of obtaining legal title to their lots, lobbying the government for public services and building shelters of more durable materials. These spontaneous settlements are known as *favelas* or *baixadas* in Brazil, *pueblos juvenes* in Peru, *callampas* in Chile, and *barrios populares* in Colombia. We will use the English term "shantytown" because many of the homes, and especially the first homes, in such areas are small, crudely built dwellings.

Living conditions in the shantytowns were typically quite difficult initially because of the sheer density of people without running water or sewerage. In addition, the sites were not always the best; some were placed in low-lying areas subject to flooding, and others on precarious hillsides subject to mudslides in the rainy season.

Movement from the countryside to the cities continued between the 1970s to the 1990s, and rural populations in many Latin American countries showed negative or zero growth. During this period smaller and intermediate-sized cities tended to grow more rapidly than the very large metropolises. In Peru, the 1993 census data indicates a decline in migration to Lima in favor of mid-sized (250,000–500,000) cities like Cuzco, Huancayo, Juliaca, Ayacucho, and Abancay

(Altamirano, 2003). These cities are now growing at a rate of 4–7% annually (Altamirano, 2003). The Brazilian Amazon is exhibiting a similar pattern: small (about 5,000 inhabitants) and mid-sized cities (20,000–50,000 inhabitants) are exhibiting the most rapid population growth (IBGE, 2003). Indeed, the 1990 Brazilian census showed that, for the first time, more than half of the Amazon's urbanites were living outside the region's two largest cities, Belém and Manaus (Browder and Godfrey, 1997). The highest rates of urbanization in the contemporary Amazon are actually in settlements centered around extractive industries like gold mining, timber, and latex (Browder and Godfrey, 1997). These industries have led to the rapid growth of "boomtowns," high-density settlements that are "urban" in terms of population size but lack the infrastructure, social and medical services characteristic of cities (Browder and Godfrey, 1997).

Violence continues to be an issue in the movement of people from rural to urban. In the 1980s and 1990s in Peru, the violence in rural areas created by Sendero Luminoso (Shining Path) fueled rural-to-urban migration (Kent, 1994). In the 1990s in Colombia, rural violence associated with the struggles between the FARC (*Fuerzas Armadas Revolucionarias de Colombia*), paramilitary groups, and the Colombian military resulted in the displacement of many Colombians to urban areas. Also in the 1990s, in the Brazilian Amazon region, rural violence was one of the factors driving urbanization (Perz, 2000).

### BIOLOGICAL CONSEQUENCES

There are relatively few studies of the biological consequences of rural-to-urban migration of populations in Latin America. This is surprising, given the large body of literature on migration and the relatively extensive literature devoted to rural-urban comparisons. Bogin (1988) reviewed the literature available through the mid-1980s. Briefly, he concluded that 1) the growth of the children of migrants was largely determined by their SES (socioeconomic status); 2) the fertility of migrant women was intermediate between that of rural-born and urban-born women; and 3) there were some indications that migrants had higher rates of disease.

In reviewing the more recent literature we were only able to locate four studies published since 1988. Two of them are based on Demographic and Health Survey (DHS) data. The DHS are representative national surveys funded by USAID (United States Agency for International Development) and implemented by a private company, Macro International. Using DHS survey data, Brockerhoff (1995) found that the children of migrants have a higher mortality risk than urban natives in Bolivia, Ecuador, and Peru, but not in Mexico (Fig. 3). He attributed the excess mortality of the migrant children to their relatively poor living conditions. He found that migrant women in large cities were more likely to live in homes that lacked basic amenities (electricity, flush toilets, piped water) and were made with nondurable materials. Based on a worldwide sample, he found that these attributes were associated statistically with a higher mortality risk in children. Indeed, he argues that these housing characteristics have a greater impact on child mortality than characteristics of the migrants themselves, like level of education, time since migration, etc. In this study a migrant was defined as someone who had been living in the city for at least 6 months and intended to stay there, but had previously lived in a rural area.

In a second study using the same DHS data, Brockerhoff (1994) compared child mortality in the 2-year period preceding migration with that in the 2-year period after migration (Fig. 4). He found that in

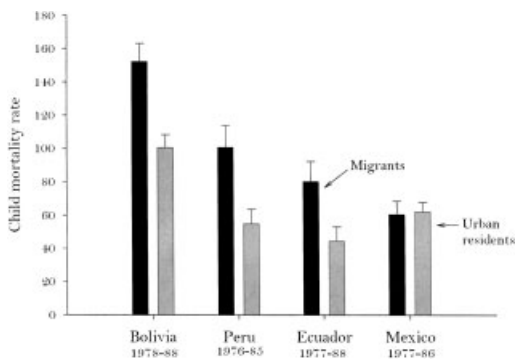


Fig. 3. Estimated child mortality rates of rural-urban migrants (urban births only) and lifelong urban residents for 1976–1988. Data from Brockerhoff (1995). Error bars are SEE.

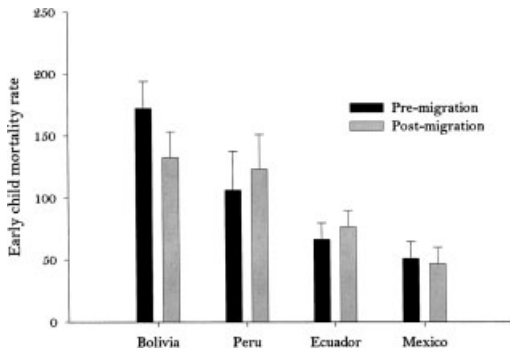


Fig. 4. Estimated early child mortality rates of urban migrants for children born within 2 years of the migration.

three of the four countries child mortality increased or stayed the same following migration. Only one country, Bolivia, showed evidence of an improvement in child mortality following migration.

A third study by Bender et al. (1993) found that women who had lived in rural areas of Bolivia until age 12 and then migrated to Cochabamba were at greater risk for iron deficiency anemia than long-term urban residents living in the same peri-urban settlements (presumably shantytowns). Since the migrants were also poorer in terms of material possessions and less likely to have indoor toilet facilities or access to municipal services like electricity and tap water, the differences between migrants and long-term urban residents might be largely a function of SES. Also, these data support the idea that the length of time migrants have been in the city is an important variable.

A fourth study reported on the health of adult female migrants working in the flower export industry in Colombia. The migrants are typically young women from rural Colombian towns in the central cordillera and work in greenhouses in the region around the capital city of Bogotá. Nearly two-thirds of these migrants suffer from health problems associated with pesticide exposure in their work (Watkins, 2001).

#### RETHINKING THE RURAL-TO-URBAN MIGRATION MODEL

The rural-to-urban migration model is a familiar research design, and one that should have enormous potential to help us under-

stand human biological responses to urbanization. However, it is a model that presents a number of conceptual challenges in its application in the real world. Some of these are 1) the arbitrariness of the categories “rural” and “urban”; 2) the tendency to rigidly dichotomize “rural” and “urban”; 3) the heterogeneity of modern urban environments.

#### *Arbitrariness of categories*

Human settlements in Latin America range in size from indigenous villages of 30 in the northwestern Amazon to mega-cities of more than 10 million like São Paulo (IBGE, 2003). The categories of rural and urban are arbitrary; there is no common criterion used for deciding if a settlement is rural or urban (Wratten, 1995). In many areas of the world administrative centers, regardless of size or anything else, are considered “urban” (UN, 1999). Population size is becoming the most commonly used criterion of urban settlements, but even here there is no agreement on the definition of urban. It ranges from settlements of 200 inhabitants in some parts of the developing world (UN, 1999), to 5,000 in Brazil (SUDAM, 2001), to 50,000 in Japan (Wratten, 1995). Local definitions of “urban” based on population size seem to take into account the overall population density of the country in question. For example, settlements of 5,000 in the Brazilian Amazon might have an urban character (i.e., paved streets, water-supply systems, sewerage systems, electric lighting, etc.), whereas villages of 5,000 in India are likely to be more rural in character (UN, 1999). How comparable are lifestyles of people in cities of different sizes? Do people in a small city in the Brazilian Amazon have more in common with their rural neighbors or urban dwellers in Rio de Janeiro, a city of more than 10 million inhabitants (IBGE, 2003)?

#### *Thinking beyond the rural-urban dichotomy*

We tend to rigidly dichotomize rural and urban, and conceptualize them as very distinct kinds of environments. This may have been appropriate in the past, but such a dichotomization no longer reflects reality in much of Latin America. First, the process of industrialization around large cities has moved further and further into the countryside as transportation has improved, and as

a consequence small rural villages have become "urbanized" (Gilbert, 1993).

Second, many of the inhabitants of places we consider "rural" are in continuous contact with urban centers. Take, for example, the case of a rural area and two urban areas in the Brazilian Amazon. The rural area is the Caxiuanã National Forest (a multi-use conservation area) and the surrounds located ~400 km west of Belém, the capital of the state of Pará. The National Forest and surrounding area to the north is home to ~1,200 subsistence farmers who depend on manioc (also cassava) as their staple crop and fish are their primary source of protein. They typically live in raised wooden houses that sit along the river's edge and use the river for drinking and cooking water, bathing, and waste disposal. Most people rely on outdoor wood stoves for cooking and do not have electricity, but some have gas stoves and electricity from solar panels (gift of the Goeldi Museum in Belém).

Although people in the Caxiuanã National Forest and surrounds live in an area that is undeniably rural, they are intimately connected to the cities of Portel (~110 km to the east) and Melgaço (~95 km to the east), where they sell farinha (toasted manioc meal) and açaí (palm fruit) and purchase industrialized products, like sugar, coffee, salt, soybean oil, spices, soap, pots, clothing, batteries, etc. Due to their dependence on the market economy, their workloads and choice of activity in the National Forest are often dictated by market demands. In addition, it is common for people to travel to Melgaço at least once a month so families with school children can collect a small government subsidy (*bolsa de escola*) to pay for school supplies, and retired people can collect their social security check.

Not only do people travel frequently between the rural countryside and the cities of Portel and Melgaço, some also make semi-permanent moves between them. It is common to come across empty homes along the river's edge and have local people explain that the family is currently in Portel but will return at some point in the future. It is also common to see families who live in the cities spending extended periods of time with their relatives who live in and around the Forest. Further, in some cases families send their children to Portel to continue studying, since education is very limited in the rural communities. It does not appear that many

people move from Portel or Melgaço to the larger cities like Belém, although that kind of "step-migration" from rural settlements, to towns, to small, and then large cities is common in other parts of the world (Brockhoff, 1994).

Third, small urban areas like Portel and Melgaço are in part rural. Portel is a city of ~38,000, of whom 18,000 live within the urbanized area and 20,000 live in the rural areas surrounding the city (IBGE, 2003). It has two hospitals, eight health posts, 136 primary schools, and one secondary school. Streets in the center of the city are paved, but those only a few blocks from the city's center are packed earth. Many of the houses outside of the city center are made of wood, have running water and electricity, but no sewerage or systematic waste disposal. Many men work in the local sawmills or as commercial fishermen and women typically work selling produce or other goods from their homes, or as attendants in small shops. However, many people who live in Portel still rely to some degree on subsistence farming; some plant manioc on plots of land on the outskirts of the city where they live or where they have relatives, and many continue to fish for subsistence. Melgaço is the local administrative center, but in comparison to Portel it is considerably smaller (~21,000 people; IBGE, 2003) and more rural (86% of the population lives in rural areas surrounding the city).

In sum, the division between rural and urban is not what it used to be, and the dichotomy is no longer very useful.

#### *Heterogeneity of modern urban environments*

The fact that Latin America has the worst income distribution in the world (UN, 2001) is demonstrated in the cities by the harsh contrasts between rich and poor neighborhoods. Large Latin American cities are very heterogeneous environments. They include very poor-quality environments like shantytowns without piped water or sewerage, as well as very good quality environments that rival those found in the elite neighborhoods of developed countries, and everything in between. The quality of urban environments, of course, maps the distribution of the population in terms of SES. Since rural migrants are typically poor, they make their homes, at least their first homes, in the

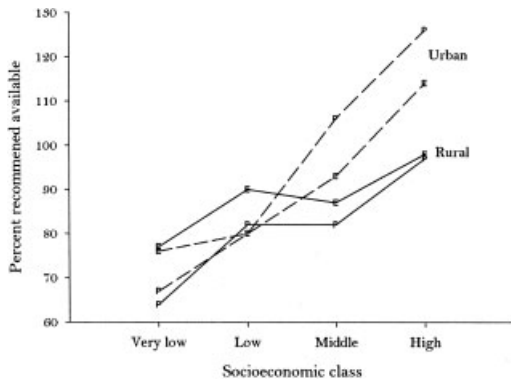


Fig. 5. Proportion of recommended energy and nutrients available per capita per day within-rural and within-urban localities ( $n = 11$ ) in Colombia, 1963-65. Data from Basta, 1977.

shantytowns, i.e., the poorest quality, most marginal areas of the city.

Basta (1977) was one of the first researchers to call attention to the health implications of the heterogeneity of Latin American cities. Using data from a Colombian nutritional survey, he demonstrated dramatic SES differentials in food availability in urban areas, and pointed out that the urban poor were actually worse off than the rural poor. The data for energy and protein availability are shown in Figure 5. The pattern for other nutrients is similar. Studies in Brazil in the late 1970s and early 1980s also reported large SES differentials in health indicators in urban areas (Carvalho and Wood, 1978; Guimaraes and

Fischmann, 1985; Monteiro and Benicio, 1989)

More recent (1986-1990) DHS data from Brazil, Colombia, Guatemala, and Peru document the persistence of large SES differentials in health indicators in Latin American cities. One indicator is the prevalence of stunting in young children. Stunting, or short stature-for-age, is assumed to be the result of accumulated deficits in linear growth attributable to infectious disease and/or inadequate nutrition. It serves as an indicator of the overall quality of the environment during growth. The DHS data show impressive within-urban, as well as within-rural, differences in prevalence of stunting in children 1-4 years of age (Haddad et al., 1999). The highest rates of stunting were found in the rural low SES groups in all four countries, but the second-highest rates were found in the urban low SES groups (Fig. 6A). Further, SES differences in the prevalence of stunting were greater in urban areas for three of the four countries.

Another health indicator is the prevalence of diarrhea. Diarrheal diseases are an indicator of infectious disease load, and these diseases are a significant contributor to mortality (15-21%) in Latin America (PAHO, 1998b). In the same DHS dataset referred to above, the prevalence of diarrhea in children was highest in the low SES urban groups in three of the four countries (Ruel et al., 1999). SES differences in diarrhea prevalence were again greater in urban than rural areas (Fig. 6B). In a separate analysis of the DHS data for Brazil, Timaeus and

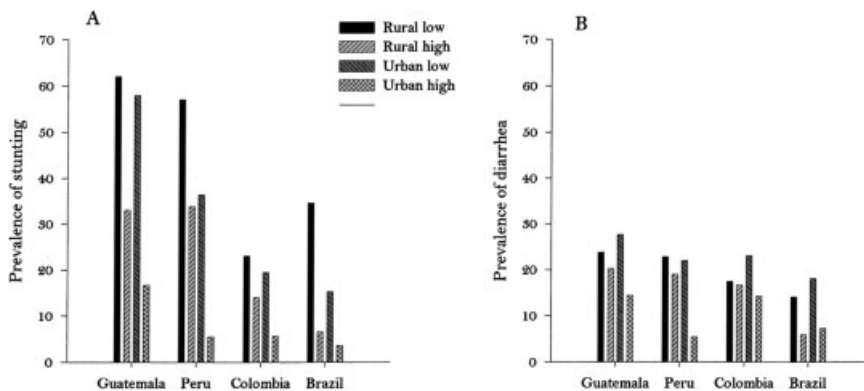


Fig. 6. Comparison of within-rural and within-urban differentials in stunting and diarrhea prevalence. Low and high SES represent the first and fifth quartiles, respectively. **A:** Prevalence of stunting in 1992-1995 (Haddad et al., 1999). **B:** Prevalence of diarrhea in 2 weeks preceding survey, 1992-1996 (Ruel et al., 1999).

Lush (1995) concluded that the quality of the urban environment (in terms of access to piped water and toilet facilities in the house) was more important in explaining the prevalence of diarrhea than SES. They also found that child mortality was better explained by the same environmental variables than SES.

Lastly, our anthropometric data for women in Cali, Colombia, in the late 1980s demonstrate large SES differences in stature and body mass index of adults. The low SES women (LEC and MLEC in Fig. 7) are significantly shorter and heavier than the high SES women (UEC in Fig. 7) (Dufour et al., 1994). We assume that most of the low SES

women (LEC and MLEC) were rural-to-urban migrants, and hence their stature reflects growth in rural areas between the late 1940s and the early 1960s. Some of the younger women were born in urban areas. The differences in stature are striking, as is the fact that although stature has increased in both groups since the mid-1950s, the gap between them has not changed.

The differences in BMI (body mass index) are more indicative of the heterogeneity of the current urban environment (Fig. 7, upper graph). Mean values for BMI are similar in the LEC and MLEC groups and significantly greater than in the UEC women. All three distributions are skewed, but the LEC and MLEC groups are the most positively skewed, and the BMI distribution of the LEC women is shifted furthest to the right. The percentage of subjects with BMIs of  $27.3 \text{ kg/m}^2$  or greater and classified as overweight or obese are 17.4, 10.1, and 5.4% in the LEC, MLEC, and UEC groups, respectively. These differences are statistically significant. The women with high BMIs are potentially at risk for the health consequences of obesity, which include chronic diseases like NIDDM (noninsulin-dependent diabetes mellitus), hypertension, and some types of cancer (WHO, 2003).

A greater tendency toward obesity in the lower SES segments of the population has also been documented for Brazil, and is considered characteristic of the nutrition transition occurring in Latin America (Monteiro et al., 1995). The nutrition transition refers to the broad changes in diet and activity pattern occurring with modernization in low-income countries. It goes hand-in-hand with the epidemiological transition, i.e., the transition from a mortality profile dominated by infectious disease to one dominated by chronic, degenerative diseases (Popkin, 1994).

In summary, the long-held belief that indices of health, like stunting, infectious disease, and mortality, are better in urban than rural areas does not necessarily hold when the heterogeneity of the cities is taken into account. Indeed, there is some support for the idea that the urban poor, which is the situation of most rural-to-urban migrants, live in the worst of both worlds because they suffer from infectious diseases associated with rural lifestyles, as well as the chronic degenerative diseases associated with urban lifestyles (Habitat,

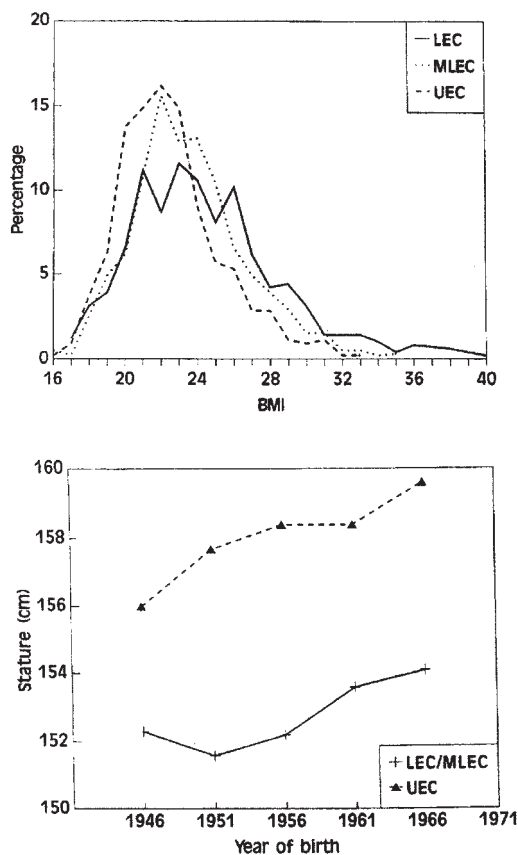


Fig. 7. Stature and body mass index (BMI) of Cali women by socioeconomic class: LEC = lower economic class, MLEC = mid-low economic class, UEC = upper economic class. Top: Frequency of BMI by socioeconomic class and age. Bottom: Mean stature adjusted for aging plotted by year of birth. Data reprinted with permission from Dufour et al., 1994.

2001). In essence, they are caught in the middle of the epidemiological transition occurring in Latin America, and most rapidly in the urban areas.

## CONCLUSIONS

Rural-to-urban migration is still occurring in Latin America, but in most countries the pace has slowed considerably. The rural-to-urban migration model is potentially useful for understanding the biological consequences of urbanization in Latin America, the most dramatic change in human settlement patterns in the past 50 years. Using the model requires attention to 1) the distinction between "rural" and "urban," which is not as clear-cut as it was in the past; 2) the complexity of current patterns of migration; and 3) the multitude of environments within the urban. Since recent studies suggest that the physical environment might have a greater impact on health than migrant status, except in the initial stage of urban residency, focusing on the heterogeneity of urban environments should be a productive research strategy. Urban populations should be particularly interesting since the cities are the sites of rapid transitions in health.

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