planned in isolation. The trend, at present, is to link site and services projects with other land uses and activities throughout the whole urban landscape. The linkages between home, job, entertainment, and service needs, mediated by the transport system, are proving crucial to the success or failure of site and services projects. Regionwide planning and administrative systems are beginning to be evolved in many developing countries to make for integration of urban services. Perhaps it is in this integration with the urban environment that site and services will eventually realize its potential.

5) In the same way that site and services are being fitted more effectively into metropolitan-region plans, there is also a trend to use the approach as one of the key elements in a national human settlements strategy. Most site and services projects in the past have been concentrated in large cities where the slum and squatter problem has been most acute. Lately, however, countries are requesting projects for intermediate and smaller cities. The motive behind introducing site and services among cities in a country's urban hierarchy is rooted in the hope that such schemes may help to encourage people to stay where they are, instead of moving to the largest cities. There is precious little proof that such a strategy will work, since economic rather than service considerations seem to be given more weight in migration decisions. However, here, as in other previous elements in site and services, experimentation seems to be warranted. It is in this learning-by-doing approach, after all, that the site and services concept has made its contribution to the theory and practice of urban and regional development.

References

1. C. Abrams, *Man's Struggle for Shelter in an Urbanizing World* (MIT Press, Cambridge, Mass., 1964).
2. J. F. C. Turner, *Uncontrolled Urban Settlement: Problems and Policies* (United Nations Centre for Housing, Building, and Planning, New York, 1966).
3. L. R. Peattie and W. A. Doebele, mimeographed manuscript, "Some second thoughts on sites and services" (Massachusetts Institute of Technology, Cambridge, 1976).
4. A. A. Laquian, *Slums Are for People* (East West Center Press, Honolulu, 1971).
5. W. Mangin, "Urbanization case history in Peru," *Architectural Design* **33**, 366 (1963).
6. International Bank for Reconstruction and Development, *Site and Services Projects, Survey and Analysis of Urbanization Standards and On-Site Infrastructure* (IBRD Transportation and Urban Projects Department, Washington, D.C., 1974).

The Rush to the Cities in Latin America

Government actions have more effect than is generally recognized.

Frederick C. Turner

In Latin America, as elsewhere, rapid migration to urban centers has not simply resulted from the decisions of independent citizens or the indifference of government policy-makers. A principal cause remains the attractiveness of city life, which is enhanced by a host of decisions and programs of national and municipal governments. Considering the startlingly high projections for continuing urban growth, the problems of urban crowding and underemployment, and the feared potential for violence, the causes and effects of migration and growth require careful rethinking, particularly as they are related to a series of laws and government actions that is far larger than we commonly assume.

A central problem is that, without tight government regulation of urbanization of the sort found in the Soviet Union or China, programs designed to improve the quality of life for urban residents also induce substantial migration from rural areas, thus exacerbating the crowded conditions in the cities that the original urban programs were designed to ameliorate. Is it indeed possible to realize goals involving rapid economic development, city growth, and the expansion of social service programs, without doing away with traditional respect for individual freedom in the decision to migrate? If so, we require a detailed appreciation, not only of current demographic trends, but also of the myriad ways in which governmental actions affect migration patterns.

Rapidity of Urbanization

Important variables are the extent of the migration, who are migrating, where they are going, and what the chances are for recent patterns to continue into the future. The growth in city size has been, and will continue to be, very large indeed. By the year 2000, urban centers in Latin America are expected to contain 500 million people, with 19 metropolitan areas alone encompassing 250 million, up from just 70 million in 1975 (*1*). Cities in this region are typically growing at more than 4 percent a year, with some increasing at a considerably greater rate. Annually, Latin America's rural population rises by 1.5 million persons, while its urban areas swell by 7 million (*2*), with very little of the increase coming from international immigration (*3*).

Brazil, which now contains nearly two-fifths of the population of Latin America, reflects this trend in regional growth. As Table 1 demonstrates, migration into Brazilian metropolitan centers has been massive. From one-fifth to more than one-half of the population of the cities has come from migration. In São Paulo, almost 10 percent of the migrants and more than 5 percent of all the people in the city have lived there less than 1 year. Despite the high density of population in Rio de Janeiro and São Paulo, people continue to flock there, attracted by the appearance of high wages. Between 1970 and 2000, the percentage of Brazilians living in urban areas is expected to rise from 40 to 65.

The migration is not just a matter of rural men coming to the cities for jobs; people of both sexes and whole families seek new opportunities in the cities. Among Mexico City residents who were born elsewhere in the country, for example, the 1970 census revealed more women (1243 thousand) than men (1025

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Table 1. Population, migration, and urban density in Brazil, 1970. Values were figured from data in (*62*). Here and in Table 2, the values are rounded down, so that the size of the population is never exaggerated. Values in the last column are in new cruzeiros (Cr); the exchange rate varied from 6.03 to 6.22 new cruzeiros to the dollar in 1973.

City	Population (thousands)				Population density (persons per square kilometer)	Migrants in city population (%)	Foreman's hourly salary (mean, 1973) (Cr)
	Resident	Migrants in city	Residence of: Less than 1 year	Residence of: 1 year			
São Paulo	8,139	4,306	417	236	1,023	52.9	7.13
Rio de Janeiro	7,080	3,206	281	145	1,095	45.3	6.40
Recife	1,791	602	75	38	813	33.6	2.71
Belo Horizonte	1,605	809	78	49	437	50.4	5.36
Porto Alegre	1,531	750	75	41	263	49.0	4.45
Salvador	1,147	336	42	18	525	29.3	8.10
Fortaleza	1,036	335	45	16	297	32.3	
Curitiba	821	337	45	22	93	41.0	
Belém	655	143	16	7	537	21.8	4.14

thousand) (*4*). Migrants are by no means all clustered in the famous shantytowns. Middle- and upper-class areas of Mexico City generally have a migrant population that is higher than the city mean level, composed of both economically successful males from the states and a large number of female domestic servants (*5*).

The rate of growth is especially heavy in the largest urban centers. Table 2 projects a continuation of rapid increase during the last quarter of this century. Some cities, such as Buenos Aires or Córdoba, Argentina, should grow at a comparatively slow pace, doing little more than tripling between 1950 and the year 2000. Lima, on the other hand, is expected to grow by a factor of 20, with such vast cities as São Paulo or Mexico City growing to more than ten times the 1950 population. As Fig. 1 shows, even for Argentina the long-noted trend toward bloating of the capital and its surroundings has not slackened in the recent past. While the central city of the Federal Capital has lost some population, like nearly all of the provinces, massive growth has occurred in the Province of Buenos Aires, which surrounds the city.

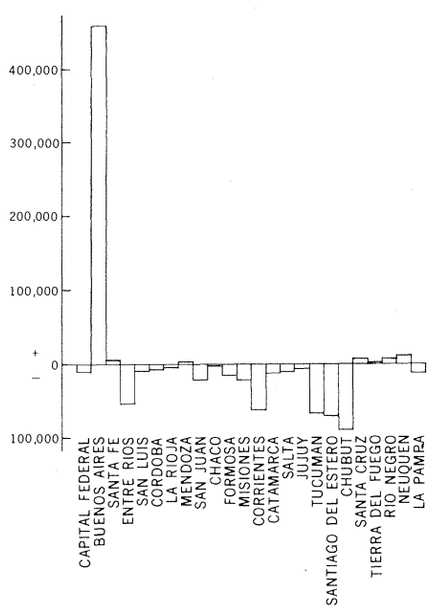

Fig. 1. Migration in Argentina, 1965–1970. The data are from (*65*).

Will these trends continue? It is difficult to conceive of the population of Mexico City actually swelling to 31 million in the next quarter-century, yet the projections have to be taken seriously, especially considering that Mexican national projections in the 1950's and early 1960's proved to have been underestimated. Projections and problems predicted in the urbanization literature of the 1960's have indeed come to pass (*6*). Latin America will reach urban saturation earlier than other parts of the world, since it is already about 60 percent urban, compared to about 30 percent in Asia and Africa. But demographic trends take considerable time to reverse, and barring war, plague, or similar catastrophe, growth and migration patterns in the immediate future are likely to resemble those in the recent past.

Causes and Effects

A major cause of the rush to the cities is higher wage levels and the hope of the migrants that they will be able to afford a better standard of living there. Reflecting the generally superior urban pay scales, per capita income was 22,800 pesos ($1824) in Mexico City in 1970, whereas for the country as a whole it was only 8280 pesos ($662) (*7*). Workers, both urban and rural, desire better wages and life-styles. This is indicated in Table 3, which shows some results of a survey that I conducted among Argentinians in late 1973 (*8*). When asked what changes they would most like to see in their country, the workers named higher pay, steadier employment, and better housing, whereas the businessmen and landowners showed comparatively little concern for these issues. Landowners naturally favored private enterprise, since they owned one of society's most valuable resources. Possessing comfortable houses and apartments, few members of the elite mentioned housing as a pressing national need.

Well-intentioned adversaries of poverty want to increase urban wages still further. The president of the World Bank advocates strategies of government investment to raise the incomes of the urban poor (*9*), even though this would further encourage the in-migration that he recognizes as a cause of surplus labor and low wages in the cities. This would once again enhance the attractiveness of city life, especially since economies of scale and lower transportation costs make production and marketing easier for a concentrated urban population, bringing city residents a wider choice of goods and a more competitive price structure.

Another principal attraction of the cities is the quality of public services. Table 4 demonstrates that the water supply is vastly better in urban areas, for both rich countries like Argentina and

Table. 2. Population growth in some large cities. The data are from (*63*).

City	Population (millions)		
	1950	1975	2000
Mexico City, Mexico	2.8	10.9	31.6
São Paulo, Brazil	2.4	9.9	26.0
Rio de Janeiro, Brazil	2.8	8.3	19.3
Buenos Aires, Argentina	4.5	9.3	13.9
Lima, Peru	0.6	3.9	12.1
Bogotá, Colombia	0.6	3.4	9.5
Caracas, Venezuela	0.6	2.6	5.9
Belo Horizonte, Brazil	0.3	2.0	5.7
Santiago, Chile	1.2	3.0	5.1
Havana, Cuba	1.1	2.2	4.4
Brasilia, Brazil		0.8	3.7
Santo Domingo, Dominican Republic	0.1	0.9	3.2
Montevideo, Uruguay	0.8	1.5	2.2
Córdoba, Argentina	0.4	0.8	1.3

poor ones like Haiti. Public water service is provided in the cities more easily than in the countryside, where the distance between dwellings makes it far more costly. Similar data indicate that electric lighting is much more readily available in urban than in rural homes (*10*). The superiority of educational facilities in metropolitan areas is indicated by the fact that, in 1970, illiteracy was 23 percent throughout Mexico but only 10 percent in Mexico City, down from 17 percent in 1960 despite heavy migration (*5*, p. 59; *11*). Education is a lure in terms of a better life for the next generation, since, in provincial as well as larger centers, migrants initially tend to find jobs mainly in such occupations as vending or construction (*12*). Finally, medical care is far better in urban locations, whether it is measured in life expectancy (*13, 14*), in the number of persons per physician (*15*), or in hospital beds per capita (*16*).

Frequently, government information services stress these benefits, inadvertently encouraging migration. A contemporary example is a widely distributed brochure describing attractive housing benefits available in Mexico through Infonavit, an organization created by President Luis Echeverría in 1972. Written from the government to workers, it explains that employers must contribute an amount equivalent to 5 percent of the worker's wages to the housing fund, that—in order to prevent political "favoritisms"—a computer will select the most needy workers to receive housing first, and that when housing is provided, between 14 and 18 percent of the worker's pay will be deducted for a minimum of 10 years to purchase it (*17*). An accompanying comic book shows real pictures of President Echeverría explaining rights to workers, with drawings of a huge bureaucrat who towers over a factory, forcing the boss to enroll workers (*18*). While Infonavit operates in all the Mexican states, its emphasis is urban, and, especially given the brochure's slant that housing will be provided for the neediest first, it encourages migration. An alternative within the existing structure would be to construct, and advertise, more housing for small rural communities.

Another cause of rapid urbanization is the rise of population in rural areas. Folk attitudes in the countryside emphasize maternity as the valued role for women and the need for men to demonstrate their virility through many offspring (*19*). Partially as a result of these attitudes, while the yearly rate of population increase fell from 2 to 1.63 percent worldwide from 1965 to 1974 (*20*), in such Latin American countries as Brazil, Mexico, and the Dominican Republic it remained between 2.7 and 3.4 percent. Urbanization has not uniformly led to the decline in birthrate predicted by the theory of the demographic transition, because migrants are typically more prolific than those who have lived longer in the city. During the 1960's, fertility rose in some urban centers, as high-fertility migrants maintained rather than altered their older attitudes toward family size (*21*).

Table 3. Changes desired in Argentina. The open-ended question asked was, "If you could change things in our country, what changes would you like to make?" If the respondents had been asked directly whether they were in favor of these specific changes, a higher proportion would have responded "Yes."

Change	Percentage desiring change			
	Rural workers (N = 100)	Urban workers (N = 199)	Businessmen (N = 118)	Landowners (N = 100)
More jobs	20	20	7	12
Higher salaries	19	14	3	5
Better housing	15	10	2	1
Aid for the poor	11	4	3	2
Aid for workers	10	9	3	1
Aid for private enterprise	0	0	7	10

Together with the mechanization of agriculture, the growth of population in the countryside leads to the economic redundancy of people and invalidates even the best agrarian reform. Mexico, for example, has had the most extensive program of land distribution in Latin America, yet between 1950 and 1970 the number of rural workers without land rose by 120 percent, from 1.5 million to 3.3 million (*22*). As underemployed agriculturists stream to the cities, the proportion of the work force in agriculture steadily declines, as shown in Table 5 (*23*).

A further spur to migration is, paradoxically, investment in rural areas. Preliminary data from a study in Mexico (*24*) indicate that most types of investment facilitate rather than retard rural outmigration, as better education heightens aspirations, increased output raises family income and allows a move, and improved health conditions increase the rural population and thus the pressure to leave. New roads make travel easier, and teaching Spanish to speakers of Indian languages allows them to seek employment outside their old linguistic community. The only types of investment that appear to slow out-migration are those which create new jobs in the countryside and support irrigation, allowing new lands to be used (*24*).

Such investments do not automatically trigger migration. In a study of migration from a small community north of Buenos Aires, Wilkie (*25*) found that the attitudes of the migrants and the accuracy with which they understood spatial relationships were far more important than their economic condition in affecting the decision to leave. While virtually all members of the community were lower-class in terms of national income levels, he discovered a clear continuum of incomes and attitudes inside the community, with the least likely to move being the comfortable families at the top and the "spatial dropouts" (those who did not comprehend spatial relations) at the bottom of the local income scale. Those most likely to migrate were in the middle sector, confident of their ability to deal with the world around them, rejecting traditional religious beliefs and authority figures, filled with ambition rather than resignation, and coming from families that taught them to trust the environment (*25*). Decisions to migrate are made according to how opportunities are perceived by very different sorts of people, which leads some observers to compare today's urban migrants with the adventurous pioneers who settled the American West in the 19th century (*26*).

A principal effect of rapid urbanization is to render very difficult the provision of

Table 4. Population served by a water supply in urban and rural areas, 1973. The data are from (*64*, pp. 53–54).

Country	Percentage of population	
	Urban areas	Rural areas
Argentina	78	20
Bolivia	75	5
Brazil	77	30
Colombia	89	34
Costa Rica	100	66
Cuba	85	5
Chile	94	8
Dominican Republic	80	19
Ecuador	65	9
El Salvador	85	35
Guatemala	87	2
Haiti	45	2
Honduras	97	12
Mexico	73	36
Nicaragua	100	11
Panama	100	51
Paraguay	36	6
Peru	73	10
Uruguay	96	31
Venezuela	88	42

the higher living standards of the migrants' dreams. A burgeoning population strains educational facilities and exacerbates problems of urban unemployment (*27*) and housing (*28*). Transportation problems become acute because of the need for new facilities and the additional effort spent commuting to work, especially when areas like Mexico City spread horizontally with a preponderance of one-floor dwellings, or when, as in the case of Rio de Janeiro, new apartments for lower-class persons working in the chic Copacabana area and the rest of the Southern Zone are built 2 hours away by bus rather than integrated into this upper-class location. Even abortion, a major problem in Latin America, appears to be significantly higher in the cities (*29*).

The hypothesized effect of urban crowding on political violence remains far more problematic. While large-scale rural violence has stimulated further urbanization, as in Colombia after 1946, it remains unclear that, as many have predicted (*30*), migration will produce urban violence. Urbanization transfers the underemployed from the countryside, where they are dispersed and can often cultivate small plots or fish and hunt to supplement their diet, to urban concentrations, where they can be somewhat more easily mobilized for political activities. But studies of squatter settlements indicate that their residents make demands within the existing political system for public services, generally being far more concerned with gaining title to land, making improvements on it, and rising in socioeconomic status than they are in violence or even threats of violence (*31*). Given this orientation, governments can gain support by dispensing favors and aiding the migrants to improve existing structures (*32*).

Table 5. Percentage of economically active population in agriculture, 1950–1970. The data [from (*64*, pp. 131–140)] cover agriculture, forestry, hunting, and fishing. The Argentine data are for 1947 rather than 1950, the Chilean for 1952 rather than 1950, and the Guatemalan for 1973 rather than 1970.

Country	Percentage of population	
	1950	1970
Guatemala	68.1	57.0
Brazil	57.5	44.3
Mexico	57.8	39.4
Chile	30.1	21.4
Argentina	25.2	14.8
Canada	19.0	6.9
United States	11.9	3.7

Nevertheless, urbanization has broad political effects. As the urban middle class increases in size and power, its demands reshape patterns of national production (*33*). Political influence gradually flows toward cities as a higher and higher proportion of the nation's voters and potential soldiers is concentrated there, and, while city manufactures make up more and more of the gross national product at the expense of agriculture and mining, urban businessmen, technocrats, and military leaders take power at the expense of the rural landowners, who were strong at the beginning of this century. Migration also leads to integration and "homogenization" (*34*) of cultures in each nation, as countrypeople bring their regional mannerisms into the cities and urban ways seep into the countryside on their return visits.

Another effect of migration is to stimulate government efforts to stem or reverse the flow from rural areas. On the local level, this strategy attacks symptoms rather than causes, alleviating urban congestion somewhat by moving service facilities to suburban locations. As a catchy jingle now reminds an everywoman figure named Blanquita on Mexico City radio stations, new suburban centers can handle all matters such as automobile registration, birth certificates, and marriage licences, preventing the need to travel to the center of the city. Far more ambitious strategies for relocation try to push people into comparatively unpopulated areas such as the Amazon Basin. In Brazil, policies have included funding homesteaders for the new territories, building road systems that facilitate travel for them, and, through Project Rondon (*35*), encouraging students and physicians to go to frontier areas, thus both aiding migrants and co-opting activists away from the militant, antigovernment behavior that characterized some students in the past. The road network outlined in Fig. 2 shows the amount of effort that Brazil has recently put into this strategy. Instead of reducing population growth in the poverty-stricken northeast, the recent military governments have tried to shift the northeastern population into the north and west, thus gaining the military advantage of having a road network and more people along Brazil's borders with the Spanish American countries.

The feasibility of mass migration to the "open territories" has yet to be proved. In the early 1960's, President Fernando Belaunde-Terry of Peru dreamed of a highway over the Andes, relieving economic and political pressures in the highlands by draining surplus population to the Peruvian Amazon (*36*). But, when the military takeover of 1968 pushed President Belaunde from office, the ap-

Fig. 2. New roadways in Brazil. The data are from (*66*). In 1960 the roads northwest of the dark lines did not exist. Solid lines, existing roads; dashed lines, planned roads.

proach was fundamentally altered to one of land reform in the *altiplano* itself. Despite very serious problems of minimal soil nutrients in the rain forests and as yet inadequate extension services to aid the colonists (*37*), Brazil may be able to relocate substantial numbers of persons in the greater Amazon basin, as may Bolivia, which has a similar program (*38*). But, given freedom of migration, the attractiveness of the major urban centers, and projected national population increases, the opening of the Amazon cannot divert enough people to significantly slow urbanization elsewhere.

Future Government Policies

If open areas like the Amazon Basin are unlikely to absorb vast numbers of migrants in the short run, then what should government initiatives be in order to lessen the pressures of rapid urbanization? Suggestions vary from the proposal that governments should do nothing, since politicians do not really understand the social processes at work (*39*), to calls for the establishment of public ownership of all urban and suburban land to be used for future expansion (*40*). Broadly, there are six areas of special importance for future actions, although the fundamental problem remains making the political decisions necessary to implement specific policies in each area.

1) *Lower population growth*. One basic orientation is to limit the rate of population increase, particularly in rural areas, which have higher birthrates, which are harder to reach through government programs, and where population growth deceptively appears less disruptive. The provision of free contraceptives and effective family-planning counseling is a necessary, though by no means fully adequate, first step (*41*). Recent studies show that illiterate rural people in some countries will use modern contraceptives as much as wealthier urbanites if the contraceptives become available to them (*20*, p. 1).

In order to reduce population growth, some Latin American governments, like Argentina, must first reverse their decidedly pronatalist policies, revising laws designed to encourage population growth, allowing private groups to fund birth control clinics, and ultimately moving to give government aid to similar efforts. In countries, like Mexico, with announced programs to limit unchecked demographic growth, implementing family-planning services in outlying clinics becomes the issue (*42*). In such efforts, leaders in each Latin American country must themselves come to recognize the effects of unchecked growth and urbanization, and heavy-handed, if well-intentioned, pressure from other countries may stir nationalist resentments and postpone reforms.

But this action is not sufficient. As Davis (*43*) warned, the problem cannot be solved by providing legal and free contraceptives. Fundamentally, it is one of people's attitudes toward family size, themselves, and their community. Citizens have to make the decision to have fewer offspring.

Other policies affect this decision. Postponing the age of marriage, traditionally done in such Catholic countries as Ireland, limits the number of fertile years for married couples. Draft laws can affect this process, as they may require men to serve in the armed forces, away from their local communities, during years when many marry. Alternatively, if women are encouraged to seek self-fulfillment through work rather than primarily through motherhood, the careful raising of the young can still remain a vital and respected occupation for those who most desire it.

Expanding medical care facilities in rural areas raises life expectancy and health standards for children, thus discouraging the belief of parents that they must have many children to be sure that some survive. To the extent that the government can bring rural residents under a national social security system, as Mexico has recently begun to do (*44*), and give some retirement benefits to rural workers, as Brazil did in 1970 (*45*), it appears less necessary to have children to provide for one's old age and there is less motivation to migrate to urban jobs with social security coverage. Additionally, the expansion of government services can differentially benefit communities that demonstrate low fertility in the future. The government of India is thus planning to give priority in the installation of rural drinking water to localities with the highest levels of voluntary sterilization, and there is active discussion in Indian states, such as Maharashtra, of forced sterilization of parents who already have two children (*46*).

2) *Support smaller cities*. Another way to deal with migration problems is to improve job opportunities and the quality of life in smaller and medium-sized cities and in "agricultural villages" in rural areas (*47*). This approach, which was one plank in the World Population Plan of Action that came out of the United Nations conference on population at Bucharest in 1974 (*48*), allows more citizens to enjoy benefits associated with urban life, while not further swelling the national and regional capitals. It should be accompanied with provisions to raise rural incomes and acreage through government-financed irrigation, and to foster new rural employment where this is feasible in terms of production costs and marketing possibilities.

Politically, these decisions are difficult to take, because the rural and small-town poor exercise little influence at the national level. But, if their migration decisions are to be affected, they must either be repressed or be convinced that the quality of their lives can improve outside the metropolis. If a government, like that of Brazil, plans for rapid economic growth of a high-technology and low-labor-input variety, it must either concentrate this growth in small and medium-sized locations or be ready to deal with the consequences of the projected tripling of São Paulo in the next three decades.

Fundamental to this strategy is the provision of higher real incomes outside the largest cities. To many, this will seem justified on the grounds of more equitable income distribution, and in the long run it may strengthen the national economy. Pollution, overcrowding, and potential violence have both economic and human costs, and these should be counted in weighing development alternatives.

Further experimentation in affecting the quality of life is also necessary, and should be judged in terms of its ultimate price and its effectiveness in meeting citizens' needs. Can central, wide-screen television sets, working for both video cassettes and satellite-relayed pictures, attract village residents, much as newspapers were read to groups of illiterates on the street corners of colonial Latin America? Can traveling troops of actors, dancers, singers, and musicians increase the availability of cultural events in small towns, sometimes bringing purely artistic messages and sometimes portraying themes of national development and the importance of the countryside? Can new technologies designed to improve rural life in the United States and elsewhere be adapted for use in Latin America?

3) *Fiscal policies*. The ways in which governments raise their revenue also affect citizens' behavior. Just as Romania has tried to increase its population through a "childlessness" tax on single and married persons over age 26 who have no children (*49*), so states wishing

to reduce urbanization can tax more heavily those who live in cities, where wages are higher and taxes easier to collect. Instead of the sales-decreasing export taxation that has been used in Argentina, and in addition to the progressive income taxation that still fails to affect many Latin Americans, sales taxes could be made disproportionately heavy in the most densely populated cities.

Incentive payments may be made through direct grants from government to citizens, or, for those outside subsistence agriculture who owe significant taxes, through tax credits. Where income tax systems offer an allowance according to the number of dependents, for example, a rational policy would be to permit the credit only for the first or second child, but—perhaps starting from the inception date of the new policy rather than retroactively, so as not to penalize those who conceived children while other laws were in effect—to require higher tax payments from those who decide to have three or more children.

Changes in tax laws and government payments that affect settlement patterns and urbanization are a tangible way of emphasizing the need to alter past performance and attitudes. Widely circulated statements by leaders in government, business, labor, journalism, the military, and the clergy have the same effect. People will support governments that they see to be fulfilling their felt needs, and they obtain a view of those needs partly according to what national leaders define them to be. The People's Republic of China thus not only sends citizens to work in the countryside, as in the case of the "barefoot doctors" (*50*), but equally important, the country has a strong ethic of "serving the people" that legitimizes the sacrifices of life in the countryside. Stimulating this spirit, which characterized Mexican rural teachers in the 1930's and Acción Democrática activists in Venezuela in the 1960's (*51*), is an important adjunct to altered legislation.

4) *International assistance*. Primarily, individual nations must deal with the rush to the cities, but extranational organizations can provide some further assistance in funding and expertise. The Agency for International Development gives backing on request for numerous population policies, even though, as in the case of the Dominican Republic, more funds may be available than the Latin American government is actually prepared to spend (*52*). Agreements with the United Nations Fund for Population Activities (UNFPA) have drawn an initial $1.5 million to Chile in an agreement signed in 1972, $1.2 million to Colombia after 1974, and other assistance to Cuba, Mexico, Peru, Ecuador, Haiti, the Dominican Republic, the six Central American states, and a number of Caribbean republics since 1974 (*53*).

International aid should be coordinated with the national strategies outlined above, as it frequently has not been. The Inter-American Development Bank has helped to finance more than 350,000 housing units since 1960, while also supporting clean water, sewage disposal, and other projects that have increased the attractiveness of urban areas (*54*). While a $2 million UNFPA allocation to Haiti lays stress on rural areas, the organization's program so far has worked particularly in the politically acceptable area of maternal and child health, rather than confronting rural population growth as a special aspect of the problem.

5) *Authoritarian measures*. If comparatively benign policies relying on positive inducements do not alter migration patterns in Latin America, more authoritarian policies will inevitably be used in time. Central here might be the residence permit or "internal passport," a document specifically allowing change of residence and required for employment and the provision of government benefits. Couples deciding to have more than two children, or residing in areas for which they had no permit, could be cut off from all public assistance, such as subsidized medical care, housing loans, and jobs in the bureaucracy.

In Russia and China today, such policies provide far stricter—although by no means complete—control of internal migration. While the building of the equivalent of Latin American squatter settlements is prohibited in the Soviet Union (*55*), drifters can double or triple up in the apartments of the capital, causing unwanted urban pressures despite government edicts. In China, 12 million educated young people from the cities were sent to the countryside between 1966 and 1976, ten times as many as in the previous decade. This coincides with the Maoist propaganda line of learning from the peasants, becoming sturdy through hard work, and preventing the class distinctions and disdain for laborers that have traditionally characterized Chinese bureaucrats and intellectuals (*56*). The policy also works to prevent urban overcrowding, however, as well as to disperse potentially subversive intellectuals. While some youths have returned, living illegally with family or friends and causing a (comparatively mild) crime problem, migration to cities is fundamentally curbed by the residence card, which is necessary not only for employment but also for the purchase of rationed staples, including rice and cotton cloth (*57*). Significantly, the Republic of Korea has just adopted such a card, showing that even strongly anticommunist regimes may be forced to do so.

6) *Planning and action*. There is a need to consider the process of urbanization in regard to the broader context of societal change (*58*), to balance and coordinate policies in metropolitan, small-city, and rural areas, and then to provide policies with enough continuity to effect change in the long run. Concern over the rush to the cities does not argue against public policies to improve urban housing and welfare, as Latin American radicals tend to do on the grounds that the policies postpone a necessary revolution, or as the "new conservatives" are said to do in the United States on the grounds that the solution creates unforeseen problems (*59*). Rather, it argues for more balanced concern with public policy in other parts of the country as well. If Hirschman is correct in characterizing the new "converging United States–Latin American mood" as one of distrust of the capability of governmental policies to solve problems (*59*, p. 399), a mood so different from the aura of the Alliance for Progress of the Kennedy era, we may now underestimate our ability to act just as we were overconfident in the past.

Particularly discouraging is the neglect of coherently articulated programs, such as the 1970–1973 Plan of Economic and Social Development of Colombia. The plan, which was shelved after a change in the national government, envisioned reducing both population growth and urbanization. It called for the development of cities of between 30,000 and 200,000 people, emigration of the unemployed to selected zones for resettlement, and provision of agricultural credit, health, education, and recreation services in the countryside (*60*). The program shows how imaginative Latin American governments can be; yet, sadly, it also demonstrates the difficulty of implementing announced policies, especially when a new set of national leaders comes to power through the electoral process. Similarly, the recent orientation of the Argentine government was to reverse the drain of population into the cities by raising incomes and government spending most in the "neediest" areas (*61*), but this approach changed after the military coup of 24 March 1976.

Conclusions

Projections of recent trends to the year 2000 indicate that, unless the process is significantly slowed down, Latin America's population in urban centers will grow at a staggering rate, particularly in the largest metropolitan areas. This results from migration from the countryside and population growth in the cities, rather than from international immigration.

Migration, which tends to be by the most aware and upwardly mobile citizens, results from their appreciation of advantages in the cities. Higher wages, superior educational facilities and health care, and the possibility of gaining access to a far wider range of government services all occasion the rush to the cities. So do the pressures of rural population growth, the mechanization of agriculture, and, paradoxically, government investments in improved services for the countryside, which increase aspirations and the migration capability of rural workers. Problems exacerbated by rapid migration include inadequate housing, urban unemployment, pollution, and the potential for violent disruptions in social relationships.

To deal with these problems, the most effective strategies may be to cut down on the rate of population growth and to redirect migration to smaller cities near rural areas by creating jobs and an attractive living environment there. While some assistance will be available through international agencies, the major results must come from new awareness by major elites and political leaders in Latin America, from a series of policies that redirect spending and tax-gathering by national governments, and from a willingness to take action rather than offer rhetorical solutions. If this is not done, later policies may have to be far more authoritarian, involving residence permits and the use of negative sanctions rather than positive inducements. In order to maintain the maximum of individual choice that is compatible with the collective welfare of other citizens, it will be necessary to keep in mind the significant, subtle, and potentially perverse effects that a wide variety of governmental policies will continue to have on demographic variables.

References and Notes

1. J. P. Terra, paper prepared for the U.N. Conference on Human Settlements, Code number A/CONF.70/RCP/BP/4 (United Nations, New York, 1976), pp. 2–3.
2. R. W. Fox, *Urban Population Growth Trends in Latin America* (Inter-American Development Bank, Washington, D.C., 1975), p. iii. This source contains detailed projections of city growth in Argentina, Brazil, Chile, Mexico, Peru, and Venezuela.
3. International transfers of population may affect large numbers of people, as when Cuba lost some 6 percent of its total population by emigration after 1960. But typically foreigners are a small part of the city populations in Latin America, and, given the weight of internal migration, also a declining proportion. The number of foreigners resident in Mexico City fell from nearly 2 percent of the population of the city in 1960 to scarcely 1 percent in 1970. Foreigners made up only 1.1 percent of the Brazilian population in 1970, despite the important contribution of such groups as Japanese farmers in the green belt around Brasilia. In 1970 Argentina had an unusually large number of foreign residents, who made up 9.3 percent of the population nationally, 17.8 percent in the Federal Capital, and 14.5 percent in the surrounding Province of Buenos Aires, but even this resulted from heavier immigration in the past (the census of 1914 showed 30.3 percent of the resident population to be foreigners).
4. *IX Censo general de población. 1970. Resumen general* (Secretaría de Industria y Comercio, México, 1972), pp. 152–153.
5. C. Bataillon and H. R. D'Arc, *La ciudad de México* (Sep/Setentas, México, 1973), p. 50.
6. P. M. Hauser, Ed., *Urbanization in Latin America* (International Documents Service, New York, 1961); G. H. Beyer, Ed., *The Urban Explosion in Latin America* (Cornell Univ. Press, Ithaca, N.Y., 1967); *Urbanization* (United Nations, New York, 1968). For more recent interpretations, see J. E. Hardoy, Ed., *Urbanization in Latin America* (Doubleday, Garden City, N.Y., 1975); A. Portes and J. Walton, *Urban Latin America* (Univ. of Texas Press, Austin, 1976).
7. A. Corona Rentería, *La economía urbana* (Instituto Mexicano de Investigaciones Económicas, México, 1974), pp. 401–402.
8. For a description of the survey and an initial statement of results, → F. C. Turner, *Lat. Am. Res. Rev.* **10** (No.2), 73 (1975).
9. R. S. McNamara, cited in *Popul. Dev. Rev.* **1**, 343 (1975).
10. See the statistics for Latin America in *Compendium of Housing Statistics, 1971* (United Nations, New York, 1974), pp. 194–199.
11. The data are for persons over age 12.
12. A study of occupations in a working-class, migrant barrio outside Popayán, Colombia, found 22.5 percent of the heads of household in small-scale commerce, 16.7 percent in construction, 9.8 percent in hauling, 8.4 percent in agriculture, and 7.6 percent unemployed [M. B. Whiteford, in *Latin American Urban Research*, W. A. Cornelius and F. M. Trueblood, Eds. (Sage, Beverly Hills, Calif., 1974), vol. 4, pp. 160–164].
13. To take Argentina as an example, life expectancy is considerably higher for both men and women in the Federal Capital than in any of the provinces. The 1966 figures for men fell from 68.2 years in the Capital to 50.2 years in Jujuy, and those for women fell from 73.7 years in the Capital to 53.2 years in Jujuy (*14*, p. 6).
14. Internal documents, Ministry of Social Welfare, Buenos Aires, 1975.
15. Whereas the Federal Capital of Argentina had only 193 persons per physician in 1969, no province had less than 450 persons, 13 provinces had more than 1000 persons, and Santiago del Estero had 2174 persons per physician (*14*, p. 7).
16. In the early 1970's, Mexico City had 2.4 hospital beds per 1000 inhabitants as opposed to only 0.6 per 1000 in the rest of the country. Comparable data on access to hospitalization in national capitals reveal differences of 4.7 as opposed to 0.2 beds in Haiti, 6.9 versus 2.8 in Uruguay, and 4.6 versus 1.3 in Peru. Some nations have built many rural hospitals, as did the Acción Democrática party in Venezuela, which has enjoyed strong support in rural areas; this reduced the difference in that country from 4.0 beds in Caracas to 2.7 beds in the rest of the nation. But Brazil, even when the capitals of all the states are compared to the rest of the states, still has a differential of 7.1 compared to 3.0. *América en cifras, 1974* (Organization of American States, Washington, D.C., 1975), p. 98.
17. *Manual del trabajador* (Infonavit, México, 1975).
18. *Qué es y cómo funciona el INFONAVIT* (Infonavit, México, ed. 5, 1975). On the program of Infonavit, see the interview with its director in *Expansión*, 18 February 1976.
19. On this attitude in traditionalistic Paraguay, see D. M. Rivarola, in *Población, urbanización, y recursos humanos en el Paraguay*, D. M. Rivarola and G. Heisecke, Eds. (Centro Paraguayo de Estudios Sociológicos, Asunción, 1969), pp. 38–39.
20. R. T. Ravenholt, *War on Hunger* **10**, 13 (February 1976).
21. F. C. Turner, *Responsible Parenthood* (American Enterprise Institute for Public Policy Research, Washington, D.C., 1974), p. 22.
22. T. G. Sanders, *Mexico, 1974* (American Universities Field Staff, Hanover, N.H., 1974), p. 5.
23. These figures on the proportion remaining in agriculture also indicate the rural reservoir of people who may come to the cities in the future. Thus, with 3.7 percent of its labor force in agriculture, the United States has virtually no room left for urbanization from this source, but there is some left for Argentina (with 14.8 percent) and much for Brazil (with 44.3 percent) or Guatemala (with 57.0 percent).
24. W. A. Cornelius, unpublished paper.
25. R. W. Wilkie, "On the theory of process in human geography," thesis, University of Washington (1968), pp. 104, 108–110.
26. O. H. Koenigsberger, paper prepared for the U.N. Conference on Human Settlements, Code number A/CONF.70/RPC/BP/22 (United Nations, New York, 1976), p. 7.
27. P. Bairoch, *Urban Unemployment in Developing Countries* (International Labor Office, Geneva, 1973).
28. Computer projections indicate that, assuming constant mortality and five-person housing units, Brazil will need 39.6 million new housing units by the year 2010 if the fertility rate remains at the 1970 level of 5.2 live births, but only 19.3 million new units if the fertility rate is reduced to 3.0 by 1985. *Classrooms, Teachers, Housing Units for Brazil* (Population Dynamics Group, University of Illinois, Urbana, 1975), pp. 10–11. For detailed projections of housing needs in Rio Grande do Sul, see J. M. De Cew, Jr., E. D. Aydos, L. C. Lucas, *Déficit habitacional* (Pontifícia Universidade Católica do Rio Grande do Sul, Porto Alegre, 1975).
29. B. Viel V., *La explosión demográfica* (Pax-México, México, 1970), pp. 142–143.
30. K. F. Johnson, in *Conflict and Violence in Latin American Politics*, F. J. Moreno and B. Mitrani, Eds. (Crowell, New York, 1971), pp. 302–307; T. F. Ray, *The Politics of the Barrios of Venezuela* (Univ. of California Press, Berkeley, 1969), p. 177.
31. See especially W. A. Cornelius, *Politics and the Migrant Poor in Mexico City* (Stanford Univ. Press, Stanford, 1975), chapters 7 and 9; J. E. Perlman, *The Myth of Marginality* (Univ. of California Press, Berkeley, 1976); D. Collier, *Squatters and Oligarchs* (Johns Hopkins Press, Baltimore, 1976).
32. As Ayres points out, this is more feasible than the costly Brazilian plan of eradicating the most obvious shantytowns and relocating the residents in new buildings on the model of urban renewal in the United States [R. L. Ayres, *Am. Polit. Sci. Rev.* **69**, 521 (1975)].
33. L. Solís, *Rev. Mex. Cienc. Polit.* **20**, 24 (1974).
34. T. L. Smith, *Studies of Latin American Societies* (Doubleday, Garden City, N.Y., 1970), pp. 119–120.
35. Rondon is named after a Brazilian field marshal who tried to integrate the frontier territories with the rest of the country, extending communications lines and working with the Indians. While the project originally began for frontier areas, it has more recently encompassed urban slums as well, being transformed in March 1976 from a government program to a public foundation. See *Visão* **48**, 20 (23 February 1976).
36. See F. Belaunde-Terry, *Peru's Own Conquest* (American Studies Press, Lima, 1965), pp. 141–178. On pp. 198–208, the former president describes the envisioned role of the armed forces, which were to be kept busy making aerial maps and in a Fluvial Civic Service to aid the colonists, rather than—as they did—becoming involved directly in politics and overthrowing him.
37. A good statement of the limitations on Amazonian colonization is in J. C. Jahoda and D. L. O'Hearn, *Environment* **17**, 16 (October 1975). On the alternative of more intensive utilization of agricultural resources in the Northeast, see W. A. Bacchus, thesis, University of Connecticut (1973).
38. *Informe nacional: Bolivia*, document prepared for the U.N. Conference on Human Settlements, Code number A/CONF.70/NR/8 (United Nations, New York, 1976), pp. 19–34.
39. M. J. Frankman, "Rapid urbanization in Latin America," mimeographed, McGill University, Montreal, 1970; D. Friedman, *Laissez-Faire in Population* (Population Council, New York, 1972).

40. J. E. Hardoy, in *Latin American Urban Research*, F. F. Rabinovitz and F. M. Trueblood, Eds. (Sage, Beverly Hills, Calif., 1972), vol. 2, p. 38.
41. Family-planning education and services allow any government investment in education, and other government services, to go further, because it has to meet the needs of fewer citizens in the future. Thus, for example, spending per pupil can be raised, both by increasing budget allocations and reducing the number of children to be taught.
42. S. L. Isaacs and A. Sheffield, unpublished paper.
43. K. Davis, *Science* **158**, 730 (1967).
44. With priority given to new members from the rural sector, the objective is to increase social security coverage from 20 percent of the population in 1971 to 50 percent in 1976 (*Excelsior*, 26 January 1975).
45. *Int. Soc. Secur. Rev.* **23**, 132 (1970); *ibid.* **27**, 359 (1974).
46. The *New York Times*, 26 February 1976; *ibid.*, 3 April 1976; *Times of India* (Bombay), 2 April 1976.
47. O. Hernández, paper prepared for the U.N. Conference on Human Settlements, Code number A/CONF.70/RCP/BP/7 (United Nations, New York, 1976) p. 7; see also A. Turner and J. Smulian, in *The City in the Third World*, D. J. Dwyer, Ed. (Barnes & Noble, New York, 1974), pp. 237–253.
48. B. Berelson, *Popul. Dev. Rev.* **1**, 173 (September 1975).
49. W. Rich, in *New Directions in Development* (Praeger, New York, 1974), pp. 245–247.
50. Typically, see C. Hsiang-Juan, *China Reconstructs* **25**, 7 (February 1976).
51. J. D. Powell, *Political Mobilization of the Venezuelan Peasant* (Harvard Univ. Press, Cambridge, Mass., 1971), chaps. 5 and 10; J. D. Martz, *Acción Democrática* (Princeton Univ. Press, Princeton, N.J., 1966), pp. 235–242, 273–286.
52. F. A. Hale, in *Population and Politics*, R. L. Clinton, Ed. (Heath, Lexington, Mass., 1973), pp. 167–170.
53. *Inventory of Population Projects in Developing Countries Around the World, 1973/74* (UNFPA, New York, 1975).
54. *Fifteen Years of Activities, 1960–74* (Inter-American Development Bank, Washington, D.C., 1975), p. 25.
55. W. Taubman, *Governing Soviet Cities* (Praeger, New York, 1973).
56. *Peking Review* **19**, No. 2 (9 January 1976). For an example of the creation of a revolutionary hero in legitimizing this shift to the countryside, see *China Pictorial*, No. 1 (January 1976).
57. T. P. Bernstein, *The Transfer of Urban Youth to the Countryside* (Yale Univ. Press, New Haven, Conn., in press).
58. *Econ. Bull. Lat. Am.* **13** (No. 2), 76 (1968).
59. A. O. Hirschman, *Policy Sci.* **6**, 398 (1975).
60. See B. M. Stamper, *Reports on Population/Family Planning* (No. 13) (Population Council, New York, 1973), p. 23.
61. *Informe nacional: Argentina*, document prepared for the U.N. Conference on Human Settlements, Code number A/CONF.70/NR/9/Rev. 1 (United Nations, New York, 1976), pp. 35–43.
62. *Sinopse estatística do Brasil, 1975* (Fudação Instituto Brasileiro de Geografia e Estatística, Rio de Janeiro, 1975), vol. 1, pp. 79, 81, 84, 346–349.
63. *Global Review of Human Settlement*, statistical annex of the draft document (United Nations, New York, 1976).
64. *América en cifras, 1974* (Organization of American States, Washington, D.C., 1975).
65. "Saldo migratorio (entre 1965–1970)," internal document, Ministry of Social Welfare, Buenos Aires, 1975.
66. C. de Meira Mattos, *Brasil—Geopolítica e destino* (Biblioteca do Exército, Rio de Janeiro, 1975), p. 80.
67. Data for this study were gathered with the help of the National Science Foundation, grant GS-35214, and the National Endowment for the Humanities, grant RO-6909-73-1.

A Stable Urban Ecosystem

The future evolution of a stable ecosystem in a densely populated society is described.

Richard L. Meier

One of the essential properties of the stable human habitat of the future is that it have urban characteristics. Ambitious people from the countryside and from many towns stream into cities in search of employment and education. Despite conditions that are often deplorable, the enterprising poor remain attracted by urban environments, to which, in most cases, the propertied classes have already migrated. Cities are also dumping grounds for surplus people—those who could not be supported because of drought, flood, insurgency, and other stresses in the hinterland. A counterstream made up of winners, retirees, and misfits returns some to their places of origin; many aspects of urban culture diffuse back with them.

However, the cities we know, the kind that have provided the physical matrix for the flowering of civilizations, are doomed. The resources needed to maintain them will not be available in sufficient amounts in the future (*1*, *2*). To survive, cities must be conserving of resources—a characteristic that has not yet evolved among the pacemaking conurbations of Europe, America, or Japan, or among their followers elsewhere.

Technologies that will conserve large amounts of scarce energy already exist for producing materials, for building, and for transport (*3*). There are proposals for conserving large amounts of water without detracting from sanitation. Furthermore, it is now possible to design built environments that would easily accommodate the populations anticipated, although not necessarily in the most preferred locales.

Several promising economizing approaches can be found somewhere in the densely populated, low income societies that now exist. These efforts are little known and understood because they are scattered and are rarely integrated into an advertised development program. The underlying ideas diffuse slowly because direct communication between these peoples is minimal. Although not all needed innovations are already at hand, enough have achieved sophistication to point the way (*4*).

Because pressures to accommodate extra people in cities are greatest in the Third World, it is there that both resources and capital will remain most scarce. Population growth is still very strong, and therefore one of the functions of new urban institutions must be to transmit life styles and modes of family formation conducive to replacement alone ("zero population growth"). Third World urbanization must soon install very different technologies, settlement patterns, and organizations. If these urban systems fail to achieve much higher efficiencies in the use of natural resources for the support of people, unprecedented numbers of them (mostly rural, unexpectedly) will succumb to starvation, pestilence, violence, and other disorders (*5*).

Because prototypes of the desired outcome do not exist, it appears necessary to construct an economic image of human settlement at steady state. The appropriate model would start from a set of circumstances typical of less developed regions, and socio-technical changes would be induced once proper instructions had been dicovered. However, this approach starts with a necessarily incomplete concept (the "representative" prototype region) and ends with another, still less adequate, image (the steady-state urban ecosystem); at best, the model remains hypothetical (*6*).

Planning theorists offer, as an alternative, computer simulations of specific regions; the demands for data become increasingly extensive as progress is made. However, large-scale models of

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