

# Fernand Braudel Institute of World Economics

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## The Death Threat

Norman Gall  
Executive Director

The present cholera epidemic, beginning in Peru in 1991 and spreading to other Latin American countries, is a warning of deterioration of survival systems under the impacts of rapid urbanization and growth of adult population. While the recent cholera death/case ratios have been a fraction of those in the 19th Century pandemics, the new epidemic shows that the low mortality levels achieved in recent decades may be endangered by decapitalization linked to chronic inflation, reducing the institutional capacity of communities and nations to operate complex societies. Decay of public infrastructure and basic sanitation weakens survival systems, posing a challenge to many nations and smaller communities.

...the most baleful mischiefs may be expected from the unmanly conduct of not daring to face truth because it is unpleasing. Independently of what relates to this great obstacle, sufficient yet remains to be done for mankind to animate us to the most unremitted exertion.

Thomas Malthus, *An Essay on the Principle of Population* (1798).

## Summary

In many countries, danger of resurgent mortality is threatened where conditions that enabled life expectancy to rise fast in the 20th Century have been eroded by decapitalization and economic disorganization.

In Latin America, the region with the highest rates of urbanization and inflation over the past half-century, massive and dangerous misallocation of resources through deranged economic transfers have weakened the modern infrastructure and institutions used by nation-states to operate complex societies at high levels of urbanization and to achieve dramatic mortality reductions, one of mankind's great conquests in this century.

The question posed by this essay is: To what degree has the erosion of infrastructure and institutions undermined the survival capacity of large swaths of decapitalized communities? It examines the present cholera epidemic in Peru, which has spread to Ecuador, Colombia, Chile, Mexico and Brazil, in the light of the degenerative processes of chronic inflation. The deterioration of life-preservation systems is not unique in Latin America, as some comparisons with Eastern Europe attest, but Latin America's more intense experience with rapid urbanization and chronic inflation displays the growing risks with greater clarity.

This report shows that, a century ago, the advances in public health, against earlier and more terrifying threats of cholera and other epidemics, were achieved at the municipal rather than the national level. There were no national health ministries at the time. Facing today's threat, the main role to be played by international agencies and national governments is in education and technical support. The will and financial resources must come, in most cases, from the communities themselves, especially in view of the fiscal shrinkage now taking place in many countries. Meeting this challenge means recognizing that vital systems of drinking water, sewage and electricity, on which communities depend for their welfare and survival, are precious elements of civilization, requiring investment and maintenance. These systems are not a bottomless supply of free goods, available for deranged economic transfers, that can be given away as in the past.

Heeding Thomas Malthus's invocation that "sufficient yet remains to be done for mankind to animate us to the most unremitted exertion," governments and international agencies must intensify efforts to arrest and reverse the alarming deterioration of life-preservation systems in the mosaic of special cases composing the universe of developing countries.



## The Author

Norman Gall has specialized in research and reporting on Latin America for the past three decades. A former Guggenheim Fellow (1968-69), he has produced studies in depth on a wide range of themes and countries as a Senior Associate of the Carnegie Endowment for International Peace and the American Universities Field Staff (AUFS) and as a consultant to the Exxon Corporation, the World Bank and the United Nations. Since 1987 he has been executive director of the Fernand Braudel Institute of World Economics in São Paulo, Brazil. As a journalist, he has analyzed trends in the world economy as Contributing Editor with Forbes Magazine. His work also has appeared over the years in leading publications in the United States, Europe and Latin America, including The New York Times, The Washington Post, The Wall Street Journal, Commentary, The New Republic, The Economist, The Observer, The New Statesman, Le Monde and Esprit (Paris) and Die Zeit (Hamburg).

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To the memory of  
Octávio Gouvêa de Bulhões (1906-1990)

Delegate to the Bretton Woods Conference, 1944

Finance Minister of Brazil (1964-1967)

Honorary President

Fernand Braudel Institute of World Economics (1988-1990)

He taught us all.  
Some of us listened and are grateful.

# Overall plan for research and public debate by the Fernand Braudel Institute of World Economics on

## Chronic Inflation as Systemic Failure

### Latin America and the Polarization of the World Economy

#### Deranged Transfers and Polarization of the World Economy

1. The death threat
2. What is polarization?
3. Revival of developed market economies

#### Transfer Economies and Systemic Failure

4. Ethics and inflation: moral codes and complex societies
5. Self-reinforcing mechanisms
6. Polarization of knowledge access
7. Latin America and Eastern Europe
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# 1. Mortality, Inflation and Complex Societies

The polarization of the world economy is one of the main events of the late 20th Century. This polarization is taking place between economic webs that seem to be growing stronger and those that are in the process of rupture and disintegration. The chronic inflations plaguing some countries of Eastern Europe and Latin America are part of this process. Chronic inflation is the institutionalization of deranged economic transfers.<sup>1</sup> The institutionalization of these transfers produces a pathology of decapitalization in mature economies. Some political regimes, calling themselves "progressive," seek legitimacy by trying to promote equity and development through the relentless and unmeasured transfer of wealth by fiscal devices, tending to exhaust surpluses and ultimately to drive governments to meet expectations by distributing resources that do not exist. Continuing decapitalization by deranged economic transfers threatens reversion of some populations to more archaic forms of civilization and mortality. Examples of these transfers, weakening life-preservation systems, are given in a new analysis by the Inter-American Development Bank of the problems of social security in Latin America:<sup>2</sup>

*Part of the high cost is explained by the excessively generous benefits or services in some countries: retirement pensions after only 20 or 30 years of service regardless of age (which effectively permits retirement in some cases at 35 or 40 years of age); old-age pensions beginning at 55 to 57 years of age even though life expectancy may be 75 years in some countries; transplant surgery abroad when not available in the country; total replacement of salary by pensions and sickness benefits; and payment of part of the cost of orthodontics and contact lenses. These benefits are not even offered by the social security systems of the most developed countries. Another reason for the high cost is the enormous administrative expenses, which vary in 14 countries between 11% and 32% of total social security spending, compared with a range of 2%-4% in developed countries. Finally, inefficiency in social security hospital administration...in some countries [means that] only half of the beds are being used, and average hospital stays are two or more times longer than regional optimum standards. In several countries, the social security system experienced growing deficits in the 1970s because of high levels of evasion and payment delays (between 23% and 60% in six countries), the enormous state debt to the programs, the low real return on the programs' investments (between -10% to -20% [negative] in four countries), and excessive expenditures. These deficits were financed by increasingly large state subsidies of between 3% and 9% of GDP. The economic crisis of the 1980s worsened the financial imbalance....On the one hand, revenues of social security declined because of the drop in*

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<sup>1</sup> The phrase "deranged economic transfers" is not used here to aim at scientific precision, but instead to suggest the margin and intensity of self-destructive error, in the spirit that Aristotle used the word *akrasia* (incontinence) in *Nicomachæan Ethics* (VII/10) and Francis Bacon used the phrase "contracts of error" in *The Advancement of Learning*, (Second Book, XVII/3). For an illuminating analysis of this kind of language and error, see Eduardo Giannetti da Fonseca, *Beliefs in Action: Economic Philosophy and Social Change*. Cambridge University Press, 1991.

<sup>2</sup> Carmelo Mesa-Lago, "Social Security in Latin America," in *Economic and Social Progress in Latin America: 1991 Report*. Washington: Inter-American Development Bank, 1991/p180.

*real wages, the worsening unemployment picture with its related expansion of informal activities, the increase in tax evasion, the decline in investment yields as a result of high inflation rates and the increase in government debt to the programs caused by priority given to service of the countries' external debts. On the other hand, expenses climbed because inflation necessitated the adjustment of the systems' administrative salaries and...the real value of pensions.*

Institutional regression under pressures of scale, embodied in urbanization and rapid growth of adult population, threatens reversal of the mortality declines of recent decades in many countries. This conclusion emerges from a broader study of the long-term forces driving chronic inflation in Latin America, a behavioral system radically different from those prevailing elsewhere in the world. These forces are disorganizing and decapitalizing some national economies and reducing their participation in the world economy. In Latin America, decapitalization produced by decades of chronic inflation is eroding the cohesiveness of complex societies and recent survival gains among their populations. Deterioration of infrastructures and economic institutions now threaten the survival of nation-states and a resurgence of mortality toward pre-modern levels in different parts of the world. We do not predict an abrupt return to pre-modern mortality regimes, under which 30%-40% of children died before age five, many women perished in childbirth and young adults died from tuberculosis and other diseases that now are readily curable. Instead, we observe a dangerous erosion of institutional systems of life-preservation in some countries that may accelerate and spread. This essay, part of a broader study of chronic inflation, attempts to explain more clearly what some Mexican investigators suggestively call "epidemiological polarization,"<sup>3</sup> by which disease and mortality patterns trace wealth/poverty differences within national economies and, on a broader canvas, in polarization of the world economy.

The key questions of our broader study of chronic inflation are: Why is Latin America, among regions of the world, so uniquely plagued by chronic inflation? What are the long-term forces spawning the distortions that are decapitalizing and disorganizing some of its key economies, driving them into hyperinflation and toward a more marginal role in the world economy? How can these countries overcome the institutional blockages preventing reversal of these trends? How do institutional weaknesses trap economic policy in blind repetition of the same mistakes? What further consequences may flow from these mistakes?

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<sup>3</sup> Julio Frenk, José Luís Bobadilla and Rafael Lozano, *The epidemiologic transition: The Latin American experience*. Paper presented to the Seminar on Causes and Prevention of Adult Mortality in Developing Countries organized by the International Union for the Scientific Study of Population. Santiago, Chile: October 1991. Also Dean T. Jamison and W. Henry Mosely, "Disease Control Priorities in Developing Countries: Health Policy Responses to Epidemiological Change," *American Journal of Public Health*. January 1991.

We see three interacting forms of inflation: (1) conventional inflation measured by consumer and wholesale price indices; (2) asset inflation, such as the Dutch tulip mania of the 1630s and the South Sea Bubble of 1710-20, as well as the increase of Wall Street stock prices in the 1920s and Japanese land prices in the 1980s; (3) inflation of inputs, often appearing in economies where prices are controlled by government edict, such as uncontrolled investment inputs in socialist Eastern Europe or the uncontrolled expansion of water supplies, priced far below cost, in cities such as Lima, Mexico City and Cairo, to be examined below. These three modes of inflation may not always coincide, but they express different underlying pressures of activity on capacity, usually aggravated by fiscal/monetary policy. Over time, these pressures become chronic, overburdening economic systems, reducing the effectiveness of investment and threatening increases in mortality, such as those in Eastern Europe over the past two decades. The processes leading to a cholera epidemic in Peru in early 1991 are linked to decades of chronic inflation that weaken a society's life-preserving systems.

### **Mortality and decapitalization**

Mortality and chronic inflation are linked through decapitalization, undermining the efficiency and survival of complex societies. While the literature of economics and demography overlooks this kind of linkage, it may be useful to review some historical cases where evidence exists of sudden price surges and mortality increases running in tandem. Probably the most documented experience is the German hyperinflation, which peaked at a monthly rate of 30,000% in October 1923. In his classic study of *The Economics of Inflation* (1931), Constantino Bresciani-Turroni, the Italian member of the allied war reparations commission in Berlin at the time, noted "a very marked increase in mortality from pulmonary tuberculosis between 1921 and 1923" as typical of deterioration of public health, which improved after the November 1923 stabilization.<sup>4</sup> According to the historian Gordon Craig, "the death rate in cities of more than 100,000 inhabitants rose from 12.6 to 13.4 per thousand for the year 1921-22, and the figures for 1922-23 were worse. The suicide rate went up, and deaths from hunger, and from ailments aggravated by malnutrition, were common."<sup>5</sup> In contrast with France and Britain, where growth of population and violent crime were in secular decline, homicide and sexual offenses in Germany increases steadily in the first three decades of the 20th Century under pressures of rapid increases in numbers of young adults, especially in the cities, from falling infant mortality and rapid urbanization, the same pressures that contribute to increasing violence and chronic inflation in Latin America today.

Human experience has recorded only 14 hyperinflations, all of them in the 20th Century. Until the mid-1980s, all were institutional crises bred by war. The hyperinflations in Austria, Hungary, Poland, Russia and Germany were byproducts of

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<sup>4</sup> Constantino Bresciani-Turroni, *The Economics of Inflation* (1931). Translated by Millicent E. Savers. London: 1937/p332.

<sup>5</sup> Gordon A. Craig, *Germany: 1866-1945*. Oxford 1978/p454.

the First World War and those in China, Greece and Hungary (again) were fruits of the Second World War. Then came Bolivia in 1984-85, followed Peru, Nicaragua, Argentina, Brazil, Poland and Yugoslavia. The present wave of hyperinflations in Latin America and Eastern Europe is unrelated to war and is the fruit of decades of economic distortions. Of less concern today is an astronomical spike in monthly inflation, such as the 4.2 quadrillion percent price explosion that climaxed the second Hungarian hyperinflation in July 1946, than the long-term continuity of the process. Several Latin American economies are struggling, with different degrees of intensity, to avoid being engulfed by the pressures of chronic inflation that trap them in unstable, low-level adaptation to the process of decapitalization. While conditions for further economic progress exist in Latin America, the scope for self-inflicted damage is wide and very threatening, thanks largely to institutional problems that have found expression in decades of chronic inflation that has escalated toward hyperinflation. In its first 101 years of republican government (1889-1990), Brazil's price level multiplied 32 quadrillion times [ $32 \times 10^{15}$ ], while world prices rose 23 times, reflecting an aggravation of chronic inflation in recent decades in several countries. Yearly inflation averaged 20% in Brazil and Peru and over 30% in Chile and Argentina in the first nine decades of this century.<sup>6</sup> In 1990, Latin American inflation rose to 517%, against 342% the previous year, while world consumer prices rose by 21%. From 1960 through 1990, world prices multiplied 14 times, the worst global inflation ever recorded for a similar period. However, inflation in Latin America has become such a chronic disease that its consumer prices by 1990 had multiplied not 14 times but 1.7 million times their 1960 level. Inflation in Brazil was much worse even than this horrendous Latin American average, with prices multiplying 1.9 billion times since 1960, while in Argentina they rose 359 billion times. The scale and duration of chronic inflation in Latin America are without precedent in human experience, threatening a kind of adaptive failure that also is unfamiliar to us.<sup>7</sup>

For decades, political and economic discourse has sought accommodation to these long-term trends. Surveying *Chronic Inflation in Latin America* in the 1950s and 1960s, Felipe Pazos observed: "The long duration of these processes means that are not temporary disturbances. Rather they are chronic phenomena that have created self-perpetuating mechanisms to keep them going, as well as compensatory mechanisms that make them tolerable for the societies in which they take place. The fact that these inflations have persisted year after year in countries whose economies have continued continued to function and even progress (although not as much as they should have) indicates that these economies have created institutional mechanisms to offset the disturbances or, at least, to neutralize their effects to a large extent."<sup>8</sup> Other

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<sup>6</sup> Angus Maddison, *The World Economy in the 20th Century*. Paris:OECD Development Center, 1989/p21.

<sup>7</sup> Price data for 1960-90 taken from the IMF's *International Financial Statistics Yearbook 1990* and *International Financial Statistics Supplement on Price Statistics*. Supplement Series No. 12 (1986).

<sup>8</sup> Felipe Pazos, *Chronic Inflation in Latin America*. New York: Praeger, 1972/p15.

mainstream economists treated chronic inflation with a mixture of coyness and resignation. Albert Hirschman saw Chilean inflation in the 1960s "as an almost miraculous way of temporizing in a situation in which two or more parties who are psychologically not ready for peaceable compromise appear to be set on a collision course. It permits them...to maintain a militant and hostile stance while playing an elaborate, non-violent game in which everybody wins sham victories."<sup>9</sup> For some, the clinching argument for inflation as a policy instrument was growth, without considering the long-term effects of decapitalization and social disorganization. Carlos Massad of the University of Chile argued in 1962: "Any basic change, like a land reform or a redistribution of income, is bound to change rather rapidly the pattern of demand, and the adjustments to it may take a long time. Given that prices are inflexible downward, these changes will produce inflationary pressures which, if attacked with tight monetary policies, will generate unemployment and add to the social tensions of the process. Since these changes cannot be planned perfectly and carried out smoothly, the question is not whether attacks on such problems are likely to be more feasible in an atmosphere of financial stability, but rather whether they can be carried out at all without inflation."<sup>10</sup> Angus Maddison observed that several countries, such as Greece, Israel, Mexico and Taiwan, went through "a period of sharp inflationary pressure which turned out to be a useful phase of development, and was then brought under control....What is really dangerous is the assumption, sometimes made in Latin America in the 1950s, that inflation could be a *permanent* instrument of development policy."<sup>11</sup>

One of the few statistical signposts linking inflation with mortality in Latin America is the rise in death rates during the two biggest price surges in postwar Chile. As inflation leaped from 12% in 1952 to 84% in 1955, an increase without precedent in Latin America at the time, general mortality rose by 5% and infant mortality by 11%, interrupting a downward trend in progress since the 1920s.<sup>12</sup> The downward trend then resumed until it was interrupted again in the 1970s, when inflation suddenly surged from 22% in 1971 to 508% in 1973 under a *Unidad Popular* coalition headed by President Salvador Allende (1970-73). The mortality rise was especially striking because the Allende coalition spent two-thirds more on health than the preceding Christian Democratic government and outspent the military regime that succeeded it by an even larger margin, providing an indicator of the degree of disorganization engendered by inflation. While overall infant

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<sup>9</sup> Albert O. Hirschman, *Journeys toward Progress*. New York: Anchor Books, 1965/p 295.

<sup>10</sup> Carlos Massad, Comment on a paper by Graeme S. Dorrance of the International Monetary Fund, in Werner Baer and Isaac Kerstenetzky, *Inflation and Growth in Latin America*. Proceedings of a Conference on Inflation and Economic Growth, Rio de Janeiro, January 1963. Homewood, Illinois: Irwin, 1964/p107.

<sup>11</sup> Angus Maddison, *Economic Progress and Policy in Developing Countries*. London: Allen & Unwin 1970/p94-5.

<sup>12</sup> Instituto de Economía, *La Economía de Chile en el Período 1950-1963*. Vol. 2. *Cuadros Estadísticos*. Santiago: University of Chile, 1963/pp12 & 20. Jorge Somoza and Odette Tacla, "La mortalidad en Chile," in Centro Latinoamericano de Demografía (CELADE), *Chile*. Santiago 1969.

mortality continued to decline, both stillbirths and neonatal mortality rose, especially in the first day of life. Adult mortality also rose across the age spectrum. Another striking aspect of this interruption was that the downward mortality trend remained stalled, especially among adults aged 20-40, until after annual inflation fell, after some delay, from three digits to two digits in the late 1970s.<sup>13</sup> Unfortunately, these Chilean episodes have not been carefully studied as yet by demographers and epidemiologists. Nor have the demographic effects since 1980 of the escalation toward hyperinflation in Bolivia, Argentina, Peru, Brazil and Nicaragua and of the more moderate surges of inflation in Mexico and Venezuela. Vital statistics in these countries generally are poor and national censuses scheduled for 1990-91 in most of them were postponed because of the impoverishment and disorganization bred by rising inflation.

Most vulnerable to decapitalization by chronic inflation are nation-states with extensive territorial commitments stretching across big gaps in income distribution, such as Argentina, Brazil, Mexico, Peru and several African countries. This vulnerability is even more acute in the ex-Soviet Union, where the world's largest national territory, with 120 different ethnic groups, is spanned by 12 time zones and where deranged economic transfers are even more bizarre than in Latin America. Problems of distance, income differences and rapid urbanization in countries of low population density conspire against what economist-demographer Ronald Demos Lee calls "technological subsistence," or "the level of income necessary to enable (or induce) parents to make the investments in their children's training (human capital-formation) essential for the support of the contemporary level of technology."<sup>14</sup> Income gaps between regions and between rural and urban areas have stimulated migration into swollen cities whose survival depends more and more on inflationary transfers of resources to undercapitalized populations. These cities have been far more successful in incorporating modern technologies of consumption, usually imported ready-made from other cultures, than in applying and adapting technologies of production.

Decapitalization of economic systems is akin to starvation of the human body. Catabolism, the natural breakdown of living materials, never ceases, so that all animals need a supply of nutrients to replace obligatory catabolic losses. Starved of new resources, the system feeds upon itself. After a day or two without food, human hunger turns to pain. After a week, the pain vanishes. The stomach wall shrinks. The body starts to live from the fat beneath the skin. When the fat is gone, the body consumes its own muscles in the thighs, buttocks and upper arms.<sup>15</sup> In economic systems where

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<sup>13</sup> Banco Central de Chile, *Indicadores Economicos y Sociales 1960-1988*. Santiago 1989/pp406, 425-8.

<sup>14</sup>Ronald Demos Lee, "Malthus and Boserup: A Dynamic Synthesis," in David Coleman and Roger Schofield eds., *The State of Population Theory*. Oxford: Blackwell 1986/p99.

<sup>15</sup> If nothing at all is consumed, life is quickly extinguished by lack of water. Death comes in a few days from dehydration when water losses are high, as in a hot climate, at high altitudes or with intense sweating. If water is available but no food is consumed, death may not come for a few months or more, depending on the availability of body fat. For a fuller discussion, see J.W. P. Rivers, "The Nutritional Biology of Famine," in G. Ainsworth Harrison ed., *Famine*. Oxford 1988.

infrastructure is starved of new resources, decapitalization often is aggravated by parasitism. Parasitism is nourished by the deranged economic transfers that breed chronic inflation. The main contingencies raised by chronic inflation are mortality and the survival of complex societies.

### **Complex societies**

What is a complex society?

A complex society is a community of people carrying out specialized activities, coordinated by varying kinds of interaction between market forces and a formal state apparatus. The beauty and success of complexity lies in development of spontaneity and control within a dynamic and perishable community that, like individuals, is historically and biologically unique. This system has an ancient lineage, dating back to the Sumerians some 5,000 years ago, and usually involves some degree of coercion since, as Patricia Crone explains, "coercion has played a massive role in the development of civilizations....The state is a powerful type of organization because it enables human activity to be coordinated on a scale impossible to achieve in societies devoid of coercive agencies."<sup>16</sup> Evolution of these societies continues by methods of competition and cooperation that are civilized in that, according to F.A. Hayek: "Competition is a procedure of discovery, a procedure involved in all evolution, that led man unwittingly to respond to novel situations; and through further competition, not through agreement, we gradually increase our efficiency. To operate beneficially, competition requires that those involved observe rules rather than resort to physical force." Citing Adam Smith's "invisible hand" idea as the first discovery of "methods ordering human economic cooperation that exceed the limits of our knowledge and perception," Hayek adds: "Almost all of us serve people whom we do not know, and even of whose existence we are ignorant; and we in turn constantly live on the services of other people of whom we know nothing. All this is possible because we stand in a great framework of institutions and traditions --economic, legal and moral-- into which we fit ourselves by obeying certain rules of conduct that we never made, and which we have never understood in the sense in which we understand how things we manufacture function."<sup>17</sup> Nevertheless, the growth in the size and complexity of human communities generates an endless dialectic between the state and the market. The magic of the market can thrive only in an environment of peace and justice provided by the state. It also creates demand for a wider range of public goods requiring a massive array of specialized skills to manage and deliver on a national scale.

The advance of knowledge, especially over the past two centuries, has strengthened the efficiency and cohesiveness of complex societies. But the rules of competition and

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<sup>16</sup> Patricia Crone, *Pre-Industrial Societies*. Blackwell, 1989/p9.

<sup>17</sup> F.A. Hayek, *The Fatal Conceit: The Errors of Socialism*. Edited by W.W. Bartley III. Chicago 1989 pp14 & 19.

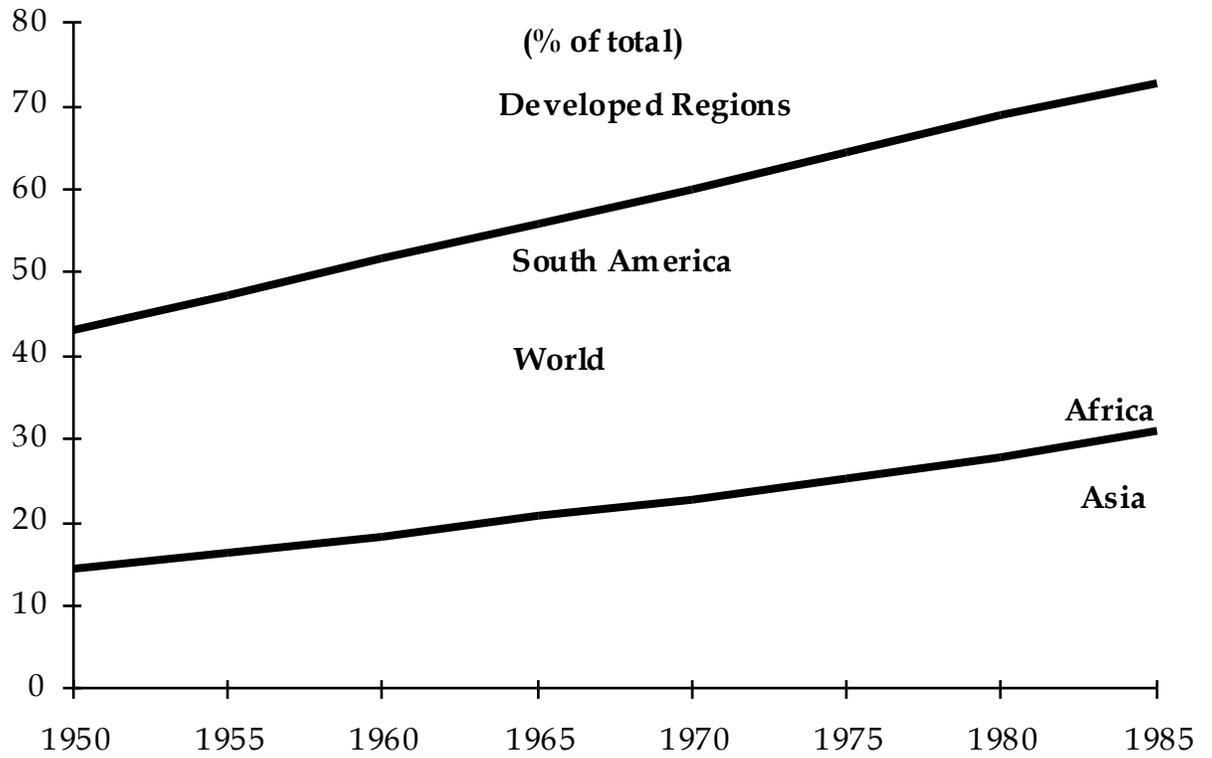
cooperation are continually tested by men and events. They sometimes break down, leading to war and social disorder as well as to systemic regression and collapse. In *Population and Technological Change: A Study of Long-term Trends*, Ester Boserup cites recurring experiences of "an urban economy relapsing into ruralism," either from population losses or excessive demographic pressure, where "population reductions resulted in decay of the infrastructure necessary for urbanization, and in a consequent relapse into ruralism. Changes in resource-population ratios also played a role in the decay and breakdown of densely-settled urbanized regions."<sup>18</sup> Political failure and military conquest repeatedly reduced great cities. These experiences are not limited to the fall of Rome's population from one million in the second century A.D. to 15-20,000 in the 14th Century, nor to Moorish Cordoba's from 500,000 in the eighth century to 40,000 after the Christian Reconquest.<sup>19</sup> From the 14th to the 18th Centuries, European cities suffered abrupt demographic changes, from rapid growth to catastrophic decline, with the location and identity of the 10 biggest cities changing dramatically from century-to-century over the past thousand years.<sup>20</sup> A reason for intensifying inflation in the late 20th Century may be exhaustion of scale and organizational economies from urbanization.

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<sup>18</sup> Ester Boserup, *Population and Technological Change: A Study of Long-term Trends*. Chicago 1981 / p87.

<sup>19</sup> Paul Bairoch, *Cities and Economic Development: From the Dawn of History to the Present*. Translated by Christopher Braider. University of Chicago Press, 1988/ pp109&118.

<sup>20</sup> Paul M. Hohenberg and Lynn Hollen Lees, *The Making of Urban Europe, 1000-1950*. Harvard 1985/p10.

**Urban Population, 1950-85**

Source: United Nations, *Prospects of World Urbanization, 1988*. Population Studies No. 112.

The threat of resurgent mortality in our time comes from institutional stress bred by a combination of three forces: (1) rapid urbanization; (2) bulging adult population; (3) decapitalization. This essay examines Peru's cholera epidemic as a product of these forces. In Latin America, as in other poorer regions, the death threat is posed by three growing risks: increasing violence; new and resurgent infections (such as AIDS, cholera, malaria, measles and dengue), and chronic diseases in aging populations without access to adequate medical treatment. Some public health specialists in Mexico argue that the historic epidemiological transition toward modern mortality regimes<sup>21</sup> is slowing down or halting in many poorer countries. The transition consists of "(a) replacement of the common infectious diseases by non-communicable diseases and injuries as the leading causes of death; (b) a shift in peak morbidity and mortality from the young to the elderly; c) change from a situation in which mortality predominates in the epidemiological panorama to one in which morbidity is dominant." In Latin America, they add, the long-term shift in mortality and disease patterns, along a path followed by Europe and the United States over the past 150 years, has stalled to form a less stable mixed regime of "(a) a simultaneous high incidence of diseases from both pre- and post-transitional stages; (b) a resurgence of some infectious diseases [like cholera and malaria] that had previously been under control; (c) a lack of resolution of the transition process, so that countries appear to be caught in a state of mixed morbidity; (d) a peculiar epidemiological polarization," not only between countries but also between regions and social classes in the same country. Brazil and Mexico are given as examples of this "prolonged polarized model" of mortality and morbidity, with their even distribution among infections, chronic diseases and injuries as causes of death and their regional differences in disease patterns.<sup>22</sup>

Epidemiological polarization is not confined to poor countries. The black population of the United States provides the most widely known experience, with adult mortality double that of whites, infant mortality 50% more than whites, and death by homicide of black males six times the rate of whites.<sup>23</sup> In Hungary, a comparison of mortality of men among 22 Budapest districts showed a gap like that between West Germany and Syria. Chances of dying in ages 40-44 was 3.3 times more in the "worst" Budapest district than in the "best" one, with the biggest differences in causes of death of men in ages 40-59 found in liver cirrhosis (alcoholism), suicides and stomach cancers.<sup>24</sup> A study

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<sup>21</sup> Abdel R. Omran, "The Epidemiological Transition," *Millbank Memorial Fund Quarterly*. (1971) 49:509-38.

<sup>22</sup> Julio Frenk, Tomás Frejka, José Luís Bobadilla, Claudio Stern, Rafael Lozano, Jaime Sepúlveda and Marco José, "La transición epidemiológica en América Latina," *Boletín de la Oficina Sanitaria Panamericana*. Washington: December 1991. Also see Frenk, Bobadilla, Sepúlveda and Malaquias López Cervantes, "Health transition in middle-income countries: new challenges for health care," *Health Policy and Planning*. (1989) 4:1, and Frenk, Bobadilla and Lozano, *The epidemiologic transition: The Latin American experience*. Paper presented to the Seminar on Causes and Prevention of Adult Mortality in Developing Countries organized by the International Union for the Scientific Study of Population. Santiago, Chile: October 1991.

<sup>23</sup> United States National Center for Health Statistics, *Monthly Vital Statistics Report*. V39/7. Washington: November 28, 1990.

<sup>24</sup> Peter Józán et. al., *An Ecological Study of Mortality Differentials in Budapest, 1980-1983. Part I*. Budapest: Central Statistical Office, 1987/pp16, 19, 24.

of age-adjusted mortality over 10 years among civil servants in London also showed striking differences: 3.3 times higher in the lowest grade than in the highest.<sup>25</sup>

### Postwar urbanization

A new phase in the history of complex societies evolved after World War II. A new range and intensity in applications of knowledge brought, among other things, spectacular changes in the size, location and identity of the world's biggest cities. As recently as 1950, 23 of the world's 35 biggest metropolises were in the developed countries, while by 1985 the same share of the biggest cities were in the poorer countries. In 1950, there were only three cities with more than 10 million people and six of the top 10 were supported by advanced industrial economies. By 1985, 11 cities had more than 10 million people and, by United Nations projections, their number would double in 15 years to 22 cities by 2000. By 1985, only two of the 10 biggest cities were in the rich countries. Four were in Latin America and another two were in India. In 1950-90, São Paulo jumped from 21st to perhaps first in size among the world's cities, while Mexico City leaped from 17th to third place, Rio de Janeiro from 16th to 8th and Seoul from around 40th to ninth.<sup>26</sup> Postwar urbanization in poorer countries differs from earlier ages of city-growth in three important ways:

**1. Recent city growth has been much faster.** In the postwar decades, the urban populations of poorer countries have grown from two to four times as fast as those of Europe in its phase of intensive urbanization. In Europe from 1800 to 1910, its phase of fastest city-growth, urban population grew six-fold at a yearly rate of 1.6%. Nevertheless, Europe's population remained more rural than urban at the outbreak of World War I, and until after World War II if we include the Soviet Union. Europe's fastest-growing metropolis was Berlin, which grew by 2.2% yearly over two centuries, from 30,000 in 1701 to four million in 1925, peaking at a growth rate of 3.5% in 1850-90.<sup>27</sup> In 1950-80, population in Latin American cities of 20,000 or more grew by 4.8% yearly, an average hiding much higher growth rates in Brazil, Colombia, Ecuador and Peru (5.7%), Venezuela (5.8%) and the Dominican Republic (7.1%).<sup>28</sup> Over the past three decades, nearly

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<sup>25</sup> M.G. Marmot, M.J. Shipley, G. Rose, "Inequalities in death --specific examinations of a general pattern," *The Lancet*. (1984) i:1003-6.

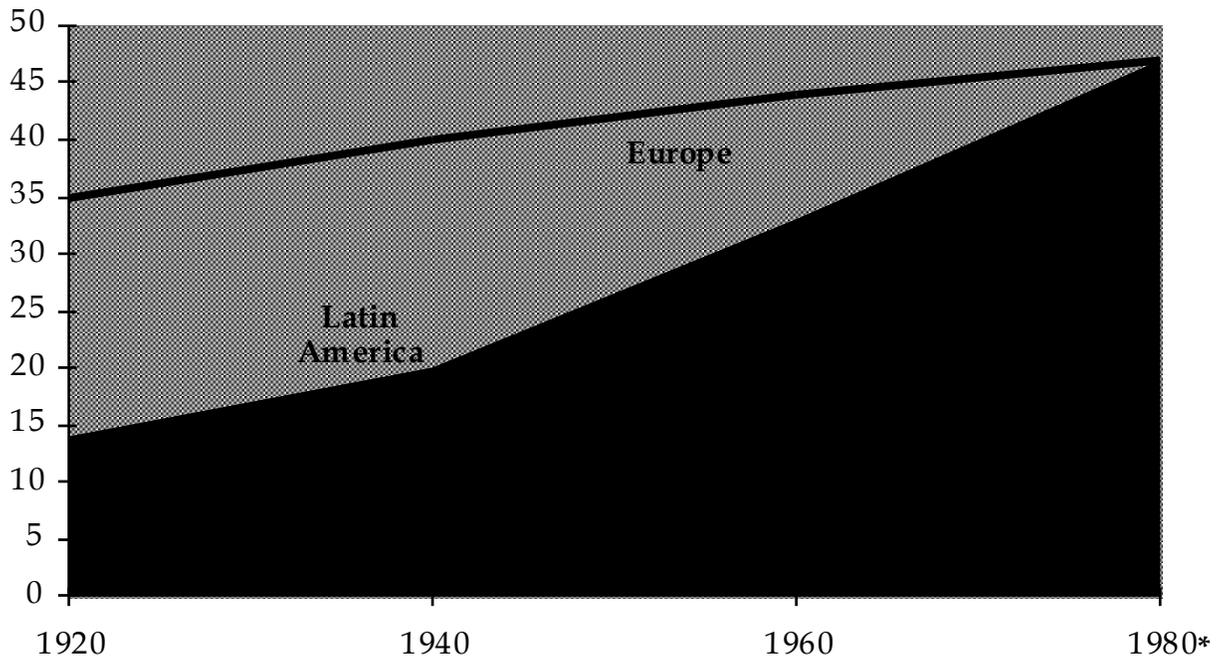
<sup>26</sup> Rankings based on Mattei Dogan and John D. Kasarda, "How Giant Cities Will Multiply and Grow," in Dogan and Kasarda eds., *The Metropolis Era. Vol. 1. A World of Giant Cities*. Papers presented at the 1985 Barcelona Conference on Giant Cities of the World and the Future. Sage 1988/p12-14. These rankings have been updated based on results of the 1990-91 round of national censuses, with São Paulo reporting 18 million population, Tokyo 17 million and Mexico City 15 million, showing less growth than previously projected.

<sup>27</sup> Paul M. Hohenberg and Lynn Hollen Lees, *The Making of Urban Europe, 1000-1950*. Harvard 1985 pp215-20.

<sup>28</sup> Thomas W. Merrick, *Population Pressures in Latin America*. Washington: Population Reference Bureau 1986/p23.

all Latin America's population increase took place in urban areas, whose share of total population grew from 49% to 70%.<sup>29</sup> Meanwhile, Sub-Saharan Africa's urban population grew even faster, by 6% yearly since 1965.<sup>30</sup>

### Cities over 20,000, 1920-80 (% of total population)



\*Europe's 1980 figure is a projec

Sources: Thomas W. Merrick, *Population Pressures in Latin America*. Washington: Population Reference Bureau 1986. United Nations, *Growth of the World's Urban and Rural Population, 1920-2000*. New York: 1969/p31.

**2. No proto-industrialization.**<sup>31</sup> The rush of people to cities in poorer countries during the postwar decades has occurred without the kind of institutional evolution that took place in pre-industrial Europe and Japan before their urbanization accelerated. A key form of this evolution is known today as proto-industrialization, a sharing of specialized manufacturing between town and country units that permitted gradual development of organization and experience. According to Domenico Sella, "the needs of industry were met not by

<sup>29</sup>Inter-American Development Bank, *Economic and Social Progress in Latin America: 1990 Report*/p262.

<sup>30</sup> World Bank, *World Development Report 1990 [WDR90]*/p238 Table 31.

<sup>31</sup> Proto-industrialization has been given new importance by historians of economic development and specialization. See Franklin F. Mendels, "Proto-industrialization: The First Phase of the Industrialization Process," *Journal of Economic History*. (1972) p241-61; Paul M. Hohenberg and Lynn Hollen Lees, *The Making of Urban Europe, 1000-1950*. Harvard 1985 pp125-34; Maxine Berg, *The Age of Manufactures, 1700-1820*. Fontana 1985, as well as other sources cited in this paragraph.

complete occupational transfers, but rather by utilizing *in loco* and on a part-time basis rural workers who, while still tending their fields and cattle, were willing to work at the spinning wheel, the loom or the forge in the slack periods of the agricultural cycle."<sup>32</sup> Pre-industrial Japan had a long history of market-oriented peasant manufactures using water power. In 1884, 77% of factories were in rural areas and more than half were still there in 1892.<sup>33</sup> In Europe, Japan and the United States, concentration of manufacturing in big cities began only in the 19th Century with application of new power sources that cut production costs and also eased densification by making transportation and communications faster and cheaper.<sup>34</sup> When such technologies were applied suddenly and massively in Africa and Latin America, there was no previous proto-industrialization to prepare for these changes. In Latin America especially, proto-industrialization was limited by sparse population and weak village nucleation of rural areas and by high costs of inland transportation, though some rural manufacturing and industrial repair work took place at export-oriented mining and plantation enclaves.

**3. Subsidies and squatter settlements.** Burdening the political development of fast-urbanizing poorer countries, especially in Latin America and Africa, are the prevalence of squatter settlements in many cities and the subsidies given to sustain their populations, which are striking differences from previous eras of urbanization. Fast growth and dispersal of squatter settlements over wider areas became easier because buses and trucks provided new forms of cheap transportation. Shares of total city populations living in "slums and squatter areas" vary widely among regions and among cities of the same region. The lowest prevalence is in the Middle East and Asia, even though in 1970 exceptions like Casablanca and Rabat (Morocco) and Ankara and Izmir (Turkey) had 60-

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<sup>32</sup> Domenico Sella, "European Industries, 1500-1700," in Carlo M. Cipolla ed., *The Fontana Economic History of Europe. Vol. 2: The Sixteenth and Seventeenth Centuries*. London: 1974/p401. Sella adds that, amid widespread rural poverty, "the supply price of their labor was bound to be appreciably lower than that of the fully specialized urban craftsman and journeyman. For the economy as a whole, on the other hand, the employment of rural labor was no less vital than for merchant-manufacturers anxious to pare costs: by tapping the reserve of labor time that existed in the countryside, industrial production could be expanded very considerably without undercutting food production." (p402).

<sup>33</sup> Ester Boserup, *Population and Technological Change: A Study of Long-term Trends*. Chicago 1981/p167.

<sup>34</sup> According to Henry Teune, "production costs in 19th Century American cities were about five times lower than in dispersed production using various forms of power, including water....Access costs were also radically reduced within 19th Century industrial cities. First was access to information. A number of technologies for decreasing costs of information. The mass-produced newspaper, the telephone and city directories dropped access costs in cities, and spread them beyond their political boundaries. Second, hardened steel and elevators allowed more people to be packed into smaller geographical areas in taller buildings. Third, electrically-powered transportation systems gave easier access to a greater variety of skills among a larger labor force." From Teune, "Growth and Pathology of Giant Cities," in Mattei Dogan and John D. Kasarda eds., *The Metropolis Era. Vol. 1. A World of Giant Cities*. Papers of the 1985 Barcelona Conference on Giant Cities of the World and the Future. Sage 1988/p358.

70% slum/squatter populations and Colombo (Sri Lanka) had 43%.<sup>35</sup> Africa showed by far the highest prevalence, reaching 80-90% in Addis Ababa (Ethiopia) and the two main cities of Cameroon and with several cities exceeding 70%.<sup>36</sup> In Latin America, the share of slum/squatter populations is lower but the cities are much bigger, the countries more densely urbanized and peripheral populations have been growing fast. Brazil has 15 cities of more than one million people today, against only two such cities in 1960. In Belo Horizonte, its third-largest city with 3.5 million people today, slum/squatter inhabitants were only 14% of the total in 1970. However, the population of Belo Horizonte's periphery grew by 10% yearly in the 1970s, while the peripheral areas of other big cities grew even faster: by 16.5% in Belem, 15% in Curitiba and Fortaleza and by 12.5% in Salvador.<sup>37</sup> In Buenos Aires, one of the world's richest cities before being impoverished and decapitalized by chronic inflation over the past half-century, the share of population living in squatter settlements and other "precarious" housing rose sharply from 34% in 1974 to 44% in 1989.<sup>38</sup>

The deranged economic transfers shaping chronic inflation in Latin America were institutionalized during the accelerated urbanization<sup>39</sup> that followed World War II,

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<sup>35</sup> These slum/squatter shares of city populations around 1970, depending on various local definitions, are from Johannes F. Linn, *Cities in the Developing World*. Oxford/World Bank 1983/p12. I am trying to find more recent figures. Linn takes these from Orville F. Grimes Jr., *Housing for Low-Income Urban Families*. Johns Hopkins 1976.

<sup>36</sup> Nouakchott, the capital of Mauritania, grew in 1961-81 by 21.6% yearly from 6,000 to 300,000 and, in Ignacy Sachs's words, "acts as a distributing center of public assistance. In the capital one eats precious little, but at least one eats once a day thanks to the food distribution and its sale at highly subsidized prices. Access to health care and education is far better than in the rest of the country: 85% of the national health budget is spent in the capital and more than half the children [who] go to school. Over half of Mauritania's total public investment is concentrated in the capital." The distortions bred by Nouakchott in the public finances of Mauritania are a caricature of the inflationary pressures of subsidies and economic marginality in the urbanization of many larger and more densely settled countries. From Ignacy Sachs, "Vulnerability of Giant Cities and the Life Lottery," in Mattei Dogan and John D. Kasarda eds., *The Metropolis Era. Vol. 1. A World of Giant Cities*. Papers of the 1985 Barcelona Conference on Giant Cities of the World and the Future. Sage 1988/p338.

<sup>37</sup> Nelson de Valle Silva, *Human Development in Brazil*. Paper presented to the United Nations Development Program Seminar on its *Human Development Report*. Rio de Janeiro: December 1990/p13.

<sup>38</sup> Maria Di Pace, Sergio Federovsky, Jorge Hardoy, *Los problemas ambientales en las áreas urbanas de la Argentina*. Report to the United Nations Development Program. Buenos Aires: International Institute for the Environment and Development (IIED) December 1990/p22.

<sup>39</sup> Discussing inflation in 1896-10, Irving Fisher [*The Purchasing Power of Money, Chapter 12*] explained the rise in money velocity in terms of the concentration of population in cities, cited in Anna J. Schwartz, "Secular Price Change in Historical Perspective," *Journal of Money, Credit and Banking*. (1972) V5/1 pt. II/p259n4. The association between inflation and city growth later was developed by W. Arthur Lewis in terms of "the difficulties and costs of rapid urbanization: The human effort to organize decent urban conditions is immense. Streets must be built, paved and lighted. Water must be laid down. Arrangements are needed for sewage disposal. Buses must be organized. The town has to be fed, and while it is relatively easy to bring in cereals, roots or meat from long distances, the daily delivery of milk and vegetables from the surrounding countryside is not so easy to arrange. In the 19th Century and earlier the size of towns was

exaggerating two kinds of parasitism: The first, associated with "populism" in the political and economic jargon, attempts to guarantee subsistence and political stability and/or popularity by providing heavily subsidized water, electricity, food, transportation and health care, furnished free or at prices far below cost, nurturing artificial expansion of both squatter settlements and the middle class. Subsidies supporting delivery of these and other public goods were financed by printing money, feeding chronic inflation and increasing pressure on existing infrastructure that, starved of cash flow needed for maintenance and investment, deteriorated physically and ultimately raised the unit costs of basic services. These operations were sustained temporarily by the worldwide fiscal expansion of the postwar era that accelerated in Latin America during the 1970s with resources provided by heavy foreign borrowing. These resources nourished what the Hungarian economist Janos Kornai called "the soft budget constraint." In both Latin America and Eastern Europe, the State provided entitlements that transferred resources to citizens on a scale so exaggerated that they proved self-destructive: (1) job security; (2) cheap credit (at negative interest); (3) price controls; (4) consumer subsidies and (5) overvalued exchange rates. While Kornai concentrated his analysis on socialist systems, it applies to a broader range of experience: "The notion of the soft budget constraint refers to a trend in modern society: the relaxation of financial discipline, the weakening of the feeling that spending, survival, expansion depend on earning capability and not on external assistance."<sup>40</sup> The flow of outside resources enabled several countries both to inflate consumption levels and to cushion the impact of the accelerating growth of adult population that began to make itself felt strongly in the 1970s. We will examine these developments in more detail later in this study as part of our analysis of the causes and possible consequences of the cholera epidemic that erupted in Peru and spread to other countries of the Americas during 1991.

The second kind of parasitism shaping chronic inflation is rent-seeking by insiders and elites who obtain official prizes in the form of monopolies, grants, bounties, fixed prices, artificially low interest and exchange rates, etc. The economic historian E.L. Jones associates rent-seeking in many cultures with "long-lasting social and intellectual conservatism leading to ascriptive behavior that cramps the optimal allocation of resources, and new or greedier rent-seeking that replaces or hampers productive effort.

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limited by the logistics of meeting the daily requirements of half a million to a million people. Nowadays these matters are easier to organize. But perhaps even more important is that many towns have given up trying to organize decent conditions. Urban authorities used to be jealous of the numbers allowed into their cities; residential permits were required. Nowadays all may come, and any kind of squatting is tolerated. Numbers grow past three, four of five millions, collected together in squalor, with primitive water, sewage and transportation arrangements. As a result the struggle to organize decent urban conditions is no longer a constraint on the growth of urbanization." Nor do financial constraints operate, Lewis argued, since "governments of less developed countries do not tax enough, subsidize too heavily and run their enterprises at a loss." From W. Arthur Lewis, *Growth and Fluctuations 1870-1913*. London: Unwin 1978/pp148 & 239. Also Lewis, *The Evolution of the International Economic Order*. Princeton 1978/p39-42.

<sup>40</sup> Janos Kornai, "The Soft Budget Constraint," *Kyklos*. 1986/p9.

These things are the arthritis that follows trauma and increases the minimum effort that an economy needs to achieve or regain *intensive* growth. Rent-seeking is a political act. It refers to receipts above the opportunity cost of the resources --receipts obtained by 'politicking', and accruing, like some perverse halo effect, to the prestige or political influence of the agent. It means non-market allocation....This is pie-slicing behavior, and step by historical step it will have reduced the ability of society to increase the size of its pie."<sup>41</sup> Subsidies and rent-seeking have had a historic role in all complex societies. They become deranged economic transfers, transformed into weapons of self-destruction, when they grow to rival market mechanisms, when they develop a life of their own, when their scale can no longer be controlled without destroying important niches within the community. In his pioneering and neglected work, *Sociologia de Lima* (1895), a portrait of incipient modernization of a preindustrial city beset by different kinds of plagues and parasitism, Joaquín Capelo stresses the difficulty of unbinding the knot of deranged economic transfers, the main cause of Peru's present difficulties:<sup>42</sup>

*Society, as an indivisible whole, can be modified only after a long series of successive alterations demanding many years of work, aimed at provoking a healthy reaction. This means rectifying deeply rooted misconceptions in public opinion; abolishing bad laws; taking away from artificial industries and monopolies the bases sustaining an apparently robust organism that absorbs other peoples' wealth without creating new wealth, as all industry should; finally, demolishing or modifying institutions without spirit or life, petrified by chronic corruption and vice. These institutions, far from stimulating development of social energies and conserving acquired wealth, oppress society from all sides and extinguish, day by day, elements previously accumulated for the general welfare but later spent entirely in benefit of special interests and thus converted into generators of public misery.*

### **Urbanization, knowledge and inflation**

Instead of being curtailed or modified to adapt to changing conditions in Latin America, the institutionalization of deranged economic transfers was enlarged and intensified to support rapid urbanization in the 20th Century. South America's population now may be more urbanized than that of Europe, but lacks Europe's organizational skills and economic base developed to sustain this level of urbanization. Chronic inflation may come from the failure of knowledge applications to intensify as needed by the increasing scale of cities, enterprises and national states. These applications of knowledge are developed by practice and disciplined by costs into a code of experience

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<sup>41</sup> From E.L. Jones, *Growth Recurring: Economic Change in World History*. Oxford 1988/p122-3.

<sup>42</sup> Joaquín Capelo, *Sociologia de Lima*. 4 vols. Lima: 1895. II/p160. Scholars have been led to discovery of this valuable work by Richard Morse's essay, "The Lima of Joaquín Capelo: a Latin American archetype," *Journal of Contemporary History*. 4:3 July 1969.

that forms behavioral systems called institutions.<sup>43</sup> Sudden changes in the scale of human activity, by enlargement of cities, enterprises and national states, generate institutional demands for applications of knowledge in the form of adaptation, capital-formation and management. Failure to meet these demands poses questions of "self-organized criticality" that scientists have raised about complex systems of other kinds: "Large interactive systems perpetually organize themselves to a critical state in which a minor event starts a chain reaction that can lead to a catastrophe....According to the theory, the mechanism that leads to minor events is the same one that leads to major events. Furthermore, composite systems never reach equilibrium but instead evolve from one metastable state to the next." Over the past four years, the quest for understanding of self-organized criticality has led to research on the dynamics of sandpiles, earthquakes, weather systems, financial markets and ecosystems. This research suggested that the "complexity of life might be intimately related to the existence of a critical state" as "evolution operates at the border of chaos." In laboratory experiments, "catastrophe" is produced in collapse of a sandpile by adding that extra grain of sand which overwhelms the "self-organized criticality" of the pile. In the same vein, "fluctuations in economics might indeed be avalanches in a self-organized critical state of that system."<sup>44</sup> These ideas may provide a useful framework for detailed research on how chronic inflation may alter thresholds of self-organized criticality in complex societies, as in some giant cities of poorer countries after their phases of sudden growth, by overloading the system with claims and claimants and by lowering its level of criticality by persistent decapitalization.

### **Fear and desperation**

The fear and desperation awakened by the prospect of this adaptive failure is seen in announcements by new governments of programs to stop the recent hyperinflations in Latin America. This fear and desperation was echoed in the ex-Soviet Union's October 1990 presidential guidelines for economic stabilization and a move toward a market economy: "The position of the economy continues to deteriorate. The volume of production is declining. Economic links are being broken. Separatism is on the increase. The consumer market is in dire straits. The budget deficit and the solvency of the state are now at critical levels. Antisocial behavior and crime are increasing. People are finding life more and more difficult and are losing their interest in work and their belief in the future." In Peru, after monthly inflation reached 92% as President Alberto

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<sup>43</sup> "Institutions fix the confines of and impose form upon the activities of human beings. The world of use and wont, to which imperfectly we accommodate our lives, is a tangled and unbroken web of institutions.... As new institutions gradually emerge from the old, men persist in dealing with the unfamiliar as if it were the familiar." From Walton H. Hamilton, "Institution," *Encyclopædia of the Social Sciences*. New York: Macmillan 1932. V8/p84.

<sup>44</sup> Per Bak and Kan Chen, "Self-Organized Criticality," *Scientific American*. January 1991. Also see Stuart A. Kauffman, "The Evolution of Economic Webs," and W. Brian Arthur, "Self-Reinforcing Mechanisms in Economics," in Philip W. Anderson, Kenneth J. Arrow and David Pines eds., *The Economy as an Evolving Complex System*. Santa Fe Institute Studies in the Sciences of Complexity. Vol. V. Addison-Wesley 1988.

Fujimori's government took office in July 1990, the new premier, Juan Carlos Hurtado Miller, argued as he announced a *Fujishock* on television: "Stopping a hyperinflation like ours demands three basic conditions: First, eliminate the fiscal deficit. Second, relative prices permitting sustained growth of production without subsidies or controls. Third, that the expectations of Peruvians change...." The end of hyperinflation, or its avoidance, involves a conscious choice in favor of a community's survival. The Peruvian premier's speech was in the same desperate vein as those of the heads of other new Latin American governments of recent years addressing populations shocked and frightened by the impact of hyperinflation. In 1985, when President Victor Paz Estenssoro announced the program that ended hyperinflation in Bolivia, he told his people: "Our country is dying and we must refuse no means of emergency treatment to stop this outcome....There is no formula to solve the terrible crisis that shakes Bolivia, if not the joining of moral strength and constant work to permit an increase of exportable wealth; to administer carefully our scarce economic and financial resources; to agree to a pause in the social struggle, and to convince ourselves that there will be no rebirth of the Republic if we do not understand the magnitude of the catastrophe and the few effective remedies we have to reverse this overwhelming situation."<sup>45</sup> When President Carlos Menem of Argentina took office on July 8, 1989, he announced: "Argentina is broken....All of us, in greater or lesser degree, are responsible for Argentina's failure. The country is demolished. Our heritage is like a live coal burning in our hands. It is a reality that burns, lacerates, mortifies, haunts and urges solutions. Inflation reaches chilling heights. The culture of speculation devours our work. Production today is less than in 1970. Investment is negative....Pain, violence, illiteracy and marginality knock at the doors of nine million Argentines. Millions of wills are broken in a country whose standard of living has fallen dramatically....Either all of us Argentines will make Argentina healthy again or Argentina will die." In August 1990, explaining the *Fujishock*'s change in relative prices, Hurtado told the Peruvian people: "Five years ago, a gallon of 84-octane gasoline cost more than twice the price of a big bottle of beer. Now a big bottle of beer costs six times more than a gallon of gasoline. In other words, the previous government arbitrarily made the price of gasoline 15 times cheaper, thus inflicting calamity and virtual bankruptcy on Petroperú,<sup>46</sup> as well as a disturbing fall in our petroleum reserves, just as world oil prices rise because of the war in the Persian Gulf....To overcome this inherited disaster, we must multiply gasoline prices 30 times to give us enough resources to rebuild Petroperú and eliminate the public deficit, while seeking to defend real wages and without abandoning the poorest.... God help us."<sup>47</sup>

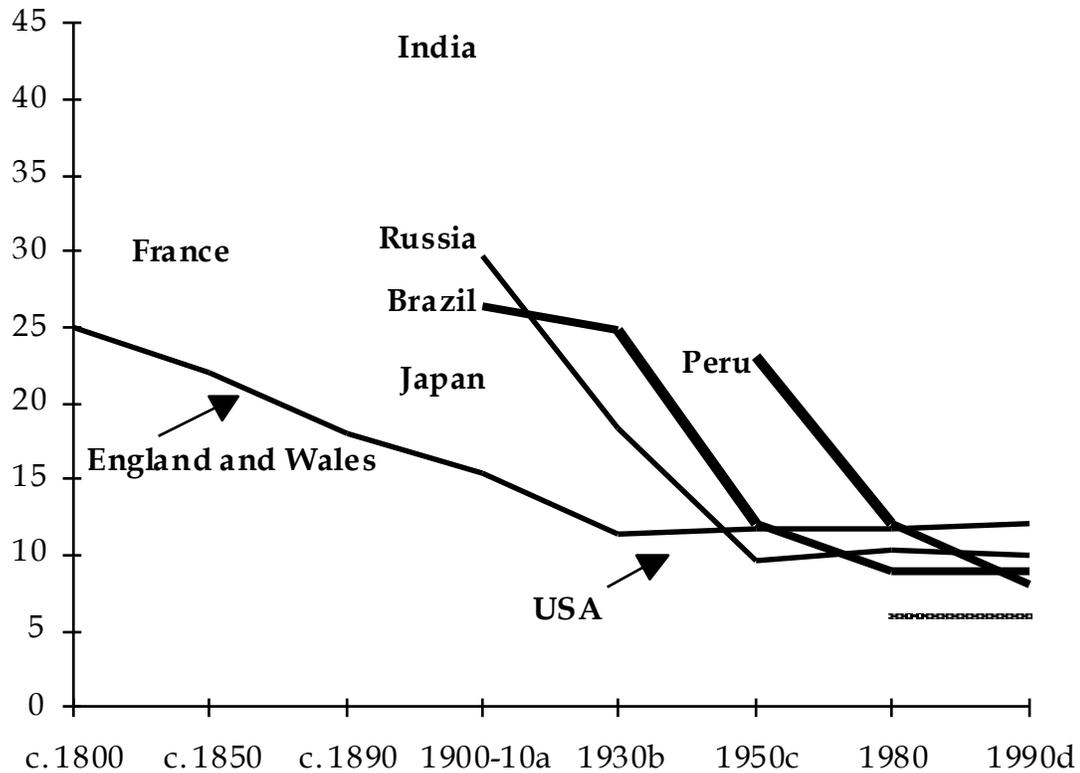
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<sup>45</sup> Text of speech published in Bolivia's daily newspapers of August 30, 1985.

<sup>46</sup> The state oil company.

<sup>47</sup> Text of speech in *Expreso*, Lima: August 10, 1990/pp5-6.

### Crude Death Rates, c. 1800 to 199 (per 1,000)



a. India: 1901-11; Brazil: 1901-1. b. Russia: 1940; India: 1931-41; Brazil: 1921. d. Russia: 1941. UK <sup>48</sup>

### 20th Century Mortality Reductions in Latin America

The spectacular gains in population survival rates over the past century were achieved through creation of a new institutional nexus of education, infrastructure and medical technology. This web was international in character and evolved rapidly in the decades from 1870 to 1914 as what we now call the world economy reached its first maturity, intensifying the world trend that lowered death rates by 20 per thousand in the 200

<sup>48</sup> Sources: Kuznets, Simon, *Modern Economic Growth. Rate, Structure, and Spread*, Yale 1966; Cameron, Rondo, *A Concise Economic History of the World. From Paleolithic Times to the Present*, Oxford 1989; Bourgeois-Pichat, J., "The General Development of the Population of France Since the Eighteenth Century" in *Population in History*, Edward Arnold 1965; Coale Ansley J. and Hoover, Edgar H., *Population Growth and Economic Development in Low-Income Countries*, Princeton 1958; Merrick, Thomas W. and Graham, Douglas M., *Population and Economic Development in Brazil. 1800 to the Present*, Johns Hopkins 1979; Bogue, Donald J., *Principles of Demography*, Wiley 1969; Webb, Richard and Fernández Baca, Graciela, *Peru en Nimeros 1990*, Lima: Cuánto SA 1990; Population Reference Bureau, *World Population Data Sheet 1990*.

years after 1750.<sup>49</sup> As Europe consolidated its penetration of the tropics, as relations between core and peripheral areas approached their present shape, a worldwide system of public health arose from new research, communications and information networks to eliminate different epidemic and endemic diseases --such as cholera, yellow fever and bubonic plague-- that erupted with great devastation with the expansion of world trade in the 19th Century. The new system was so successful that modern folk memory forgets scourges as recent as the cholera pandemic that, in 1892 alone, caused 378,449 reported deaths in the Russian empire, Iran, Somalia, Afghanistan, Germany, France, Hungary and Belgium, with 45.8% mortality among cases in European Russia and 51.3% in Germany.

Since then, crude death rates in the poorest countries fell from 28 per 1,000 in 1911-13 to 12 per 1,000 in 1957-61, which is roughly where they remain today. Meanwhile, in middle-income countries, fell from 23 to 9 per 1,000 by 1957-61 to 8 in 1988, below that of the aging populations of the rich countries.<sup>50</sup> In Peru, average life expectancy remained as low as 37 years in the 1940s, rising to 58 years by 1980.<sup>51</sup> Argentine life expectancy at birth rose from only 33 years in 1883 to 71 years in 1987, increasing fastest, by 50% to 48.5 years, in the three decades from 1883 and 1914. In Brazil, with poorer vital statistics, different estimates place life expectancy as low as 27-34 years from 1870-1900, roughly the same as India's average in 1920-50. Progress lagged until the mid-20th Century, when Brazilian survival rates surged by 14% in the 1940s and 15% in the 1970s, reaching life expectancy of 65 years by 1987. These survival gains came mostly from big reductions in infant mortality, by one-third in 1940-60 and by another one-third in 1970-80. What is most striking about these periods of rapid survival gains is how they accompanied infrastructure development. In Argentina, death rates fell fastest during construction of railroads and urban utilities, such as water and sewage systems, in the decades before the First World War. In Brazil, mortality fell fastest during the decades of accelerated road-building after the Second World War, which for the first time gave rural people regular access to medical care. Brazil's mortality reduction was speeded by a worldwide public health movement spearheaded by big campaigns against malaria, which also reduced deaths from measles, pneumonia, diarrhoea and dysentery. Medical interventions played a small role in Europe since the late 18th Century in the great reductions in mortality from infectious disease,<sup>52</sup> the leading killer in preindustrial societies and in earlier stages of urbanization. However, in poorer countries in the past half-century, new public health technologies were critical

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<sup>49</sup> Simon Kuznets, *Modern Economic Growth: Rate, Structure, and Spread*. Yale 1966/p41.

<sup>50</sup> Simon Kuznets, *Modern Economic Growth: Rate, Structure, and Spread*. Yale 1966/p438. World Bank, *World Development Report 1990 [WDR90]* p230Table 27.

<sup>51</sup> Graciela Fernández Baca de Valdez, *Población del Perú: Pasado, Presente y Futuro*. Lima 1990 (mimeo) p37.

<sup>52</sup> McKeown, Thomas, *The Modern Rise of Population*. New York: Academic Press 1976.

in rising life expectancy. The Danish economist-demographer Ester Boserup explained the mortality declines after World War II:<sup>53</sup>

*Lowering mortality was not only popular but also relatively cheap. Part or all of the expertise could be provided through international aid. During and after the war, many types of new health techniques were transferred to areas at low technological levels, in all parts of the world. New medicines and vaccines were imported and produced locally, and extensive spraying was undertaken with startling effects, especially in the case of malaria. Improvements of hygiene contributed to lower mortality, as they had in earlier in the industrialized countries. Some of the worst killers were nearly eradicated, and mortality due to many other diseases was radically reduced in virtually all parts of the world, including areas which had few other changes in technology.*

### **Taking low mortality for granted**

Many populations of the late 20th Century now take low mortality for granted. Some demographers have said that the rapid gains in life-expectancy since 1850 are "irreversible" because of technological and institutional advances incorporated into human communities. Demographic literature now stresses institutional development, not medical/technological innovation, as the main cause of lower death rates. There also may be a long-term inverse correlation between trends in mortality and public investment. Using data from Europe and the Americas, Stephen Kunitz suggests that "the course of mortality decline since the 17th Century has been the result of differences in the ways nations have grown and their economies developed, or failed to develop," arguing that, in the case of epidemic diseases, "historically their disappearance has been associated with the growth of stable governments, the emergence of disciplined armies, and the expansion and integration of nation-states."<sup>54</sup> In other words, mortality developments are shaped by the scale, quality and purposes of human organization.

Falling death rates were taken so much for granted that, in the 1960s and 1970s, mortality became a neglected field of research, with demographers and other social scientists absorbed by problems of persistent high fertility in poorer countries.<sup>55</sup> By the early 1980s, however, some demographers expressed concern about a slowing of the

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<sup>53</sup> Ester Boserup, *Population and Technological Change: A Study of Long-Term Trends*. University of Chicago Press, 1981/p177.

<sup>54</sup> Stephen J. Kunitz, "Mortality since Malthus," in David Coleman and Roger Schofield eds., *The State of Population Theory*. Oxford: Blackwell 1986/p279.

<sup>55</sup> Aside from the abundant funding for fertility studies available from public and private agencies interested in population control, Ruzicka and Kane provide "several reasons for this comparative neglect. In the developing countries, lack of mortality statistics was the main constraint; in the low-mortality countries, after decades of rapid mortality decline, it was assumed that further improvements in the population health status would almost automatically continue and that differences among various strata of the population would diminish as the least advantaged caught up. In addition, serious methodological reservations lingered about the measurement of mortality differentials by occupation and social class, and the meaning and interpretation of the findings were questioned." From Ruzicka and Kane 1990:9.

mortality decline in Asia and Latin America. Lado Ruzicka and Harald Hansluwka, for example, observed that the slowing was taking place at mortality levels "far higher than anticipated" in Sri Lanka, Malaysia, Bangladesh, Indonesia, India, Philippines and Thailand, while differences within national populations between different regions and social classes stabilized and, in some cases, widened.<sup>56</sup> In Africa, mortality research was blocked by lack of organizational networks needed to collect data. Despite some ill-documented gains in the early postwar decades, trends in still-high mortality levels are shrouded in ignorance. In Ian Timæus's words: "The probability that a person born in Africa will die between the ages of 15 and 60 is broadly similar to the probability that he will die in childhood."<sup>57</sup> A Nigerian demographer, analyzing shrinking of government health spending, portrayed a scene common to many countries: "Clinics are now over-run and are even inaccessible to many people as subsidy on medical treatment has been withdrawn."<sup>58</sup> In the Americas, Alberto Palloni saw a break with West European and North American patterns in that "the levels of mortality in Latin American countries dropped sharply only after exposure to medical innovations had taken place, yet prior to major gains in socioeconomic development. By contrast, in Western Europe and North America substantial gains in life expectancy were made before any significant breakthrough in medicine could reach the majority of the population. Consequently, after Latin America experienced an initial drop in mortality, the potential for a slowdown of the process of mortality decline remained if socio-economic development failed to occur at a sufficient pace." Palloni found that, because of lagging socioeconomic progress, "the process of mortality decline in Latin America may have hit serious obstacles," relating unexpected slowdown in survival gains, especially among infants and children, to educational differences and distortions in income distribution. He added: "Not only do Latin American countries show an excess of infant and child mortality, but, more importantly, the levels of excess appear to be related to a disproportionate contribution of the complex of water-food-airborne diseases. This complex is less responsive to the introduction of isolated medical interventions and depends heavily on standards of living, sustained public health interventions, and levels of information and health care practices of the population."<sup>59</sup>

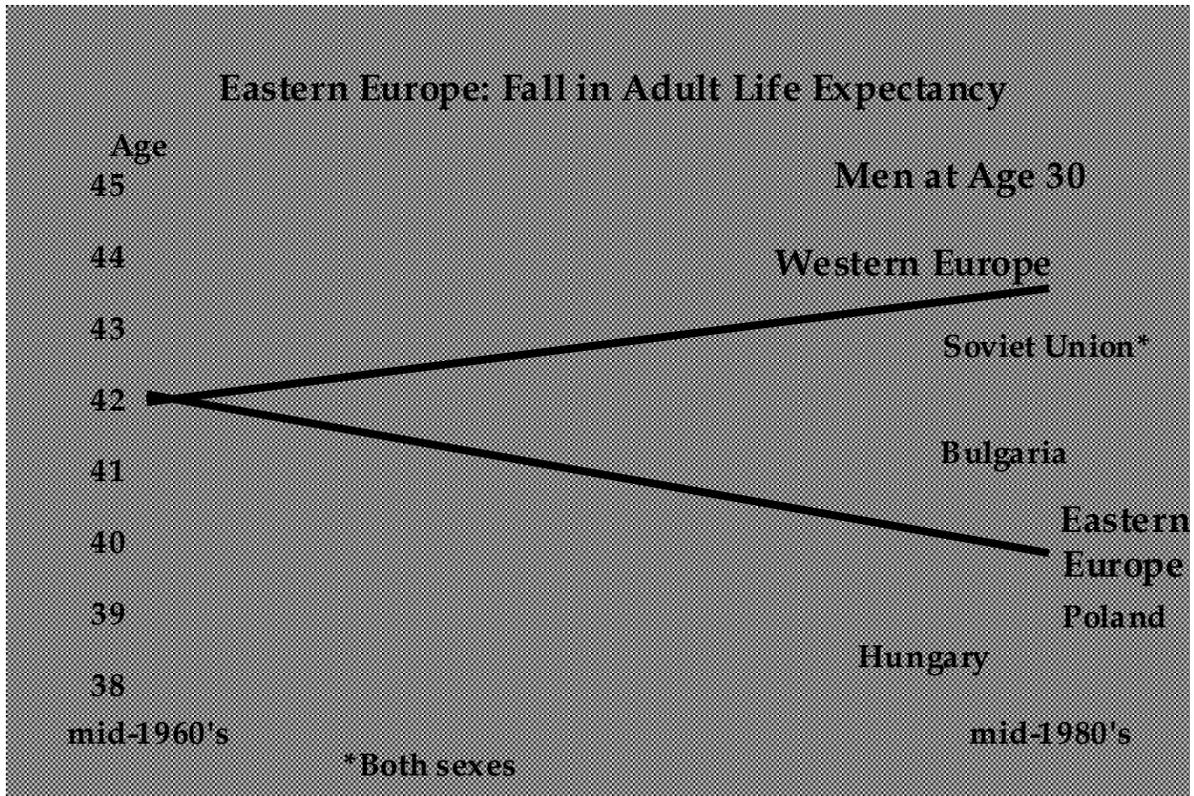
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<sup>56</sup> Lado Ruzicka and Harald Hansluwka, "Mortality Transition in South and East Asia: Technology Confronts Poverty," *Population and Development Review*. September 1982/pp562-3 & 580.

<sup>57</sup> Ian Timæus, "Adult Mortality: Levels, Trends and Data Sources," in R.G. Feacham and D.T. Jamison eds., *Disease and Mortality in Sub-Saharan Africa*. Oxford 1991/p87.

<sup>58</sup> Olukunle Adegbola, *Adult and Urban Mortality in Africa: A Synopsis*. Paper presented to the Seminar on Causes and Prevention of Adult Mortality in Developing Countries organized by the International Union for the Scientific Study of Population. Santiago, Chile: October 1991.

<sup>59</sup> Alberto Palloni, "Mortality in Latin America: Emerging Patterns," *Population and Development Review*. December 1981/p627, 630, 640.



Source: Nicholas Eberstadt, "Health and Mortality in Eastern Europe, 1965-1985", in Joint Economic Committee of the United States Congress, *Pressures for Reform in The East European Economies*. Washington: October 1989/p112.

### Eastern Europe and Latin America

The dangers of taking low mortality for granted can be seen in the resurgence of adult male mortality in Eastern Europe since the mid-1960s. In the first two decades after World War II, Eastern Europe joined the world movement toward lower death rates, as did Latin America, but then suffered major reversals. Latin Americans living in chronic inflation regimes may detect in this regression a warning of the effects of prolonged economic blockage and disorganization. By the late 1980s, the probability of men dying between ages 15 and 60 in Hungary, Poland and the ex-Soviet Union had risen to levels higher than in Brazil, Colombia, Guatemala and Peru.<sup>60</sup> In Hungary, death rates for men over age 25 rose sharply between 1964 and 1985, doubling among men in their 40s and rising by between 50% and 87% among men in their 30s and 50s. Life expectancy for men at age 30 in 1985 was lower than in 1941. As overall Hungarian mortality rose by 1985 to 13.9 per 1,000, highest among industrial countries, 73% of the increase was

<sup>60</sup> Richard G.A. Feacham, Tord Kjellstrom, Christopher J.L. Murray, Mead Over and Margaret A. Phillips eds., *The Health of Adults in the Developing World*. Oxford University Press/ World Bank (forthcoming 1992). Appendix Table A.

attributed to aging of the population and 27% to higher death rates at specific ages.<sup>61</sup> Age-standardized mortality of men caused by diseases of the circulatory system fell by 30% in England/Wales and 10% in West Germany between the early 1960s and mid-1980s, but rose by 64% in Poland and 29% in Czechoslovakia. Among Hungarian men aged 40-44, mortality from liver cirrhosis (often caused by alcoholism) multiplied 12-fold in 1964-85, while suicide and tumor death rates doubled and mortality from lung cancer and circulatory diseases affecting the brain and heart more than tripled.<sup>62</sup>

The public health, aging and disease experience of the past 150 years has given us cascading explanations and ideologies of mortality trends.<sup>63</sup> The debates focus on the relative importance of medical technology, socioeconomic and institutional conditions and voluntarism (the will and ability of people to care for themselves). Both Latin America and Eastern Europe are threatened with the consequences of institutional breakdown. Discussing past and prospective mortality, we must bear in mind that the population of Latin America is much younger, faster-growing and more mobile than that of Eastern Europe. Latin Americans abandon and dissolve families and households more easily, while East Europeans have been locked into jobs and marriages by housing shortages, political controls and lack of economic horizons. Eight communist countries in 1985 formed nearly one-third of the top 28 per capita cigarette consumers. The doubling of general lung cancer mortality in Hungary over two decades reflects one of the world's highest rates of cigarette smoking (the same as that of the United States and twice Brazil's).<sup>64</sup> The specialist literature on mortality in Eastern Europe reports a drama of blockage, negligence and self-destruction. The effects of heavy smoking, drinking and overuse of pharmaceuticals (especially tranquilizers) were reinforced by widespread high blood pressure, linked to heart and circulatory diseases, in daily routines marked by endemic workplace conflicts and by long working hours, as low incomes drove people into second jobs in the black economy. Nutrition deteriorated as part of the general disorganization. Despite far more equal income distribution than reported for Latin American countries, the 1980 Hungarian census reported "very important social differences of mortality." Age-standardized death rates among men aged 40-59 was 1,341 per 100,000 for manual workers but only 914 for non-manuals.<sup>65</sup> A comparison of mortality among 22 Budapest districts showed that chances of dying in ages 40-44 was 3.3 times greater in the "worst" district than in the "best" one, with the biggest

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<sup>61</sup> Józán, Peter, "Some features of mortality in postwar Hungary: the third epidemiological transition," *Cahiers de Sociologie, Démographie et Médecin*. Paris: Jan.-Mar. 1989/p28, 31,41. Also Józán, "Changes in Hungarian Mortality and the Role of the National Health Promotion Program," in Wolfgang Lutz ed., *Future Demographic Trends in Europe and North America: What Can We Assume Today?* Academic Press/p60.

<sup>62</sup> Donald Forster and Peter Józán, "Health in Eastern Europe," *The Lancet*. February 24, 1990/p458.

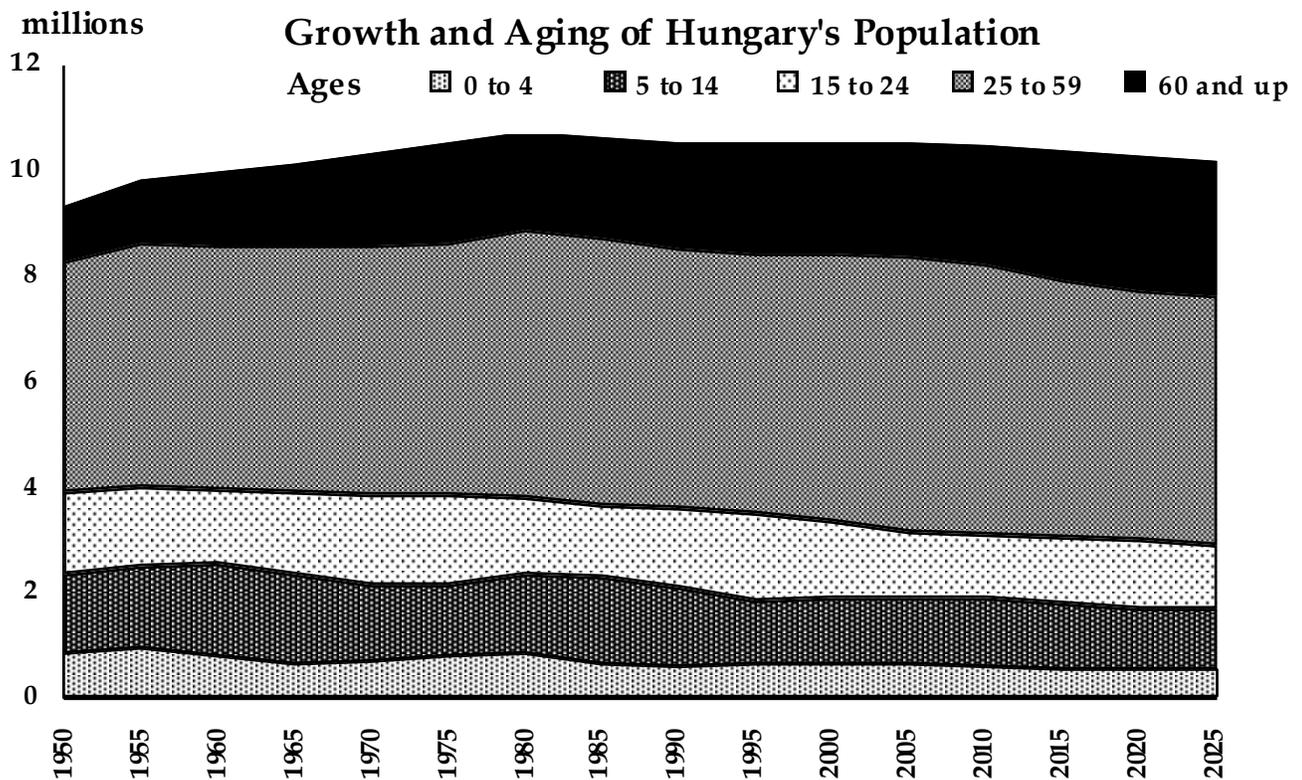
<sup>63</sup> Stephen J. Kunitz, "Explanations and ideologies of mortality patterns," *Population and Development Review*. September 1987.

<sup>64</sup> R.T. Ravenholt, "Tobacco's global death march," *Population and Development Review*. June 1990/p226.

<sup>65</sup> Andorka, Rudolf, *Health Policy: The Experience of Hungary*. Paper prepared for the seminar of the International Union for the Scientific Study of Population on population policy in Sub-saharan Africa: drawing on international experience. Kishasa, Zaire, March 1989/p2.

differences in causes of death of men in ages 40-59 found in liver cirrhosis (alcoholism), suicides and stomach cancers.<sup>66</sup> The Hungarian demographer Peter Józán describes the "social maladaptation syndrome" forming this underclass:

*The massive migration from rural to urban areas uprooted peasants, most of whom became unskilled or semi-skilled workers at new industrial plants. Intensive upward mobility elevated many valuable people to higher social strata and deprived the lower social strata of their natural leaders. At the same time, according to an elaborate system of ideology, a...disruption of traditional social institutions was attempted. All this created an alienated mass of people without any guidance, without values, without leaders, without institutions. This is an unprotected, fairly large minority which contributes disproportionately to premature and avoidable deaths.*



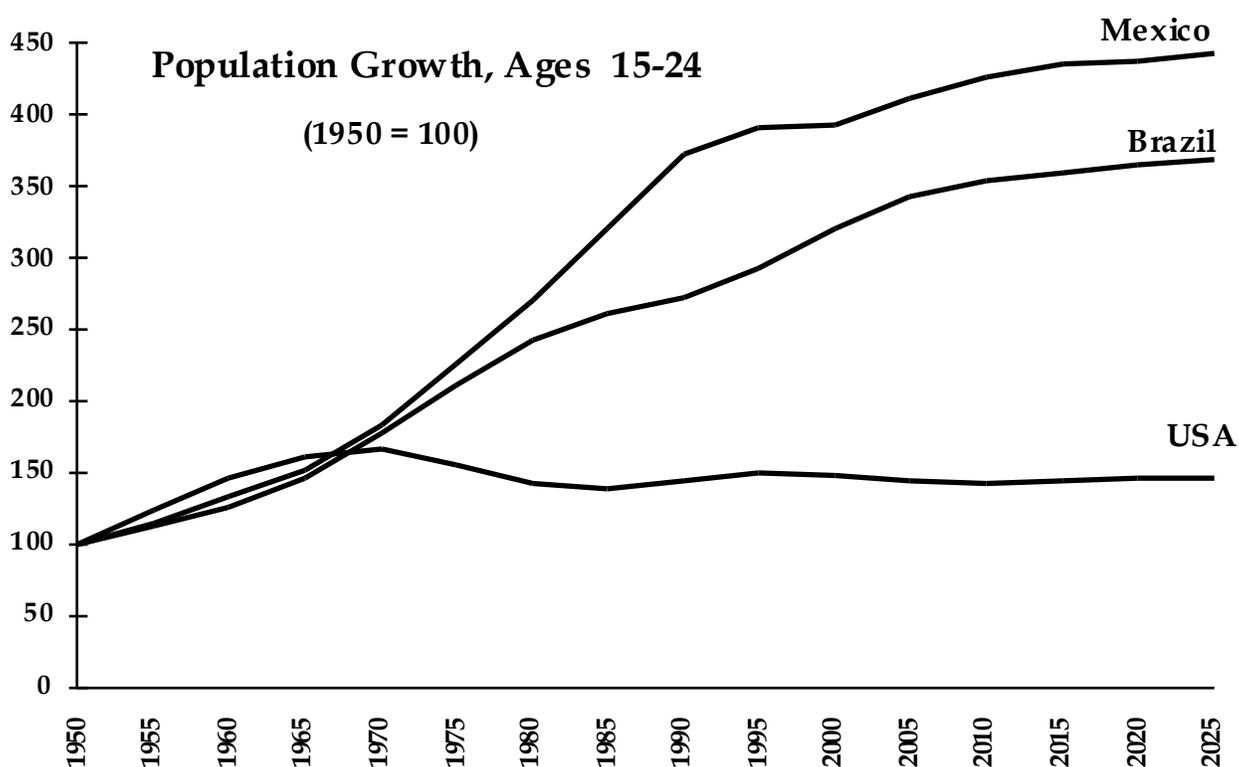
Source: United Nations, *World Population Prospects: 1990*.

To what degree does resurgent adult mortality, already a historic fact in Eastern Europe, threaten disorganized Latin American communities as well? What is striking about East European experience, and suggestive of what may be happening in Latin America today, is that more adults have been dying for lack of treatment of curable diseases. For example, as male lung cancer mortality was doubling in Hungary in 1965-

<sup>66</sup> Peter Józán et. al., *An Ecological Study of Mortality Differentials in Budapest, 1980-1983. Part I*. Budapest: Central Statistical Office, 1987/pp16, 19, 24.

85, it rose by roughly 20% in the United States, with roughly the same level of per capita cigarette consumption. Male lung cancer mortality (age standardized) also doubled in 1970-82 in Rio Grande do Sul State in southern Brazil, despite much lower national smoking prevalence than in the United States and Hungary. Reversal of mortality declines in Eastern Europe was the first event to cast doubt upon the "irreversible" reductions announced by many demographers and upon predictions based on the "acceleration hypothesis." This hypothesis predicts that the later a country enters a phase of sustained mortality decline, the faster it passes through this transition toward convergence with low mortality patterns of the countries that preceded it. According to Hansluwka (1991:9), "neither among nor within countries has there been an unequivocal and steady trend in 1950-90 toward convergence of mortality experience." Among advanced countries, the decisive factor in divergence was ischaemic heart disease.

The difficulty of analyzing trends is compounded by poor statistics in countries with high mortality. In 1980-85, less than half of Latin American countries had satisfactory registration, with less than 20% omission, a situation that failed to improve since 1960. In 1985 eight countries still had omission rates of more than 30%. In Peru, Honduras and Brazil's Northeast and Amazonia, for example, only 55% of deaths are registered. In Brazil, only 10%-15% of deaths in poorer regions are ascribed to specific causes, largely because so many of them occurred without medical treatment while, according to the World Bank, only the southeastern and southern states produce mortality data of "reasonable reliability and quality." Deaths from heart attacks are recorded often as caused by strokes because sudden death from stroke requires a less rigorous post-mortem examination, while others are attributed simply to "cardiac arrest." As a consequence of the huge deficiencies in registering deaths and their causes elsewhere in Brazil, São Paulo often is used as a proxy for the whole country, despite that fact that São Paulo is wealthier and more advanced socially than most other states. Available statistics indicate that infant mortality continues to fall in Brazil, albeit at a slower pace, as in the rest of Latin America, but lack of adequate data on adult mortality subjects any conclusion to much more doubt, speculation and controversy. Most epidemiological studies with a claim to scientific validity, such as those of mortality from diseases of the circulatory and nervous systems, cover only the Municipality of São Paulo, an urban core of 12 million people that may not represent accurately the overall reality of Greater São Paulo (population: 18 million), the world's third-largest metropolitan area, with a larger share of people with lower incomes, living in poorer dwellings and with less access to medical care than in the inner city. Intense migration and rapid creation of marginal suburbs make inter-censal projections of population in these outer areas precarious, limiting the usefulness of very recent estimates of local death rates until results of the 1991 census are known. While evolution of mortality in São Paulo and a few other Brazilian cities can be compared with industrial countries, there is not enough data and research available to permit detailed comparison with movements in poorer countries or in poorer regions of Brazil.



Source: United Nations, *World Population Prospects 1990*.

### Bulging adult population

Yesterday's achievement in reducing infant mortality is today's survival challenge of a swelling adult population seeking employment and health care. This mainly is an urban problem, because of the mortality differentials in this century between cities and rural areas as well as because of the high concentration of people in cities today. The fast growth of adult population coincides with higher levels of inflation as several Latin American countries approached European levels of urbanization over the past two decades. As a result of fast fertility declines, the number of Latin Americans in ages 0-14 is growing now by only 0.9% yearly, against 3.2% in the 1950s. However, momentum of previous high fertility sustained growth of the adult population (ages 15-59) at much higher rates, peaking at 2.9% in the 1970s and falling slowly to a projected 2.3% in the 1990s.<sup>67</sup> In the recent past, low crude death rates (around 7 per 1,000) were due more to

<sup>67</sup> Juan Chackiel, *Latin America: Population dynamics analysis oriented toward the health services sector, 1950-2000*. Paper presented to the Seminar on Causes and Prevention of Adult Mortality in Developing Countries organized by the International Union for the Scientific Study of Population. Santiago, Chile: October 1991. In four countries of Central America (El Salvador, Guatemala, Honduras and Nicaragua), conspicuously plagued by political violence in recent decades, adult population keeps growing at an increasing rate.

fast-falling infant mortality and a younger age structure than by improvements in health care, but now this young population is aging.

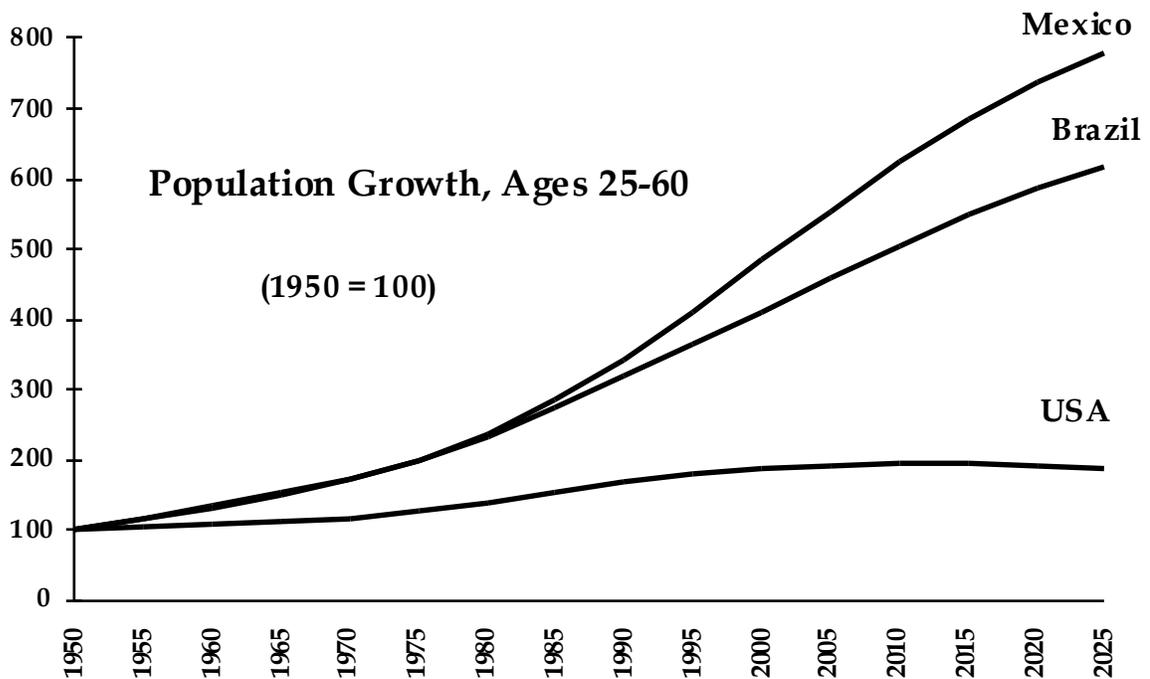
The bulging of Latin America's adult population is akin to what the United States went through briefly in the 1970s, but on a much larger and sustained scale. Because of the baby boom of the early postwar decades, which increased the crude birth rate by more than one-third between the 1930s and the 1950s, the U.S. labor force suddenly began to expand by an average 2.16 million yearly in 1965-79, (a 2.4% rate), against only 868,000 (1.3% yearly) in 1950-65. The ratio of men aged 15-29 to those 30-64 rose from 50% in 1955 to peak at 74% in 1975. In his *Birth and Fortune*, Richard Easterlin argued that the U.S. generational bulge of those coming of age in the 1970s exerted pressures on the labor market that contributed strongly to social disorganization, producing more inflation, unemployment, illegitimacy, suicides, crime and divorce. Government efforts to stimulate the economy to create more jobs was frustrated by skill deficiencies of younger workers, breeding instead stagflation and raising the unemployment threshold below which fiscal and monetary policies to create jobs become inflationary. Easterlin explained:<sup>68</sup>

*When young persons are disproportionately plentiful in the labor force, as has been increasingly true since 1960, the average rate of unemployment tends to rise. Moreover, as economic problems facing young men increase, young women increasingly move into the labor market, further aggravating the growth of unemployment. Conventionally, the government tries to counter increasing unemployment through fiscal and monetary policies that raise demand for goods --for example, policies that make credit more accessible to prospective borrowers and tax-relief measures that leave households with more funds to spend. But these policies cannot cope with unemployment induced by supply conditions because the labor skills needed to expand output in response to the new demand are not the same as those available in the pool of unemployed workers. Therefore, the new demand for goods does relatively little to expand output and to reduce unemployment, but instead goes into increasing prices."*

The bulging of Latin America's adult population differs from U.S. experience in some key respects. U.S. birth rate plunged from its postwar high in the 1950s to an all-time low of 15/1,000 in the late 1970s, reducing pressures on the job market in the 1980s and 1990s. Meanwhile, Latin American fertility also fell, from much higher levels. By 1989 it fell to the U.S. baby boom rates of the 1950s and early 1960s. However, Latin America's adult population continues to grow fast. While U.S. population in ages 15-24 grew by 2.8% yearly in 1960-80 to peak at 42.8 million, only to fall quickly to below its 1970 level by 1990, the number of young people at these ages in Latin America are increasing at alarming rates.

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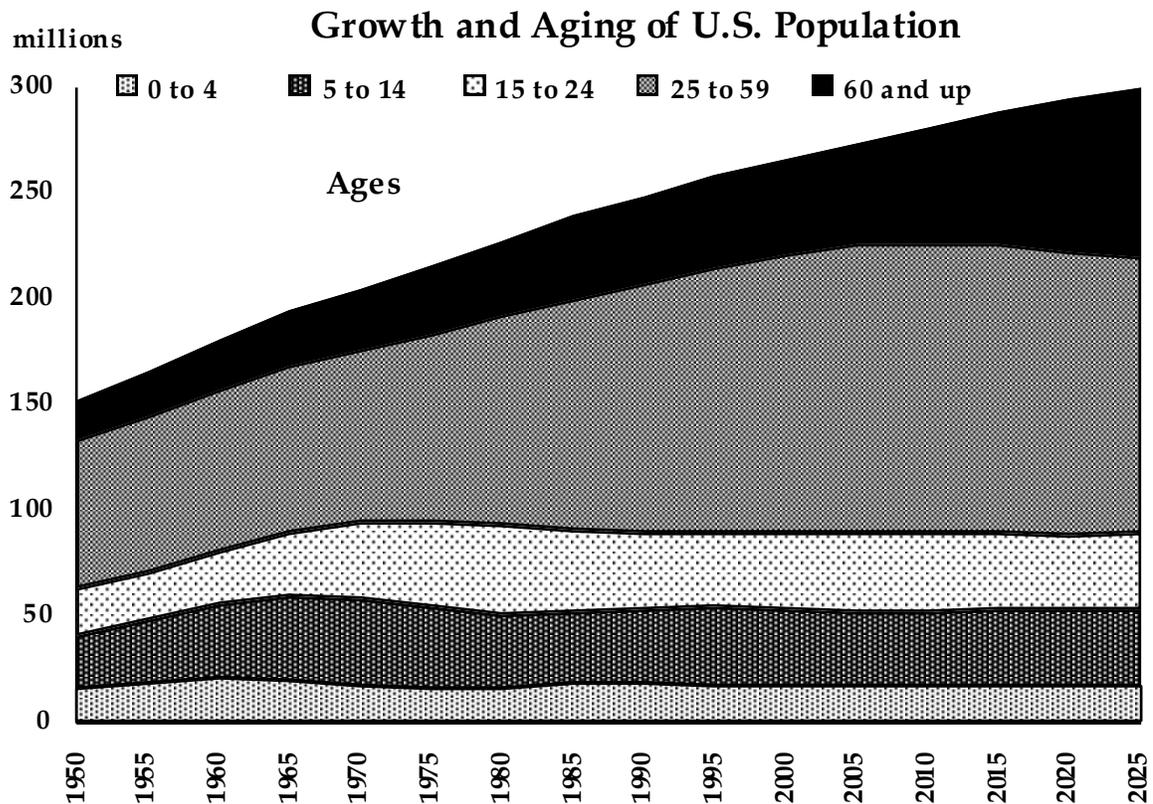
<sup>68</sup>Richard Easterlin, *Birth and Fortune: The Impact of Numbers on Personal Welfare*. New York: Basic Books 1980/p114.



Source: United Nations, *World Population Prospects 1990*.

The real problem is population in the mature adult ages, which will keep growing fast until well into the next century. In Brazil, for example, population in ages 25-59 is growing at a trend rate of 2.9% yearly in 1950-2000 before slowing to 1.7% yearly in 2000-25, according to United Nations projections. These projections show Mexico's mature adult population growing even faster, by 3.6% yearly in 1980-2000 before slowing early in the next century. The impact of the fast growth of adult population in Latin America is compounded by the fact that it accompanies a process of rapid urbanization, while in the United States urbanization was consolidated by the time the baby boom generation entered the job market in the late 1960s and 1970s.

The three epidemiological risks threatening increased adult mortality in Latin America - more violence, new and resurgent infections and greater impact of chronic diseases--are associated with pressures generated by the rapid growth of adult populations in recent decades. These risks are related to varying degrees of institutional development in different countries. Generally speaking adult mortality is higher in poorer countries than in advanced market economies. As evidence of epidemiological polarization, using the standard of the world's highest survival rates established by Japan, a new study for the World Bank calculated that 97% of all child deaths and 72% of adult deaths in poorer countries were "avoidable." In Japan, the probability of a 15 year-old dying before reaching age 60 (known in the jargon as 45Q15) is 11% for men and 6% for women. In poorer countries this probability is 25% for men and 22% for women.

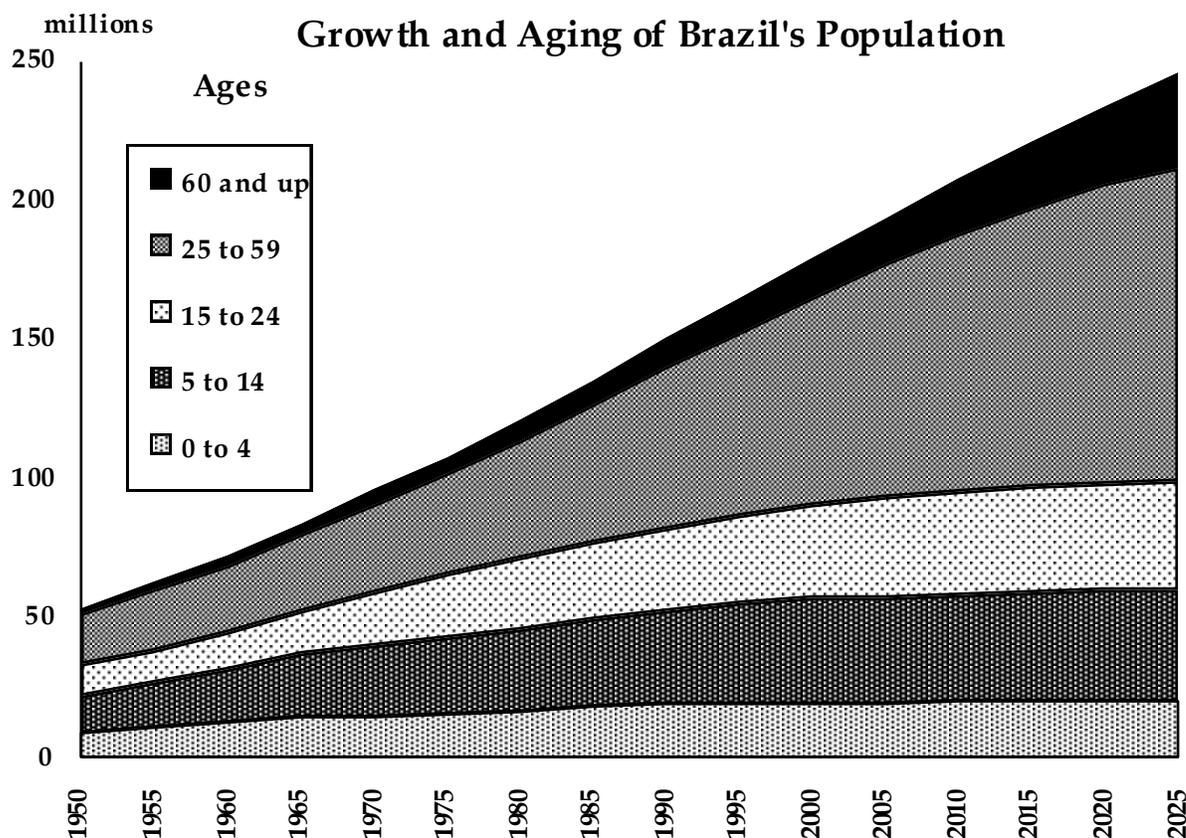


Source: United Nations, *World Population Prospects: 1990*.

The Latin American experience is useful in detecting trends, despite large data gaps, because of the greater scarcity elsewhere: "Good empirical data are available for a number of Latin American and Caribbean countries, a few nations in Asia, but no countries in sub-Saharan Africa." In India, for example, three-fourths of all deaths go unregistered and only 10% of registered deaths are medically certified.<sup>69</sup> Poorer countries most studied for international comparisons are the handful with good vital statistics: small, compactly organized nations like Chile, Costa Rica, Cuba, Singapore and Sri Lanka, despite the distorting factor that "countries with good vital statistics tend to have low mortality."<sup>70</sup> In appraising risks of rising adult mortality, local and other sub-national variations are very important. They are appearing mainly in countries with faulty statistics, where survival gains are more fragile and institutional weaknesses more pronounced. The risks are these:

<sup>69</sup> Mari Bhat, *Mortality from accidents and violence in India and China*. Paper presented to the Seminar on Causes and Prevention of Adult Mortality in Developing Countries organized by the International Union for the Scientific Study of Population. Santiago, Chile: October 1991/p3.

<sup>70</sup> Christopher J.L. Murray, Gonghuan Yang and Xinjian Qiao, "Adult Mortality: Levels, Patterns and Causes," in Richard G.A. Feacham, Tord Kjellstrom, Christopher J.L. Murray, Mead Over and Margaret A. Phillips eds., *The Health of Adults in the Developing World*. Oxford University Press/World Bank (forthcoming 1992).



Source: United Nations, *World Population Prospects: 1990*.

**Violence.** The Pan American Health Organization (PAHO) reports high annual rates of violent deaths (more than 50 per 100,000 population) in Brazil, Cuba, Chile, Colombia, Ecuador, El Salvador, Mexico, Trinidad and Tobago and Venezuela. It calls special attention to the rising share of homicides in total mortality in Colombia, Guatemala, El Salvador, Venezuela and Panama and to the very high suicide rate in Cuba (22.6 per 100,000). PAHO also voices concern that "suicide begins to appear among the five leading causes of death in the 5-14 age group in several countries, including Canada, United States, Puerto Rico, Surinam and Uruguay."<sup>71</sup> PAHO researchers find that "high rates of violence are likely to get progressively worse."<sup>72</sup>

Local studies in Brazil justify the concern about the increasing prevalence of deaths from "external causes,"<sup>73</sup> especially among young men. While mortality in São Paulo

<sup>71</sup> "La violencia: un problema de salud pública que se agrava en la Región," *Boletín Epidemiológico*. Washington: Pan American Health Organization, 1990. V11/2pp4-5.

<sup>72</sup> Elias Anzola-Pérez and Shrikant I. Bangdiwala, *The Changing Structure of Deaths from Accidents and Violence in the Americas*. Washington: PAHO, April 1991/p12.

<sup>73</sup> Deaths cases by injuries, both intentional (suicide and homicide) and accidental, forming Group III in the World Health Organization's International Classification of Diseases.

State among men aged 20-24 was 20% less than among women in 1940, male mortality by 1985 rose to a level 3.5 times greater than female death rates. While mortality among women aged 15-44 fell by half in 1960-86, it remained at a level three times higher for men, whose death rates from violence doubled.<sup>74</sup> Among males in the core cities of Brazil's metropolitan areas, the death rate from external causes rose by 13% from 1977 to 1986, led by a doubling of violent mortality in Recife and increases of 28% in São Paulo and 19% in Rio de Janeiro. These numbers fail to reflect the true scale of the increase, since they exclude the peripheral regions of the metropolitan areas, whose large populations are younger, poorer and more violent than those of the core cities. Nevertheless, according to these numbers, the risk of violent death among males in Brazil's big cities is 4.5 times greater than among females, which is comparable to the Mexican ratio and more than double the same risk difference between sexes in developed countries. In the Rio de Janeiro suburb of Duque de Caxias, in the peripheral region of the Baixada Fluminense that houses an estimated four million people, violent deaths of men aged 20-29 rose fast in 1982-87 to the astronomical rate of 448 per 100,000.<sup>75</sup> From 1977 to 1985, violent mortality among adolescents doubled in São Paulo and rose by one-fourth in Rio de Janeiro, reaching very high levels in homicide deaths of males aged 15-49. Murders cause the greatest concern. Between 1970 and 1984, the homicide rate rose more than ten-fold among males and by 140% among females, increasing the risk difference between the sexes from 3.5 to 15-fold. In Recife and São Paulo, the murder rate doubled in 1980-87. It may have reached similar proportions in Rio de Janeiro and Porto Alegre but for distortion of official statistics by listing 40% of violent deaths in these cities as "unknown whether accidental or intentionally inflicted."<sup>76</sup> Embedded somewhere in these numbers is the "extermination" of street children and other minors by death squads, sometimes linked to the police. According to a study by the Federal Police, 4,611 minors were murdered in 1988-90, mainly in São Paulo, Rio de Janeiro and Recife, 52% of them by gunfire.<sup>77</sup> By another count, 184 minors were killed in Rio de Janeiro in the first half of 1989, one-third of them by death squads.<sup>78</sup> In São Paulo, 69 murders were committed by minors in 1991, nearly twice the number in 1990.<sup>79</sup>

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<sup>74</sup> Luis Patricio Ortiz, "O aumento da sobremortalidade masculina em São Paulo," *Conjuntura Demográfica* No. 11. São Paulo: SEADE April-June 1990.

<sup>75</sup> Edinilsa Ramos de Souza, *Violência Velada e Revelada: Estudo Epidemiológico da Mortalidade por Causas Externas em Duque de Caxias, Rio de Janeiro*. Master's thesis. Rio de Janeiro: Escola Nacional de Saúde Pública, 1991/p86.

<sup>76</sup> Luis Patricio Ortiz, *Violence in Brazil's Metropolitan Regions*. Paper presented to the Seminar on Causes and Prevention of Adult Mortality in Developing Countries organized by the International Union for the Scientific Study of Population. Santiago, Chile: October 1991.

<sup>77</sup> Coeli Mendes, "Menores mortos são 4,611 em 3 anos," *O Estado de São Paulo* . June 5, 1991/p9.

<sup>78</sup> Gilberto Dimenstein, *A guerra dos meninos: assassinatos de menores no Brasil*. São Paulo: Brasiliense, 1990/p18.

<sup>79</sup> Rogério Menezes, "Dobram assassinatos cometidos por menores," *O Estado de São Paulo* . February 23, 1992/Cidades p1.

In Colombia, as in Brazil and other Latin American countries, the recent surge of violence takes place amid general but slowing improvement in life expectancy. The Colombian crude death rate per 1,000 population fell over the past four decades from 16.7 to an estimated 6.1 in 1985-90, with the fastest gains occurring in 1950-70. Since 1970, there have been dramatic changes in mortality patterns. Homicides have replaced respiratory infections as the leading cause of death among males, after the homicide rate quadrupled since 1964 and mortality from respiratory illness and from intestinal infections, the first and second causes of death in 1970, fell respectively by nearly half and to one-sixth of their former levels. On the other hand, deaths from external causes multiplied at all ages. By 1988, they caused 90% of all deaths of men aged 20-25, rising from 55% in 1965. In the same period, they more than doubled as a cause of death of children aged 5-9. In 1975-85, excess homicide mortality of men over women grew from multiples of 9.7 to 16.7.<sup>80</sup> High mortality in Colombia from injuries (more than 100 per 100,000 population) is marginally less than in El Salvador (127.1) and marginally greater than in Mexico (77.4) and Brazil (63.7).

Like inflation in Latin America, violence in the Americas registers different orders of magnitude from the rest of the world, stemming from institutional and population dynamics. Murder rates hover around 1 per 100,000 population in Western Europe and Japan and 2 in Eastern Europe, through many institutional forms of control. Violence in the Western Hemisphere (except Canada) multiplies these baseline values. In the United States, the general homicide rate of 9 per 100,000 is roughly equivalent to those of Venezuela and Ecuador and much higher than the reported rates of all but the most violent Latin American republics. In 1988, the murder rate among U.S. black males (58.0) was half that of Colombian males (111.3). Demographic estimates of the cost of this violence are rough but dramatic. In Colombia, excluding homicides from general mortality in 1965-88 would add two years of life expectancy to the whole population. In 1985-88 alone, 46,000 women aged 15-49 became widows from violent death of their husbands, 32,000 by murder and 14,000 by accidents. Adding the 5,000 men who became widowers after their wives died from external causes yields a total of 51,000 homes that lost at least one parent, leaving 172,000 orphans averaging four years of age in those four years.<sup>81</sup> Aside from deaths and the truncating of family structure, violence has a non-lethal cost in maimings and injuries that diminish earning capacity and

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<sup>80</sup> Magda Ruiz and Manuel Rincón, *Violent accidents and deaths in Colombia: A study of the demographic characteristics and consequences, 1965-88*. Paper presented to the International Union for the Scientific Study of Population's Seminar on Causes and Prevention of Adult Mortality in Developing Countries. Santiago, Chile: October 1991. The authors point out that Colombia's rate of deaths from external causes is more than 100 per 100,000 population and not 41.4 as incorrectly reported in PAHO's *Boletín Epidemiológico*, cited above.

<sup>81</sup> Calculated from an average of 3.3 children per family and average age of 29 years at the parents' death. See Magda Ruiz and Manuel Rincón, *Violent accidents and deaths in Colombia: A study of the demographic characteristics and consequences, 1965-88*. Paper presented to the International Union for the Scientific Study of Population's Seminar on Causes and Prevention of Adult Mortality in Developing Countries. Santiago, Chile: October 1991/pp21 & 25.

require emergency care and then rehabilitation. By 1985, according to PAHO, 1% of Central America's whole population had been physically mutilated in civil wars that killed tens of thousands of people in Guatemala, El Salvador, Panama and Nicaragua and transformed 1.5 million others into homeless refugees.<sup>82</sup> In Peru, traditionally a country with low levels of recorded violence, there were 10,362 reported deaths from insurgent terrorism and the government reaction to it in 1980-91.<sup>83</sup> Much of this violence comes from perversion and/or impoverishment of the security forces. The most widely known episodes include the slaughter of many thousands of innocent people in Guatemala since 1966 by death squads organized by the army and the "disappearance" of between 8,000 and 50,000 others in Argentina's "dirty war" of insurgent terrorism and official counter-terrorism in the 1970s.<sup>84</sup> In Peru, surging inflation wiped out the purchasing power of policemen's wages after 1985. Many of them turned to different kinds of crime to increase their incomes, from hijackings on public highways to smuggling of cocaine and coffee to armed robberies of local stores. From August 1, 1990 to June 30, 1991, the Peruvian press reported 133 crimes by policemen, including 29 armed robberies and 36 murders. In São Paulo, police officials have voiced concern about a series of patrolmen's suicides after the real value of their salaries were eroded by chronic inflation.

The recent surge of violence in Latin America is not caused directly by inflation. However, both inflation and violence are forms of institutional disorganization aggravated by the rapid growth of adult population as intensive urbanization reaches its climax. Recent experience may be understood more clearly if we look back to Europe in the late 19th and early 20th Centuries when, as in Latin America today, infant mortality was falling and urbanization was accelerating, concentrating growing numbers of young adults in the cities. In Paris, for example, the homicide rate more than doubled between the 1860s and 1901-13, as the city more than doubled its growth rate to 1.9% yearly over the 1750-1850 period. In France as a whole, the upward trend of both urbanization and homicide was slower but moved in parallel paths. Violence declined

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<sup>82</sup>"La violencia: un problema de salud pública que se agrava en la Región," *Boletín Epidemiológico*. Washington: Pan American Health Organization, 1990. V11/2p4.

<sup>83</sup> Richard Webb and Graciela Fernández Baca de Valdéz, *Perú en Números*. Lima: Cuánto S.A. 1991 p355. Heretofore cited as *Perú en Números*.

<sup>84</sup> For early accounts of the Guatemala killings, see my "Death in the Hills", *The Economist*, June 10, 1967 and "Slaughter in Guatemala," *The New York Review of Books*, May 20, 1971. For later accounts, see periodic reports of Americas Watch, New York. All casualty figures are unconfirmed estimates by human rights organizations. For reports on operations of paramilitary death squads for a briefer period and on a smaller scale in the Dominican Republic, see my "Santo Domingo: The Politics of Terror", *The New York Review of Books*, July 22, 1971; "The Only Logical Answer", *American Universities Field Staff Reports, Caribbean and Central America Series*, Vol. VI, No. 1, 1971; "Republique Dominicaine: La police protege les terroristes anticommunistes", *Le Monde*, May 19, 1971; "Republique Dominicaine: Le 'boom' et la terreur", *Le Monde*, May 26, 1971.

as the population growth rate leveled off .<sup>85</sup> So it was with the rest of Europe as urbanization intensified during the late 19th Century.

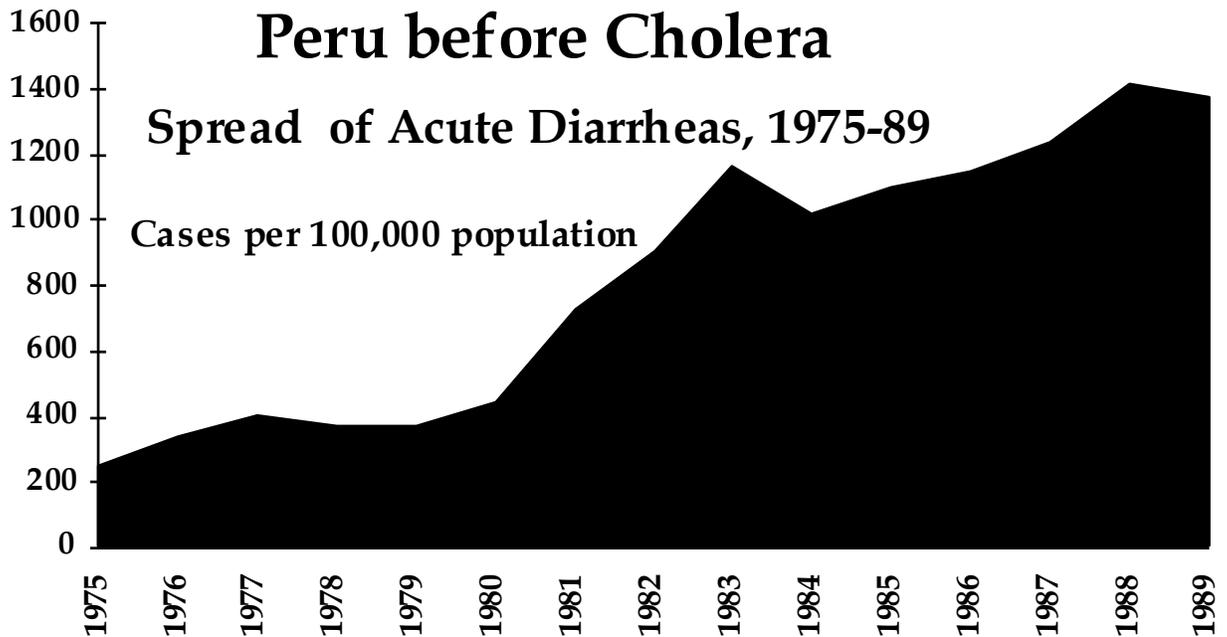
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**Infectious diseases:** The spectacular rise in life expectancy in Latin America over the past three decades has been made possible mainly by reduced mortality from infectious and parasitic diseases, especially of the digestive system. Progress among different countries is distributed unevenly. The pace of reducing mortality from infectious diseases in Latin America is correlated loosely with per capita income. Those countries showing less progress against mortality from intestinal disorders also tend to show high and/or rising levels of violence, a sign of the importance of institutions in guaranteeing survival. The role of institutions in the epidemiological transition is seen in the contrasting experiences of Mexico and Costa Rica, with similar levels of per capita income today. In 1930, more than three-fifths of all deaths in both countries were caused by infectious diseases. By 1965, both had sharply reduced the share of mortality from intestinal disorders: Costa Rica to 13% and Mexico to 18% of all deaths. Over the next 25 years, however, their paths diverged. By 1990, Costa Rica achieved a further nine-fold reduction in mortality from intestinal disorders (to 1.48% of all deaths), while Mexico only could reduce this impact by little more than half (to 7.68%). While the role of violence in mortality rose in both countries, it remains at much higher levels in Mexico (20 and 77 per 100,000 population for homicides and all injuries respectively), against 3.7 and 40.3 for Costa Rica. These differences show how complex societies vary in their will and ability to provide institutional protection for the health and security of their people, both through governments and less formal structures, and of their people to protect themselves.

These differences will become more critical in the future, given the driving force of institutions in past mortality reductions and greater pressures on these institutions over the past decade from increasing risks of epidemics and violence. The present cholera epidemic in the Americas is a climax of resurgence of different kinds of infectious diseases since the mid-1970s. The cholera outbreak began in January 1991 in Peru, which was among the countries that had lagged most in overcoming mortality from intestinal disorders, along with Bolivia, Haiti, Ecuador, Guatemala, El Salvador, Honduras and Nicaragua.

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<sup>85</sup> Jean-Claude Chesnais, *Histoire de la violence*. Paris: Laffont, 1981/p74. Paul M. Hohenberg and Lynn Hollen Lees, *The Making of Urban Europe, 1000-1950*. Harvard 1985/pp11, 222, 227.

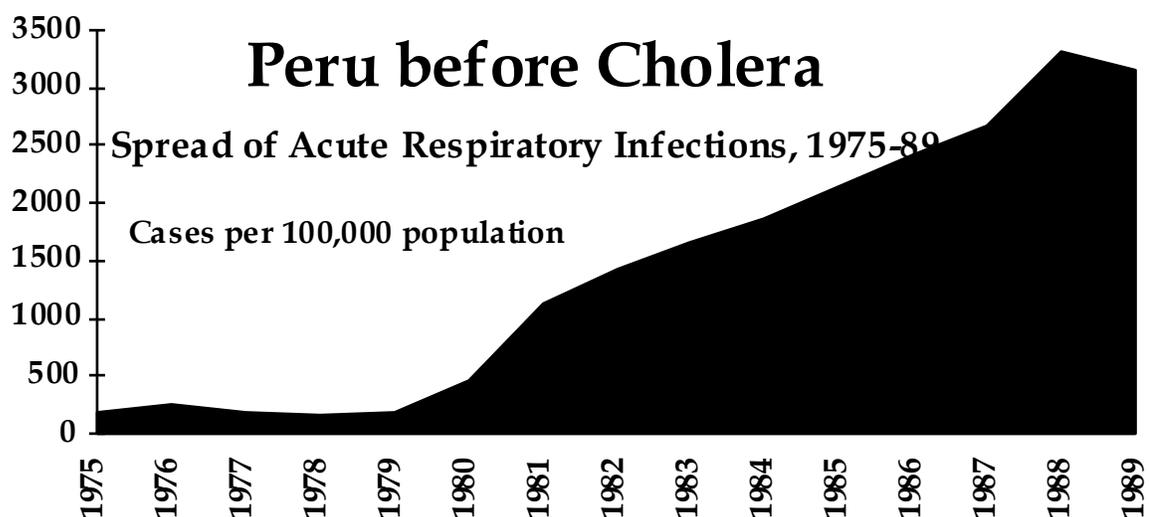


Source: Ministry of Health, unpublished statistics.

In Peru, the cholera epidemic was preceded by decay of water and sewage systems and by secular increases in morbidity from diarrhoea, tuberculosis and other acute respiratory infections, meningitis, malaria and yellow fever, as well as surges of violence. This pattern is emerging among the poorer populations of the Americas. When cholera first struck on January 23, 1991, epidemiologists in Peru were struggling with an outbreak of dengue haemorrhagic fever (DHF) that has been spreading in the Americas over the past three decades, first in the circum-Caribbean region and then in South America. Like yellow fever, dengue is a tropical forest virus infection transmitted mainly by the *Aedes aegypti* mosquito, appearing in wider areas of the Americas over the past two decades. Dengue is milder than yellow fever in its first infection, causing malaise and prostration for about a week, followed by depression and weakness, leaving the victim vulnerable to its more severe form, DHF, in successive infections that often causes shock and death. The spread of dengue is being reinforced by an Asian vector, *Aedes albopictus*, new to the Western Hemisphere, inspiring fear that this new vector "could create considerable difficulties for control of dengue and also become a very efficient transmission link between the jungle and urban epidemiological cycles of yellow fever."<sup>86</sup> Urban yellow fever has not been seen in South America since 1942; its last appearance in a big city was in 1928-29 in Rio de Janeiro. In 1985-88, the resurgence of yellow fever, mainly among migrant farm workers in the five Amazon Basin countries, registered a 46% increase in cases, 85% of them fatal, over the previous four

<sup>86</sup> "El dengue in las Américas, 1980-1987," *Boletín Epidemiológico*. Washington: Pan American Health Organization, 1989. V10/p6.

years, with three-fourths of the new cases reported in Peru. Early in 1992, two yellow fever cases were confirmed in São Paulo State in Brazil.



Source: Ministry of Health, unpublished statistics, log scale.

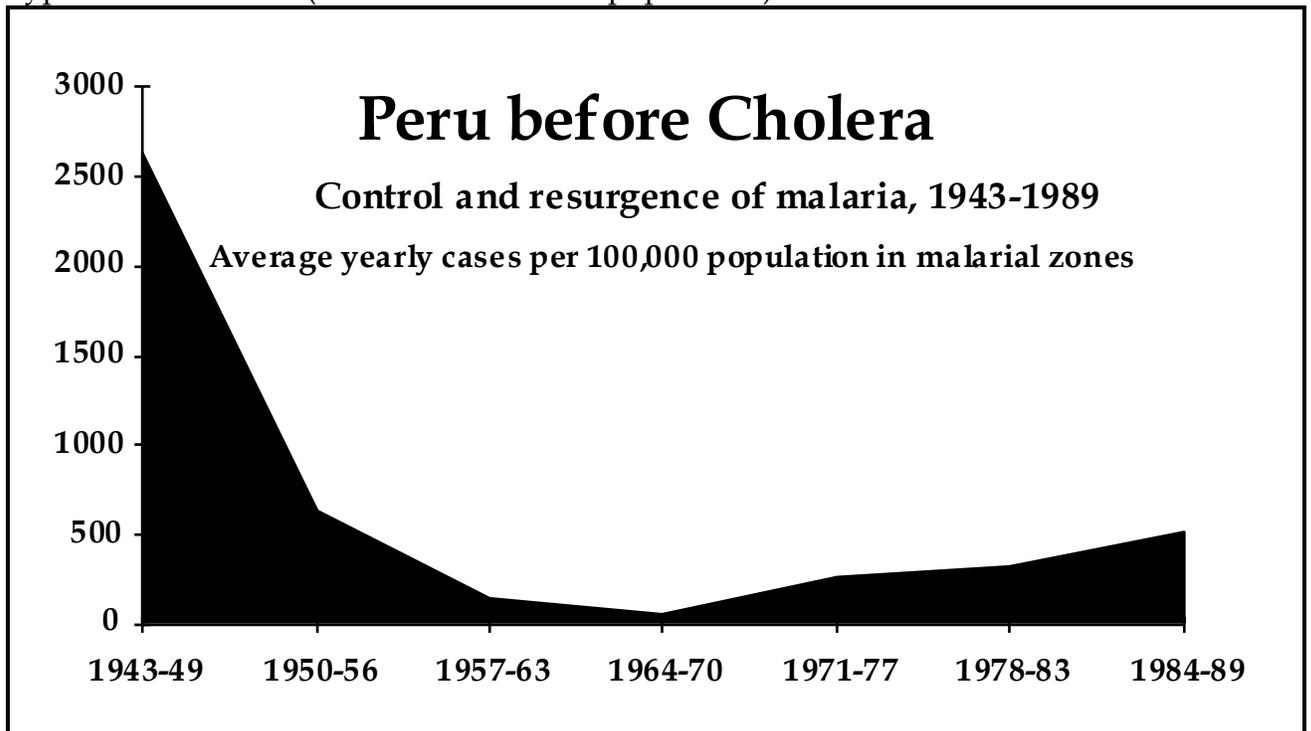
Dengue appeared on an intensified scale in Mexico in 1980 (51,398 reported cases) and through the 1980s spread to three-fourths of its states, mainly in the cities and poorer suburbs. Dengue struck Cuba in 1978 and then reached explosive proportions (344,203 cases, including 100,000 with DHF) when it returned in 1981 as, according to PAHO, it "provoked the greatest repercussion in Man ever observed in the history of the disease in the Americas."<sup>87</sup> It then intensified in Central America and Colombia before spreading southward into Brazil and Peru. By May 1990, 67,351 dengue cases (25% of local inhabitants) were reported in Peru's Amazon port of Iquitos, where cholera claimed high mortality a year later, and another 24,875 cases affecting 46% of inhabitants of the jungle city of Tarapoto.<sup>88</sup> Fear of urbanization of associated epidemics of dengue and yellow fever is echoed by Brazilian authorities, who have seen dengue spread since 1982 from an estimated 10,000 infections in the remote Amazon town of Boa Vista, along the border with Venezuela, to the states of Ceará and Alagoas in the Northeast and to Rio de Janeiro by 1986-87. Blood samples of schoolchildren and interviews with their parents led epidemiologists to argue that previous calculations of one million dengue infections in Rio in 1986-87 were underestimated.<sup>89</sup> Leprosy is also

<sup>87</sup> Pan American Health Organization, *Las Condiciones de Salud en las Américas*. Scientific publication No. 524. Washington: 1990. Vol. I/p160.

<sup>88</sup> Data provided by the Department of Epidemiology, Health Ministry, Lima.

<sup>89</sup> Luiz Tadeu Moraes Figueiredo et al, "Dengue serologic survey of schoolchildren in Rio de Janeiro, Brazil, in 1986 and 1987," *Bulletin of the Pan American Health Organization*. V24/2 (1990); Ministério de Saúde, *Situação de Algumas Doenças Transmissíveis no Brasil*. Brasília: February 1991.

on the increase in Brazil, with 27,837 new cases reported in 1989, reaching hyperendemic levels (more than 1% of the population) in some states of Amazonia.<sup>90</sup>



Source: Ministry of Health, unpublished statistics; Marcos Cueto, "Una Reforma Fallida: la Fundación Rockefeller, la Malaria e la Salud Pública en el Perú," *Revista Peruana de Ciencias Sociales*. V2/2. Lima 1990.

This intensifying spread of tropical diseases in Latin America is bred by two factors that reinforce each other. One is the large-scale occupation of forest areas by a highly mobile population of agricultural settlers and nomadic miners. The second factor is the collapse of public health systems, including disease eradication and prevention programs, under the impact of chronic inflation. A key agent is the worldwide resurgence of malaria, still the leading killer among tropical diseases despite eradication programs sponsored by international agencies that initially made great gains through the 1960s. The World Health Organization (WHO) proudly announced that, of 1.7 billion people living in malarial zones of the world in 1968, 1.4 million (78%) had come under the protection of eradication programs: 651 million (38%) in areas where malaria was wiped out, another 346 million in "consolidation" zones (where the case rate was below 1 per 10,000 population), and another 356 million in places where malaria still was under "initial attack." Malaria eradication is a lengthy, labor-intensive mobilization on a scale and complexity of a modern military campaign, deploying thousands of foot-soldiers, commanded by specialist officers in difficult terrain.<sup>91</sup> "Permanent fumigation

<sup>90</sup> Ministério de Saúde, *Situação de Algumas Doenças Transmissíveis no Brasil*. Brasília: February 1991.

<sup>91</sup> There are four phases: (1) A one-year "reconnaissance" phase to delimit the malarial zone, with a census and a study of vectors and transmission periods; (2) an "attack phase," usually lasting four years, fumigating all houses in the area with DDT until the "parasite incidence" rate falls to below 1/10,000,

of houses with DDT [to wipe out the mosquito vector] not only controlled malaria," a Peruvian historian wrote, "but also reduced significantly the presence of other diseases such as bubonic plague, murine typhus, yellow fever and dengue because DDT also eliminated other vectors, such as fleas and rats."<sup>92</sup>

These triumphs proved to be limited and short-lived. WHO currently estimates 120 million malaria cases worldwide and 300 million people carrying the parasite. Although 80% of all cases and 90% of carriers are concentrated in Africa, malaria now is spreading rapidly as well in Latin America and Asia.<sup>93</sup> In Peru, for example, cases per 100,000 population in malarial zones plunged from an average of 2,638 in 1943-49 to only 60 in 1964-70, the effect of campaigns sponsored by the Rockefeller Foundation initially and then by WHO. By the mid-1980s, however, the case rate was above 350 again.<sup>94</sup> Meanwhile, the population of malarial zones of Latin America doubled since 1960 to 281 million in 1991.<sup>95</sup> Since 1974 the case rate in these regions more than tripled from 134 per 100,000 population to 438 in 1991.<sup>96</sup> In the 1980s, one of the worst malaria epidemics of modern times, in numbers of cases, spread in Latin America, with 1 million cases recorded yearly since 1987.<sup>97</sup> In 1991 alone, the number of reported cases jumped by 18% to 1.2 million and the index of parasite carriers in the exposed population rose by one-third. The Pan American Health Organization noted that the number of recorded cases is a small fraction of an unknown total, given the high proportion of self-treatment and non-treatment of malaria cases and the quantity of anti-malaria drugs sold in affected countries, enough to treat nearly 6 million cases.<sup>98</sup> In recent years, more than half of Latin America's cases were in Brazil, where they multiplied at a yearly rate of

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measured in monthly blood tests taken from at least 1% of all local inhabitants; (3) a three-year "consolidation" phase involving "total coverage" of the area with epidemiological studies, with radical "presumptive treatment" of all cases of fever and verification of elimination of all parasite reservoirs; (4) after no cases have been reported for at least three years, in two of which large-scale attack methods have not been applied, a permanent "maintenance phase" begins in which the malaria control agency withdraws and monitoring becomes a function of general public health services. See Carlos Alberto Alvarado,

"Malaria," in Ricardo Veronesi ed., *Doenças Infecciosas e Parasitárias*. 6th edition. Rio de Janeiro: Guanabara Koogan, 1976/p680. Alvarado was director of WHO's anti-malaria campaign.

<sup>92</sup> Marcos Cueto, "Una Reforma Fallida: la Fundación Rockefeller, la Malaria e la Salud Pública en el Perú," *Revista Peruana de Ciencias Sociales*. V2/2. Lima 1990/pp18-19.

<sup>93</sup> "Malaria in the Americas," *Epidemiological Bulletin*. Washington: Pan American Health Organization, December 1992/p1.

<sup>94</sup> Ibid.

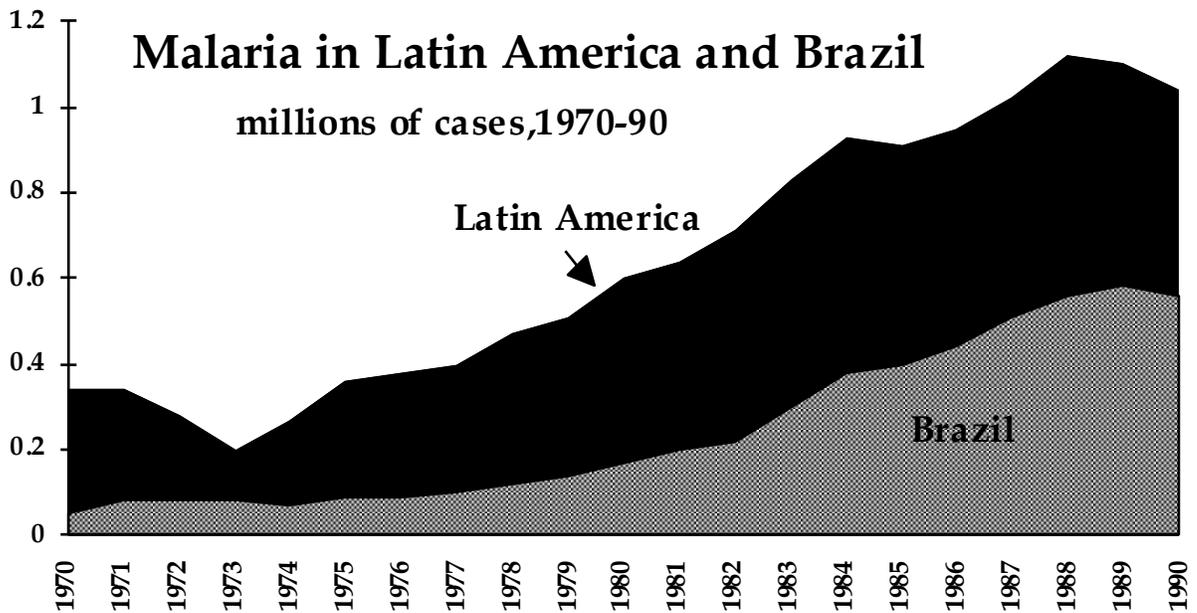
<sup>95</sup> Pan American Health Organization, *Las Condiciones de Salud en las Américas*. Washington: 1990. Vol. I/p153.

<sup>96</sup> "Malaria in the Americas," *Epidemiological Bulletin*. Washington: Pan American Health Organization, December 1992/p1.

<sup>97</sup> In the 20th Century, the most severe outbreaks previously were in the Soviet Union in 1923 (5 million cases); Sri Lanka in 1934-35 (3 million); Brazil in 1938 (100,000), and Egypt in 1942-44 (160,000).

<sup>98</sup> "Malaria in the Americas," *Epidemiological Bulletin*. Washington: Pan American Health Organization, December 1992/p2.

17% in 1975-87 before leveling off at an annual average of 600,000 cases since then.<sup>99</sup> In 1985-88, cases in Colombia nearly doubled to 100,850, while they tripled to 43,369 in Venezuela, doubled in Peru to 32,114 and multiplied eightfold in the Guianas (1983-88). In Brazil, malaria is concentrated in Amazonia, attacking 15% of the population in 1990 in the state of Roraima, 13% in Rondônia, 4% in Acre and Mato Grosso and 2% in Pará and Amazonas. Case-fatality rates are unknown because of very poor registration of vital statistics in these remote areas, which is as good an indicator as any of the level of human organization available to combat mortality. The intensity of local outbreaks stuns the imagination. In Rondônia, Pará and Mato Grosso, more than half the population of some *municípios* was stricken with malaria in 1990.<sup>100</sup> The mobility of the population in land rushes and gold rushes intensifies the spread of epidemics. In early 1992, for example, 141,000 new malaria cases were reported within a few weeks in 13 *municípios* of Mato Grosso, mainly among *garimpeiros* (nomadic miners) who rushed there to work jungle streams after exhausting the rich alluvial deposits of gold and tin in Rondônia.<sup>101</sup>



Sources: Pan American Health Organization and Brazilian Ministry of Health.

<sup>99</sup> Pan American Health Organization, *Las Condiciones de Salud en las Américas*. Washington: 1990. Vol. I/pp152-7.

<sup>100</sup> "Estratificación epidemiológica de la malaria en la Región de las Américas," *Boletín Epidemiológico*. Washington: Pan American Health Organization, 1990. Vol. 12/4.; "Situación de los programas de malaria en las Américas," *Boletín Epidemiológico*. Washington: Pan American Health Organization, 1990. Vol. 7/1.

<sup>101</sup> For accounts of this *garimpeiro* culture, see Norman Gall, "Brazil: The Last Gold Rush," *Harper's Magazine*. December 1984, and my *Letter from Rondônia*, a five-part series of reports published by the American Universities Field Staff (1978).

It is not easy to foretell the consequences of the resurgence of infectious diseases that, not long ago, seemed on the way toward eradication or control. As William McNeill stressed in his *Plagues and Peoples* (1976), the diseases resurging today in the Americas -- such as malaria, cholera, dengue and bilharzia-- are very old. All of them influenced the pace and shape of human settlement in ancient China and India over the past 2,500 years.<sup>102</sup> Resurgence of these diseases, plus yellow fever, in countries of the Amazon Basin, and similar African epidemics, poses key questions about relations between peripheral areas of the world economy and more densely settled regions. Is the heartland of tropical America becoming a reservoir of diseases invading more productive areas, like Central Asia in past centuries? How fast and on what scale will today's more intense circulation of people, by highway and airplane, bring these diseases to the big cities of Latin America? To what degree will these diseases, along with the deterioration of the road system, undo settlement of the South American heartland? The dangers are clear. Prospects of overcoming them depend on levels of institutional development in densely-settled areas exposed to infection. Analyzing the much-discussed danger of urbanization of yellow fever, which has not been seen in a big Latin American city for six decades, public health officials point out that a cheap and effective vaccine is available that can be applied on a mass scale if needed. The effectiveness of mass vaccination is no greater than the institutional capacity to carry it out. If public health systems continue to be weakened, as in the recent past, by the effects of chronic inflation on the quality of their personnel, equipment and medicine, then the organizational and logistical capacity to vaccinate millions of people effectively within a few days or weeks also is weakened. One of the lessons of the 1991-92 cholera epidemic in Latin America is the decisive role of differing institutional capabilities among countries and communities in determining different degrees of vulnerability to the disease. The main threat is not produced by an one disease, but in the resurgence of several of them at once and the emergence new ones such as AIDS. Together they tend to produce higher levels of endemia and more pressure on public health systems with diminishing financial and technical capacity.

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**Chronic diseases.** The impact on general mortality of violence and infections may be much less than that of chronic diseases of an adult population that is growing and aging rapidly without access to adequate medical care. Lack of reliable vital statistics for much of Latin America, Asia and Africa makes it hard to compare mortality among poorer countries and to trace historical trends, especially from chronic diseases. This ignorance was stressed in a World Bank report: "The epidemiology of cardiovascular diseases -- and, even more so, of digestive diseases-- in developing countries is poorly understood."<sup>103</sup> Mixed patterns emerge. In Latin America and the Caribbean during

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<sup>102</sup> McNeill, William, *Plagues and Peoples*. New York: Doubleday, 1976/pp79-80.

<sup>103</sup> Christopher J.L. Murray, Gonghuan Yang and Xinjian Qiao, "Adult Mortality: Levels, Patterns and Causes," in Richard G.A. Feacham, Tord Kjellstrom, Christopher J.L. Murray, Mead Over and

1975-85, eight countries reported significant declines in age-adjusted mortality from ischaemic heart disease, following the falls in heart disease mortality in richer economies in recent decades, while another six countries reported stable levels and six more suffered significant increases. However, PAHO notes that in some countries of Latin America "mortality from ischaemic heart disease has acquired the characteristics of an epidemic," citing the example of the Dominican Republic, where it doubled during these years while the death rate from strokes rose by 50%.<sup>104</sup>

Brazil was not included in these tallies of cardiovascular mortality for lack of data. In the absence of better information for comparison among poor countries, those relatively advanced provinces and localities with adequate registers usually are compared with industrialized countries. In the Brazilian state of Rio Grande do Sul, for example, general mortality in ages 35-69 ranked third for men and first for women when compared with 27 industrialized countries.<sup>105</sup> In the city of São Paulo, mortality in 1980 from all causes in ages 40-69 ranked first for women, followed by Hungary, Scotland and Rumania, and fourth for men, slightly behind Hungary, Czechoslovakia and Poland, despite the fact that São Paulo's population has a much younger age structure than European countries. Age-corrected death rates from strokes in São Paulo in ages 40-69 ranked third for men and second for women in 1980. In these rankings, cardiovascular mortality in São Paulo is clustered with Bulgaria and Hungary in the top three, even though cardiovascular mortality fell in São Paulo in 1976-85 while it kept rising in Eastern Europe.<sup>106</sup>

High heart disease mortality in Brazil is linked to widespread hypertension among adults, associated with rapid urbanization, as was the rise in hypertension levels in Hungary. Hypertension was a main cause of only 2% of adult deaths in São Paulo, but was a contributing factor in about 30% of these deaths. Studies in Rio de Janeiro, Rio Grande do Sul and São Paulo showed 12% of adults suffering from high blood pressure, a heavy incidence by international standards, with other clinical samples indicating a high prevalence throughout Brazil. While death rates from ischaemic heart disease and cerebrovascular ailments fell generally among these adults since 1970, they rose in the ages of greatest family responsibility, for men in their 40s (heart disease) and for both

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Margaret A. Phillips eds., *The Health of Adults in the Developing World*. Oxford University Press/World Bank (forthcoming 1992)/p2.45ms.

<sup>104</sup> Pan American Health Organization, *Las Condiciones de Salud en las Américas*. Washington: 1990. Vol. I/pp100-2.

<sup>105</sup> Bruce Duncan, *As desigualdades sociais n distribuição de fatortes de risco para doenças não transmissíveis*. Doctoral thesis. Porto Alegre: Federal University of Rio Grande do Sul, 1991.

<sup>106</sup> Cecilia Amaro de Lolio, José Maria Pacheco de Souza and Ruy Laurenti, "Decline in cardiovascular disease mortality in the City of São Paulo, Brazil, 1970 to 1983," *Revista de Saúde Pública* . V20:454-64 (1986). The international comparison is drawn from data in K. Uemura & Z. Pisa, "Recent trends in cardiovascular disease mortality in 27 industrialized countries," *World Health Statistical Quarterly*. V38: 142-62 (1985).

sexes in their 30s and 40s (cerebrovascular).<sup>107</sup> According to the World Bank, mortality from heart disease is so high in Brazil "probably because of the relatively high levels of virtually all the classic risk factors of these diseases (smoking, obesity, lack of exercise, poor diet and hypertension) and because of the existence of some special risks (Chagas's disease and excessive use of oral contraceptives)."<sup>108</sup> Since 1976, cardiovascular mortality in São Paulo is reported to have fallen among older patients, but not to a statistically significant degree below age 50.

One of the temple monuments of the metropolitan skyline is the Heart Institute of the University of São Paulo hospital complex. Emergency heart attack patients are brought there in ambulances from far and wide. More people die from strokes than from heart attacks because medication is expensive and little primary care is available for hypertension in public clinics, especially in poor suburbs. On the other hand, building big hospitals for care of heart ailments is politically popular and is enthusiastically supported as well by a medical profession eager for the prestige of working with costly high-technology equipment at public expense. A second Heart Institute is being built next door to the first by the São Paulo State government. According to William McGreevey of the World Bank, "the best care goes to middle-class who have connections with physicians through family and friendship [and] are adept at obtaining high technology medical care...through the public sector." In 1981, Brazil's government spent more on renal dialysis, coronary bypass surgery and intensive care for 12,000 high-cost patients than on basic health care and disease control for 40 million people in the Northeast.<sup>109</sup> Meanwhile, in Brazil as elsewhere, medical inflation has been running far ahead of general inflation.

### **Inflation and public health**

Rising health care costs, which have been at the cutting edge of world inflation in recent decades, pose the same problems of fiduciary responsibility or public trust,

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<sup>107</sup> Cecilia Amaro de Lolio and Ruy Laurenti, "Tendência da mortalidade por doenças cerebrovasculares em adultos maiores de 20 anos no Município de São Paulo (Brasil), 1950 a 1981," *Revista de Saúde Pública* .V20:343-6 (1986); "Mortalidade por doença isquêmica do coração no Município de São Paulo. Evolução de 1950 a 1981 e mudanças recentes na tendência," *Arquivos Brasileiros de Cardiologia*. March 1986.

<sup>108</sup> World Bank, *Brazil: The New Challenge in Adult Health*. Washington: 1990/p42-6. On "special" cardiovascular risk factors, the report adds: "Chagas's disease is a parasitic disease that is endemic in Brazil. The prevalence is high (about 4% nationally), particularly among poor people who have lived in rural areas. Long-term infection, which can cause disorders of the heart muscles, is probably an important underlying cause of the high CVD rates in Brazil. The prevalence of oral contraceptive use in Brazil is high because of limited availability of alternative family planning methods. About 38% of women who use the pill, a level twice that in the United States. Contra-indications, which include hypertension, smoking, obesity, age and length of use, are frequently either ignored by the physician or unknown to women who self-prescribe the pill. The high level of pill use is probably partly responsible for the fact that stroke is the leading cause of death among women of childbearing age."

<sup>109</sup> William McGreevey, *Social Security in Latin America: Issues and Options for the World Bank*. Washington: World Bank Discussion Paper No. 110/1990/p23.

involving "moral hazard" in the use and abuse of other people's money, that have been dramatized in recent financial crises.<sup>110</sup> In rich countries, higher unit costs for medical-hospital care are absorbed as increasing shares of total output. In the United States, for example, health care spending rose since 1960 from 5% to 12.4% of gross national product. The 1990 value of health care (\$655 billion) was 2.7 times more than all manufacturers' sales (\$241 billion). In both the United States and Brazil, prices of medical services rose during the 1980s by more than one-third faster than inflation, while in Peru they rose more than three times faster than all consumer prices. It is a universal problem. According to a U.S. health official: "We are inconsistent. We want everybody to have everything, and we don't want to wait for it. But we certainly don't want to increase taxes."<sup>111</sup> In the present U.S. recession, the health care industry was the only sector of the economy to grow, adding 383,000 jobs in 1990, a 4.9% increase, while all private sector employment fell by 1.3%. Today more than 9% of all private non-farm jobs are in health care, against only 3% in 1960.<sup>112</sup>

While medical inflation in rich countries drives health care to absorb bigger shares to total output, in poorer countries it causes an implosion of basic services and other life-protection systems. Most public health spending shifted into meeting medical and administrative payrolls, leaving little for basic supplies and food for hospital patients. In cities like São Paulo and Lima, public hospitals became so impoverished that many wards were closed. In Lima, patients had to bring their own bedsheets, food, medicines and surgical instruments in addition to paying for their hospital stay. Prices of medicines were government-controlled but often unavailable at those low prices. When controls were freed, drug prices rose to levels beyond the reach of most people.

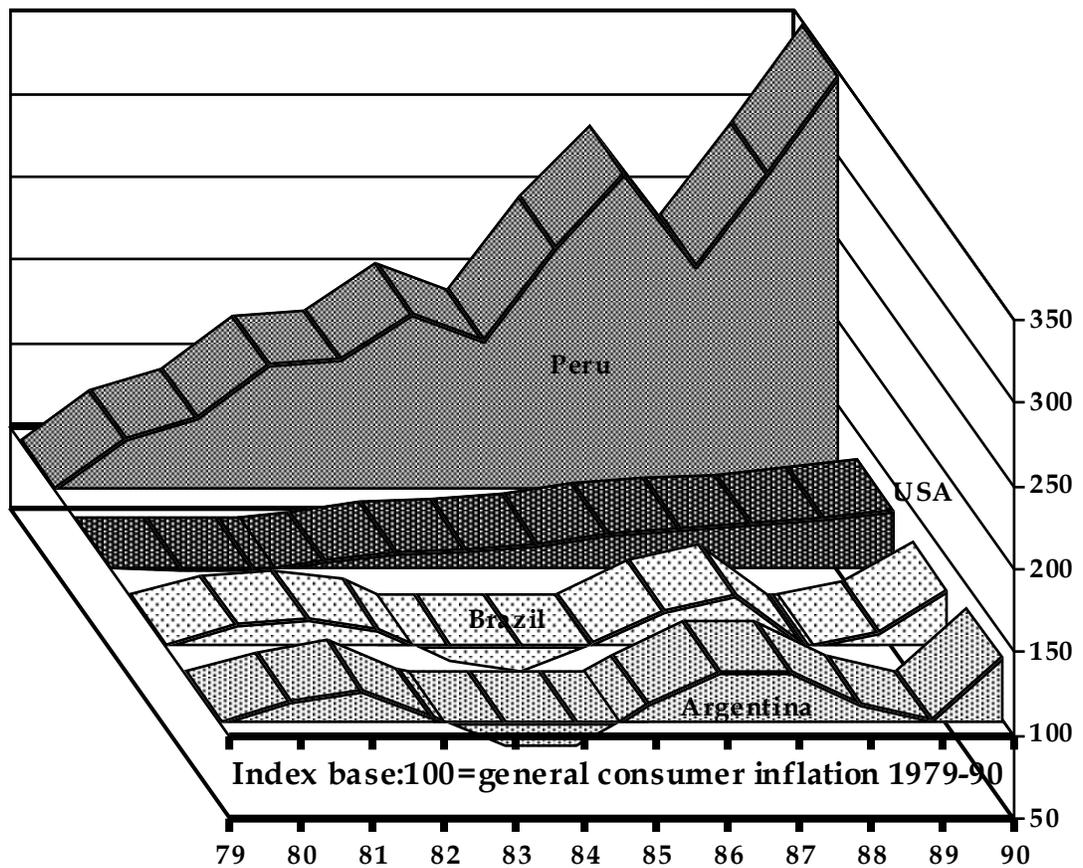
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<sup>110</sup> Harry W. Markowitz, "Markets and Morality," *The Wall Street Journal*. May 14, 1991/pA12.

<sup>111</sup> Quoted in Erik Eckholm, "Rescuing Health Care," *The New York Times*. May 2, 1991. Last of a five-part series.

<sup>112</sup> Hilary Stout, "Soaring Health Costs Have a Silver Lining: A Host of New Jobs," *The Wall Street Journal*. September 6, 1991/p1.

### Inflation of Medical Service Costs as Multiple of General Inflation



Collapse of public health services is spreading throughout Latin America. In Brazil, it follows the distorted shape of income distribution. In 1979 alone, Brazilians were subjected to 40 million X-ray examinations, most of them with no diagnostic value. With the world's highest rate of caesarean births (31%), the Brazilian system performed 186,000 unnecessary surgeries in public hospitals in 1979 at a cost to the government of some \$34 million.<sup>113</sup> This is part of the worldwide inflation of medical services and costs, including fraudulent billing, that is especially acute in countries with weak institutions. As public health spending rose by 13% yearly in the 1970s, much of the medical inflation was blamed on corruption in the "contracted network" of private providers to the government health system who dominated the supply of hospitalizations, diagnostic tests and outpatient services, profiting from automatic payment of bills submitted and from generous public subsidies for building private hospitals and clinics. Meanwhile, 29% of all pregnant women in 1981 had no prenatal care and 40% of births in the Northeast took place at home. Two public health

<sup>113</sup> William P. McGreevey, "The high costs of health care in Brazil," *International Nursing Review*. (1989) 1:13-21.

specialists reported: "Bankrupt city budgets and deepening economic crisis in 1989 have shut down hospitals and even emergency rooms throughout the country and turned away the sick and injured for lack of staff, beds, money and equipment. Those public hospitals with doors still open are overcrowded, understaffed, ill-equipped and poorly stocked. To make matters worse, waves of strikes by doctors, nurses and workers for better pay further paralyze [the] system."<sup>114</sup> According to the World Bank, "the fundamental imbalance between entitlements and resources will only be resolved in the budgetary process over the years. The prognosis is poor."<sup>115</sup>

Sales of prescribed medicines in Peru in 1980-84 fell by 34%, and cheaper over-the-counter drugs by 55%, before the Peruvian economy accelerated its tailspin of the late 1980s.<sup>116</sup> Between July 1985 and July 1990, overall health care spending by households in Lima fell by another 19%, on a gradient that showed the poorest tenth of families spending two-thirds less and the second-wealthiest decile spending 38% less. After the *Fujishock* stabilization plan was decreed in August 1990, spending on medicines fell by 90% among poor people and by 62% among the middle class.<sup>117</sup> In many countries, failure of government to pay its own employer contributions bankrupted social security health care programs. In Argentina, one of the world's richest countries before entering the chronic inflation syndrome after World War II, government payments to public hospitals and private clinics alike have withered away. Hospitals lack cotton, injection needles and medicines. Prices of medicines have been rising at three or four times the rate of inflation, driving people back to home remedies to replace medical cures. Fiscal retrenchment has reduced public vaccination for children in high-risk ages.<sup>118</sup> In 1988-89, increases in infant mortality were reported in six of the 21 provinces for which data exists, with large increases in cases of infectious diarrhoea and acute viral hepatitis, most conspicuously in Buenos Aires province, where cases of diarrhoea tripled and hepatitis rose five-fold. In May 1990, a meeting of public health specialists argued that "reported cases of neo-natal tetanus, tubercular meningitis and diphtheria show the failure of the health system," warning of the risk of a country-wide measles epidemic in 1990-91 and a diphtheria outbreak in Misiones Province.<sup>119</sup> As in Brazil and Peru, impoverishment of

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<sup>114</sup> Marilyn K. Nations and Monica Façanha Farias, "*Jeitinho brasileiro*: cultural creativity and making the medical system work for poor Brazilians," in John Caldwell et. al., *What we know about Health Transition: The cultural, social and behavioral determinants of health*. Proceedings of an international workshop, May 1989. Canberra: Health Transition Center, Australian National University, 1990. Vol. 2/p756.

<sup>115</sup> World Bank, *Adult Health in Brazil: Adjusting to New Challenges*. Report No. 7807-BR. November 14, 1989/p6.

<sup>116</sup> Gary Gereffi, "The Pharmaceuticals Market," and Carmelo Mesa-Lago, "Medical Care under Social Security," in Dieter K. Zschock ed., *Health Care in Peru*. Westview 1988/pp 178 & 229.

<sup>117</sup> Webb, Richard et al, *Ajuste y Economía Familiar, 1985-1990*. Lima: Instituto Cuánto 1991 pp94&157. The only decile to increase its health spending was the wealthiest one, by 62%.

<sup>118</sup> Beatriz Tountoundjian, *La Lucha por la Sobrevivencia en la Hiperinflación Argentina*. São Paulo: Fernand Braudel Institute of World Economics 1990.

<sup>119</sup> "La crisis del sistema de salud en el marco del ajuste," *FIDE: Coyuntura y Desarrollo*. No. 151. Buenos Aires: Fundación de Investigaciones para el Desarrollo, Marzo 1991/p32.

Argentina's health care system came from universalization of medical and welfare provisions in the 1970s and 1980s while labor markets have become increasingly informalized, reducing contributions of both employers and employees to these systems.<sup>120</sup>

### Vital systems and their prices

Will human communities be able to sustain low death rates with their economic systems weakened by decapitalization and parasitism? In addressing this question, we usefully may compare the quality and intensity of effort invested in achieving past gains in reducing mortality with the quality and intensity of effort now being invested in combating chronic inflation, which has deeply damaged the public health systems of the countries showing severe weakening of infrastructure and economic institutions under inflationary pressures. In this comparison, we can focus on the problem of water supply. In Europe's pre-industrial cities, with their frequent epidemics, "the biggest problem was water: too much in cellars, swamps and drains, too little to drink and wash with and that little usually polluted."<sup>121</sup> According to Philip Curtin in his *Death by Migration: Europe's Encounter with the Tropical World in the Nineteenth Century*: "The triumph of 19th Century medicine was prevention, not cure; and the key was the provision of clean water. A better water supply had been the most important cause of the great mortality improvements over midcentury."<sup>122</sup>

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<sup>120</sup> Beatriz Tountoundjian, *La regresividad del ajuste en la atención de la salud*. Report to the Fernand Braudel Institute of World Economics. Buenos Aires 1991. Also see "Crisis e reformulación de los sistemas de salud," *FIDE: Coyuntura y Desarrollo*. No. 140. Buenos Aires: Fundación de Investigaciones para el Desarrollo, April 1990/p31.

<sup>121</sup> Paul M. Hohenberg and Lynn Hollen Lees, *The Making of Urban Europe, 1000-1950*. Harvard 1985/p132.

<sup>122</sup> Cholera was the first epidemic disease to be identified as water-borne. However, it was only after the 1892 cholera epidemic that Hamburg built modern water and sewage systems, as did Paris after the cholera outbreak of 1832; New York after cholera struck in 1832, 1834 and 1849; London after 14,137 people died of cholera in 1849 and another 10,738 in 1854; Buenos Aires after being stricken by cholera in 1860; Memphis, Tennessee and Santos, Brazil after their respective yellow fever epidemics in the 1870s and 1890s. The cholera in Hamburg in 1831 and 1892 were part of the second and fifth pandemics [1829-35 and 1881-96], following the first spread of the disease [1817-26] far beyond its endemic area along India's Bay of Bengal into Southeast Asia, China, Japan, Iran and Mesopotamia. The spread of epidemics among port cities in the 19th Century was part of a great trade expansion, as was the spread of bubonic plague along Eurasian caravan routes five centuries earlier. The big differences were the greater variety and impact of communicable diseases, the greater speed of transportation, the greater scale of human migration and the new scientific and engineering networks that evolved to fight the epidemics, all of which formed part of the modern world economy. Cholera had frightening symptoms and a high killing rate. Its victims died of radical dehydration, often within two hours of the first sign of illness, shrinking into wizened, discolored caricatures of their former selves. These effects spurred intense research in many countries that quickly reduced cases and fatalities in the late 19th Century. Curtin adds: "By the early 20th Century sanitary engineers had learned how to deliver pure water and to carry away sewage - and were able to understand what went wrong if a particular project failed to work. Wealth from industrialization paid the cost for European and North American cities. The result shows the declining death rates from typhoid fever and from the gastrointestinal group in Britain and France, and among

The water and sewage systems of Latin American cities were created, largely by foreign entrepreneurs and engineers, as part of the mortality reduction effort that accompanied the modern expansion of world trade. These international efforts began more than a century ago as New World ports joined the densifying worldwide network of commercial and disease exchanges. As Buenos Aires grew ninefold in population (by 5% yearly) from 177,787 in 1869 to 1.6 million in 1914, coming to outpace New York and to rival Hamburg as the world's fastest-growing metropolis, it was stricken by epidemics of yellow fever, cholera, smallpox typhus and diphtheria. During some of these epidemics, the port was closed to ships, leaving the telegraph as the only communication with the outside world.<sup>123</sup> According to the historian James R. Scobie:<sup>124</sup>

*.... despite recurrent plagues, elaborate projects for water supply were not carried through, and the city as a whole depended on water carts filled at the river's edge, on shallow wells too often located next to outhouses, or, in the houses of the well-to-do, on rainwater collected from the flat roofs. Open sewer systems took advantage of the slight slope toward the river and eventually dumped most of the city's waste into the estuary. Enough sewage also found its way into the streets and into the ground to contribute to the cholera and yellow fever plagues that decimated the porteño populace and emptied the city during several summers in the late 1860s and early 1870s.*

The first steps toward providing Buenos Aires with piped water and drainage came after the 1871 yellow fever epidemic, which killed 13,614 people, or 7% of the city's inhabitants.<sup>125</sup> By 1886, water and sewage systems began serving central Buenos Aires as part of the rapid creation of modern infrastructure in Latin America, financed mainly by foreigners. In recent decades, these services have deteriorated at an alarming rate, mainly because of lack of maintenance and of investment in new facilities to provide for expanding population. This deterioration can be seen today in La Plata, capital of Buenos Aires Province, a century-old planned city. According to the head of the provincial water and sewage authority, only 30% of users were paying for these services at the low rates that would not cover operating and repair costs even if they were paid. There is no money for maintenance and spare parts. The capacity of much of the network is reduced by clogging caused by the swelling of rusted material. In some places, rusting has completely destroyed pipes, with fluids running through the earthen channels that remain. Massive seepage from the system has created lagoons in different parts of the city. A staff of 90 is charged with repairing 1,300 km. of water lines. But only

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European troops in the colonies overseas." Philip Curtin, *Death by Migration: Europe's Encounter with the Tropical World in the Nineteenth Century*. Cambridge University Press 1989/pp71-6, 111, 145-7.

<sup>123</sup> Linda and Charles Jones and Robert Greenhill, "Public Utility Companies," in D.C.M. Platt ed., *Business Imperialism 1840-1930: An inquiry based on British experience in Latin America*. Oxford 1977/p77; D.C.M. Platt, "Domestic Finance in the Growth of Buenos Aires, 1880-1946" in Guido di Tella and Platt eds., *The Political Economy of Argentina, 1880-1946*. London: Macmillan 1986/p1.

<sup>124</sup> James R. Scobie, *Argentina: A City and a Nation*. Oxford 1964/p163.

<sup>125</sup> D.C.M. Platt, "Domestic Finance in the Growth of Buenos Aires, 1880-1946" in Guido di Tella and Platt eds., *The Political Economy of Argentina, 1880-1946*. London: Macmillan 1986/p10.

12 vehicles are assigned to this work, most of them dating from the 1960s, of which only seven presently are in service. The average delay in responding to repair complaints is one month. Metropolitan Buenos Aires exhibits similar water supply problems on a much larger scale, since Obras Sanitarias, the water and sewage agency, has not invested in maintenance for several years. Of the 12 million people of Buenos Aires, 62% are without sewage infrastructure. In the poorer outlying areas of the city, which have been growing fast in recent decades, only 3.5% of the population is linked to a sewage network.<sup>126</sup> In early 1991, officials voiced concern that Buenos Aires may be vulnerable to a spread of Peru's cholera epidemic because of sewage filtrations into the aquifers that provide much of the city's water supply. In February 1992, the first cases appeared in Buenos Aires after the epidemic was brought into northern Argentina by peasants and merchants trading along the border with Bolivia.

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<sup>126</sup> Maria Di Pace, Sergio Federovsky, Jorge Hardoy, *Los problemas ambientales en las áreas urbanas de la Argentina*. Report to the United Nations Development Program. Buenos Aires: International Institute for the Environment and Development (IIED) December 1990/pp24,27. "Siete millones de personas no tienen cloacas en el Gran Buenos Aires," *Clarín*. Buenos Aires: March 13, 1991/p32.

## 2. Peru: Chronic Inflation and Survival

Demographers seem no better than economists at predicting major fluctuations. George Stolnitz, a leading student of mortality trends, observed that after World War II "no analyst on record was close to forecasting the upward explosion of life chances just about to begin in dozens of the world's less and least developed nations." Similarly, demographers seem equally slow to see the consequences of the collapse of the institutional/technological nexus that sustained this rise in life-expectancy. On the contrary, drawing on "innumerable cause-and-effect case studies," Stolnitz perceived "an extraordinary loosening of mortality-development linkages among low-income and even least-developed populations. The profound implications of this suggestion --that vastly greater savings of lives are possible today than ever before in societies where levels of living are normally miserably low and subject to declines-- have yet to be adequately formulated analytically, much less fully confronted by policymakers."<sup>127</sup>

The resilience of human populations against degradation of their infrastructure and institutions is being tested today in many countries. Aberrations and deviations are appearing in what most demographers have assumed to be the straight path toward universal high levels of life expectancy. Instead of returning abruptly to historic pre-modern mortality regimes, many populations now may be developing new mixed patterns. Modern mortality --with higher proportions of deaths caused by cancer and circulatory ailments in aging populations-- may yield gradually now to resurgence of epidemics and to the effects of low-grade urbanization, such as increased deformity, mental retardation and fetal and neonatal losses toxic substances in food and water. According to Thomas Merrick, president of the Population Reference Bureau, the new mortality/morbidity regimes "may turn out to be a lot harder to deal with than the control of infectious diseases that brought the rapid transition to higher levels of life expectancy in the period from 1930 to 1980."<sup>128</sup> We now will examine the experience of Peru, which during the 1980s became a symbol of impoverishment and degradation among Latin American countries. We ask now: How unique is Peru's civilizational problem? How severe is the death threat facing its people? What relationship have its present afflictions, especially today's cholera epidemic, with the process of chronic inflation embedded in Latin America's economies in recent decades?

### Peru did better

Comparative international statistics show that Peru did much better than many other countries in the postwar economic expansion. Its collapse now stands as a warning to

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<sup>127</sup> George J. Stolnitz, "Mortality," in *The New Palgrave: A Dictionary of Economics*. London: Macmillan 1987 Vol. 3/p556.

<sup>128</sup> Personal communication. Dr. Merrick is a member of the International Advisory Board of the Fernand Braudel Institute of World Economics.

other countries, such as Argentina, Brazil, the Dominican Republic, Mexico and Venezuela, which are moving along the same path of deteriorating nutrition, infrastructure and public health.

Peru's economic growth rate (5.6%) was one of the fastest in Latin America in the postwar era (1950-74) as it developed a wide range of export commodities, abolished serfdom in the Andes and carried out an ambitious land reform.<sup>129</sup> In 1950-65, Peru's non-residential fixed capital stock grew by 6.8% yearly, faster than all but a few developing countries, while non-agricultural productivity nearly doubled. Especially striking was the contrast with Brazil, where investment in those years was weaker and non-farm productivity gains were nil.<sup>130</sup> Peru's annual inflation in 1950-65 was "surprisingly low," barely 8% against 31% for Brazil and 25% for Argentina. Food prices were held in check because "rapid export expansion (including export crops) made possible the importing of foodstuffs to feed the urban population."<sup>131</sup> Urban population was growing fast, by 4.2% yearly over the past half-century, tending to overburden the economic system and to create overpowering inflationary pressures as the urban share of total population grew from 35% in 1950 to an estimated 70% in 1990.<sup>132</sup> In the 1970s and 1980s, the exports died off --in 1988 export volumes were half their 1972 level-- while food imports kept growing to feed a much larger urban population at subsidized prices.

What is shocking about Peru's experience is the speed of its disintegration. Even so, the World Bank's *World Development Report 1990* ranked Peru, with a 1988 per capita income of \$1,300, in the upper third of less developed countries and in the middle rank of middle-income countries. The United Nations Development Program's *Human Development Report 1991* ranked Peru in the upper half (in 78th place) among 160 countries on its "human development index." Brazil, the world's largest tropical country

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<sup>129</sup> See my "Peru: The Master Is Dead," *Dissent*, June 1971; "Peru's Ambitious Land Reform Plan", *The Wall Street Journal*, (editorial page), July 1971; "Elusive Land Reform", *The Wall Street Journal*, (editorial page), August 18, 1966; "More law than land for Latins," *The Economist*, June 4, 1966. "Letter from Peru", *Commentary*, June 1964.

<sup>130</sup> Angus Maddison, *Economic Progress and Policy in Developing Countries*. London: Allen & Unwin 1970/pp37,39,42,55,115.

<sup>131</sup> Rosemary Thorp and Geoffrey Bertram, *Peru 1890-1977: Growth and Policy in an Open Economy*. Columbia University Press 1978/p276-88. The authors quickly add: "slow growth of food production was compatible with rapid GNP growth, low inflation and limited food imports because for a large segment of the population, income levels, and hence consumption of wage-goods, were growing slowly or not at all. In 1956 and 1957, when severe droughts caused devastating crop losses and much rural hardship throughout the Sierra..., food imports showed no tendency to increase, while internal food prices remained moderate; the impact of famine appears to have been absorbed entirely by a fall in mass living standards (certainly contemporary accounts confirm the reality of such a fall)."

<sup>132</sup> *Perú en Números 1990*pp100-3.

and, until recently, the most successful in terms of long-term economic growth, appears near Peru in both the World Bank and UNDP listings.<sup>133</sup>

The beginnings of a modern water supply system for Lima evolved in the late 19th Century under pressure of a series of epidemics that was climaxed by a pandemic of bubonic plague that reached eight towns on Peru's desert coast in 1903, complicated by an outbreak of typhus in the same year, leading to campaigns against infectious diseases that Peru has suffered for centuries.<sup>134</sup> A privately-owned Water Company was organized in 1855 with a municipal concession to improve the system of open ditches and public fountains through which Lima's water supply had flowed for three centuries.

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<sup>133</sup> The economists Osvaldo Sunkel and Gustavo Zuleta of the United Nations Economic Commission for Latin America (CEPAL) criticized the UNDP's human development rankings for its "optimistic tone" and "overvaluing" of the index for Latin America that "ignores the abrupt break in postwar development trends that took place at the start of the 1980s, with the economic and social regression experienced since then." They produced a "corrected human development index," revised by measures of social progress, that changed the overall ranking of Peru and Brazil only slightly but moved all 11 Latin American countries in the high human development group to the medium group and four others from the medium to the low group. The corrected human development index thus deflates the UNDP version by replacing the ranking of per capita GDP on a logarithmic scale for absolute values and by removing the UNDP's baseline development standard --the average per capita GDP of nine OECD countries deflated by purchasing power parity-- to reveal wider differences between all countries. See Sunkel and Zuleta, *Comentarios sobre el Documento Desarrollo Humano, Informe 1990*, presented to the UNDP Human Development Report Seminar. Rio de Janeiro: December 12-14, 1990.

<sup>134</sup> Marcos Cueto, *Excelencia Científica en la Periferia: Actividades Científicas e Investigación Biomédica en el Perú, 1890-1950*. Lima: GRADE (Grupo de Análisis para el Desarrollo), 1989/p123. Cueto reports that a total of 1,604 bubonic plague cases were reported in eight coastal towns and one Andean community; 483 of these were in Lima. The pandemic previously reached Argentina, Brazil and Paraguay in 1899. Spread by Chinese troops returning from putting down a revolt in remote Yunnan province in 1855, the plague drew little attention until Hong Kong reported 6,909 cases in 1894-99, with 90.7% mortality. India reported some six million deaths in 1896-1906. Noting that in Europe the disease gradually had died out since the 1665 Great Plague of London, the 1910 *Encyclopaedia Britannica* (Vol. XXI/observed: "The sudden reversal of that long process is therefore a very remarkable occurrence. Emerging from the remote endemic centers to which it had retreated, plague has once more taken its place among the zymotic diseases with which Western communities have to reckon, and...the familiar object of investigation, carried on with all the ardor and all the resources of modern science." In *Plagues and Peoples*, William McNeill told how, after Hong Kong was stricken in 1894: "International teams were dispatched to the scene, and within a matter of weeks of their arrival in Hong Kong a Japanese and a French bacteriologist independently discovered *Pasteurella pestis*, the bacillus of plague. During the following decade, most of the details of how the bacillus was transmitted by fleas from rodents to men became firmly established through the work of a series of international task forces operating in such diverse places as Hong Kong, Bombay, Sidney, San Francisco and Buenos Aires....The entire sequence of events from 1894 to 1921 occurred under the eyes of professionally sensitized medical teams whose job was to find out how best to control plague. In some instances researchers went to considerable pains to reconstruct the pattern of diffusion whereby the plague had penetrated new regions and populations. Without such study and the prophylactic measures that followed, the 20th Century might well have been inaugurated by a series of plagues reaching completely around the earth, with death tolls dwarfing those recorded from the age of Justinian and the 14th Century, when the Black Death ravaged Europe and much of the rest of the Old World. On the typhus epidemic and other diseases prevailing in Peru at the time, see *Geografía Médica del Perú*. Lima 1924.

Less than a decade after the Spanish conquest, and the decision of Francisco Pizarro to build his capital on the banks of the Río Rimac, two royal decrees in 1541 announced that water resources are common property for the use of all citizens, but disputes were so bitter and frequent that a new post of Judge of Waters was created in 1556 and a special commissioner was named in 1617 for the same purpose. The system of open ditches and public fountains survived until the late 19th Century, with home delivery on the backs of water-bearers called *aguadores* who performed the same functions as the tank trucks that now supply the *barriadas* (squatter settlements)<sup>135</sup> without access to piped water. This system gradually was replaced by underground canals laid by the Water Company without prior geological studies. Because gradients were not properly calculated, backflows created stagnant pools in periods of low volume, described by Joaquín Capelo in 1895 as "the worst threat that ever has existed to the life and health of the population."<sup>136</sup> Lima repeatedly was stricken by yellow fever, mostly affecting foreigners and migrants from the Andes, with the 1868 outbreak killing 42% of 10,052 reported victims as part of a pandemic that claimed 7,970 deaths in New Orleans (1853), some 5,000 in Lisbon (1857) and 28,078 in Rio de Janeiro in 13 years at the turn of the century.<sup>137</sup> During most of the 19th Century, deaths in Lima outnumbered births, as in other premodern cities. Epidemics of yellow fever, measles, whooping cough and influenza spread fastest in downtown working-class warrens, called *callejones*, with families of five or more living in a single room and sharing a single water faucet and latrine with other families. The houses were built with hollow walls and floors where rats nested and flourished. As in many cities today, big houses once occupied by wealthy families were subdivided and rented to poor families for single-room occupancy, called *casas de vecindad* in Lima, *cortiços* in São Paulo and SROs in New York. When bubonic plague struck Lima in 1903, *casas de vecindad* were subdivided vertically as well as horizontally, with families nested on top of each other between each floor level, packed with children and domestic animals and joined by narrow, filthy stairways.<sup>138</sup> A decade earlier, in *Sociologia de Lima*, Capelo observed:<sup>139</sup>

*Lima does not have the best seat at the Banquet of Life. The seats are few in number, the food is poor and coarse, and many stand and wait for the leftovers. Greater still is the*

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<sup>135</sup> Perhaps the best technical definition of a *barriada* is given in the 1961 *Ley orgánica de los barrios marginales y urbanizaciones populares* as "the zone of fiscal, municipal, communal or private land...in which, by invasion and at the margin of legal dispositions over property, with or without municipal authorization, on lots distributed without plans officially approved, groups of dwellings of whatever structure have been formed in an area lacking one or more of these basic services: piped drinking water, sewage, electricity, sidewalks and streets for vehicular traffic, etc."

<sup>136</sup> Joaquín Capelo, *Sociologia de Lima*. 4 vols. Lima: 1895. I/p53. This section draws heavily on Capelo's description of Lima's pre-modern water system, pp49-81.

<sup>137</sup> Juan Copello, *Nuevos Estudios sobre la Fiebre Amarilla*. Lima: 1870/p196; "Yellow Fever," *Encyclopaedia Britannica*. 11th edition (1910) Vol. 28/p910.

<sup>138</sup> Marcos Cueto, "La Ciudad y las Ratas: La Peste Bubónica en Lima y en la Costa Peruana a Comienzos del Siglo Veinte," *Histórica*. XV/1 July 1991/p2.

<sup>139</sup> Joaquín Capelo, *Sociologia de Lima*. 4 vols. Lima: 1895. I/p140.

*number of those who await the funeral car that carries them away in the arms of plague, misery and war, ending the iniquities and suffering of life. Annual mortality, which in cities of Europe is less than 2.5% of the population, in Lima remains above 4%. If this were not enough, there have been some 300 more deaths than births registered each year since 1884. Tuberculosis alone carries out one-fourth of these executions, with another 25% dispatched by pneumonias, fevers and cardiac lesions...Hunger, nakedness and moral suffering continue their work of devastation. Men and things keep vegetating in the shade of this infinite absurdity, taking hold of human communities passing through long periods of financial crises, such as Lima has been suffering since 1872.*

The plague in Lima began in April 1903 at a flour mill where several dead rats were found among the grain sacks and 11 workers died suddenly after bulbous swellings erupted on their bodies. By July 1905, of 386 dwellings where plague was reported, 126 of them were in *callejones*, with a 49% case/fatality rate, concentrated among the poorest people of Andean and Chinese stock. From 1903 to 1931, Peru recorded some 20,000 cases of bubonic plague, an outbreak of modest proportions if compared with the 322,567 cholera cases reported for 1991 alone. The plague had a powerful political impact, terrifying the population and activating radical public health measures. The first measures used "medical police" tactics developed in Europe during the plague and cholera epidemics of previous centuries. Infected houses and business establishments were burned, public gatherings banned, patients quarantined and the dead buried by rough and quick methods. However, attacks of the plague did not recede until the government, advised by Rockefeller Foundation public health specialists working in Peru, undertook a major public works program in 1920 to improve basic sanitation in 32 cities, financed by foreign borrowing and executed by the U.S.-owned Foundation Company.<sup>140</sup> After hovering around 100,000 from 1837 to near the turn of the 20th Century, Lima's population began to grow fast with the commodity and public works booms that followed World War I. Population tripled between 1920 and 1940. Although the first *barriadas* were created in the 1930s, the *callejones* housed the bulk of the poor until after World War II, when improved bus transportation enabled them to build shacks on the gray slopes that rise into the foothills of the Andes. The medical historian Marcos Cueto argues that use of DDT to fumigate houses after 1940 greatly reduced danger of malaria, typhus, yellow fever and dengue, a "great stimulus for migrations from the sierra to the coast in 1940-60," reinforced by better nutrition and education on the coast as well as by paving streets, laying water pipes and building incinerators to eliminate pestilential garbage dumps.<sup>141</sup> Creation of new *barriadas* accelerated after the 1940 earthquake and by construction of modern port facilities for Lima at Callao, increasing the demand for unskilled migrant labor. In 1945 the central wholesale market

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<sup>140</sup> Marcos Cueto, "La Ciudad y las Ratras: La Peste Bubónica en Lima y en la Costa Peruana a Comienzos del Siglo Veinte," *Histórica*. XV/1 July 1991. In *Excelencia Científica en la Periferia* (p139), Cueto notes that, while 19,827 plague cases were reported in 1903-29, there were only 2,430 cases in 1930-51.

<sup>141</sup> Marcos Cueto, "Una Reforma Fallida: la Fundación Rockefeller, la Malaria e la Salud Pública en el Perú," *Revista Peruana de Ciencias Sociales*. V2/2. Lima 1990.

of La Parada was inaugurated, becoming the arrival point for new migrants from the provinces and a focus for organizing new *barriada* invasions nearby.<sup>142</sup> Since 1920, Lima's population has grown by 5% yearly, from 200,000 to about 6.5 million in 1991. In 1940, the *barriada* population was negligible, but reached 110,000 by 1956. Over the next three decades it grew by 9.8% yearly to roughly 2 million by 1987, or one-third of Lima's total population.<sup>143</sup> While Peru's economic distortions cannot be blamed wholly on the growth of squatter settlements, the subsidies they demanded were extended to the whole urban population, becoming key elements of chronic inflation and decapitalization and of the failure to manage problems of scale.

### Waves of squatters

In recent decades, wave after wave of squatters invaded vacant land stretching toward the desert hills outside Lima, most often at night, frequently at times of political uncertainty, quickly building shacks of straw matting, festooned with red-and-white Peruvian flags, that soon became permanent adobe dwellings in new *barriadas* that won recognition and public investment from successive governments in exchange for political support.<sup>144</sup> The critical episode in this series of events came on Christmas Eve 1954 with the invasion by thousands of squatters of what at once was baptized the City of God. A workman crippled by rheumatic fever, Alejandro López, had organized the invasion in minute detail.<sup>145</sup> While the government initially threatened to evict the

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<sup>142</sup> Richard Patch, *La Parada, Lima's Market: A Study of Class and Assimilation*. American Universities Field Staff Reports. West Coast South America Series. V14/3 (1967).

<sup>143</sup> Jean-Claude Driant, *Las Barriadas de Lima: Historia y Interpretación*. Lima: DESCO 1991 pp26,46-7.

<sup>144</sup> See my "Squatters in their Jerusalem," *The Economist*. July 2, 1966.

<sup>145</sup> The anthropologist Richard Patch reported in 1955: "Don Alejandro worked mainly with four labor unions: of taxi drivers, domestic servants, hotel workers and brick workers. He hired hydrologists to locate land near Lima with underground water that could be tapped with wells, geologists to study the clay and sand, locating materials which would be suitable for eventual brick- and glass-making. At last he decided on a vast tract of pampa lying between the Atacongo and Ica highways with abundant water and useful construction materials. The land belonged to the government which used it infrequently for military exercises. Don Alejandro then formally petitioned the government to sell the land to his association for a reasonable price, but his petition was not so much as acknowledged. He was approached by political interests hostile to the government who offered their help, but Sr. López refused, preferring to keep his project out of the political arena. At last it was apparent that the government had no intention of even recognizing his hopes, and he determined to occupy the land. So on Christmas Eve (chosen for its religious significance) between 6,000 and 8,000 persons responded to his call, carrying the materials for their huts on their backs. From this material they built an estimated 3,000 "houses" during the night, scattered over many square miles of the desert. The government was stupefied when it learned of what had taken place, and gave the squatters three days to remove themselves. However, by this time the newspapers had published so much about *La Ciudad de Dios* that it became a matter of great public interest....Popular opinion soon forced the government to capitulate." From Patch, *The City of God*. Report to the Institute of Current World Affairs. Lima: February 25, 1955. A census taken in February 1955 by the Ethnology Institute of the University of San Marcos counted 4,481 inhabitants of the City of God in 936 squatter families.

invaders if they failed to leave within three days, it quickly reversed itself under pressure of popular sympathy for the City of God mobilized by opposition politicians and the press. The military dictator, General Manuel Odría (1948-56), quickly saw a political opportunity in the City of God. He received López at the presidential palace and promised to provide the new community with modern water, sewage and electricity lines. The Minister of Public Works personally opened an office to register land claims there after the government promised to sell lots to the squatters at low prices. In return, two main streets of the City of God were named for Odría and his wife. The ex-dictator was rewarded by strong voting support in the *barriadas* when trying a return to power as constitutional president in the 1962 election. A kind of symbiosis developed between squatters and political authorities over the next three decades. In 1962 the National Housing Board announced: "The *barriadas* are the only mass solution until now of the [housing] problem. It is a movement that must be guided and channeled."<sup>146</sup> A "two-faced policy" of "institutionalized illegality" emerged by which squatters were allowed to consolidate their settlements, but were denied formal property rights to perpetuate their dependence on the government's good will. The *barriadas* spread faster amid a surge of migration in 1956-61 that accelerated in the 1960s, as Lima absorbed 75-80,000 migrants yearly through the 1970s. Of these, 83% were below age 24 (60% between ages 16 and 24). While only 5% had finished secondary school and less than one-third had gone to primary school, some 30% of these migrants later continued their studies in Lima, swelling the rolls of night schools in poor neighborhoods.<sup>147</sup> By the early 1970s, roughly 47% of Lima's population between ages five and 39 was engaged in some kind of formal study by day or night.<sup>148</sup> From 1975 to 1984, the share of Lima's low-income labor force that had completed secondary schooling rose from 22% to 37%.<sup>149</sup>

Peru's spectacular educational expansion in this century gave a special quality to the sudden acceleration in growth of Peru's adult population that began in the 1960s and peaked in the 1980s. Nationally, growth in the 15-24 age group peaked at a yearly rate of 3.4% in the 1970s, generating 3.2% annual growth in ages 25-59 during the 1980s, according to United Nations projections. Because of migration and urbanization, this adult population growth was concentrated in the cities, especially Lima, and was reflected in a near-doubling of the Lima workforce in the 1980s, as well as shrinkage in the ranks of those "adequately employed." School enrollments in Peru rose at a 5.4%

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<sup>146</sup> Junta Nacional de la Vivienda, *Hipótesis para una diagnosis de la condición y situación de la vivienda en el Perú*. Lima 1962/p8.

<sup>147</sup> Dirección Nacional de Estadísticas de Censos, *Encuesta de migración. Lima Metropolitana*. Lima 1966. Of 929,000 migrants to Lima registered by the 1961 census, 265,7800 arrived between 1956 and 1961, compared with 280,000 arriving before 1941; 88,300 in 1941-46; 132,900 in 1946-51 and 161,000 in 1951-56. Cited in Jean-Claude Driant, *Las Barriadas de Lima: Historia y Interpretación*. Lima: DESCO 1991 p47,83,85.

<sup>148</sup> Norman Gall, *Peru's Education Reform: Part I: More Schools; Part II: Escape from Poverty; Part III: Dialogue of the Deaf. Part IV: "A Social Democracy of Full Participation."* American Universities Field Staff Reports, 1974-75. Spanish book version published as *Reforma Educativa Peruana*. Lima: Mosca Azul, 1976.

<sup>149</sup> Jean-Claude Driant, *Las Barriadas de Lima: Historia y Interpretación*. Lima: DESCO 1991 p142.

yearly rate from 1900 to the mid-1960s, nearly triple the population growth rate (1.9%). In this way, Peru leaped far ahead of neighboring countries with similar socioeconomic traits. For example, dropout rates in Peruvian primary schools were 49% in 1985-87, against 78% in Brazil. From 1965 to the mid-1980s, Peruvian enrollments in secondary schools rose from 25% to 65% of the age group, against a rise of only from 16% to 39% in Brazil, while university matriculation rose from 8% to 25%, against an increase of from 2% to 11% in Brazil.<sup>150</sup> However, the problem always has been quality, a powerful example of the growth of scale unaccompanied by institutional development. In his 1897 message to Congress, at a time when only one in every 40 Peruvians had access to public education, President Nicolás de Piérola observed: "Primary instruction is insufficient, badly done and [its benefits] disproportionate to the great expense it imposes on us." Seven decades later, after public school enrollments multiplied 40-fold the Education Reform Commission of Peru's military regime was equally caustic in a 1970 report that became a best-seller in Lima: "A system that in 1967 spent 4.8% of our GNP --one of the highest percentages in Latin America-- and that managed to graduate from secondary school only 12 of every 100 pupils that first enrolled in primary school shows faults and distortions so deep that...these enormous outlays for education have not become reproductive investments, but have largely been wasted."<sup>151</sup> This great educational effort failed to achieve for Peru's people the expected gains in income and productivity. Among Peruvians and many other peoples, the access to mass schooling and cheap electronic communications have raised ambitions, but not the technical and institutional means of achieving them. According to Julio Cotler, the Peruvian sociologist:<sup>152</sup>

*The most striking aspect of this process of transformation is the growing and persistent contradiction between economic shrinkage and decline --to avoid more dramatic epithets-- and sustained and explosive urbanization and educational growth. This contradiction undermines a first generation of urban youths, undergoing rapid cultural transformation, frustrated in their struggle for rapid social mobility. Modernity without modernization has redefined the traditional social dualism that, in new circumstances, has awakened generalized feelings of injustice, expressed in the active and conflictive participation of the popular classes of Peruvian society in politics, as well as in the development of a guerrilla movement as unique as Sendero Luminoso.*

By the 1960s, considerable alarm was being expressed at the quality and pace of urbanization in poorer countries. Politicians, city planners and academic specialists found the scale, force and suddenness of this surge to be overwhelming --morally, politically and intellectually. In *The Economist*, Barbara Ward wrote that the poor world's cities "have outgrown their own means of livelihood....Urban growth has

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<sup>150</sup> World Bank, *WDR89* /p221.

<sup>151</sup> Quoted in Norman Gall, *Peru's Education Reform: Part I: More Schools*. p7.

<sup>152</sup> Julio Cotler, *Peru: Segmentación Social, Movilización ey Fragmentación Política*. Paper prepared for a seminar on the *Human Development Report 1990* of the United Nations Development Program. Rio de Janeiro: December 12-14, 1990/pp12-13.

become pathological. It threatens to overlay and stunt the healthy elements of expansion."<sup>153</sup> International aid agencies, careful to avoid being unsympathetic to the struggle of poor people to improve their lives, were reluctant to deal with emerging problems of scale, disorder and decapitalization in these cities.<sup>154</sup> Some influential urban development specialists took a more positive view, formulating a new ideology of the *barriadas*. Thanks to the work of William Mangin, an anthropologist, and John Turner of the MIT-Harvard Center for Urban Studies, Lima became a focus of international discussion of the increasingly fashionable view that squatter settlements were a new way of spreading democracy and social justice by seizing living space for the poor in a rigid and backward institutional setting. Turner argued in 1968 that "*successful urban planning and low-income housing policies in transitional contexts depend on the alignment of government action with the priorities and forces of popular settlement.*" This meant, according to Turner, "abandonment of the currently orthodox modern *project approach* to urban development and the substitution of a *service approach*,"<sup>155</sup> a euphemism for subsidizing of supplies of food and basic services for squatter communities on a scale that ensured decapitalization of basic infrastructure, escalation of chronic inflation and increasing dependence on foreign food donations. Mangin called squatter settlements "a process of social reconstruction through popular initiative [in] response to rapid urbanization in countries that cannot or will not provide services for the increasing urban population."<sup>156</sup> The "revolutionary" military regime that seized power in 1968

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<sup>153</sup> Barbara Ward, "The Poor World's Cities, a survey," *The Economist*. December 6, 1969/p57.

<sup>154</sup> In a widely-circulated report to the U.S. Agency for International Development, the housing expert Charles Abrams explained the difficulties in dealing with the squatter problem: "Squatting on private property should be viewed as having more serious implications than squatting on public lands. Tolerance of such seizures reduces the confidence in government and threatens the breakdown of law and property rights. A firm policy by government to remove squatters settling on private property should be announced in advance and firmly implemented. The government should be prepared to back up the orders of the courts and establish a summary procedure for a determination of rights. Where, however, the squatting on private property is extensive and of long duration, it may have to be treated as part of a general program for resettlement of squatters. In some cases, this may entail public acquisition of the property with compensation to the owner and moving costs or solatiums to the occupants. The squatting problem should be viewed as more than a mere contest between law and lawlessness. Though squatting is illegal, a strictly legalistic attitude toward the settlers will not generally resolve the squatting problem. Often the squatters had no alternative and had they been given one, they might not have flouted the law. Sometimes in fact they may have been encouraged to squat by government acquiescence. Many squatters can be induced to build or arrange for building their own shelters if given a reasonable opportunity to do so and if they are provided with land." From Abrams, *Squatter Settlements: The Problem and the Opportunity*. Washington: Department of Housing and Urban Development, April 1966/p8.

<sup>155</sup> John C. Turner, "Housing Priorities, Settlement Patterns and Urban Development in Modernizing Countries," *Journal of the American Institute of Planners*. November 1968/p362. Italics in original.

<sup>156</sup> William Mangin, "Latin American Squatter Settlements: A Problem and a Solution," *Latin American Research Review*. Summer 1967/pp67, 73, 85. In his survey of the scant specialist literature available then, Mangin noted that he and the anthropologist Jacob Fried "describe family attitudes in a Peruvian *barriada* in very different terms. He [Fried] found and stressed pity and pessimism; I encountered and stressed self-help and optimism." After praising "strong informal institutions," Mangin noted later in the same essay a "somewhat puzzling factor...in these populations that have achieved so much. Despite their own problem-solving efforts they seem to believe that the only answer to their problems lies in outside solutions from the

officialized the new ideology of the *barriadas*, renaming them *pueblos jóvenes* (young towns) and creating a bureaucracy to mobilize support for the regime in these communities. While Lima's *barriadas* lay in the mainstream of postwar Latin American urban settlements, such as the *ranchos* of Caracas, *colonias proletarias* of Mexico City, *favelas* of Rio de Janeiro and the *callampas* of Santiago, the French geographer Jean-Claude Driant found that Lima was unusual in "the intensity of the *barriadas*' growth and in the conditions in which they develop." He explained:<sup>157</sup>

*....Lima's physical environment and the attitude of public authorities toward the barriadas gave them a positive image, very different from the idea of extreme precariousness evoked elsewhere by this kind of community. In effect, the availability of extensive flatlands and a climate without rain nor strong thermal variations considerably reduce the natural risks common to other regions of the continent. These conditions make possible continuous construction without need for technologies to withstand floods, landslides etc. In conceiving it as the only solution to the mass housing problem, the State has glorified the barriada through promotion of community self-help and use of popular organizations as a source of political support. Finally, the dominant ideology and policies and the need for residential stability have bred strong preference for individual property rather than rentals. In this sense, access to a piece of land, even in a barriada, means in many cases upward mobility within the social hierarchy of the city.*

Because the squatters produced and earned so little, governments had to hold prices down to avoid riots over the cost of food and public transportation. Price controls often meant subsidies, which in turn meant bigger government deficits and more inflation, as well as declining food production, since in country after country the interests of farmers were sacrificed to the interests of urban consumers. In 1950-63, Peru's domestic food production and consumption lagged far behind economic growth,<sup>158</sup> a trend that continued in many countries through the 1980s. Over the past decade, food production failed to keep pace with population growth in 41 of 96 less-developed countries listed by the World Bank in its *World Development Report 1990*. Nation after nation became dependent on foreign food donations and dumping sales to ensure the survival of its urban population. Peru's real per capita income has fallen to its 1960 level after collapsing by one-fourth since 1987.<sup>159</sup> Since 1975, per capita consumption of wheat and fat products have fallen sharply, even though a large part of Peruvian demand is covered by foreign donations and concessionary sales. In response to the 1973-74 oil shock, the government increased foreign borrowing, much of which was channeled into consumption subsidies. By 1977 subsidies for oil products and five kinds of foodstuffs

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government, the United States, the United Nations, etc. This is also the assumption of practically every government report I have read on squatter settlements. We asked our sample in a Lima *barriada* how the problems of the *barrio* could be solved. Only 11 of more than 70 replied that they could do anything to solve their own problems."

<sup>157</sup> Jean-Claude Driant, *Las Barriadas de Lima: Historia y Interpretación*. Lima: DESCO 1991/pp21,124.

<sup>158</sup> Rosemary Thorp, "Inflation and Orthodox Economic Policy in Peru," *Bulletin of the Oxford Institute of Economics and Statistics*. August 1967/p187.

<sup>159</sup> *Perú en Números* 1991. p362.

reached 5% of GDP, but this level of support could not be sustained for long and living standards continued to fall.<sup>160</sup> In 1985 a soap manufacturer said that his sales fell because "people have less clothes to wash."<sup>161</sup> Lima household surveys showed that the share of people living below the poverty line rose from 17% to 44% between 1985-86 and 1990. Big falls in real spending on basic needs occurred among all income levels, with 51% less spent on food and 95% less on health care by the poorest families. Even though the richest 20% of families suffered cuts of 43% in basic consumption spending, their share of total consumption rose sharply, given the steeper losses in purchasing power among lower income levels.<sup>162</sup>

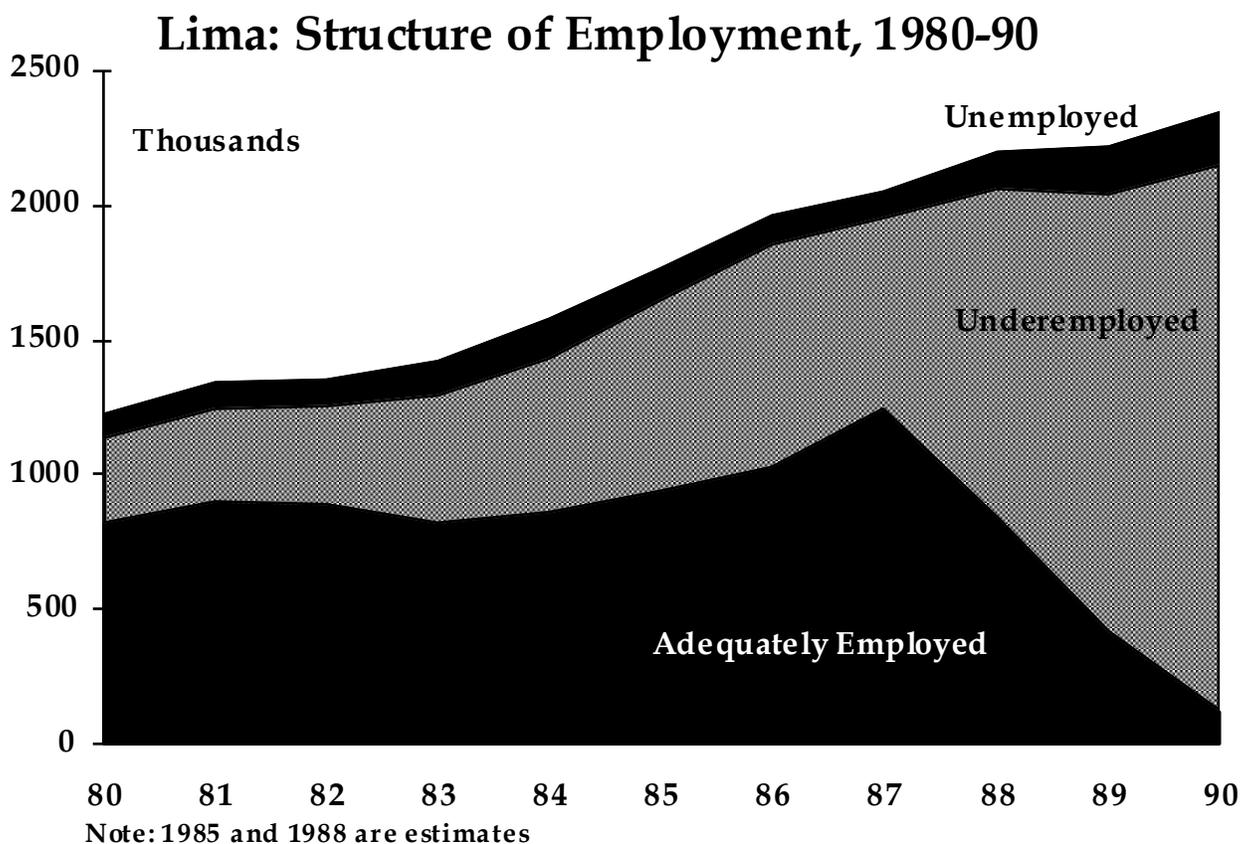
Large swaths of Lima's population still are kept alive with heavily-subsidized supplies of food. In 1986-89, food rose 38% less than the overall consumer price index, as the populist government of President Alan García (1985-90) ran down Peru's foreign exchange reserves to subsidize food imports.<sup>163</sup> Food subsidies were interrupted again by the *Fujishock* of August 1990. After lagging behind general inflation for decades, food prices multiplied seven-fold in the four weeks to August 24, then quickly fell back to trail the consumer price index again. Nevertheless, the huge jump in food prices placed them far beyond the truncated purchasing power of wages. Real earnings of private sector employees fell in 1990 to half their 1989 levels and, by December 1990, those of government workers fell to one-fourth of their June level and to only 7% of their most recent peak in October 1987. Consequently, retail food sales collapsed by September 1990 to 42% of their June level, only to recover quickly by December to exceed the 1989 average. To avoid mass starvation, higher food prices were offset partially by a huge increase in foreign food donations. On the eve of the *Fujishock*, the United States Food for Peace program, providing nine-tenths of these donations, increased shipments from a yearly average of 40,000 metric tons in 1983-89 to 86,000 tons in 1990 and 121,000 in 1991-2. The number of community kitchens receiving these donations multiplied to feed people who otherwise could not afford to eat.

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<sup>160</sup> Carlos Eduardo Paredes, "The Behavior of the Public Sector in Peru: A Macroeconomic Approach," in Felipe Larraín and Marcelo Selowsky eds., *The Public Sector and the Latin American Crisis*. San Francisco: International Center for Economic Growth, 1991/p205-7.

<sup>161</sup> *The Andean Report*. Lima: August 1985/p122.

<sup>162</sup> Webb, Richard et al, *Ajuste y Economía Familiar, 1985-1990*. Lima: Instituto Cuánto 1991 p51, 55, 65-7. *Perú en Números 1991*. p813.



Source: Webb, Richard et al, *Ajuste y Economía Familiar, 1985-1990*. Lima: Instituto Cuánto 1991.

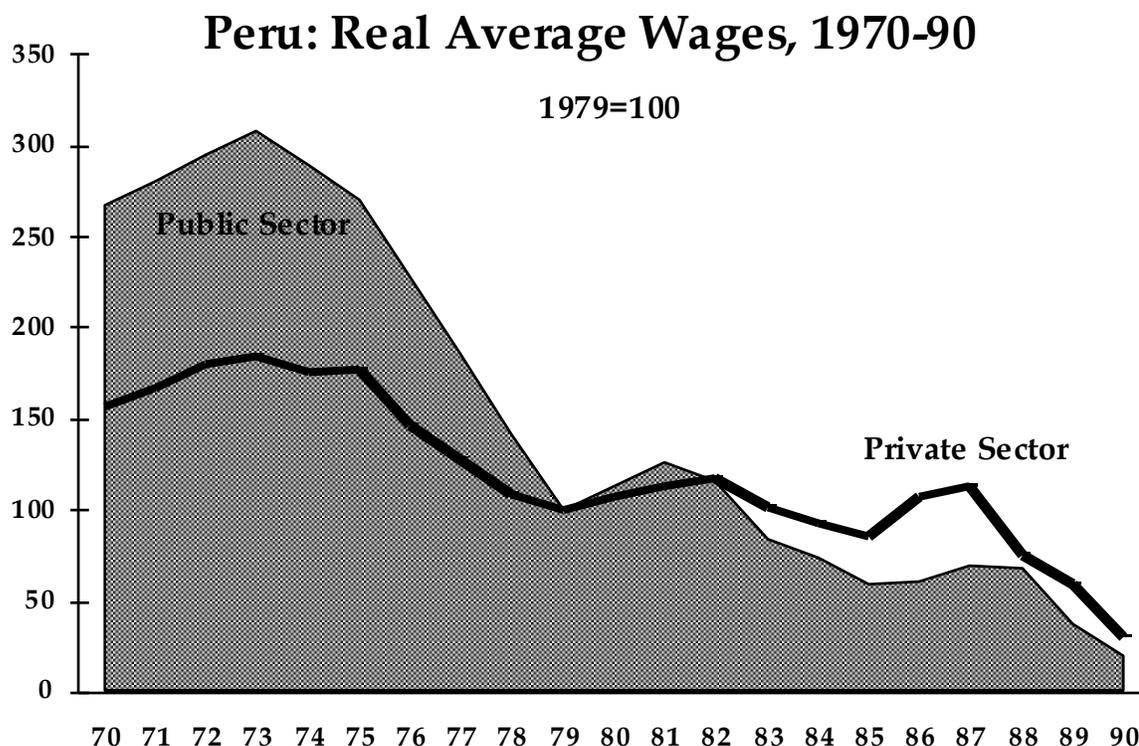
In 1980-90, the size of Lima's workforce nearly doubled, but the number of those "adequately employed" fell to one-seventh of its 1980 level, from two-thirds to 5% of the total, following a sudden plunge after 1987.<sup>164</sup> The number of underemployed grew sixfold in those years, from 26% to 86% of the workforce, as part of the radical informalization of Latin American labor markets in the 1980s.<sup>165</sup> By 1990, real private sector salaries in Lima fell to 18% of their 1973 peak.<sup>166</sup> Meanwhile, the rapid growth of adult population increased crowding in existing homes and led to a second generation of land invasions to form new *barriadas*. Between 1978 and 1986, the number of *barriadas* increased by two-thirds. As the total of dwellings rose by one-third, the average size of

<sup>164</sup> Webb, Richard et al, *Ajuste y Economía Familiar, 1985-1990*. Lima: Instituto Cuánto 1991 p30. According to the Labor Ministry, the number of adequately employed is a residual from subtracting the numbers of unemployed and underemployed from the economically active population. The underemployed are defined as those working less than 35 hours weekly and wish to work more or those working 35 or more hours but earn less than the legal minimum wage established in 1967 and adjusted by the consumer price index. In 1980-90, the monthly minimum wage, measured in 1985 dollars, fell from \$67.11 to \$17.99, while average earnings of government workers fell from \$231.80 to \$39.09.

<sup>165</sup> *Perú en Números* 1991. p305.

<sup>166</sup> *The Andean Report*. July 1985/p104. *Perú en Números*. pp718 & 729.

the new *barriadas* shrank by half in terms of the number of families that each contained and by nearly one-third in terms of the size of each lot, a sign of the growing scarcity of land. A sample of these families showed that they were composed mainly of young adults and their small children who lived previously in other *barriadas*.<sup>167</sup>



Source: *Perú en Números: Anuario Estadístico*. Lima: Cuánto S.A. 1990 & 1991. Graciela Fernández Baca de Valdez and Richard Webb, editors.

The shrinkage of the formal labor market was largely a reaction to the radical growth of the public sector in the 1970s, after the 1968 military coup, and of its financial collapse during the 1980s. Fully half of all Peru's salaried workers are public employees, whose numbers expanded radically in the 1970s as the military regime created 38 new agencies and nine state corporations by nationalizing private companies. In 1968-73, government employment grew three times as fast as the whole labor force and the total public wage bill grew by 31% as public sector salaries also reached their historic peak. By 1980, the cash flow of public enterprises multiplied 28-fold, growing from 1.7% to 32% of GDP. By December 1990, however, real average earnings of public sector employees had fallen to one-tenth of that 1973 peak. By 1985, the total public wage bill had collapsed in real terms to its 1968 level, although the number of people on the payroll of all levels of government doubled. According to a high official of Peru's Central Bank, "The easiest public expenditure item to curtail is the wage bill....In an environment in which inflation

<sup>167</sup> Jean-Claude Driant, *Las Barriadas de Lima: Historia y Interpretación*. Lima: DESCO 1991/pp178-81; 189.

is increasing, it is relatively simple to surprise workers: you can simply postpone and restrict wage increases, reducing real wages."<sup>168</sup>

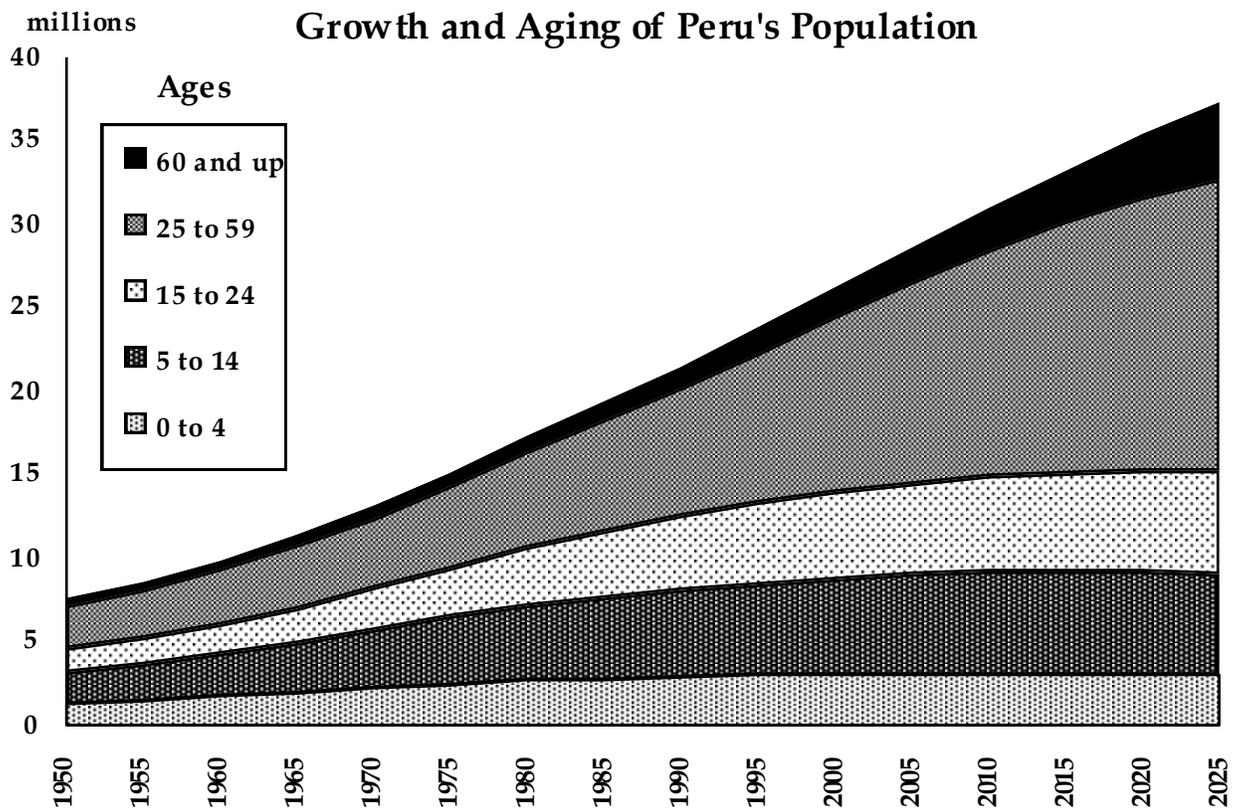
Since 1986, a group of public health researchers, sponsored by UNICEF, has been monitoring a population of 35,000 in an area of 32 *barriadas* south of Lima, known as Pampas de San Juan de Miraflores, settled five years ago on the average. Most of the dwellings are built of straw matting, sheltering families headed by young adults with average schooling of 7.6 years for men and 5.8 years for women. In better times, in the 1960s and 1970s, these huts would have been upgraded quickly into houses of more solid materials, but these are not better times. Most of these people moved there from other Lima *barriadas*. Most live by street-selling and other informal activity. Their houses have neither piped water nor sewage. Only 28% of the homes have legal electricity supplies and less than half have latrines, the rest of the population using open spaces to evacuate body wastes. By June 1989, real spending on food by these families had fallen by 56% below that of March 1988. Despite the economic shocks of the late 1980s, there was no rise in infant mortality in 1987-88, attributed to the nourishment and "protection" offered by breast-feeding. But during the second three years of life mortality rose sharply, with loss of body weight accelerating between their 12th and 36th months, especially in the summer, when dehydration from diarrhoea is common.<sup>169</sup> The Prisma/Cayetano Heredia University group found that "boys suffer more weight change than girls. This finding has been reported in other non-Moslem countries in periods of famine."<sup>170</sup>

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<sup>168</sup> Carlos Eduardo Paredes, "The Behavior of the Public Sector in Peru: A Macroeconomic Approach," in Felipe Larraín and Marcelo Selowsky eds., *The Public Sector and the Latin American Crisis*. San Francisco: International Center for Economic Growth, 1991/pp200-1; 234-5; 332n17; 334n49.

<sup>169</sup> In a new and still-unpublished paper on *Demographic Responses to Economic Shocks: The Case of Latin America*, Kenneth Hill and Alberto Palloni observe: "When economic conditions deteriorate, neonatal mortality may be affected first if the accessibility and efficiency of prenatal care is seriously jeopardized. These effects should be felt within a few months of the crisis, on average probably not longer than six months. Other effects (those operating through maternal nutrition and health) will be visible only under extreme conditions. Since economic crises are accompanied by residential displacements of all sorts, by fusion of families and households as coping strategies, and by environmental deterioration, it is likely that exposure to pathogens will increase. Simultaneously, prevention efforts and access to health services will be made more difficult. However, under conditions of scarcity, breastfeeding may be more prolonged and this may enhance, rather than weaken, the health of infants. Such an offsetting mechanism through breastfeeding is unlikely to be important after infancy, so post-infancy child mortality is likely to be more sensitive to economic recession than infant mortality."

<sup>170</sup> Grupo de Trabajo A.B. Prisma/Universidad Peruana Cayetano Heredia, *Probables Efectos de la Actual Crisis económica en el Estado de los Niños en una Población Peri-Urbana*. A Report to UNICEF. Lima: September 1989/p16. For a survey of available knowledge on child mortality in poorer countries, stressing the fuzziness of data at the national level, see Kenneth Hill and Anne R. Pebley, "Child mortality in the developing world," *Population and Development Review*. December 1989.



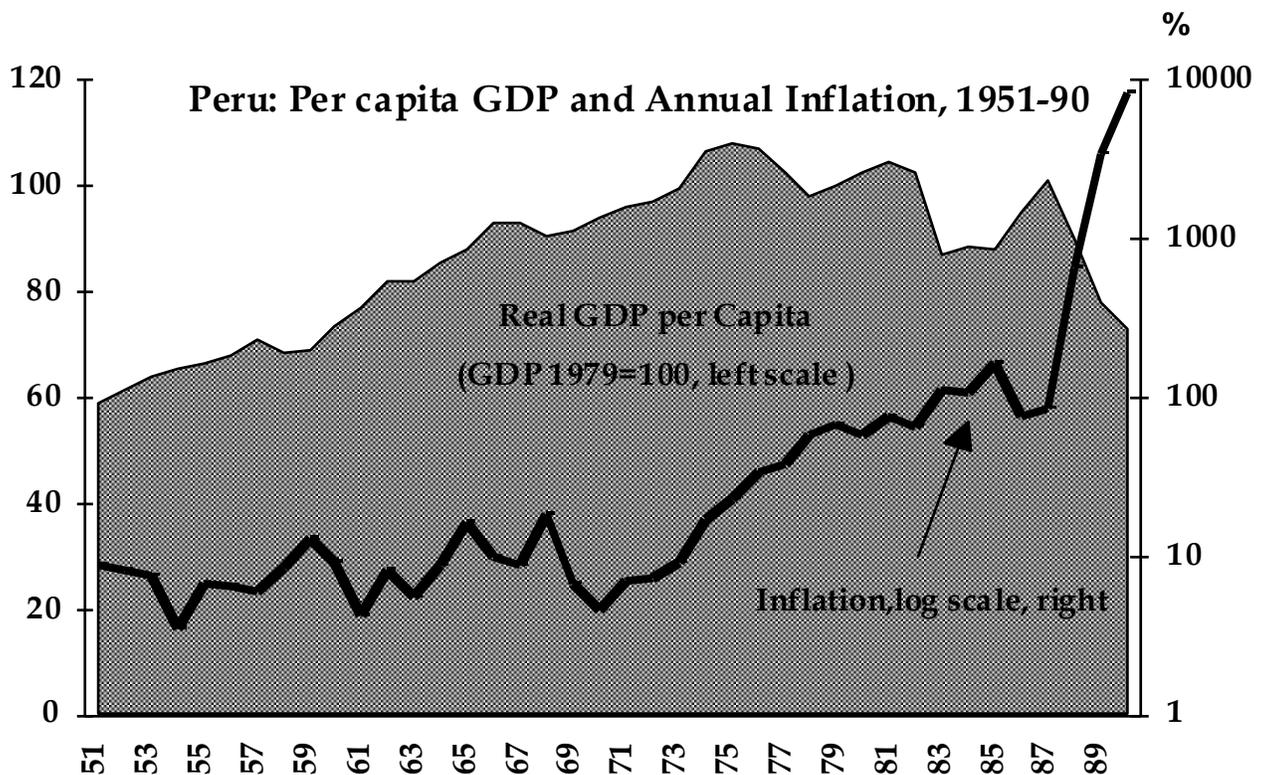
Source: United Nations, *World Population Prospects: 1990*.

According to Dr. Luis Benavente, an epidemiologist supervising the study of Pampas de San Juan: "For years, Lima's marginal population has received big food subsidies. During the election campaign in the first quarter of 1990, we all expected worse nutrition because of the worsening economic crisis, but the opposite happened. Desperate to recover its popularity, the García government increased food subsidies and the average weight of children in Pampas de San Juan recovered, according to the latest data we have processed. We cannot underestimate the importance of direct food aid. Without it, the situation would be like that in the Andes," where infant mortality is three times higher than in Lima.<sup>171</sup>

Outside the shrinking world of the formally employed, there has been a swarming of street sellers and street sleepers. Youths eke out a living by stealing sewer caps and selling them as scrap iron, or by roving in bands at night, carrying empty flour sacks from U.S. Food for Peace donations, to steal the crops from the small truck farms at the edge of Lima, just beyond the squatter settlements that sprawl over the desert hills cradling the city. In 1980-88, political violence inflicted economic damage estimated at

<sup>171</sup> Quoted in Miguel Unger, *Repunte de mortalidad y crisis económica en el Perú de los noventa*. Report to the Fernand Braudel Institute of World Economics. Lima: February 1991. Mortality data from Instituto Nacional de Estadística, *Informe General: Encuesta Demográfica y de Salud Familiar*. Lima: April 1988/p99.

\$9.2 billion, equal to 36% of Peru's 1988 GDP. In 1980-90, the number of dead from this violence totaled 19,046, with 3,384 killed in 1990 alone.<sup>172</sup> Gang attacks to loot cars, buses and trucks, organized by impoverished policemen, impede traffic along the Pan American Highway, the artery running along the coastal desert to connect Lima with a string of smaller cities between the Ecuadorean border to the north and the Chilean border to the south. These eruptions accompanied spectacular social transformations that dwarfed Peru's institutional development, capital-formation and economic productivity. The social changes embraced urbanization, educational expansion and the learning of Spanish by ethnic Amerindians. Despite weakening economic capacity, the practice of democracy grew over the past decade with the holding of three general elections and four rounds of municipal elections, even as Peru's broadening social and economic difficulties spawned *Sendero Luminoso* (*Shining Path*), South America's most effective guerrilla insurrection of the past generation.



Source: Webb, Richard and Fernández Baca, Graciela. *Peru en Numeros 1991*. Lima: Cuánto S.A. 1991.

The sanitary and public health infrastructure created over the past century, to control epidemics and to support population growth and urbanization, is overloaded and decaying rapidly. Supplies of drinking water to Lima have grown by 5.3% yearly since 1960, about 20% faster than population, but no new water source has been developed

<sup>172</sup> *Perú en Números 1990*. pp258-9; Comisión Especial de Investigación y Estudio sobre la Violencia y Alternativas de Pacificación, *10 Años de Violencia en el Perú*. Lima: Senado de la República, 1991/p30.

since 1970, while population has doubled. Six months before the outbreak of cholera, researchers at the Universidad del Pacífico observed: "Lima was not able to adapt its basic services to its new scale developed over the past half-century. Over the past 15 years, after big investments in the Mantaro River dams in the Andes and the Atarjea water treatment plant in Lima, distribution systems were expanded without enlarging the productive base for supplies of water and electric power."<sup>173</sup> President Alan García promised in May 1986, at the height of his popularity, that by the end of his term in 1990 "there will be no more Peruvian homes in *pueblos jóvenes*<sup>174</sup> lacking piped drinking water." In 1984-86, new home connections grew sixfold.<sup>175</sup> In recent decades, growth of water supplies was obtained by drilling into aquifers beneath the coastal desert. Now these aquifers, now supplying one-third of Lima's water, are being depleted rapidly and polluted by sewage filtrations.<sup>176</sup> As in colonial times, the main source of Lima's water is the Rimac, in the past fed by "springs of drinking water, crystalline and magnificent,"<sup>177</sup> but now so polluted that pedestrians crossing the bridges that span the river high above the stream are bathed in rising vapors of shit. About 20% of water samples taken from the Lima distribution network since the cholera outbreak contained fecal contamination.<sup>178</sup> Before the epidemic, there was no routine testing of water for chlorine or bacteria. Only 17% of home connections are metered and leakage from the system is estimated at up to half the daily flow. Crowds form instantly at pools of water formed by leaks in valves and pipes for drinking, bathing and washing clothes.<sup>179</sup> Water shortages are aggravated by chronic shortages of electricity, which drives the deep draft pumps that lift water from the overexploited aquifers.<sup>180</sup> The electricity blackouts also prevent families from pumping waters from underground cisterns beside their houses. Part of the electricity problem is caused by *Sendero Luminoso* terrorists, who blew up 856 high-tension pylons in 1980-90, with three-fourths of these attacks concentrated in the last three years, and who disabled two of the three transmission lines supplying Lima with hydropower from the Andes.<sup>181</sup> During the 1989-90 drought, water and electricity shortages reinforced each other. The city's "modern" sector was reduced to something like this

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<sup>173</sup> Eduardo Figari Gold and Xavier Ricou, *Lima en Crisis: Propuestas para la Gestión de los Servicios Urbanos en Lima Metropolitana*. Lima: Universidad del Pacífico 1990/p5.

<sup>174</sup> Another name for *barriadas*, or squatter settlements.

<sup>175</sup> Jean-Claude Driant, *Las Barriadas de Lima: Historia y Interpretación*. Lima: DESCO 1991 p207.

<sup>176</sup> *Perú en Números 1990*, pp112 & 464.

<sup>177</sup> Joaquín Capelo, *Sociología de Lima*. 4 vols. Lima: 1895. I/p18.

<sup>178</sup> Geldreich, Edwin E. and Kim Fox, *Investigation of the Microbial Quality of Water Supplies during the 1991 Cholera Outbreak in Peru*. Report to the Environmental Protection Agency. Washington 1991/p3.

<sup>179</sup> Joseph Haratani and Donald J. Hernandez, *Cholera in Peru: A Rapid Assessment of the Country's Water and Sanitary Infrastructure and its Role in the Epidemic*. WASH Field Report No. 331 prepared for the USAID Mission to Peru. Washington: May 1991/p18.

<sup>180</sup> Miguel Unger, *SEDEPAL: Haciendo Agua*. A report to the Fernand Braudel Institute of World Economics. Lima: December 1990.

<sup>181</sup> *Perú en Números 1991*. p355; Comisión Especial de Investigación y Estudio sobre la Violencia y Alternativas de Pacificación, *10 Años de Violencia en el Perú*. Lima: Senado de la República, 1991/p18.

**August 23, 1989:** *This morning, for the second consecutive day, we have neither water nor electricity at home nor at our office. I arrive at work after negotiating traffic jams caused by traffic lights not working and climbing 11 flights of stairs to my office because the elevator does not work either. The workers have not arrived because of a bus strike. The phones are worse than ever because of a strike of telephone workers. For nearly three months now, doctors in public hospitals have been on strike and the teachers have announced a strike for tomorrow.*

**August 24, 1989:** *There still is neither electricity nor water for those of us depending on pumping systems. Another strike has stopped circulation of newspapers. Monumental traffic jams block intersections with signal lights not working. I tried to reach the city center, but had to turn back. I missed my appointments and wasted my time. I have to travel abroad but the Migration Office, where I must renew my passport, is paralyzed for lack of electricity.*

**August 25, 1989:** *There still is no electricity, although it is easier now to buy newspapers. I had to postpone my trip because the Migration Office could not take my passport photo for lack of electricity.*

**September 11, 1989:** *I returned yesterday from my trip. I had left the office in darkness and with the computers not working for seven consecutive days. I have a lot of work accumulated. I found out that while I was away there were some big blackouts caused by "technical" problems and not by terrorist attacks. It seems that the power lines are so weakened that they fall down by themselves.*

Hyperinflation wiped out the real cash flow of the utilities, already eroded by decades of chronic inflation eating away at a rate structure that fell far short of covering costs, truncating maintenance operations and intensifying strikes by public service workers. In May 1991 foreign specialists called water supply and basic sanitation in Peru "a disaster waiting to happen. The cholera epidemic that Peru and its neighbors are now suffering has merely put a name on that disaster."<sup>182</sup>

### **Lima, Cairo, Mexico City**

Lima's water problem is not unique.<sup>183</sup> Indeed, the people of Lima may consider themselves fortunate, with three-fourths of their homes receiving piped water by 1991.

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<sup>182</sup> Joseph Haratani and Donald J. Hernandez, *Cholera in Peru: A Rapid Assessment of the Country's Water and Sanitary Infrastructure and its Role in the Epidemic*. WASH Field Report No. 331 prepared for the USAID Mission to Peru. Washington: May 1991/p27.

<sup>183</sup> In many cities and countries, "population migration continues to areas that must import water. Other problems also exist. Excessive 'mining' of water from some aquifers threatens both municipalities and agriculture. Coastal communities are experiencing salt intrusions into groundwater where withdrawals have exceeded the rate of recharge or where rapid development has lowered water tables. In older cities the deterioration of distribution systems due to age, poor initial construction and inadequate maintenance

In 1981, 64% of them already were served by home faucets, against fewer than 10% in Jakarta, Kabul, Dacca, Rangoon and Mogadishu; from 10% to 20% in Calcutta, Brazzaville, Ulan Bator, Asunción, Dar es Salaam and Tenerife; around 40% in Cairo and Istanbul and 52% in Teheran.<sup>184</sup> The share of homes with piped water in Lima was roughly the same as in Mexico City, a desert metropolis of 20 million people with even more spectacular water problems. In all of Mexico, 18 cities suffered from acute water shortages in the early 1980s. Another 17 cities were expected to enter acute shortage by 2000. While one-third of Lima's drinking water is pumped from underground sources, 78% of Mexico City's supply has been coming from aquifers.<sup>185</sup> According to the 1981 National Hydraulic Plan, "the over-exploitation of subterranean waters is becoming general mainly in arid and semi-arid zones, which has caused irreversible damage such as the intrusion of salts in wells, the collapse and sinking of surface land and pumping from depths that are economically unjustifiable. Moreover, several water deposits are contaminated by infiltrations of sewage." The executive director of the Water Commission of the Valley of Mexico, Elias Sahab Haddad, warned: "The underground water table is sinking by two meters yearly. We must bring water here over long distances from lower altitudes just to keep the city from sinking further. As the land sinks, water and sewer mains break, causing enormous leakage."<sup>186</sup> To avoid further sinking and to replace water from depleted aquifers, Mexico City began pumping water uphill in 1982 from Cutzamala, a catchment 100 kilometers away and 1,000 meters below the city. In the 1990s, more water is to come from another site, Tecolutla, 200 kilometers away and 2,000 meters lower. Pumping all this water uphill will require the annual output of six electric power plants of 1,000 megawatts each.<sup>187</sup>

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causes enormous amounts of water to be wasted and results in the need for repair and replacement of facilities." From Royce Hanson, "Water Supply and Distribution: The Next 50 Years," in Jesse H. Ausubel and Robert Herman, editors, *Cities and their Vital Systems: Infrastructure Past Present and Future*. Washington: National Academy Press 1988/p258.

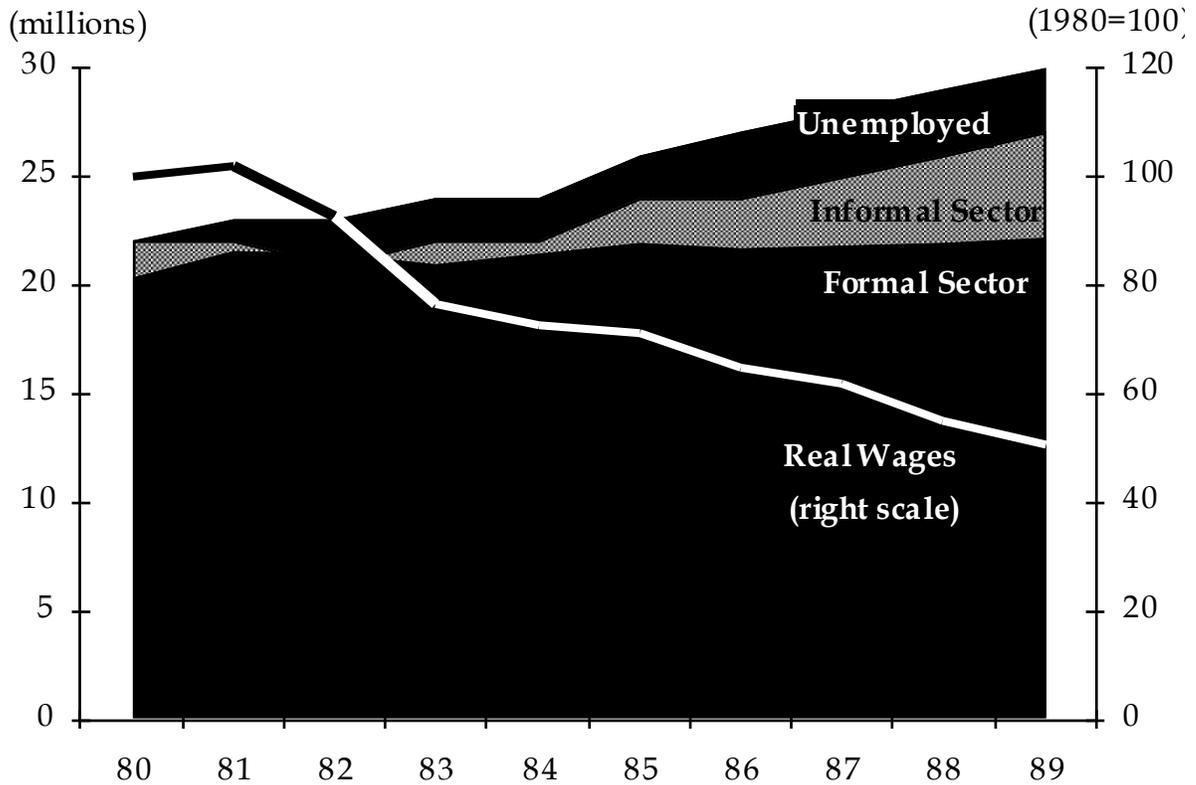
<sup>184</sup> Mattei Dogan and John D. Kasarda, "Comparing Giant Cities," in Dogan and Kasarda eds., *The Metropolis Era. Vol. 2. Mega-Cities*. Papers presented at the 1985 Barcelona Conference on Giant Cities of the World and the Future. Sage 1988/p18.

<sup>185</sup> Martha Schteingart, "Mexico City," in Mattei Dogan and John D. Kasarda eds., *The Metropolis Era. Vol. 2. Mega-Cities*. Papers presented at the 1985 Barcelona Conference on Giant Cities of the World and the Future. Sage 1988/p282.

<sup>186</sup> This material is from unpublished research on Mexico's water problem for my article, "Mexico: The Crisis that Won't Go Away," *Forbes*. August 15, 1983, including a taped interview with Mexican President Miguel de la Madrid that discusses the issue.

<sup>187</sup> Lester R. Brown and Jodi L. Jacobson, *The future of urbanization: Facing the economic and ecological constraints*. Worldwatch Paper No. 77. Washington: Worldwatch Institute, 1987/p36.

### Employment in Mexico and Real Wages in Mexico Cit 1980-89

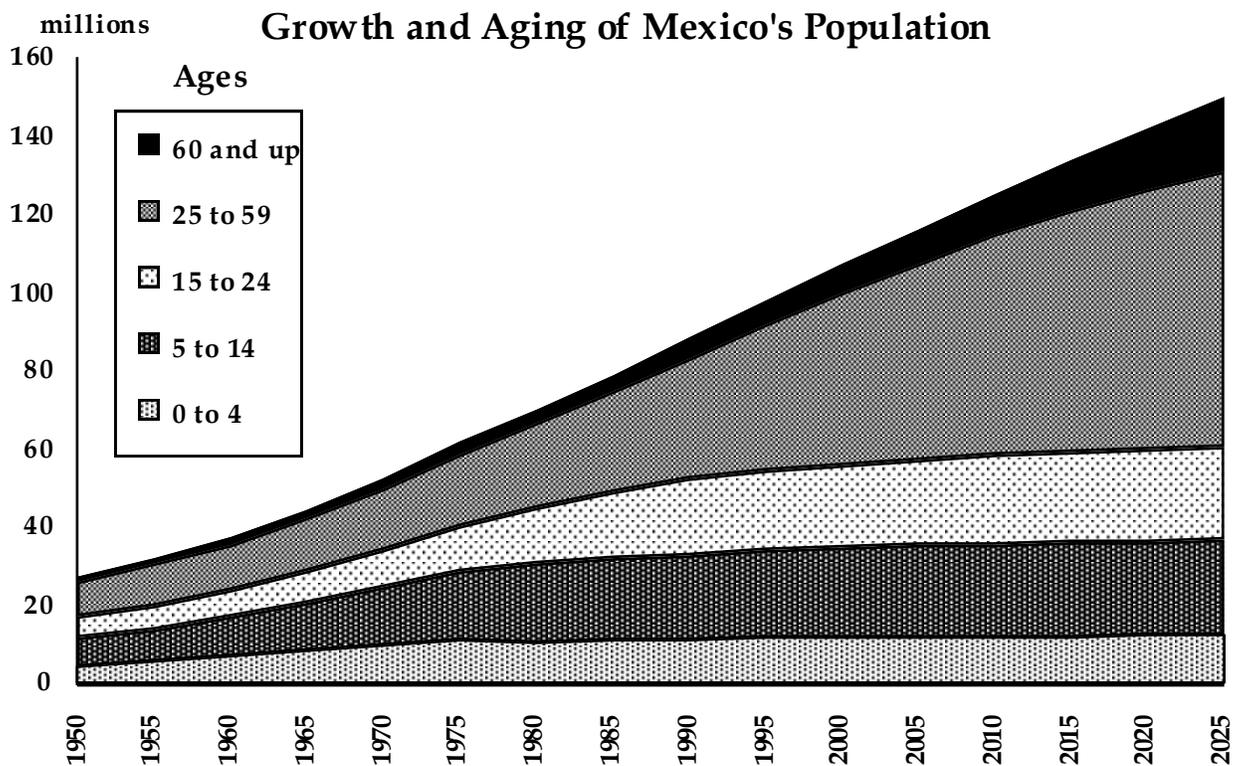


Source: LabraManjarrez, Armando, *El Caso de Mexico: Comentarios en la Perspectiva del Informe sobre el Desarrollo Humano*, 1990. UNDP 1990.

The pricing of water in Lima and Mexico City is one of the deranged economic transfers that make for chronic inflation. As the effects of chronic inflation grow over time, they erode the infrastructure and institutions supporting concentrated populations, threatening the survival of many people in fast-growing cities that have outgrown their economic base. In the early 1980s, Mexico City's municipal government was recovering less than 10% of its cost of supplying water because many households and public institutions paid nothing for their water and the cost for those paying was only 75 U.S. cents for an unlimited supply. In Lima, even after an 800% increase in water rates as part of the stabilization plan of August 1990 aimed at stopping hyperinflation, the monthly cost to poor families was less than \$1 and to most other households was only \$2.30. After decades of penury, the problems of Latin American utilities approached those of African utilities described by Dennis Anderson of the World Bank in 1987: "The main difficulties encountered here are more institutional than technical, and include dealing with thefts of supplies, consumers not paying bills, the bribery of meter readers, falsifications of contracts for investment and maintenance activities, misappropriation of

funds, the lack of good records and verifiable auditing procedures, and so forth." In Cairo, where water consumption has been increasing by 9%-10% yearly, endemic sewage filtrations have contributed to chronic disease and to high rates of infant mortality. Meanwhile, the water supply system deteriorates:<sup>188</sup>

*Because of the fragility of the entire water network, water pressure levels are kept low to avoid ruptures and breaks within the system. Reservoirs are rarely filled to capacity, causing inadequate and sporadic water service to many areas of Cairo. In recent years, revenue from water tariffs has failed to cover even basic operating expenses, let alone generate necessary capital for future waste projects. Water tariffs, at 50% below cost, are among the lowest in the world.*



Source: United Nations, *World Population Prospects: 1990*.

### Water: a civilizational problem

The water problem of these cities is a civilizational problem for two reasons: First, water management was one of the first skills learned by ancient complex societies. Gross mismanagement of water in much denser human concentrations throws doubt upon the institutional capacity to manage modern complex societies for meeting basic human

<sup>188</sup> Ahmed M. Khalifa and Mohamed M. Moheiddin, "Cairo," in Mattei Dogan and John D. Kasarda eds., *The Metropolis Era. Vol. 2. Mega-Cities*. Papers presented at the 1985 Barcelona Conference on Giant Cities of the World and the Future. Sage 1988/p255.

needs on this scale. Second, as we have seen, development of clean water supplies and effective waste disposal were key factors in the great achievements in control of epidemics and mortality reduction over the past century. Mismanagement of water resources, together with the erosion of public health systems under the impact of chronic inflation, also casts doubt on the institutional capacity of some countries to sustain recent gains in disease control and mortality reduction.

Typical of these institutional problems is the decapitalization of SEDAPAL,<sup>189</sup> Lima's government water utility, which cut deeply into maintenance operations in a system plagued by massive leakage, roughly 50% of total flows. Technicians blame these water losses on a general lack of maintenance of aging parts of the network and, more recently, on defective pipes and installations provided by heavily-protected local suppliers. In the giant *barriada* of Villa El Salvador, with 267,000 inhabitants, there are three forms of water supply: home faucets, street faucets and tank trucks selling water poured into the customer's steel cylinder. According to official statistics, nearly four-fifths of Lima's population had home faucets by 1985-86.<sup>190</sup> Unfortunately, faucets in both rich and poor homes fail to provide water much of the time. For those without access to working faucets, special forms of measurement have arisen in buying water from tank trucks: 12 cans equal one cylinder of 120 liters; eight cylinders equal one *pozo* or cistern holding about one cubic meter of water. The 1991 cholera epidemic prodded SEDAPAL into reviving an expansion of Lima's main water treatment plant, a \$10 million project sidetracked four years earlier in favor President García's vote-getting scheme to build an electric train system to connect the *barriadas* north and south of Lima with the city's center.<sup>191</sup>

The low official pricing of critical public goods, such as water and electricity, has created "shortage economies" of the Eastern European type, with long lines of people trying to get what is scarce or unavailable. In Villa El Salvador, people with buckets waiting to use the communal faucets form long and seemingly perennial lines in the streets. "The best time to go there is at 2 a.m.," says Moisés Guzmán, a 44 year-old mechanic. "I have to go very early so the others on line don't bother me too much by taking away my hose so they can fill their buckets." Guzmán uses an old hose, 80 meters long and repaired many times, with a replacement cost three times his monthly earnings, to draw water directly from the communal faucet into the cistern next to his house. Water stored in his cistern "is good only for washing clothes and maybe for a bath," he says. "For drinking or cooking we take a pail to the communal faucet every day." Because good piped water from the SEDAPAL system is too cheap, and thus unavailable, people rely on bad water from the tank trucks that is too expensive. On the upper slopes of the desert hills, where the poorest people live, where there are no paved

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<sup>189</sup> Servicio de Agua Potable y Alcantarillado de Lima.

<sup>190</sup> *Perú en Números*. p199.

<sup>191</sup> *The Andean Report*, July 1991/p98.

streets, where tank trucks can break down as they wander over the sands from house to house, the price of water is higher.

After the *Fujishock* of August 8, 1990, when the new government of President Alberto Kenyo Fujimori tried to end hyperinflation by decreeing huge price increases --gasoline by 3,039%, kerosene by 2,863%, propane gas by 2,627%-- to correct lags in public sector tariffs, endemic conflict on these dry hills over water prices became more bitter. In the *barriada* of Collique, a suburb north of Lima astride the Pan American highway that I have been visiting since 1970, the owner-drivers of tank trucks claimed that the 30-fold increase in gasoline prices force them to raise the price of a cylinder of water, lasting roughly one week, to U.S. 75 cents per barrel, about the same as a month's supply of piped water provided by SEDAPAL at its *tarifa social*. There were angry disputes as the trucks withdrew from the hills for a few days but then returned because the truckers had to sell water to support their own families and because the people on the hills had no other source and had to pay more, although the bitterness and haggling continued and the truckers mixed earth into water supplies to protest the treatment they received. Meanwhile, the cheap water frontier is expanding in Collique. Pipes and faucets installed three years ago finally will be connected to the main network in early 1991, providing water at the *tarifa social* to another 31,000 people. Collique forms parts of the district of Comas, with 416,000 people, where SEDAPAL's subsidized *tarifa social* for home consumption of up to 12 cubic meters monthly of piped water rose 800% under the *Fujishock*. The new monthly charge is still less than one dollar per family, but many are not paying. The *tarifa doméstica* (up to 22 cubic meters monthly) increased 8.5 times to \$2.30, but SEDAPAL officials in the district said many families could not pay these bills. If water supplies are cut, they said, clandestine tapping of the network would proliferate.<sup>192</sup> For most families in squatter settlements, this is a false issue, since water supplies to individual homes are not metered. By traditional pricing practices, water is too cheap to meter and thus is provided to entire communities. As a practical matter, piped water is supplied or cut off for the community as a whole. Lagging water and electricity rates in Peru also were adjusted radically in the *Fujishock*, which cut effective demand by nearly one-fourth over the next three months and greatly aggravated the poverty of those who already had lost much of their economic viability during the 1980s.<sup>193</sup>

The impact of the *Fujishock* on the economy of marginal populations is illustrated by the experience of Víctor Molina, a 41 year-old unemployed housepainter, father of five children, whose wife is wasting away because of a uterus infection. "She is skinny and sucked out," says Molina, unable to buy antibiotics because, as in recent stabilization plans elsewhere, controlled prices of medicines were freed to follow the sharp price

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<sup>192</sup> Miguel Unger, *La sed de la crisis en las barriadas de Lima*. Report to the Fernand Braudel Institute of World Economics. Lima: September 1990. During 1989, piped water was cut from 41,000 Lima homes and restored in 26,000 homes, but these numbers mainly may have reflected deaths and changes of residence.

<sup>193</sup> *The Andean Report*. December 1990/p215.

rises for water, electricity and fuels supplied by government corporations. Many medicines now are economically out of reach for many people. As other "middle income" economies plagued by chronic inflation, Peru boasts impressive public hospital buildings that now stand semi-abandoned. The Health's Ministry's Epidemiology Department was abolished in 1986 despite a resurgence of infectious diseases such as acute diarrhoeas and respiratory ailments, tuberculosis, malaria and yellow fever over the previous decade. It was revived a few years later with financial support from the U.S. Agency for International Development that sustains a staff of four epidemiologists and their microcomputers.

In Collique's public hospital, only 10% of the beds are occupied, whereas in the 1970s it was filled to overflowing, with beds placed in the corridors to accommodate the overflow. The hospital now lacks medicines, bandages and surgical instruments. Surgery often is performed with razors. Because its staff is underpaid and its salaries arrive late, the public hospital not only now charges for all services but in-patients must bring their own bedsheets, medicines and bandages to be admitted. Most people in Collique cannot afford hospital treatment under these conditions. The busiest ward is pediatrics, because very sick children are abandoned in the hospital by parents who promise to pay and then disappear. "The mortality rate here is high and rising," says the head of pediatrics. "The rise in mortality does not appear yet in official statistics because of faulty registration, but we are sure that in recent years that more children, especially, are dying from diarrhoea and other gastrointestinal ailments and more adults are dying for lack of medical attention for common curable ailments." Because of deficiencies in vital statistics in Peru as well as in Argentina and Brazil due to fiscal shrinkage, reporting of any mortality increase is based largely on professional observation as well as on isolated sample studies.<sup>194</sup> Dr. Luís Benavente, an epidemiologist at Lima's Cayetano Heredia University, explained:<sup>195</sup>

*When a child in the barriadas dies, the parents frequently do not register the death for any of several reasons. If the child died without medical attention, which is very common, the*

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<sup>194</sup> "Public registers record deaths in each district. If a death occurs in another district, it is recorded in the other district, so districts with big hospitals report a large number of deaths. If a death is not followed by normal burial procedures, it may not be registered. The number of deaths that do not receive burial in cemeteries for lack of money or because of criminal action is unknown. This may be especially true of perinatal deaths. Estimating death rates is subject to wide margins of error, depending on the denominator used, which should be the total population in a given period. Estimates are used because recent census data generally are not available. When the population experiences rapid urbanization and migration, population estimates can contain errors or great magnitude. When mortality falls in developing countries because of control of preventable diseases, then perinatal deaths are a larger share of total mortality. Death in the perinatal period can be under-registered because many births taking place at home are not reported. During economic crisis, a regular burial may be beyond the reach of some families." From Grupo de Trabajo A.B. Prisma/Universidad Peruana Cayetano Heredia, *Probables Efectos de la Actual Crisis economica en el Estado de los Niños en una Población Peri-Urbana*. A Report to UNICEF. Lima: September 1989/p8.

<sup>195</sup> Quoted in Miguel Unger, *Repunte de mortalidad y crisis economica en el Perú de los noventa*. Report to the Fernand Braudel Institute of World Economics. Lima: February 1991/p3.

*parents fear that the authorities will keep the body to practice an autopsy. Any contact with bureaucracy is associated with payment of money, especially bribes. If one wants to know the number of deaths in any zone, it must be monitored carefully, since for several years the official registers have reflected neither demographic reality nor mortality and morbidity trends.*

## **Outbreak of cholera**

Peru's present public health crisis was expected, in one form or another, because of deepening urban poverty and rapid deterioration of sanitary infrastructure. In 1983, a team of epidemiologists in Lima headed by Dr. Bradley Sack of Johns Hopkins University found a non-epidemic form of cholera in five patients in Lima suffering from acute diarrhoea. "These first cases are important for at least two reasons," they reported. "First, to our knowledge there have been no previous isolations of *V cholerae* in Peru....The second and more profound significance of this report is the recognition of an ecological niche in South America capable of supporting *V cholerae*. The incursion of 01 (pandemic) strains of *V cholerae* into the developing countries of South America has been expected and feared," The 1983 Lima cases, the report said, "may indicate the end of an era in which South America has been considered cholera-free."<sup>196</sup>

The cholera epidemic that started in cities of the Peru's desert coast in early 1991, the first in the Americas in this century, is part of the seventh cholera pandemic recorded since 1817.<sup>197</sup> The first pandemic spread over the next two decades from Bengal to the rest of British India and then over the Middle East, Russia, Western Europe and the Americas. First reported in India in 1961, this new pandemic affected 93 countries by 1986, reaching Indonesia and the Philippines by 1963 before spreading to the Middle East and Africa by 1971, with one case in Texas in 1973 and 11 in Louisiana in 1978.

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<sup>196</sup> From Bradford A. Kay, R. Bradley Sack, William M. Spira et. al., "Vibrio cholerae non-01 isolated from five people with diarrhoea in Lima," *The Lancet*. January 28, 1984/p218. Other cases were reported in R.S. Batchelor and F.S. Wignall, "Nontoxigenic 01 *Vibrio cholerae* in Peru: report of two cases associated with diarrhoea," *Microbiology of Infectious Diseases*. Vol 10/3 (1988):135-8.

<sup>197</sup> Cholera is an ancient Asiatic scourge. Symptoms of its uncontrolled development was described by Gaspar Correa, in his *Lendas da India*, in the decades after Vasco de Gama's arrival on the Malabar coast in 1498: "So greivous was the throe, and of so bad a sort that the very worst poison seemed there to take effect, as proved by vomiting, with drought of water [diarrhoea] accompanying it, as if the stomach were parched up, and cramps that fixed in the sinews of the joints and of the flat of the foot with pain so extreme that the sufferer seemed at the point of death; the eyes dimmed to sense, and the nails of the hands and feet black and arched." Quoted in R. Pollitzer, "Cholera Studies: 1. History of the Disease," *Bulletin of the World Health Organization*. (1954) V. 10/p423.

## First and last cases in previous Western Hemisphere cholera outbreaks

<u>First Occurrence</u>	<u>Countries and Territories</u>	<u>Last Occurrence</u>
1832	Canada	1871
	United States	1866
	Mexico	1883
	Cuba	1885
1836	Guatemala	1866
	Nicaragua	1868
1848	Panama	1850
1859	Colombia	1857
1851	Jamaica	1851
1853	Trinidad Y Tobago	1865
	St. Thomas	1868
1854	Virgin Islands (UK)	1854
	Puerto Rico	1855
	Venezuela	1857
1855	Brazil	1895
	Uruguay	1895
1856	El Salvador	1871
	Costa Rica	1871
	Honduras	1871
	Guianas	1857
	Argentina	1895
1865	Guadelupe	1866
	Santo Domingo	1866
1866	Paraguay	1871
	Chile	1888
	British Honduras	1868
1868	Bolivia	1868
	Peru	1868

**Source:** Pan American Health Organization, *Boletín Epidemiológico*. V12/1.

Peru's cholera epidemic is different from those of a century ago and earlier in three basic respects. First, earlier pandemics struck cities that were still small, enabling public health officials to prevent further epidemics with investments in piped water and sewage that were modest by today's standards and were financed and carried out by

foreign capital. Not only has Lima's population grown from 104,000 to 6.4 million in this century, but the health and sanitary infrastructure has decayed so badly that much larger investments will be needed now to provide minimum protection against recurrent epidemics. No foreign capital is now available to finance works on this scale. Laboratory tests showed that Lima's water supply was contaminated, as in some other Latin American cities, by fecal material in raw sewage that mixed with drinking water in its rotting and leaking water mains.<sup>198</sup> Second, the death toll has been low. In 1847-51, during the second pandemic, Russian officials reported 2.5 million cases with more than 1 million deaths.<sup>199</sup> In 1960 the mortality rate still was 30% in Asian epidemics, but had been reduced to 4% in Bangladesh by 1989.<sup>200</sup> In the first 11 months of the epidemic in the Americas (through December 21, 1991), 366,017 cases were registered, with 3,892 deaths.<sup>201</sup> In Lima, 99,047 cholera cases were reported in all of 1991, six times those in Hamburg during the worst three months of 1892.<sup>202</sup> While more than half the Hamburg cases were fatal, less than 1% of Peru's reported infections, attacking 1% of the population, ended in death. In Lima, the death rate for all of 1991 was only 0.2%.<sup>203</sup>

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<sup>198</sup> "Agua potable que bebemos en Lima está "altamente contaminada," *La República*. Lima: February 10, 1991/p3.

<sup>199</sup> Roderick E. McGrew, *Russia and the Cholera, 1823-1832*. University of Wisconsin Press 1965/p5.

<sup>200</sup> Diego González del Carpio, "El Hospital bajo la furia del cólera," *Revista Médica Herediana*. Special issue on cholera. Lima: Universidad Peruana Cayetano Heredia, June 1991/p56.

<sup>201</sup> "El cólera en las Américas. Actualización," *Boletín Epidemiológico*. Washington: Pan American Health Organization. V 12/4 (1991).

<sup>202</sup> "Cholera," *Encyclopaedia Britannica*. 11th edition (1910) Vol. IV/p265-6. This article describes the impact the 1892 outbreak of cholera in Hamburg: "During those three months 16,956 persons were attacked and 8,605 died, the majority within the space of a few weeks. The town, ordinarily one of the gayest places of business and pleasure on the continent, became a city of the dead. Thousands of persons fled, carrying the disease to all parts of Germany; the rest shut themselves indoors; the shops were closed, the trams ceased to run, the hotels and restaurants were deserted, and few vehicles or pedestrians were seen in the streets. At the cemetery, about 10 miles from the town, hundreds of men were engaged day and night digging long trenches to hold double rows of coffins, while the funerals formed an almost continuous procession along the roads; even so the victims could not be buried fast enough, and their bodies lay for days in sheds hastily run up as mortuaries. Hamburg had been attacked by cholera on 14 previous occasions, beginning with 1831, but mortality never approached that of 1892....The water supply is obtained from the Elbe, which became infected. The drainage from the town also runs into the river, and the movement of the tide was sufficient to carry the sewage matter up above the water-intake. The water itself, which is no cleaner than that of the Thames at London Bridge, underwent no purification whatever before distribution. "

<sup>203</sup> "Cólera na América Latina já fez 250 mil vítimas," *O Estado de São Paulo* . July 13, 1991/p9. Also Miguel Unger, faxed report from Lima to the Fernand Braudel Institute of World Economics, São Paulo. February 19, 1991. According to WHO, "cholera is responsible for no more than 5-10% of all acute diarrhoea cases in non-epidemic situations and, even then, more than 90% of cholera cases are mild and clinically indistinguishable from other acute diarrhoeas." From WHO, *Guidelines for Cholera Control*. 1986/p4. Of 8,675 cholera patients studied at the height of the Lima epidemic, 41 developed acute renal failure and four died of these complications. See Juan Miyahira et al, "Insuficiencia renal aguda en El Hospital Nacional Cayetano Heredia durante la epidemia del Cólera," *Revista Médica Herediana*. Special issue on cholera. Lima: Universidad Peruana Cayetano Heredia, June 1991/p64.

Third, the low mortality in the Peruvian epidemic shows the effectiveness of the international public health system created over the past century. According to WHO, "treatment has been improved to the extent that cholera-related mortality can be reduced to 1-3% in well-organized treatment facilities."<sup>204</sup> The low reported mortality in Peru's epidemic is hard to appraise because many cases of common diarrhoea are listed as cholera under epidemic conditions, without confirmation by laboratory tests, and many infections go undetected because of their mild symptoms.

The 1991 Peruvian epidemic bred many times more cholera cases than the annual world total of recent years. The seventh cholera pandemic, which began in 1961, struck 35 countries in 1989, with 53,970 reported cases, a 22% increase over 1988, mainly due to a big outbreak in Malawi and a severe ongoing epidemic in Angola, increasing African cases by 55% to two-thirds of the world total.<sup>205</sup> In Zambia, some 200 cholera deaths were reported in 1990 in an epidemic suddenly aggravated by 465 deaths in early February 1991.<sup>206</sup> By mid-1991, the African epidemic reached Niger, Togo, Chad, Cameroon, Nigeria and Mozambique. Health officials expected up to 300,000 cases in Peru in the first three months of the epidemic, a projection not realized.<sup>207</sup> A WHO spokesman said the epidemic "probably will spread to other countries that are vulnerable because of similar conditions. The history of efforts to impede its spread from region to region is very disappointing."<sup>208</sup> Ecuador reported 44,126 cases through December 21, with 672 deaths. There were smaller outbreaks in Argentina, Bolivia, Brazil, Chile, Colombia, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama and Venezuela. In the 13 Western Hemisphere countries to which cholera spread in 1991 after appearing in Peru, mortality was 1.6% of cases, higher than in Peru but much lower than the 10% mortality in the current African epidemic.<sup>209</sup> As the cholera moved north, 27 cases appeared in south-central Mexico from June 17 to 29, multiplying rapidly to 2,605 cases through December 21, a total that would be higher if not for under-reporting, according to some specialists. Repeatedly, Mexico's Health Ministry identified the cases as common diarrhoea, only to confirm them as cholera later. The main focus of concern is the border region south of El Paso, Texas, where raw sewage has contaminated water tables and rivers under pressures of rapid city growth and industrialization. "It is not a question of *if* it [cholera] will hit, but when," said Lawrence Nickey, director of the El Paso health district. "There is no way in the world that we are going to prevent it from coming to the border. All the conditions are

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<sup>204</sup> WHO, *Guidelines for Cholera Control*. 1986/p4.

<sup>205</sup> WHO, *Weekly Epidemiological Record*. Geneva: May 11 & June 15, 1990.

<sup>206</sup> *The Economist*. February 23, 1991/p53.

<sup>207</sup> Carlos Cúneo, Lima representative of the Pan American Health Organization, estimated that the epidemic would last from eight to 15 weeks and produce from 190,000 to 280,000 cases. Quoted in *La República*. Lima: February 9, 1991/p12.

<sup>208</sup> Dr. Nathaniel Pierce of WHO's Diarrhoea Control Division, at a Geneva news conference on February 11, quoted in *El Comercio*. Lima: February 12, 1991/p1.

<sup>209</sup> "El cólera en las Américas. Actualización," *Boletín Epidemiológico*. Washington: Pan American Health Organization. V 12/4 (1991).

there."<sup>210</sup> The United States reported 24 cases, linked to movement of people and contaminated crabs brought in personal baggage from South America, leading the U.S. Public Health Service to issue a nationwide alert. From the outset, the South American epidemic was expected to move downstream along the Amazon River and its tributaries, much as the Russian epidemic of 1823-31 moved northward along the Volga River basin from Tiflis on the Caspian Sea to attack the populations of Moscow in 1830 and St. Petersburg in 1831, with 90% mortality among cases in some towns and nearly 50% nationally.<sup>211</sup> The difference between cholera mortality in Latin America today and in Europe a century ago represents one of modern man's great conquests. Many countries now must struggle to consolidate this conquest.

### **Cholera in Amazonia**

Today's cholera epidemic initially is less fatal than those of a century ago. It also is moving slower, although cholera shows every sign of becoming endemic to Latin America, posing a threat for many years ahead. In Peru's coastal cities, the arrival of winter curtailed the cholera epidemic, which returned in November with the seasonal outbreak of severe diarrhoea.

The first major outbreak in Amazonia was in Iquitos, Peru's main river port. In the two-weeks from May 3 to 17, the number of cases reported in the Peruvian Department of Loreto, containing Iquitos, jumped from 58 to 3,483, with 5% mortality, 10 times the death rate among cases on the coast. Mortality was especially high in remote river settlements, from which sick people could reach medical treatment only after traveling for hours in canoes and small launches. By April 15, the epidemic already had reached the town of Tabatinga, across the Solimões [Amazon] River from the Colombian town of Leticia. Guerra warned in early April that cholera could spread downstream throughout Brazilian Amazonia because the hospital in Leticia was pouring its contaminated waste into the Solimões near the place where Tabatinga draws its drinking water.<sup>212</sup> However, the huge volumes of water moving down the Amazon diluted *Vibrio cholerae*'s contamination, while the acidity of some parts of the river system killed the bacteria outright. After the first Brazilian cases were confirmed in Tabatinga, the Pan American Health Organization and the Health Ministry predicted that cholera would infect 2% of the population during 1991. Of the 3,111,323 projected cases, 261,529 would be in Rio de Janeiro. However these projections proved exaggerated, at least in the early stages of the outbreak.<sup>213</sup> Strict sanitary precautions limited the cholera outbreak to 59 cases in

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<sup>210</sup> Dianna Solia and Bruce Ingersoll, "Cholera's Spread in Mexico Brings Warning in U.S.," *The Wall Street Journal*. August 16, 1991/pB4B.

<sup>211</sup> Roderick E. McGrew, *Russia and the Cholera, 1823-1832*. University of Wisconsin Press 1965 pp52-4, 98.

<sup>212</sup> Aristides Ribeiro Filho, "Cólera poderá entrar no País pelo rio Solimões, alerta ministro da Saúde," *Gazeta Mercantil*. São Paulo: April 15, 1991/p3.

<sup>213</sup> Nai Frossard, "Saúde prevê 3 milhões de casos de cólera no país," Rio de Janeiro: *Jornal do Brasil*. April 16. 1991/p8.

the next three months. By the end of May, attention was focused on Manaus, the old rubber port on the Amazon River, whose population, now one million, multiplied six-fold since 1960 under the influence of fiscal devices that created a free port, a smuggling entrepôt and a wave of artificial industrialization sustained by subsidies and tax incentives. By the end of 1991, cholera had spread to the port of Belem in the Amazon delta and to its hinterland in Pará State. In early 1992, the epidemic spread through the backlands of the Brazilian Northeast, with cases in the main cities multiplying after Carnival celebrations in early March.

Sanitary precautions and an intense media campaign during 1991 managed to delay but not prevent an outbreak of cholera in Manaus. The danger remains whether precautions in public sanitation can remain effective for long among a precariously settled urban population, sustained by fragile and incipient infrastructure and institutions, if cholera becomes endemic among dispersed river settlements in continuous contact with the city. Visiting Tabatinga a few weeks earlier, Brazil's acting Health Minister, Luiz Romero Farias, said cholera could "reach any part of the country tomorrow" because it is "impossible for public health precautions to impede carriers of the bacteria in Amazonia to travel to São Paulo, Mato Grosso, Rio Grande do Sul and Rio de Janeiro."<sup>214</sup> São Paulo reported its first case on August 1, 1991: a man who returned from Ecuador two days earlier.<sup>215</sup> Health officials fear that cholera is becoming endemic in much of Latin America because of problems of basic sanitation and because, according to WHO, the El Tor biotype of the *Vibrio cholerae* 01, the mild bacterial strain causing the seventh pandemic, "appears to have a greater 'endemic tendency' than its classical counterpart in that it causes a higher infection-to-case ratio and survives longer in the environment in water, nightsoil and sewage."<sup>216</sup>

**"...the foulness of life here."**

The Peruvian outbreak was first detected on January 23, 1991 in Chancay, where severe cases of "a strange diarrhoea" suddenly were filling the local hospital with patients from three *barriadas* in the desert outside of town that drew their drinking water from an irrigation canal that also was used for sewage disposal. The team of 10 epidemiologists dispatched from Lima were working, until then, on the outbreak of dengue haemorrhagic fever that also had just been discovered. By February 7, *Vibrio cholerae* 01 was identified in stools by Peruvian laboratories and by the U.S. Center for Disease Control in Atlanta.<sup>217</sup> In the first weeks of the epidemic, four-fifths of acute diarrhoea

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<sup>214</sup> Efrém Ribeiro and Heloisa Neves, 'Ministro teme cólera no país todo 'amanhã,' *Folha de São Paulo*. April 17, 1991/p10.

<sup>215</sup> *Folha de São Paulo*, August 2, 1991 / p8.

<sup>216</sup> WHO, *Guidelines for Cholera Control*. 1986/p4.

<sup>217</sup> Luis Alberto Chávez, "Puertos del cólera," *La República*. Lima: February 10, 1991/p14. WHO, *Weekly Epidemiological Record*. Geneva: January 19, 1990/p13. Center for Disease Control, "Cholera-Peru, 1991," *Weekly Report*. Atlanta: February 15, 1991/p1888.

patients were people above age five, while in previous years three-fourths of them were children under five.<sup>218</sup> Almost simultaneously, the epidemic erupted 400 kilometers northward in Chimbote, Peru's fastest-growing city of the postwar era, composed mainly of squatter settlements, whose population grew from 4,200 in 1940 to 60,000 in 1961 to 300,000 today.<sup>219</sup>

At the La Caleta hospital in Chimbote, seized by the shrieks of people with agonizing cramps and by the stench of overflowing toilets, all 100 beds were filled and 135 more patients occupied cots, benches, wheelchairs and office chairs. Another 59 awaited treatment on the floors of fly-blown corridors and wards. Doctors frantically called for new supplies of serum, since cholera patients can need as many as 10 bottles of serum to bring them out of shock.<sup>220</sup> Dr. Fernando Iturrizaga said: "We admitted 12 patients an hour. We almost went crazy. Now we have 294 patients. Of all these, 11 already have died and the number can grow if help doesn't come to improve these conditions. What is happening to us comes from the foulness of life here."<sup>221</sup> As in other Peruvian cities, chlorination of drinking water was the exception rather than the rule. On the day after the cholera outbreak, health officials found that water supplies for 40% of Chimbote's people had fecal contamination. Many water and sewage lines are laid in the same trench, increasing the risk of contamination from leaks and back siphonage during periods of slack flows.<sup>222</sup> One of the reservoirs is located near a garbage dump reeking of urine, called the "fish cemetery," at the edge of the sea, beside the city's main market, where human scavengers compete with droves of flies for the remains of unsold fish dumped by fishermen and market-sellers. The owners of street stands selling *ceviche*, the staple luncheon dish of the Peruvian coast consisting of highly spiced raw fish, throw their waste into the dump. They and local fishermen accused the Health Ministry of "sanitary terrorism" in protest against its warning the population not to eat raw fish. Most Peruvians heeded the warning and the epidemic receded. In the community kitchens of Lima's *barriadas*, fear of the epidemic temporarily eliminated fish consumption, replaced by chicken, with a 50.7% loss of protein intake. Cooks were stricken by cholera in 10% of the *comedores populares* surveyed.<sup>223</sup>

According to Dr. Claudio Lanata, director of Lima's Nutritional Research Institute, "the data suggests that fish for mass human consumption were the main source of the

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<sup>218</sup> *Boletín Epidemiológico*. Washington: Pan American Health Organization. Vol. 12/1, 1991 p2.

<sup>219</sup> Chimbote has been economically-depressed since it was stricken in 1970 by a severe earthquake, which roughly coincided with the collapse of the fishmeal boom that drove its growth.

<sup>220</sup> Beto Ortiz, "Cólera: La maldición de la mugre," *Caretas*. Lima: February 11, 1991/p56.

<sup>221</sup> Quoted in Elsa Ursula, "La Muerto Arribó al Puerto," *Expreso*. Lima: February 10, 1991/supplement p10, from which this account of the epidemic in Chimbote mainly is drawn.

<sup>222</sup> Joseph Haratani and Donald J. Hernandez, *Cholera in Peru: A Rapid Assessment of the Country's Water and Sanitary Infrastructure and its Role in the Epidemic*. WASH Field Report No. 331 prepared for the USAID Mission to Peru. Washington: May 1991/p9.

<sup>223</sup> Bruno Benavides, "Consumo de alimentos en comedores populares durante la epidemia de cólera," *Revista Peruana de Epidemiología*. Special issue on cholera. Lima: June 1991/p104.

disease. We are not speaking merely of shellfish from the offshore rocks, caught near Lima and its sewage flows, but of merluza, jurel and horse mackerel, captured on the high seas." After initial infection, cholera spread like wildfire through the contaminated water systems of Peruvian cities. There are different theories of the source of the epidemic. Lanata argued that *Vibrio cholerae* may have found an ecological niche in the cold waters of the Humboldt Current off South America's Pacific Coast. "In ocean waters *Vibrio cholerae* survives from six to 60 days at temperatures from 20°C to 30°C, and more than two months at 4°C," he added. "The fact that sunlight easily kills the bacteria means that they thrive better in ocean depths. If these waters contain organic particles, as in raw sewage dumped into the sea, the organism survives longer. It seems no coincidence that the Louisiana epidemic (11 cases in 1978) was associated with eating of crabs. Not only do crabs live at the ocean bottom and near the coast, but also *Vibrio cholerae* seems to have a special liking for shellfish. Laboratory studies have shown that the *Vibrio* not only has an enzyme that dissolves the shells, but also reproduces better when pieces of shell are added to the culture."<sup>224</sup>

From Chimbote, the epidemic spread northward along the desert coast to Piura, Trujillo and other cities and southward to Lima, then reaching Andean towns like Cajamarca, Huaraz and Huancayo within a few days and spreading south later to Huancavelica, Juliaca, Puno and Arequipa. In virtually all these places, the water supply system was a major public health hazard. In Piura, with 307,000 people, all piped drinking water came from 18 wells, none of them chlorinated, that fed directly into the distribution system without passing through reservoirs. Several wells were not working because of mechanical failures or because of low yield from the aquifer. In some of these, chlorine had been applied along the pipe in the past, causing corrosion and the pump to drop into the well. Water had been drawn from two aquifers, one deep and one shallow, but the shallow aquifer became so saline that it no longer could supply drinking water and the deep aquifer was becoming more saline, perhaps from intrusions from the shallow aquifer or from sea water. In one Piura *barriada* where cholera cases clustered, the valve controlling the flow to the community tap was submerged in a pool of dirty water, allowing infiltration during the frequent interruptions of pressure in the pipes.<sup>225</sup>

Mortality in Peru's cholera outbreak was cut to a small fraction of 19th Century epidemic levels by an active and alert international information and support system which is computerized and communications-intensive. The network was activated by

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<sup>224</sup> Claudio Lanata, *La epidemia del cólera y los productos marinos: aportes de la epidemiología*. Unpublished paper quoted in Miguel Unger, *El cólera en el Perú: En la cresta de la séptima pandemia*. A report to the Fernand Braudel Institute of World Economics. Lima: March 1991/p2.

<sup>225</sup> Geldreich, Edwin E. and Kim Fox, *Investigation of the Microbial Quality of Water Supplies during the 1991 Cholera Outbreak in Peru*. Report to the Environmental Protection Agency. Washington 1991/pp5-6, and Haratani, Joseph and Donald J. Hernandez, *Cholera in Peru: A Rapid Assessment of the Country's Water and Sanitary Infrastructure and its Role in the Epidemic*. WASH Field Report No. 331 prepared for the USAID Mission to Peru. Washington: May 1991/pp21-6.

massive fly-ins of foreign technical advisers and emergency supplies, intensified chlorination of urban water systems, cheap oral rehydration kits and, in acute cases, antibiotics. The oral rehydration kits, developed at Baltimore's Johns Hopkins University in the 1960s, now cost only 10 U.S. cents each and have been distributed widely in Latin America under a special program of the Pan American Health Organization, funded mainly by international aid agencies. Upon becoming Health Minister in July 1990, Carlos Vidal Layseca ordered distribution of 1.3 million more kits throughout the country, expecting a severe seasonal outbreak of diarrhoea in the coming summer months. When the cholera epidemic began, Health Ministry officials calculated that the supply of kits would run out in two weeks and urgently asked for more donations. "If the cholera epidemic would have broken out with the lower supply of rehydration kits on hand in the summer of 1990, instead of the number we were able to distribute by the summer of 1991, cholera mortality easily would have surpassed 25%," according to Dr. Alberto Galloso, in charge of the Ministry's logistical operations.<sup>226</sup> Of 150,000 rehydration kits distributed among public hospitals in the first month of the epidemic, 80,000 were flown in as donations from foreign countries, as were intravenous equipment, antibiotics and other supplies. Advisers from WHO, the U.S. Center for Disease Control in Atlanta and the Pan American Health Organization were flown in to help Peruvian doctors and hospital staff overcome their inexperience with procedures for dealing with cholera epidemics. Television and radio stations incessantly warned Peruvians to boil their water, not to eat raw fish and to seek medical care as soon as they begin to suffer from diarrhoea, a public health communications system unavailable to the citizens of Hamburg in 1892. Yet doubts remained as to the community's capacity, weakened by decapitalization and demographic pressures, to absorb knowledge even for its own self-preservation.

The campaign to curb cholera mortality initially was so successful that Peruvians quickly returned to their normal pastimes. Attention first was drawn by the sensational airing on television of a videotape released by the government depicting the mysterious philosopher-king of *Sendero Luminoso*, Abimeal Guzmán, never photographed and believed by many to be dead, in a drunken dance at a party of guerrilla leaders. Then Prime Minister Hurtado quit in a cabinet dispute over the *Fujishock* stabilization plan. Since so few were dying of cholera, the *sindicatos* of fishermen and fishmongers, dependent for their livelihood on street sales of raw fish, stepped up their accusations of "sanitary terrorism" against the Health Minister Vidal. The same kind of pressures occurred in previous epidemics. Efforts to control cholera were curbed in Russia in 1830-31, when the Imperial Government opposed extending quarantines that might reduce with overland trade with Asia or attendance at the great Nizhny merchant fair in August 1830.<sup>227</sup> After bubonic plague appeared in Lima in 1903, foreign ports were closed to ships coming from Peru. Big losses in foreign trade cut deeply into

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<sup>226</sup> Quoted in Miguel Unger, *El cólera en el Perú: En la cresta de la séptima pandemia*. Report to the Fernand Braudel Institute of World Economics. Lima: May 1991/p7.

<sup>227</sup> Roderick E. McGrew, *Russia and the Cholera, 1823-1832*. University of Wisconsin Press 1965 /p48-9, 67.

government revenues, which were dependent on customs receipts. Merchants importing wheat from Chile denied that a plague existed, blaming the deaths of workers at the flour mill on some mysterious infection.<sup>228</sup>

In early 1991, Vidal refused government appeals to deny the arrival of cholera and then resigned after President Fujimori and his son yielded to political pressures by appearing on television to eat big dishes of *ceviche*. "They wanted us to say that Chimbote simply had an outbreak of severe adult diarrhoea, of unknown cause, so that nobody would be frightened and we would carry out the same treatment without creating problems," Vidal said shortly before he resigned.<sup>229</sup> The Fisheries Minister toured public markets in Lima and Chimbote, eating raw fish to show that it was harmless until a cholera attack forced him into intensive hospital treatment. On the other hand, laboratory tests by Cuban public health specialists found that 60%-100% of samples of raw fish being consumed by Lima's population was contaminated by feces. The Cubans suddenly were expelled from the country. The weekly magazine *Caretas* accused the new Health Minister, Yamamoto Miyakawa, of "dangerous and polyglot silence aimed at protecting exports and the fishing industry instead of the health of the population."<sup>230</sup> SEDAPAL employees went on strike, casting doubt on the capacity of the Lima water authority to keep up its chlorination effort. Meanwhile, the Health Ministry budget was cut by 10% under the government's austerity program. Some 70,000 hospital administrative workers, most earning less than \$50 monthly, went on a national strike in mid-February, seeking pay raises in proportion to increases already given government physicians. A month later, nurses joined the strike, which lasted three more months. Cholera mortality in coastal cities was kept low because emergency teams of doctors and nurses concentrated their work on dehydrated patients, abandoning other hospital services. In the regional hospital in the city of Trujillo, for example, all surgery was suspended in order to treat cholera cases.

The most powerful demonstration of Peru's cholera epidemic was to dramatize the impoverishment of the state and society. The big questions today are institutional: Can communities organize themselves to respond to a long-term threat? How far can emergency measures against cholera go to limit mortality to low levels in the long run as the disease becomes endemic in Peru and spreads to neighboring countries, reinforcing pressures on decapitalized public health systems bred by other endemic and epidemic diseases that are recurring and spreading? As the first surge of foreign aid receded, Peruvian health authorities found themselves short of basic supplies for treating cholera. Within a few weeks, the number of cholera deaths and cases roughly doubled. Mortality among reported cases rose sharply as the epidemic spread to poor

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<sup>228</sup> Marcos Cueto, "La Ciudad y las Ratas: La Peste Bubónica en Lima y en la Costa Peruana a Comienzos del Siglo Veinte," *Histórica*. XV/1. Lima: July 1991/pp5&11.

<sup>229</sup> Carlos Vidal Layseca, *El cólera y el país en que vivimos*, lecture at Universidad del Pacífico, Lima, March 14, 1991.

<sup>230</sup> Beto Ortiz, "Cólera: Endemia ad Portas," *Caretas*. Lima: April 8, 1991/p44.

and distant Andean and jungle locations that can be supplied with serum, antibiotics, oral rehydration kits and hospital equipment only with great difficulty. Because of the deterioration of infrastructure and institutions under the impact of chronic inflation, the death threat will be with us for some time. Vidal called this a "permanent emergency" of an impoverished government and people "with all the diseases of poverty: dengue, malaria, yellow fever, rabies, etc."<sup>231</sup> Peru remains dependent on foreign support to feed its people and to control mortality from epidemics.

This poverty and disorganization of national public health systems in many poor countries gives us cause to remember that, before the 20th Century, the control of epidemic and endemic disease in Europe and the United States was achieved at the municipal rather than the national level. It involved urgent and spontaneous cooperation and exchanges of information, as well, among scientific, medical and engineering practitioners and communities. This cooperation was international in scope, but never formally structured until the creation of such institutions as the Rockefeller Foundation and the World Health Organization in this century. Historically, the big advances in the 19th Century were made by communities and military units dealing with epidemics as local public health problems. There were no national Ministries of Health to provide financial, technical and logistical support.

### **Local action**

When the second cholera pandemic struck the heart of Imperial Russia in 1830-32, on its way from India to Western Europe and the Americas, the Czarist regime tried to organize its efforts to control the disease using centralized bureaucratic methods, not unlike those operating today in Peru, by which local officials had to request instructions from St. Petersburg on matters not covered in existing instructions, but while such a request for instructions awaited reply, the cholera would rage unchecked. Taking no steps to protect the heart of European Russia, Czarist officials were confident that the cholera would never reach Moscow,<sup>232</sup> a belief reportedly shared by the burghers of Paris in 1832. According to the early French socialist Victor Prosper Considérant: "The cholera will not come to Paris, they said, or at least it will get no grip on this center of Civilization, this center of enlightenment. The rich did speak of the misery of the poor, but it was as a thing for pity, not fear; they had no notion of this frightful, contagious poverty; the cholera starkly revealed it."<sup>233</sup> To control epidemics, provincial intendants since the mid-18th Century had been sending "epidemic physicians" (*médicins des épidémies*) to affected localities, equipped with boxes of royal remedies shipped from

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<sup>231</sup> Carlos Vidal Layseca, *El cólera y el país en que vivimos*, lecture at Universidad del Pacífico, Lima, March 14, 1991.

<sup>232</sup> Roderick E. McGrew, *Russia and the Cholera, 1823-1832*. University of Wisconsin Press 1965/p58-9.

<sup>233</sup> Victor Prosper Considérant, *Description du phalanstère e considérations sociales sur l'architectonique* (1848), quoted in Louis Chevalier, *Laboring and Dangerous Classes in Paris during the First Half of the 19th Century* (1958). Princeton 1958/p155.

Paris and stored for use in such emergencies, which was the national government's major role in public health efforts. However, these *médicins des épidémies* often met with suspicion and hostility, especially in rural areas. In the panic bred by the cholera in 1832, doctors and medical students were accused of poisoning the poor, and some were beaten up by mobs.<sup>234</sup> When that epidemic struck Paris, the city's death rate rose by nearly two-thirds in 1833, as it did again in 1850.<sup>235</sup> Where cholera struck in Europe and North America, it tended to focus public attention on problems of sewage and clean water supply. "Enlightened by the cholera epidemic," a technical study noted in 1837, "people have come to realize since 1832 how important it is to clean up the cities."<sup>236</sup> When cholera reached Britain in 1832, local boards of health were created throughout the country. When cholera returned in 1848, the English Parliament created a Central Board of Health, just as the French government formed a national health advisory committee that year.<sup>237</sup> But the main responsibility for public health in these countries remained local. In 1868, Britain's chief medical officer reported.<sup>238</sup>

*Large powers have been given to local authorities, and obligation expressly imposed on them, as regards their respective districts, to suppress all kinds of nuisance and to provide all such works and establishments as the public health primarily requires....The State has ...interfered between parent and child...between employer and employed...between vendor and purchaser...has prohibited in certain cases certain commercial supplies of water, and has made it a public offense to sell adulterated food or drink, or medicine, or to offer for sale any meat unfit for human food....Its care for the treatment of disease has not been unconditionally limited to the treating at the public expense such sickness as may accompany destitution; it has provided that any sort of epidemic emergency, organized medical assistance not peculiarly for paupers, may be required of local authorities; and in the same spirit requires that vaccination at the public cost shall be given gratuitously to ever claimant.*

It is hard to conceive of such detailed public health precautions being managed on anything but the local level. In this vein, just as the cholera epidemics of a century ago drove reluctant communities to mobilize their own resources for creation of public health infrastructure and services, the present cholera outbreak in Latin America, combined with resurgence of other infectious diseases, will force localities to assume more responsibility for their own protection. This will be a major political challenge, but

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<sup>234</sup> **Matthew Ramsey, *Professional and popular medicine in France, 1770: The social world of medical practice*. Cambridge History of Medicine. Cambridge University Press 1988/pp64 &122.**

<sup>235</sup> Louis Chevalier, *Laboring and Dangerous Classes in Paris during the First Half of the 19th Century* (1958). Princeton 1958/p325.

<sup>236</sup> H.C.Emmery, *Statistique des égouts*, quoted in Louis Chevalier, *Laboring and Dangerous Classes in Paris during the First Half of the 19th Century* (1958). Princeton 1958/p203.

<sup>237</sup> William McNeill, *Plagues and Peoples*. New York: Doubleday 1976/p240. **Matthew Ramsey, *Professional and popular medicine in France, 1770: The social world of medical practice*. Cambridge History of Medicine. Cambridge University Press 1988/p105.**

<sup>238</sup> John Simon, quoted in C.-E.A. Winslow, "Public Health," *Encyclopaedia of the Social Sciences*. New York: Macmillan 1934/p634.

the weakening of national public health systems in many countries leaves little choice but to try to defend themselves from the threat of rising mortality. When cholera attacked Moscow in 1830, officials futilely denied its existence. In those years, there were only 2,596 medical professionals in all of Russia to treat a population of 35 million, while the causes and cures of cholera were unknown. The wealthy fled Moscow and the government issued useless regulations. But then a cholera committee of citizens was formed that received an outpouring of private money donations and of volunteers to staff the cholera stations.<sup>239</sup> In the same vein, property-owners in cities of the English Midlands were reluctant to spend money to connect their houses to the main sewer or to remove pestilential nuisances such as dunghills, pigsties and open privies from the town centers. Just as in Peru this year the cholera outbreak was blamed on outsiders instead of local filth, (a sick Chinese sailor on a steamer, *Panama Joy*, that docked in Chimbote a few days earlier), the citizens of Wakefield claimed that river bargemen brought them cholera in 1832. The worst outbreaks of cholera and other epidemic diseases usually took place in crowded workhouses, lunatic asylums, prisons and neighborhoods concentrating poor workers. During the cholera epidemics of 1832 and 1849, local doctors were drafted to treat patients in these places, given a *carte blanche* by local authorities to bill them later.<sup>240</sup> In this vein, reluctantly and often driven by panic, communities assumed more responsibility for public health. "Since the arrival of cholera, local authorities had gradually acquired powers to remove certain infectious patients compulsorily to the hospitals," wrote one English social historian of the 19th Century movement to confine disease and social disorder. "The material results can be seen in many places, in the massive investment in bricks and mortar which are the legacy of the period."<sup>241</sup>

In the tropics a century ago, recurrent epidemics forced countries into major adaptations to stay in a booming world economy. Meanwhile, the world economy provided these countries with institutional and technological means to deal with most epidemics. In Brazil, losing international shipping and needing to attract European immigrants to replace freed slaves on its coffee plantations, the adaptation was urgent. After the overthrow of the monarchy in 1889, republican Brazil's public health movement was driven by nationalist ambition to build a modern state and by shame at being shunned by foreigners because of its diseases and at harboring a "sub-race" in its continental interior, sunken in endemic disease and poverty.<sup>242</sup> Today, a century later, public health infrastructure and institutions are breaking down under the impact of

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<sup>239</sup> Roderick E. McGrew, *Russia and the Cholera, 1823-1832*. University of Wisconsin Press 1965/p29; 77-8.

<sup>240</sup> Hilary Marland, *Medicine and society in Wakefield and Huddersfield, 1780-1870*. Cambridge History of Medicine. Cambridge University Press 1987/pp40-5; 86-8; 344-7.

<sup>241</sup> M.A. Crowther, *The Workhouse System: The History of an English Social Institution*. London: Methuen 1981/p58.

<sup>242</sup> This point is developed by Luiz Antonio de Castro-Santos, in his *Power, Ideology and Public Health in Brazil, 1889-1930*. Doctoral thesis (sociology) Harvard University 1987. Also see his "O Pensamento Sanitarista na Primeira República: Uma Ideologia de Construção da Nacionalidade" in *Dados: Revista de Ciências Sociais*. Vol. 28 No. 2(1985).

chronic inflation. Instead of mobilizing local resources and assuming more responsibility, local authorities and interest groups --mayors, medical boards, *sindicatos* of hospital operators and workers-- limit themselves to pleading for more deranged economic transfers from the central government within a system already sinking under the weight of corruption, rent-seeking and other forms of resource misallocation. Instead, the present Health Ministry is resurrecting the old system of centralized contracting and payment for public health services rendered by private agents, which bred corruption scandals in the 1970s and early 1980s.

A hopeful view of today's cholera epidemic in Latin America is that the death threat will frighten towns and cities into defending themselves, since technologies of prevention and cure are widely known and available, as they were not in the mid-19th Century, and are relatively cheaper today. A threatening difference is increasing disorganization and decapitalization today due to faster and less productive urbanization of this century, with big cities spread over wider areas, with fiscal impoverishment caused by chronic inflation and confusion of functions between central and local governments. Major shifts of responsibilities are taking place among levels of government in many countries. In Argentina, these shifts have led to rapid deterioration of public health facilities and increases in infant mortality in the poorer provinces. In Peru, one shocking fact of the cholera epidemic, even more so than the number of reported cases and deaths, is the financial prostration of the public health system that led to a national hospital strike over the past three months which still continues. In Brazil, lines of responsibility are blurred by fiscal and legal confusion aggravated by the populist 1988 constitution. Veteran public health officials say the hospital system is so overburdened, demographically and financially, that it cannot perform its routine functions, let alone deal with emergencies created by outbreaks of cholera, meningitis, dengue, malaria, yellow fever, AIDS, bubonic plague<sup>243</sup> and other diseases that threaten the population. Nevertheless, a movement toward municipalization of public health care, provided for in the new federal constitution, may break through the political confusion and rent-seeking economics of the present system under the threat of cholera and other epidemics now in sight. This is no panacea, but it provides a way for communities to defend their own interests and lives and to curb the present misallocation of resources, as well as to strengthen their chances for survival as complex societies. Mayors of some Brazilian towns persist in diverting federal funds for health care and water and sewage systems into building soccer fields and broad avenues, which win more votes than from developing basic sanitation or paying salaries high enough to attract dedicated and competent nurses and doctors.

Neither modernity nor low mortality are naturally guaranteed to any society. Failure of a community to invest in and to maintain these standards does not mean that they will

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<sup>243</sup> Federal health authorities say that bubonic plague is endemic in 178 counties (*municípios*) of the Brazilian Northeast. Rebeca Kritsch, "Peste bubônica ainda resiste no Nordeste do Brasil," *O Estado de São Paulo*, June 9, 1991.

be guaranteed by the outside world. Failure to meet this challenge weakens the general safety net and risks invocation of the severe principle formulated by Hayek: "Mere existence cannot confer a right or moral claim on anyone against any other. Persons or groups may incur duties to particular individuals; but as part of the system of common rules that assist humankind to grow and multiply not even all existing lives have a moral claim to preservation.... Only expectations produced by long practice can create duties for the members of the community in which they prevail, which is one reason why prudence must be exercised in the creation of expectations, lest one incur a duty that one cannot fulfill."<sup>244</sup>

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<sup>244</sup> F.A. Hayek, *The Fatal Conceit: The Errors of Socialism*. Edited by W.W. Bartley III. Chicago 1989/pp152-3.

### 3. Polarization of the World Economy

This essay has been driven by a specific purpose. It has tried to show how survival systems have been weakened in some countries by the process of decapitalization bred by chronic inflation. It also has tried to provide strong reasons for a political mobilization to arrest and reverse this decapitalization. In a conference on *The Return to Growth: Investment and Economic Reform in Eastern Europe and Latin America*, organized by the Fernand Braudel Institute of World Economics in São Paulo, Brasília and Curitiba in April 1991, the Russian economic reformer Gregory Yavlinsky warned: "Economic processes like inflation, unemployment, production losses, privatization, income inequality and redistribution of property, long suppressed by administrative measures, now are running out of control. The direction and inertia of these economic processes will depend on the amount of potential lost during the crisis and the degree of shock applied in a stabilization program and in economic reforms. The problem is that high-level officials probably still are unaware of the depths of the precipice to which they are leading the country by playing populist politics." The Nobel prize economist Friederich Hayek, the 20th Century's leading ideologue of capitalism, recently spoke of "the ultimate victory of our side in the long dispute of the principles of the free market."<sup>245</sup> However, despite all the talk of a new age of capitalism and democracy, especially in Eastern Europe and Latin America, continuing decapitalization by deranged economic transfers threatens reversion of some populations to more archaic regimes of civilization and mortality.

At the beginning of this essay, we observed that the polarization of the world economy is one of the main events of the late 20th Century. By polarization of the world economy, we mean the widening differences in the pace and stability of growth and investment among different regions and group of countries, which has been taking place along fault lines of capital-formation. These differences extend to what some public health specialists have called "epidemiological polarization," also linked to problems of investment. In his *Health and Civilization*,<sup>246</sup> the anthropologist Mark Cohen pointedly observed that

*the organization and style of civilization are as much the cause of biological stress as they are the cure. The one clear blessing of civilization from the point of view of the individual is the potential for investment. It is only by generating investment in solution to human problems that civilizations offset the problems generated by increasing human numbers and the problems that their own organizations create; only by permitting the benefits of these investments to be shared can we truly be said to share the blessings of civilization.*

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<sup>245</sup> Juliana Geran Pilon, "A Great Man --and a Great Idea," *The Wall Street Journal*. November 18, 1991 pA16.

<sup>246</sup> Mark Nathan Cohen, *Health and the Rise of Civilization*. Yale 1989/p142.

Most middle-income countries had negative rates of gross domestic investment in the 1980s. Among 47 of them listed by the World Bank, gross domestic investment fell by 1.6% yearly in 1980-87 after rising vigorously at a 8.6% rate over the previous 15 years. Of these 47 countries, only nine registered at least 1% yearly growth in gross domestic investment in 1980-87. Of these nine, only one (Costa Rica) was in Latin America and only one (Korea) was heavily urbanized, suggesting the growing importance of Third World urbanization as an impediment to capital-formation. Latin America is the most heavily urbanized developing region and the one most afflicted by chronic inflation. Its investment rates are lowest among the world's major regions, except for sub-Saharan Africa, and are plagued by problems of quality. "In some regions (the Western Hemisphere, for example), a relatively large contribution from capital appears to have been offset by a negative contribution from total factor productivity," the International Monetary Fund (IMF) observed in its April 1988 *World Economic Outlook*. "Since it is difficult to see why growth in the Western Hemisphere should be so much more capital-intensive than in Asia, the negative contribution of productivity might be an indication of inefficiency in the allocation of investment resources."<sup>247</sup>

### **Fault lines of capital-formation**

Dramatic differences also are appearing *among* developing countries, called "two-track development" by some World Bank economists. They explain that the differential impact of global economic forces on developing countries is "driving a widening wedge between the creditworthy manufacturing economies and the rest. In the long run, investment, creditworthiness, technical progress and population growth are integrated in the process of growth --or stagnation. At some stage, perhaps a stage already reached, self-reinforcing feedbacks will tend to perpetuate the drift toward two fundamentally different tracks of development, unless firm policy efforts intervene. The divergent development tracks are closely tied to investment rates. The quickening of activity in the technologically advanced developing countries is accelerating capital-formation there, while many primary-producing countries lag further behind."<sup>248</sup>

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<sup>247</sup> IMF, *World Economic Outlook*. Washington: April 1988/p31.

<sup>248</sup> *Two Development Tracks?* International Economics Department, World Bank, February 1989.

In this way, the differences between the elite developing countries and the rest are widening along a fault line of capital-formation. Investment rates in the elite countries (mainly Asian exporters of manufactured goods) rose to nearly one-third of total output, rivaling Japan's in the 1960s, while those of Latin America and Africa fell to 14% and 12%, respectively. In 1980, per capita gross domestic investment among the Asian exporters of manufactures was \$769, nine times more than the \$83 sub-Saharan Africa average (excluding Nigeria). Since then, the Asian group's per capita investment rose by 3% yearly, while African investment fell by 3.7% annually.<sup>249</sup> These differences are leading to the decapitalization and disorganization of many economies that were developing rapidly in the 1960s and 1970s. A huge gap that did not exist in the 1960s and 1970s opened in the 1980s between the economic growth rates of the exporters of manufactured goods (6.2%) and of the highly indebted countries (1.2%). Excluding Brazil, Latin America grew by only 0.7% yearly in real terms in the 1980s and lost nearly 12% of its per capita product.<sup>250</sup>

### **Polarization of knowledge access**

Across these fault lines in capital-formation another breach is widening: Many countries face not only a greater gap between active and passive participants in the evolution of technology (that is, between those economies participating in development of innovations and those merely consuming them), but also are threatened with a complete bypass of the innovation process. This threat is appearing in reduced channels of access. A dramatic aspect of polarization is the knowledge gap embedded in growing North-South differences among the world's libraries as reservoirs of accumulated wisdom of the past and of information in the present. In all of Latin America, with a population of 450 million, there is not one library with the knowledge resources of any of scores of university or public libraries in the United States. Only one Brazilian library, at the University of São Paulo, has more than a million volumes. More close to the national average is the library at the Federal University of Ceará in the Brazilian Northeast, with 13,000 students, has 167,000 volumes, or 12 books per student. Major libraries in Europe and the United States each are spending tens of millions of dollars to computerize their catalogues, restore old books and dig new tunnels and basements and construct new buildings as they struggle to accommodate the tens of thousands of new books, documents and periodicals acquired each year. While libraries in rich countries invest heavily to buy and store new publications, many university libraries in Latin America have no book-purchasing budget at all. In Brazil, for example, most libraries wholly depend on donations from publishers for new acquisitions, with powerful negative feedback for Brazil's book publishers. While publishers in rich countries can rely on selling 70% of editions of scholarly and scientific books to libraries, those in

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<sup>249</sup> Robert Lynn and F. Desmond McCarthy, *Recent Economic Performance of Developing Countries*. World Bank: PPR Working Paper 228, July 1989/p13.

<sup>250</sup> World Bank, *The Developing Countries and the Short-Term Outlook for the Global Economy*. Preliminary/January 1990/Tables 15-16.

poorer countries instead are dunned by requests from libraries for free books, making this kind of publishing uneconomic.

Among the key functions of core economies are to develop, organize and distribute knowledge, invention and financial capital. While peripheral economies may perform some of these functions, they need not develop knowledge-intensive activities on the same scale. Poorer countries, usually trailing in the pursuit of value added, nevertheless must develop and sustain channels of access to and application of stores of knowledge to participate in the broader web of activity known as the world economy. This becomes more difficult with the proliferation of knowledge and information in the rich countries and the impoverishment and obsolescence of channels of access in poorer countries. Computerizing production, exchange and storage of knowledge in rich countries shows a tendency to bypass cold print, with scholars, researchers and other specialists communicating directly with each other on-screen, cutting out the months of waiting while their papers are published in the old way: "in the fastest-changing fields, such as biotechnology, there may soon be no need to publish books or papers at all. The small circle of those who need to know will sit at their screens and commune, the elite of the information society. If the demos is ever to know what of value is passing between them, it will be up to the libraries to demand it so that others may see and review it."<sup>251</sup>

Accompanying this polarization of knowledge access is a change in the structure of investment in the rich countries, where "intangibles" like research, publicity and software are claiming rapidly rising shares of fixed capital-formation. According to the OECD: "The share of investment in machinery and equipment is shrinking, while investment in research and development training, organization, software and marketing is increasing steadily and becoming dominant in many industries." Between 1974 and 1984, the share of these "intangibles" in gross fixed investment rose from 19% to 31% in France, from 25% to 38% in Britain, from 41% to 67% in the United States and from 12% to 21% in Japan.<sup>252</sup>

One of the most striking contrasts between rich and poor countries is that, far from investing in "intangibles," poor countries have not invested sufficiently to preserve existing physical infrastructure --highways, railroads, telephone networks, electrical power systems. Many nation-states are unable to mobilize enough resources for public investment to ensure their survival. Much of this infrastructure is new, built with foreign financial and technical support in recent decades, and is badly needed for operation of political and commercial systems over large areas. Also, without adequate transportation and communications, relief of famines and epidemics may be difficult or impossible. In Latin America, one of the most acute forms of hunger today is for effective public investment.

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<sup>251</sup> "The World's Great Libraries," *The Economist*. December 23, 1989/p58.

<sup>252</sup> OECD, *Structural Adjustment and Economic Performance*. Paris: 1987/p166-7.

By 1989, 830 million people in richer countries, or 16% of the world's population, were producing \$20 trillion in goods and services, nearly 85% of global output. In per capita terms this was 23 times as much as in the poor countries. By then, the 4.4 billion people in poorer countries were producing only \$3 trillion after the share of these regions in the world product fell from 18.6% in 1965 to 15.4% in 1989.<sup>253</sup> In the 21st Century, nine-tenths of the births on this planet are expected to take place in the poorer countries. It is frightening to project these trends forward for another five or 10 years. The idea of economic polarization, or "two-track development," corresponds to the "model of Two Worlds" described in a 1988 Royal Dutch/Shell scenario, *Images of the Nineties*, which argued:<sup>254</sup>

*Countries that fail will blame the successful countries, the poor will blame the rich, and alibis will be found to rationalize failure. If this 'Image of the Nineties' were to become reality, it could be seen as a necessary transition through which the world has to go. In our scenarios, we described it as a 'world in turmoil.' Severe problems in developing countries will determine the climate for the world as a whole. Emerging regions and cultures will be competing with the established powers, and shifts in the global balance of power are likely to occur ....The main uncertainty is that we do not know whether the world population is encouraged by the success of tough economic policies and will pursue effective economic models, or whether politics will again dominate the global scene and create policies that, from an economic point of view, are often counterproductive.*

Latin America is the most dynamic area of economic polarization that we see today. A recent World Bank measurement of growth and investment in 83 less developed countries showed that only 13 of them could take advantage of the expansion of world trade and production in 1986-88. Of the 13 economies with successful growth and investment performance, 10 were in Asia and only two (Chile and Guatemala) were in Latin America. The two-track hypothesis argues that certain groups of countries are fading out of the world economy, in that they no longer can take advantage of upswings in the economic cycle of the advanced nations. In most cases, the decoupling of poorer countries from the mainstream of the world economy has meant (1) deterioration of infrastructure, (2) weakening of the economic capacity of national institutions, and (3) increasing difficulty in making international transactions. All these difficulties reflect management failure and decapitalization. They raise doubts of whether some countries can muster the management skills to sustain complex societies. These processes are forming a countercurrent to "the trend towards globalization of production and markets," a cliché of economic analysis in the late 1980s. In *The World Economy in the 20th Century*, Maddison noted that Latin America's product grew by 4.1%

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<sup>253</sup> World Bank, *World Development Report 1991 [WDR91]* p204.

<sup>254</sup> Joop de Vries, *Images of the Nineties*. London: April 1988/p7.

yearly in the first nine decades of this century, fastest among the world's regions. But his account of the 1980s was different:<sup>255</sup>

*In Latin America, the general economic situation is one of major crisis --worse than anything previously experienced in the 20th Century. Since 1982 these countries have had seven years in the wilderness trying unsuccessfully to tackle a multiplicity of problems with desperate remedies. There are four characteristic and interrelated problems: a fiscal crisis, galloping inflation, very heavy external indebtedness and distortions in resource allocation which derived originally from excessive protectionism, subsidies, and dirigisme and have been complicated by inflation and depression. To solve all of them in an enduring way by orthodox policy measures has proved too painful to be feasible in most of these countries, and heterodox alternatives have proved disastrous. It is not clear how or when Latin America will emerge from this crisis, but attempts on previous lines to provide a "managed" solution of the debt problem seem likely to break down.*

As the region with the fastest economic growth in this century, this collapse has been somewhat of an anomaly to past performance and expectations. Fortunately, the inflation-growth controversy has wilted because of the dismal performance of those Latin American economies in deepest trouble in the 1980s, especially humiliating in view of their past successes. Brazil has been the world's fastest-growing big economy for more than a century, increasing its GDP by 4.4% yearly since 1870.<sup>256</sup> Argentina grew at roughly 5% annually in the half-century before 1914, one of the highest long-term growth rates experienced anywhere. In the economic folklore of the 1980s, there were many invocations of the differences between the good boys of Asia and the bad boys of Latin America. Admiration was heaped on the high levels of Asian savings, education and investment forming virtuous circles that drive highly-coordinated activity on dedicated export platforms, harvesting more and more of the world's wealth. This performance was compared with that of floundering New World republics, rapidly decapitalizing and fading out of the world economy as weak governments bred chronic inflation and bankrupted themselves by transferring resources on a concessionary basis to demanding populations with stagnant or falling productivity.

According to Maddison, productivity in Latin America fell by 1.4% yearly in the 1980s, against 3.2% annual growth in Asia. However, his baseline comparisons with U.S. productivity (GDP per man hour/USA=100) showed that some of these contrasts can be misleading. Latin American productivity remains at 27% of U.S. levels, roughly where it was in 1950, while Asian productivity still is only one-tenth of U.S. productivity, despite strong (3%+) growth since 1950.<sup>257</sup> Even in Korea and Taiwan, overall

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<sup>255</sup> Angus Maddison, *The World Economy in the 20th Century*. Paris: OECD Development Center, 1989/pp13 & 106.

<sup>256</sup> Angus Maddison, "Desempenho da Economia Mundial desde 1870," em Norman Gall and Werner J. Loewenberg eds., *Nova Era da Economia Mundial*. São Paulo : Instituto Fernand Braudel de Economia Mundial/Editorial Pioneira, 1989/p20.

<sup>257</sup> Angus Maddison, *The World Economy in the 20th Century*. Paris: OECD Development Center, 1989/pp94-99.

productivity in 1986 was 20-21% of U.S. levels, about the same as Peru's and one-fourth to one-third less than in Argentina, Brazil, Chile, Colombia and Mexico. Maddison argues that detailed studies by researchers from the Institute of Economics at Groningen University (Netherlands) reveal that Korean manufacturing productivity in the mid-1980s was roughly half that of Brazil and that the big recent gains in Asian output have come from working much longer hours than in Latin America. Correspondingly, manufacturing productivity per worker in Brazil in 1975 and 1985 was about the same as in France, although it was 30% less in terms of hours worked. In 1975-85, Argentine manufacturing productivity per hour worked remained at roughly one-fifth of United States levels, while Korea's rose sharply from 9% to 14% of the U.S. benchmark.<sup>258</sup>

In both rich and poor countries, more and more investment has been needed for a unit of production in recent decades as the complexity and scale of operations grew and as liquidity circulated in financial markets in greater volumes but with less efficiency. In the advanced economies, productivity of capital fell dramatically after 1973, reversing its secular growth over the previous six decades.<sup>259</sup> In Latin America, these capital-output ratios have increased steadily since 1950, roughly to the same degree as in Korea in the same period and much less than in Spain, another successful developing country. By the same measures, capital is used more efficiently in Latin America than in the United States. The problem is in the total amount of capital mobilized. Between 1950 and 1989, Korea's per capita stock of non-residential capital expanded 14-fold, from 5% to 32% of the U.S. level. Until 1980, Brazil, Mexico and Venezuela also advanced rapidly toward the U.S. benchmark, but then leveled off in the 1980s while Argentina, Chile and Colombia fell back. In the main countries, net stocks of machinery and equipment declined during the 1980s in Argentina, Brazil, Mexico and Venezuela, but expanded in Colombia and Chile, countries that had resisted the inflation threat.<sup>260</sup>

Peru's collapse is a warning to the rest of Latin America. Long-term performance in most countries is not so catastrophic that the recent record cannot be reversed. What can be done to stem and reverse the process of polarization and to sustain their capacity to operate complex societies? (1) Upgrade education sufficiently to operate modern systems and to absorb new technologies. (2) End parasitism in public finance. (3) Make infrastructure and public services pay for themselves. (4) Generate surpluses that can be invested and that can attract more resources from the international pool of savings. These goals are fairly well-understood. Awareness of the dangers of failure has not grown sufficiently to mobilize a long-term effort. Fewer lives and fortunes will be lost

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<sup>258</sup> Dirk Pilat and André Hofman, *Productivity and Competitiveness in the Manufacturing Sector of Argentina, 1973-1985*. To appear in *CEPAL Review* (1990).

<sup>259</sup> Angus Maddison, "Growth and Slowdown in Advanced Capitalist Economies: Techniques of Quantitative Assessment," *Journal of Economic Literature*. June 1987/p656.

<sup>260</sup> André Hofman, *The Role of Capital in Latin America: A Comparative Perspective for Six Countries for 1950-1989*. Santiago: United Nations Economic Commission for Latin America, December 1991.

by trying than by failing to make the effort. Institutional stability is a vague abstraction under chronic inflation, but gradually becomes a living reality as communities strive toward common goals over time. There is no other way.

### **Self-destruction and regeneration**

In the last decade of the 20th Century, the world economy is trying to deal with the end of a fiscal and financial expansion that began six decades ago at the bottom of the Great Depression. This expansion accelerated during World War II and the "Golden Age" of postwar recovery (1950-73), then was distorted by the oil crisis of the 1970s and the debt crisis of the 1980s. In Latin America, inflation has been seen as a way of both stimulating growth and delaying adjustment of fiscal demands to fiscal possibilities. However, the threat of civilizational failure --seen in violence and disease and in erosion of infrastructure and institutions-- has driven countries into desperate efforts to reverse the decapitalization produced by chronic inflation. These efforts are being made, under different conditions but for essentially the same reasons, in Chile, Mexico, Bolivia, Argentina, Nicaragua, Peru, Venezuela and Brazil. Driven by fear, which can be helpful in implementing corrective measures, these efforts are being carried forward by constitutional regimes now in all these cases. All these countries, except Brazil, have significantly reduced their levels of chronic inflation. However, they have met great difficulty in trying to bring the annual rate of price increases below 20% and into line with the more efficient economies, reflecting institutional barriers still to be overcome. The populations of these countries generally have supported these painful efforts, recognizing implicitly that there is no other way to avoid further disorganization. Another important response of these populations has been the radical fertility reductions of the past decade. The preliminary results of recent national censuses, most notably those of Mexico and Brazil, reveal that populations are growing much more slowly than foreseen by earlier projections.<sup>261</sup> Detailed analysis of disaggregated data, still unavailable, may reveal more clearly the interaction between economic forces and fertility, mortality and migration. In coming decades, higher levels of mortality may be unavoidable because of aging of populations. However, the economic and institutional behavior of each society will determine the degree and kind of mortality increase.

We are dealing with little-understood issues of self-destruction and regeneration of human communities. The quest for a solution to these problems is not helped much by economic theory. Although economists have produced mountains of papers and books on theories of economic growth, capital-formation and inflation, these phenomena still are not understood clearly. *The Economist* recently observed that "economics so far has been unable to provide an understanding of the forces that drive long-term growth....Forecasters argue indefatigably about growth this year (even this quarter) and next. Economic advisers tell ministers that this tax cut or that increase in public

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<sup>261</sup> Because of economic difficulties, only six of the 20 Latin American republics have carried out the national censuses scheduled for 1990-91.

spending will be good for growth. To some critics, indeed, the trouble with economics is precisely that its obsession with growth leaves issues such as sustainability out of account. True enough: economists are interested in growth. The trouble is that, even by their standards, they have been terribly ignorant about it. The depth of that ignorance has long been their best-kept secret."<sup>262</sup> Similarly, surveying the inflation literature in *The New Palgrave: A Dictionary of Economics* (1987), Michael Parkin recited a litany of unresolved theoretical problems and then ended poignantly: "Macroeconomics in general, and the theory of inflation in particular, is in a fluid state....Uncertainty surrounds both the issue of the impulse (or impulses) that generate inflation and other fluctuations and on the propagation mechanisms that translate those impulses into movements in output and the price level." Phyllis Deane, the distinguished economic historian, observed that "the manifest inability of the acknowledged economic experts to agree either on the determinants of inflation or on the best ways of controlling it" bred "a new development" amid this theoretical confusion: "the propensity of modern governments to invent their own bastard economics to justify their policies."<sup>263</sup>

This confusion awakens some scepticism about the need for elaborate theoretical equipment to deal with the civilizational problem of chronic inflation. Our reading of history and observation of recent experience have developed in us a robust belief in what can be achieved by mankind when its instincts for survival are awakened and brought to focus on inescapable realities. The laws of economics are as simple as they are severe. Most of the classics of economic thought were written by non-economists long before the profession as such existed or universities gave advanced degrees in the subject. The enemies of survival and progress are what Francis Bacon called "contracts of error," leading to complicity in misunderstanding reality, and what Aristotle called *akrasia*, or incontinence driven by passions stronger than the will to develop and preserve one's perceived interests. Several Latin American countries now face painful political choices after overriding the laws of economics through *akrasia* and contracts of error. They also face new challenges of regeneration posed by the decapitalization of complex societies. Their fate is in their own hands.

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<sup>262</sup> "Economic growth: Explaining the mystery," *The Economist*. January 4, 1992/p17.

<sup>263</sup> Deane, Phyllis, *The State and the Economic System*. Oxford 1989/pp188 & 193.

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