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# Economic Development and International Migration in Comparative Perspective

DOUGLAS S. MASSEY

ECONOMIC DEVELOPMENT IS THE APPLICATION OF CAPITAL to raise human productivity, generate wealth, and increase national income. Associated with it are a constellation of social and cultural changes that scholars generally call "modernization." Economic development and modernization are mutually dependent and reinforcing. Economic growth depends not only on amounts of labor and capital, but also on institutional, cultural, and technological factors that determine how labor and capital are used (National Academy of Sciences, 1986). At the same time, capital accumulation transforms social institutions, cultural values, and technologies in ways that affect the course of subsequent development.

A common belief among lawmakers, policy specialists, and the public is that emigration from developing countries stems from a lack of economic development. People leave their places of origin because their countries are poor, underdeveloped, and consequently lack economic opportunity; they migrate to wealthy, developed nations to seek wider opportunities for employment at higher wages. Given this perspective, the way for developed countries ultimately to control immigration is to promote economic development in major sending countries. When standards of living are equalized through development, the economic incentives for international movement will disappear and large-scale migration will end.

In the long run, this scenario is certainly true. Emigration from the developed countries of Europe, particularly to the United States, is now a small fraction of what it was seven or eight decades ago, when they were developing nations. In the short run, however, development does not reduce the impetus for migration; it increases it. In the process of economic development, nations are transformed from rural, agrarian societies of small-scale institutions, stable social structures, and limited markets into urbanized, industrial societies dominated by large bureaucratic institutions, fluid social organizations, and strong, integrated markets. This process of transformation

is inherently revolutionary and highly disruptive, as it displaces many people from traditional livelihoods and past ways of life.

These displaced people constitute the source for the massive population movements that inevitably accompany development. Most become internal migrants, responding to the prospect of economic betterment and enhanced productivity in emerging urban areas. But some always migrate internationally, seeking wider opportunities in more dynamic economies abroad. This fact was true historically in western Europe, and it is equally true in developing countries today. Once emigration begins, moreover, it fosters changes in social and economic structures that make additional outmigration more likely. Once this process of cumulative causation takes hold, efforts to reduce and control the flow of immigrants prove difficult and costly.

A realistic appraisal of the relationship between migration and economic development, therefore, suggests that policies to promote additional economic growth in sending nations will not reduce immigration to the United States in the short run; indeed, they may increase it. If the United States seeks to lower immigration by promoting development abroad, it should expect immigration to continue in the short term as economic growth gradually eliminates the incentives for movement in the long term. If it is in the interest of the United States to promote rapid economic development in Mexico, then it is also in its interest to accept relatively large numbers of Mexican immigrants. It will be exceedingly difficult, in the short run, to maximize simultaneously the twin goals of rapid economic development in Mexico and lower Mexican immigration to the United States.

These conclusions follow from three lines of reasoning and evidence developed in this article. In the first section, I consider the historical relationship between international migration and economic development in nineteenth and early twentieth century Europe. I argue that overseas migration played a vital and generally unrecognized role in the process of European economic development, and was a major factor facilitating the transformation of European countries from rural peasant societies to modern industrial powers. In the second section, I outline in conceptual terms why economic development leads to migration in general, and to international migration in particular. In the third section, I describe the mechanisms by which migration feeds back on itself to produce structural changes in society that lead to further migration, creating a process of cumulative causation that builds a powerful momentum into the migration process.

In the final section, I apply the ideas set forth earlier to consider the specific case of Mexico, which is the largest source of legal and illegal migrants to the United States. I outline the history of migration from Mexico to the United States, and consider the present state of social and economic development in Mexico. Rather than reflecting stagnation and underdevelopment, emigration from Mexico has stemmed historically from that country's dynamic economic growth, which has produced a volume of emigration that

is modest by European standards. If the United States seeks to promote economic development in Mexico and eliminate the incentives for migration in the long run, probably the most effective policy it can adopt in the short run is to set generous quotas for the legal entry of Mexican immigrants.

### Migration and development in European history

Although most people realize that the United States was populated by European immigrants (see Gibson, 1975), they generally do not appreciate the scale of the historical outmigration from Europe, or recognize the extent to which emigration was inextricably linked to its economic and social transformation. Textbook accounts of the European industrial revolution (e.g., Heilbroner, 1985) and economic development (e.g., Samuelson, 1976) typically relegate emigration to a minor role, if they mention it at all. According to the standard account of European economic development, technological innovations and enclosure in rural areas brought about increases in agricultural productivity, thereby lowering the demand for farm labor and loosening the bonds between peasants and the land. In urban areas, mechanization and a growing division of labor boosted productivity in manufacturing and raised urban wages. Peasants who were increasingly redundant in agricultural production migrated to factories in burgeoning cities, which expanded to produce a widening array of goods for consumption. Higher wages and more people earning those wages increased aggregate demand, leading to more employment and additional demand. Higher agricultural productivity caused food prices to fall for city dwellers and increased rural wealth, which, in the face of rural outmigration, yielded higher per capita incomes, further augmenting demand. Wealth thus increased in both rural and urban sectors, and Europe underwent a self-sustaining process of economic growth. This scenario has been incorporated, more or less, into classic economic models of migration and development (e.g. Lewis, 1954; Todaro, 1969).

The problem is, however, that a great deal of rural outmigration was not directed to cities in the same country, but to destinations abroad, and classic theoretical accounts ignore the substantial equilibrating role played by international migration in the economic development of Europe. The importance of emigration in European economic history is indicated by Table 1, which presents the number of intercontinental emigrants from European nations and Japan during the period 1846 to 1924. These countries include most currently developed nations that were not sparsely settled, immigrant-receiving countries in the nineteenth century (such as Australia, Canada, New Zealand, or the United States).

In the eight decades from the middle of the nineteenth century through the first quarter of the twentieth, roughly the period of Europe's industrial transformation, some 48 million emigrants left the continent, representing

**TABLE 1 Total intercontinental emigration from European countries and Japan, 1846–1924**

Region and country	Number of emigrants (000)	Percent of all emigrants	Emigrants as a percent of country's population in 1900
<b>Europe</b>			
Austria-Hungary	4,878	10.0	10.4
Belgium	172	0.3	2.6
British Isles	16,974	34.9	40.9
Denmark	349	0.7	14.2
Finland	342	0.7	12.9
France	497	1.0	1.3
Germany	4,533	9.3	8.0
Italy	9,474	19.5	29.2
Netherlands	201	0.4	3.9
Norway	804	1.7	35.9
Portugal	1,633	3.4	30.1
Russia-Poland	2,551	5.3	2.0
Spain	4,314	8.9	23.2
Sweden	1,145	2.4	22.3
Switzerland	307	0.6	13.3
Total Europe	48,174	99.2	12.3
<b>Japan</b>	405	0.8	0.9
<b>Total</b>	<b>48,579</b>	<b>100.0</b>	<b>11.1</b>

SOURCES: Ferenczi, 1929a; Mitchell, 1980.

about 12 percent of the European population in 1900. Nations with notably large percentages of emigrants included Britain (41 percent), Norway (36 percent), Portugal (30 percent), Italy (29 percent), Spain (23 percent), and Sweden (22 percent). In the middle range of emigration were Denmark (14 percent), Switzerland (13 percent), Finland (13 percent), Austria-Hungary (10 percent), and Germany (8 percent); and in the low range were Belgium (3 percent), Russia-Poland (2 percent), and France (1 percent).

These figures establish that large-scale emigration was quite common during Europe's period of industrialization, and that it did not stem from a simple lack of economic development. The first country to develop economically and the most advanced nation of the time, Britain, sent by far the largest number of emigrants abroad; and all countries experienced emigration to some degree. In 10 of the 15 countries, for example, total emigration exceeded 10 percent of the turn-of-the-century population, and in six cases it exceeded 20 percent. Given this scale, emigration must have played an important role in the social, economic, and demographic transformation of Europe during the late nineteenth and early twentieth centuries.

This fact does not establish a link between economic development and international migration, however, or reveal the nature of the relationship. Indeed, the great variability in relative emigration rates, and their lack of a straightforward association with levels of development, is problematic. The highest emigrant percentages were in Britain and Norway, countries that developed rapidly into modern industrial societies, while the next highest percentages were in Portugal and Italy, whose rates of development lagged considerably behind those of other European countries. Part of the problem is that emigration began at different times in different countries, but ended everywhere in the late 1920s, when all immigrant-receiving nations closed their doors. Thus, different countries achieved different numbers of emigrants depending on whether large-scale emigration began early or late.

Table 2 relates industrialization more directly to the onset and peak of emigration by showing, for each nation, the year that industrialization began (operationally, although admittedly crudely, defined as the year that railway track length first exceeded 1,000 kilometers), the year that large-scale emigration began (the year that emigration first exceeded 10,000 persons), and the year that emigration peaked (the year of the largest emigrant cohort). Although the data are crude, they indicate a close correspondence between the onset of industrial development and the beginning and later peak of emigration.

**TABLE 2** Beginnings and peaks of emigration to the United States from European countries and Japan

	Year when railroad tracks first exceeded 1,000 kilometers	Year when no. of emigrants first exceeded 10,000 persons	Year of peak immigration
British Isles	1838	1827	1851
Germany	1843	1834	1854
France	1846	1846	1851
Austria-Hungary	1847	1880	1907
Russia-Poland	1851	1882	1913
Italy	1854	1880	1907
Spain	1859	1917	1921
Switzerland	1860	1881	1883
Sweden	1863	1869	1882
Netherlands	1870	1882	1882
Denmark	1874	1882	1882
Portugal	1878	1912	1921
Norway	1879	1869	1882
Japan	1896	1891	1918

SOURCES: Same as Table 1.

The first column shows the spread of industrial development from its birthplace in Britain in the 1830s, across the English Channel to France and Germany in the 1840s. Then during the 1850s industrial development moved east into Russia-Poland and south into Austria-Hungary and Italy, before reaching Spain, Switzerland, and Sweden in the 1860s. Industrialization finally began in the rest of southern Europe and Scandinavia in the 1870s and reached Japan in the 1890s.

The second column indicates that the arrival of industrialization in each country is closely associated with the beginning of significant emigration. The correlation across time between the beginning of industrialization and the onset of large-scale emigration is 0.59. Following the initiation of industrial development, emigration subsequently peaked with a lag that varied across countries. The correlation between the beginning of industrialization and the peak of emigration is 0.49, and the average lag time is 28 years (22 years if the very large and heterogeneous Austro-Hungarian and Russian empires are excluded).

Thus, not only was emigration extensive and quite common among European countries undergoing economic development in the late nineteenth and early twentieth centuries, but its initiation was reliably associated over time with the onset of industrialization. These suggestive data are obviously not sufficient to establish a definitive causal link between economic development and emigration, but this link has been examined in some detail by other studies, notably the classic works of Dorothy Thomas (1941) and Brinley Thomas (1954).

Brinley Thomas (1954) compared figures on emigration from Britain, Ireland, and Germany with indicators of economic growth and investment in the United States and Britain from 1830 to 1913. Before 1870, he found that emigration was driven largely by developments in the Old World, notably by agricultural enclosure, land consolidation, technological improvements in farm production, the application of new methods of cultivation, and rural population growth. Waves of emigration preceded periods of US industrial expansion, as peasants "pushed" from Europe arrived to spur a burst of economic growth in America. After 1870, however, the United States was structurally transformed from a less developed country dependent on British capital to an increasingly developed and independent economic power. The attractive pull of the US economy dominated, and waves of emigration from Europe followed business cycles in the United States.

In both periods, however, the ebb and flow of emigration was intimately related to cycles of economic activity in the Old and New Worlds. Before 1870, emigration followed British economic cycles and afterward it followed cycles in the United States, but in both cases the two business cycles were inversely correlated over time. During periods of economic growth in the United States, Thomas found a falling rate of British home investment, a

high rate of British capital export, a high rate of capital formation in the United States, high British unemployment, and a large flow of British emigrants abroad. When economic activity in the United States was falling, in contrast, he found a low rate of US capital formation, low rates of British commodity and capital export to the United States, a high rate of British investment at home, low British unemployment, and little overseas migration.

Thomas also documented a very clear inverse relationship for Britain between internal population movements and migration abroad. When rural-to-urban migration was high, emigration was low, as workers moved to take advantage of plentiful opportunities in London, Manchester, and other emerging industrial centers. But when the British business cycle entered a recessionary phase, the flow of rural outmigrants was redirected to the United States, which was then entering the growth phase of its business cycle.

These findings are consistent with the earlier results of Dorothy Thomas (1941), who studied population movements in Sweden between 1750 and 1933. She found that pressure on agrarian resources from population growth and agricultural reorganization was significant, but that it did not explain secular fluctuations in the level of rural outmigration; rather, the push from agriculture was constant over time. Yearly fluctuations in rural outmigration rates were determined principally by cycles of industrial growth in Sweden and the United States.

She found that overseas emigration was inversely correlated with the upswings and downswings of the Swedish business cycle, while rural-urban migration was positively correlated. During periods when Swedish industries were expanding, rural outmigration was directed primarily to Swedish cities and industrial towns, but when their economies were in recession, rural dwellers were responsive to opportunities in the United States. American business cycles were thus positively correlated with emigration but negatively related to internal migration.

The Swedish and American cycles, however, were less closely related than the British and American cycles, affording Thomas the opportunity to examine the relative strength of push and pull factors. She defined cycles of economic recession in Sweden as push periods and cycles of economic growth in the United States as pull periods. Emigration was greatest when periods of push and pull coincided, and was least when there was neither a pull from America nor a push from Sweden. However, a pull from the United States was relatively ineffective in promoting emigration during periods of Swedish prosperity, suggesting that population movements were dominated by conditions in the Swedish urban-industrial sector.

There is, therefore, considerable evidence that emigration played a central role in the economic transformation of Europe during the late nineteenth and early twentieth centuries. International migration from the con-



continent was widespread during the period, and the initiation of emigration was strongly correlated with the spread of industrialism. The work of Brinley Thomas and Dorothy Thomas further suggests that emigration was closely connected to cycles of industrial growth and capital accumulation. The transformation of agricultural and growing peasant populations created a constant pressure for rural outmigration that was diffused, alternately, by internal and international migration driven by successive cycles of economic opportunity at home and abroad. In effect, emigration served as a buffer against the periodic upswings and downswings in the course of European economic development.

### **Economic development and the origins of migration**

It is, of course, virtually tautological that development produces migration. No country has experienced an industrial transformation without urbanizing, and urbanization occurs almost exclusively through rural-to-urban migration (Preston, 1979; United Nations, 1980). In this section, I consider why this is so, and suggest that internal and international migrants are prompted by the same basic processes of socioeconomic transformation and development. No matter how dynamic or rapid a country's economic development, some migration abroad is inevitable; and the amount of emigration is determined by the degree of economic integration between the sending country and the country of destination.

In preindustrial societies, economies are dominated by a primary agricultural sector that relies on labor-intensive methods to generate small food surpluses, sufficient to support only a low level of urbanization (Berry, 1973). Most preindustrial societies are organized around sedentary, village-based peasant agriculture. Hunting-and-gathering peoples have, for thousands of years, been relegated to marginal ecologies not suitable for sedentary farming, and have constituted a small fraction of the human population. Industrial urbanism, therefore, develops principally out of a peasant economy.

Peasant social and economic organization has been studied intensively by a variety of researchers, many of whom have focused specifically on the Mexican case (e.g., Foster, 1942, 1967; Redfield, 1956; Wolf, 1966). The most comprehensive theoretical treatment of peasant economies is that of Alexander Chayanov (1966), who argues that peasant households do not seek to maximize production, but to achieve subsistence while providing work to all members. Output is determined not by markets, which are rudimentary and limited, but by household size and composition. Production reflects the number, age, and sex of household workers, and peasants are reluctant to adopt labor-saving technology, since it conflicts with the goal of providing work and sustenance to all community members.

Such a system represents a viable adaptation to the conditions of pre-industrial existence. Close to the margins of subsistence, innovation and risk are hazardous, and the consequences of failure are dire. Economic and social relations are therefore predicated on stability and continuity. Behavior is governed not by the calculation of the possible costs and benefits for personal economic gain, but by close adherence to socially learned and widely accepted norms. "Correct" behavior is taught from infancy and maintained through a variety of informal sanctions, such as shame, ridicule, gossip, and rumor. Social and economic relations are not easily separable, and economic exchanges are infused with latent social expectations regarding reciprocal obligations and personal loyalty. Economic goods are seen as fixed and limited, and individual initiative leading to the accumulation of wealth is discouraged. Jealousy, fear, and envy are common elements of community life (Wolf, 1966; Foster, 1967).

Economic development necessarily destroys this stable, integrated social and economic system; and its destruction creates a pool of people with weakened ties to the land, the community, and past ways of life. The mechanisms of destruction involve three mutually reinforcing processes: the substitution of capital for labor, the privatization and consolidation of landholding, and the creation of markets. Since these processes are incompatible with the traditional organization of peasant society, they generally originate in elites outside the peasantry itself (e.g., landed aristocrats, political leaders, capitalists, foreign companies, international agencies). The pool of socially and economically displaced peasants created by these processes, however, provides the source for both internal and international migrants.

Economic development involves the application of capital to increase human productivity. The intrusion of capital into peasant agricultural production is extremely destabilizing, since by definition it is labor saving rather than labor generating. Investments in machines, new crops, improved seeds, insecticides, and irrigation all reduce the number of workers needed to produce a given unit of agricultural output. Although the investment of capital greatly increases the food surplus and makes high levels of urbanization possible, within rural villages the increased application of capital reduces the demand for labor, often quite dramatically, and renders peasant farmworkers increasingly underemployed and redundant to agricultural production.

Processes of agricultural enclosure and consolidation generally accompany the application of capital. Peasant landholdings are typically organized on a communal or kinship basis. Land either is held in common by all members of an agricultural community, with families receiving customary rights of usufruct, or is held directly in small plots by specific family groups. These land tenure arrangements are not well suited to capital-intensive agriculture, however. Machines and mass-production techniques are most effectively applied to large private tracts, creating strong incentives for elites

or local entrepreneurs to seek, through political or economic means, the consolidation of landholding under private auspices.

In Britain, the enclosure movement came to a climax in the late eighteenth and early nineteenth centuries when aristocratic landlords, in order to raise cash through more intensive farming, enclosed pastures that traditionally had been held in common by peasant villages (Thompson, 1964; Heilbroner, 1985). A similar process occurred in Mexico at the end of the nineteenth century, when elites systematically destroyed the ancient system of communal land tenure that had been recognized since the Spanish conquest, putting virtually all land under private control (Sotelo-Inclán, 1970; Russell, 1977; Cardoso, 1980).

The enclosure of peasant land and its use for the capital-intensive production of cash crops contribute to a third process by which peasant communities are undermined: the creation of markets. Without access to communal lands, peasant farmers are forced to sell their labor, either as sharecroppers or as daily wage workers. The selling of labor also undermines the peasant social and economic system, which views work as part of a complex nexus of rights and reciprocal social obligations. Over time, rigid social and economic relationships that would normally preclude participation in the more fluid social order of the industrial world are attenuated.

Markets do not exist *a priori*; they are created by human actors for the purpose of economic exchange and distribution (Hicks, 1969; White, 1981). They are constructed by establishing rules that specify the rights of buyers and sellers, the principles of exchange, and the nature of contractual obligations. Institutions must also be created to facilitate their smooth operation. With the emergence of markets, social relationships are increasingly separated from economic relationships, and the rational pursuit of self-interest and personal gain gradually supplants adherence to well-defined social norms as the basis for human action. Social and economic goods come to be seen as elastic rather than limited, and private gain (rather than mutual social obligation) comes to be seen as the basis for exchange relations. In this process of social transformation, households shift their orientation from subsistence agriculture to market production, and family workers increasingly sell their labor to others rather than donate it to the household. Over time a variety of markets emerge where none existed before: markets for land, commodities, capital, labor, food, consumer goods, even for marriage. With the emergence of widespread market behavior, the peasant political economy is gradually, but systematically and irrevocably, obliterated.

Together, the processes of capital accumulation, enclosure, and market creation weaken individuals' social and economic ties to rural communities, making large-scale migration possible. What makes migration actually occur is the geographic unevenness of economic development. To be used efficiently, capital cannot be spread equally, but must be concentrated in space.

The points of concentration are urban areas, which arise to permit high levels of saving through economies of scale and agglomeration, which enhance labor productivity in manufacturing and services (Berry, 1973). Geographic differences in the marginal productivity of labor are reflected in rural–urban wage differentials. These provide strong incentives for rural-to-urban movement, which drives urbanization and promotes economic development (Kelley and Williamson, 1984a, 1984b).

Classic accounts of urbanization and development normally end here, with rural-urban migration bringing about the progressive urbanization of society, increasing aggregate demand, and improving the aggregate productivity of the economy. As we have already demonstrated, however, during the nineteenth and early twentieth centuries, urban areas in the industrializing countries of Europe did not absorb all of the rural outmigrants unleashed by the forces of development. Invariably, some fraction of those displaced from the countryside emigrated to other economies overseas. This emigration was too widespread, too closely associated with the onset of industrialization, and too systematically related to business cycles to be dismissed as a mere historical accident. Rather, it is more accurately regarded as a natural outcome of economic development under a market economy, and it stems from three identifiable features of capitalist growth.

The most important of these features, and the fundamental cause of international movement on the supply side, is the cyclical nature of economic growth. No matter how rapid and dynamic a country's social and economic transformation in the course of development, economic growth is never monotonic. No country has ever followed a steady upward growth path; rather, economic growth is characterized by short-term cycles of expansion and contraction that only in the long run yield a rising curve (Kuznets, 1966). The cyclic nature of industrial expansion in urban areas, paired with the more-or-less constant pressure for outmigration from rural areas, creates a potential for emigration that is structurally built into the development process. In the absence of effective political-administrative barriers to international migration, all that is needed for this potential to be realized is a demand for immigrant workers in a foreign country and a wage differential sufficient to cover the costs—broadly interpreted—of relocation.

The latter consideration leads to the second feature of economic growth that accounts for emigration's prevalence: its uneven geographic distribution. The pace of economic growth varies not only between areas within countries, but between countries as well. Societies begin the process of economic development with very different endowments of resources, population, physical capital, and human capital, and widely varying institutions, traditions, and cultural conventions, all of which yield very different rates of economic growth and standards of living at any point in time, and these differences tend to cumulate over time. As a developing economy enters a recessionary

cycle, therefore, there is almost always a potential overseas destination with a growing economy, higher wages, and a demand for labor. This situation held historically during the development of the Atlantic Economy through 1914; and if anything, the structural potential for emigration has increased in recent years as international disparities in economic productivity, standards of living, and rates of population growth have increased.

Emigration is also enabled by a third concomitant of economic development: declining real costs of transportation and communication, which substantially increase the net returns to international movement. In the course of development, railroads are constructed, road networks are built, postal services improve, and telephone, radio, and television communications are established. Moreover, as trade expands and developing countries become more integrated into international markets, their internal networks become increasingly connected to transportation and communications systems centered in developed economies overseas. In short, development makes international movement easier, cheaper, and more reliable, and substantially reduces the cost of information concerning foreign opportunities.

Thus, the prevalence of emigration in developing countries is explained, first, by the creation of a pool of potential migrants through capital formation, enclosure, and market creation, which together destroy the basis of peasant social organization and attenuate ties to rural communities; and, second, by discontinuities in economic growth across time and space, which produce cyclical constrictions of opportunity in developing urban economies paired with expansions of opportunity in growing economies abroad. This structural propensity for international movement is actualized by an increasing access to reliable and affordable systems of transportation and communications, which arise naturally to serve the expanding markets created by development.

For these reasons, every country that has undergone economic development under a market economy has experienced emigration. There are, however, large differences between countries in the prevalence of emigration, ranging from very low levels in nineteenth century France to truly massive levels in Britain during the same period. Differences between countries in the extent of emigration reflect a variety of factors, including the general pace of development, the state of the world economy, prevailing technologies, colonial relationships, and a host of political factors. But a crucial factor is the degree of economic articulation between the developing country and the country of destination. In general, as two economies become more integrated and interdependent, the volume of migration between them grows, a generalization that follows from three lines of reasoning.

First, when economies are well articulated, cycles of expansion and contraction display a strong tendency to correlate with one another in a negative direction. Periods of constricted opportunity at home tend to coincide with expansionary cycles abroad. Brinley Thomas (1954) clearly dem-

onstrated this fact for the developing Atlantic Economy of the nineteenth century, and a *prima facie* case can be made for a similar relationship between Mexico and the United States today: the 1975–82 US recession, for example, coincided with the Mexican oil boom, while the Reagan economic boom of 1982–87 was paired with Mexico's worst economic crisis of the postwar era. The United States is, of course, Mexico's largest trading partner, and Mexico is the third largest for the United States. This sort of inverse articulation is important because it systematically pairs push periods with pull periods, a pairing that maximizes incentives to migration and yields the highest levels of emigration (see D. Thomas, 1941). In other words, a close articulation of economies builds emigration into the structure and rhythm of economic growth.

Close economic ties between sending and receiving countries also imply well-developed transportation and communications links between them. Increasing economic integration naturally leads to the accumulation of an international infrastructure that regularizes the movement of people, capital, information, and goods. This infrastructure dramatically lowers the costs of movement and information, thereby increasing the net benefits to emigration and focusing it on specific destination countries. Thus, when railroads were constructed in Mexico at the end of the nineteenth century, they ran directly north to facilitate export and trade with the United States; these railroads subsequently carried migrants, as well as goods, back and forth between the two countries (Cardoso, 1980). Similarly, the various countries of the Atlantic Economy (Britain, the Scandinavian countries, Germany, the United States, and Canada) were linked together in the nineteenth century by a well-developed network of steamship routes emanating from European ports and converging on New York City (B. Thomas, 1954; Erickson, 1957).

Finally, economic integration typically encourages the active recruitment of workers from the less developed country by agents of the more developed economy. Recruitment was widely used to attract European workers to the United States during the development of the Atlantic Economy in the late nineteenth and early twentieth centuries (Erickson, 1957). Likewise, when labor scarcity began to hinder economic growth during Europe's post-World War II boom, the nations of Western Europe during the 1960s established elaborate institutional mechanisms for the recruitment, transport, and housing of workers from major trading partners, especially former colonies (Bohning, 1972; Castles and Kosack, 1973; Piore, 1979). Similarly, US employers actively recruited Mexicans at the end of the nineteenth century (Cardoso, 1980) and at several points during the present century (Kiser and Woody, 1979; Galarza, 1964).

To this point, I have offered empirical evidence indicating that emigration was a common demographic response to economic development in

Europe, and I have sketched a line of reasoning to explain why this relationship can be expected to hold generally in developing societies. International migration is rooted in the same social and economic transformations as internal migration: development produces a pool of dislocated workers who respond to the rewards of greater productivity elsewhere. For the most part, these rewards lie in developing urban economies, but cyclical contractions in the urban sector, combined with international differences in wage rates and falling costs of transportation and communication, build emigration into the structure and rhythm of economic development. Emigration assumes greater or lesser importance depending on the degree of economic articulation between sending and receiving countries. As economic integration grows, an inverse association between business cycles develops, transportation and communication networks become more interlinked, and labor recruitment becomes more frequent, bringing about large-scale movements of labor between countries.

### **Cumulative causation in international migration**

There is an additional process that helps to explain why emigration assumes such large proportions in many countries: the tendency for emigration to become progressively independent of the economic conditions that originally caused it. Once a critical takeoff stage is reached, the movement of population alters social and economic structures within sending communities in ways that increase the likelihood of subsequent migration. Gunnar Myrdal (1957) has called this feedback process "the circular and cumulative causation of migration." The process relies on a variety of structural mechanisms, three of which have received considerable attention in the research literature: network formation, agrarian transformation, and income redistribution.

#### **Network formation**

Network formation is probably the most important structural mechanism supporting cumulative causation in international migration. Migrant networks are sets of interpersonal ties that link migrants, former migrants, and nonmigrants in origin and destination areas through the bonds of kinship, friendship, and shared community origin. The role that networks play in structuring migration has long been studied by sociologists and anthropologists (Tilly and Brown, 1967; Mitchell, 1969; Magnin, 1959; Price, 1971; Choldin, 1973; MacDonald and MacDonald, 1974; Hugo, 1981). Economists have also recognized that having friends, relatives, or other members of one's personal community at a destination dramatically increases the probability

of migrating there (Hagerstrand, 1957; Nelson, 1959; Greenwood, 1969, 1970).

Networks increase the likelihood of movement because they lower the costs of relocation and, assuming a positive earnings differential between origin and destination areas, increase the expected net returns to migration. Migrant costs include the direct monetary costs of making a trip (transport, food, and lodging), information and search costs (the time, money, and effort required to identify possible jobs and obtain them), opportunity costs (income forgone while traveling and searching for work), and psychic costs (the psychological toll of leaving a familiar environment and moving to a strange setting). These costs are present in all moves, but they generally increase with distance and rise substantially when an international border is crossed (Stark, 1984b). All of them are reduced when a prospective migrant has personal connections to people with experience in a particular destination area (Cornelius, 1975; Lomnitz, 1977; Massey et al., 1987).

Migration may begin for a variety of reasons, but once the number of migrants reaches a critical threshold, expanding networks cause the costs of movement to fall and the probability of migration to rise; these trends reinforce one another, and over time migration spreads outward to encompass all segments of society. This feedback occurs because the networks are created by the act of migration itself.

The first migrants who leave for a new destination have no social ties to draw upon, and for them migration is costly, particularly if it involves entering another country without documents. For this reason, the first international migrants usually are not drawn from the bottom of the community hierarchy, but from the lower middle ranges (Portes, 1979). After the first migrants have left, however, the costs of migration are substantially lower for their friends and relatives still in the community of origin. Because of the nature of kinship and friendship structures, each new migrant creates a set of people with social ties to the destination area. Migrants are inevitably linked to nonmigrants through bonds of kinship and friendship, and the latter draw upon obligations implicit in these relationships to gain access to employment and assistance at the point of destination, substantially reducing their costs.

Once the number of network connections in an origin area reaches a critical level, migration becomes self-perpetuating because migration itself creates the social structure needed to sustain it. Every new migrant reduces the cost of subsequent migration for a set of friends and relatives, and with the lowered costs some of these people are induced to migrate, which further expands the set of people with ties abroad, and, in turn, reduces costs for a new set of people. Historical studies in Europe indicate that networks were a powerful force in perpetuating and channeling European emigration earlier in this century (Morawska, 1988); and recent investigations in Mexico show



that access to network connections substantially raises the likelihood of emigration to the United States (Taylor, 1986; Massey and García-España, 1987; Massey et al., 1987).

Thus, migration is cumulatively caused by the progressive formation of social networks that steadily lower the costs of emigration from sending communities. This view assumes that families make a cost-benefit decision that balances the earnings expected from migration against the anticipated costs of movement; if the expected net returns are positive, the family sends one or more members abroad to work in order to maximize household income. A variant on this argument is that families send members abroad not only to maximize earnings, but also to minimize risk associated with ties to the local economy (David, 1974; Stark and Levhari, 1982; Stark, 1983, 1984a, 1984b; Lucas and Stark, 1985; Katz and Stark, 1986).

Economic conditions in developing countries are volatile, and poor families in rural communities face serious risks to their well-being. In addition to the usual hazards of drought, crop failure, and natural disasters, the social and economic transformations that occur during development create a highly uncertain and unpredictable economic environment. In the absence of any other way to insure against these risks, the migration of family members to foreign labor markets is a strategy apt to reduce the overall risk to household income.

This reduction in risk requires only that earnings at points of origin and destination be relatively uncorrelated, or better yet, inversely correlated (Stark and Levhari, 1982; Stark, 1984b; Katz and Stark, 1986). In the same way that investors diversify their holdings to limit risk, households diversify the allocation of workers to productive activities in different places. With a negative association between business cycles in sending and receiving societies, a household will tend to secure a degree of protection from recessionary times at home, since one or more family members are capitalizing on wages earned in an expansionary cycle abroad.

Since economic articulation between countries has historically produced a negative correlation between business cycles, the risk-aversion model helps to explain why international migration between economically connected countries is so attractive and pervasive. It also puts the massive movement from Britain to the United States into perspective, since business cycles in these two countries were negatively correlated to a remarkable degree, thereby maximizing the structural conditions for emigration (B. Thomas, 1954).

What makes migration in general, and international migration in particular, so efficacious as risk-reduction strategies is the development of migrant networks (Taylor, 1986). When migrant networks are well developed, they put a destination job within easy reach of most community members, making emigration a reliable and relatively risk-free economic resource (Mas-

sey et al., 1987). Thus, the self-sustaining growth of networks that occurs through the progressive reduction of costs is reinforced by the progressive reduction of risks. Every new migrant expands the network and reduces the risks of movement for all those to whom he is related, eventually making it virtually risk free and costless to diversify household labor allocations through emigration. Empirical work done to test the theory of risk diversification has been remarkably supportive (Lucas and Stark, 1985; Taylor, 1986; Fox and Stark, 1987), and the overall perspective is consonant with patterns observed in detailed studies of emigrant-sending communities in Mexico (Reichert, 1981, 1982; Mines, 1981; Massey et al., 1987).

From either a cost–benefit perspective or a risk-aversion point of view, therefore, migration generates a social structure that leads to its cumulative causation over time. But international migration feeds back on other facets of community structure besides networks, and these additional feedbacks provide ancillary mechanisms to support migration's cumulative causation over time. Specifically, the repatriation of migrant earnings changes the structure of agricultural production within rural communities, and alters the distribution of income.

These distributional impacts are likely to be greatest when migration is between areas with very different income levels, such as Mexico and the United States. In a study of four Mexican communities, for example, the average US migrant income was about \$4,250 per year (1982 dollars) after deducting expenses for food and lodging, roughly six times the amount that could be earned working full time in Mexico at the official minimum wage (Massey et al., 1987). Repatriated earnings on this scale dwarf locally generated incomes and have profound distributional impacts on migrant communities.

### **Agrarian transformation**

Access to emigrant earnings has been shown to have significant effects on the structure of landholding and the organization of agrarian production. Joshua Reichert (1979, 1981, 1982) studied one rural Mexican town where high incomes earned through foreign labor allowed a few migrant families to gain privileged access to local land resources. Over two decades, migrant families representing 20 percent of those in the community gained control of 63 percent of the local land base, transforming the town from an egalitarian community of universally poor, landless families to one where economic power was concentrated in the hands of a landed migrant elite.

Since foreign wage labor remains a secure and lucrative source of income, landholding migrants often farm their lands less intensively than nonmigrants, letting them lie fallow or letting others farm them while they continue to travel abroad for work. Even after acquiring land, it is still in a

household's interest to diversify risks by allocating some family workers to foreign wage labor (Stark and Levhari, 1982). In Mexico, for example, it is common practice for the most productive members of the household (fathers and older sons) to migrate abroad, leaving agricultural production to wives, younger children, or sharecroppers (Reichert, 1981, 1982; Mines, 1981; Massey et al., 1987). In many cases the land simply is not farmed, and those who do farm tend to invest more heavily in labor-saving technologies (Massey et al., 1987). These practices reinforce the disruption of traditional peasant society, further reducing local food production, raising the price of staples, decreasing the demand for hand labor, and ultimately increasing the pressure for outmigration (Swanson, 1978; Rhoades, 1978, 1979; Rubenstein, 1979; Fergany, 1982; Mines and de Janvry, 1982; Pressar, 1982).

### Income redistribution

Another area of research has considered the impact of migration on community income distribution. Studies indicate that repatriated migrant earnings markedly affect the amount of income available to households and profoundly alter the distribution of income (Reichert, 1982; Selby and Murphy, 1984; Stark et al., 1985, 1986; Massey et al., 1987). Such an infusion of money from outside the community increases the sense of relative deprivation among nonmigrants, a feeling that is heightened by spending patterns typical of migrants, who make conspicuous purchases of houses, cars, clothes, and consumer durables (Brettell, 1979; Reichert, 1982; Swanson, 1978; Rhoades, 1979; Pressar, 1982; Griffith, 1986; Massey et al., 1987).

Oded Stark and his associates provide a systematic theoretical treatment of the effect of emigration on income distribution and vice versa (Stark, 1984a, 1984b; Stark and Yitzhaki, 1985; Stark and Taylor, 1988). Stark posits that household well-being and satisfaction arise not only from improvements in absolute economic status, but also by favorable comparison with other households in the reference community. Although a household may be motivated to migrate if its income is low, the level of motivation will be muted if incomes are universally low. But if some households have high incomes, then a poor household is relatively, as well as absolutely, deprived; and the motivation to improve its status through foreign wage labor is correspondingly higher. In systematic studies using Mexican community data, Stark and J. Edward Taylor (1986, 1988) have found that when a household is relatively deprived, the likelihood of emigration is significantly and strongly increased, even controlling for the absolute economic status of the household.

Stark (1984a) argues that this relative deprivation effect builds a strong self-perpetuating tendency into the process of migration in general, and international migration in particular. When household members migrate

abroad for work, they earn higher incomes that are not available locally and increase the amount of income at the top of the distribution, thereby increasing the relative deprivation of households at the bottom of the distribution, and increasing their probability of migration (Stark and Taylor, 1988). The result is a self-sustaining cycle of migration, increased relative deprivation, and further migration, as described in case studies by Reichert (1979), Richard Mines (1981), Massey et al. (1987), and others. Migrant labor that yields the highest income will produce the greatest relative deprivation, and, hence, promote the greatest additional migration. Migration between developing and developed countries, therefore, exhibits the greatest potential for cumulative causation through this mechanism.

Stark et al. (1985, 1986) found, however, that foreign remittances did not increase income inequality in all communities. Rather, they increased inequality only in communities with few migrants and poorly developed networks; among those with well-developed networks and many migrants, remittances had an equalizing impact. In the limiting case, where virtually all households are involved in migrant labor (such as Reichert's community), remittances rendered the income distribution more equal. Thus, the self-sustaining impact of remittances is greatest during early phases of migration, when vast gulfs separate the incomes of a few emigrants from those of nonmigrants; but this feedback path becomes progressively attenuated as larger and larger shares of the community gain access to migrant income. When a majority of members of a community are involved in migration, remittances act to promote income equality, and relative deprivation ceases to be a motivation for migration.

### **The Mexican case in comparative perspective**

The foregoing review of theory and empirical research suggests that international migration is a natural outcome of social and economic changes that inevitably accompany economic development. With development comes the substitution of capital for labor, the enclosure of rural lands, and the creation of markets. These processes destroy the foundations of the peasant political economy centered in rural villages, creating a pool of potential migrants with attenuated ties to the land and to traditional ways of life.

Most of these people are attracted to industrial or service employment in cities, but the potential for widespread foreign emigration is built into the structure of development by the cyclical nature of economic growth, the ubiquity of international wage differentials, and lowered costs of movement and information. Emigration is greatest between countries that are integrated economically because a close articulation tends to produce an inverse association between business cycles, a well-developed bi-national transpor-

tation and communications system, and a high incidence of focused labor recruitment.

Once begun, international migration expands in and of itself because it feeds back on community social and economic structures in ways that increase the likelihood of additional migration, yielding a process of cumulative causation. Networks expand rapidly in self-sustaining fashion as each new migrant lowers the costs and risks of movement for those to whom he is related, inducing some of them to migrate, thereby lowering the costs and risks for another set of people, and so on. As migration expands, it exacerbates the consolidation of land, contributes to the application of capital to agriculture, and skews the distribution of income, all of which increase further the pressures for outmigration. When the process of emigration reaches this stage of development, it is very difficult to manage and control it.

In the long run, however, the interrelated processes of economic growth, rural-urban migration, and emigration transform a country from an agrarian peasant society to a modern industrial economy, and gradually weaken the forces making for continued migration. Modernization eventually reaches all areas of the country, and the process of displacement slows down. With increasing urbanization, rural dwellers (the major source of migrants) become a smaller share of the population. Real wages rise, approaching those in more developed nations. Migrant networks eventually saturate the population, and their expansion decelerates; and as the number of emigrants reaches high levels, remittances tend not to increase relative deprivation, but to reduce it. With the strengthening of capital markets, families gain access to insurance and credit, and the attractiveness of emigration as a risk-reduction strategy declines.

An examination of the Mexican case suggests that it conforms quite closely to the above scenario. Historically, emigration to the United States has stemmed not from Mexico's lack of economic growth, but from its remarkably rapid development. As with the countries of Europe before 1914, Mexican emigration has occurred in a series of waves closely connected to economic and political conditions that reflect the disruptive and revolutionary nature of the transition from rural agrarianism to urban industrialism. Compared with the countries of Europe, the scale of Mexican emigration is unremarkable; indeed it is squarely in the middle range of European experience. And considering Mexico's high rate of population growth and the capital-intensive nature of contemporary technology, the volume of Mexican emigration is chiefly impressive more for its smallness.

There have been three periods of significant Mexican emigration to the United States. The first wave began shortly after the turn of the century in direct response to the enclosure of communal lands and the application of capital to agriculture in Mexico, paired with rapid economic development

in the American Southwest (Cardoso, 1980). These developments were made possible by the advent of the railroads, which linked the American Southwest directly to markets in the Eastern United States and created a demand for Mexican labor in mines and fields. They also linked the interior of Mexico to foreign markets and made large-scale agriculture profitable (Hansen, 1974). The arrival of factory goods in rural Mexico displaced local artisans (Massey et al., 1987), and, along with the commercialization of agriculture and the enclosure of farmland, steadily undermined the foundations of the peasant economy. Railroads simultaneously lowered the cost of travel to the United States and brought the first labor recruiters into central Mexico. These factors combined to initiate the first wave of emigration (Cardoso, 1980).

The wave crested during the 1920s when a post-World War I economic boom in the United States was paired with an economy devastated by the Mexican Revolution (1910–19). Between 1841 and 1930, some 744,000 Mexicans emigrated to the United States, but 97 percent of this total left after 1900 and only in 1909 did the annual number of emigrants exceed 10,000 (Cardoso, 1980; Ferenczi, 1929b). The 1841–1930 total represents 5.5 percent of Mexico's population in 1900 and 4.5 percent of its population in 1930. Thus, the flow of emigrants abroad was quite modest by the historical standards of Europe, and it is small indeed when one considers the political instability and economic chaos wrought by the Revolution, which itself was a direct outgrowth of economic inequalities perpetuated by rapid capitalist development under the regime of Porfirio Díaz (1876–1910) (Hart, 1987).

The first wave of emigration ended in 1929 with the onset of the Great Depression and the mass return home of Mexicans from the United States (Hoffman, 1974). For the next decade there was no significant movement of Mexicans abroad. Within Mexico, however, the 1930s was a time of political restructuring when the foundations of the modern state were established (Cline, 1962; Hansen, 1974). Industrial policy focused on import substitution, with the government channeling capital goods to industries where high consumer demand was being met by imports. In agriculture, millions of hectares were distributed to peasants in an effort to recreate the communal land system of the past and reverse the enclosures of the Porfirian era. At the same time, millions of other hectares were given to private developers in the northern states and coastal regions. Public investments in irrigation and rural infrastructure turned this large-scale agrarian sector into a dynamic source of productivity, output, and cash, while the peasant sector remained quite unproductive and poor (Gregory, 1986).

The political and economic foundations laid in the 1930s led to rapid economic growth and substantial gains in productivity across all sectors beginning in the 1940s. These were sustained, with cyclical perturbations, through 1982. Rates of growth in the Mexican economy during this period were remarkable, far exceeding those prevalent in Europe during its modern

capitalist transformation. Annual rates of output growth averaged 6–7 percent during each decade from 1940 through 1980; and worker productivity steadily grew at annual rates of 2–4 percent (Gregory, 1986). Levels of urbanization, education, school enrollment, and health all rose dramatically (Unikel et al., 1976; Altamir, 1974; Alba and Potter, 1986).

The second wave of migration began in 1942 and peaked in the late 1950s before subsiding in 1964. As was typical in the case of the Atlantic Economy of the nineteenth century, it stemmed from a coincidence of push and pull factors. In Mexico, a series of droughts in the 1940s put considerable pressure on rural resources; and although the agrarian redistribution had provided many families with land, it offered little capital for small-scale production, leaving the peasant sector unproductive and starved for cash (Massey et al., 1987). In the United States, World War II produced a labor shortage that was remedied by the *Bracero* Program, a temporary employment initiative that granted visas to Mexicans for agricultural work lasting up to six months (Galarza, 1964).

Although the *Bracero* agreement was envisioned as a temporary wartime measure, Southwestern growers prospered under it and used their Congressional influence to extend it annually until 1964 (Samora, 1971). The program expanded rapidly from 362,000 workers during the period 1942–49 to 3.3 million during its height in the 1950s. In all, some 4.6 million *braceros* and 565,000 legal emigrants entered the United States during the period 1940–64 (Cornelius, 1978), representing about 15 percent of the Mexican population of 1960, again a moderate level compared with European countries in the nineteenth century.

The third wave of migration began in the mid-1960s and continues at present. It coincides with a wave of agricultural modernization centered on the subsistence sector of small landowners in the densely populated north-central states, the traditional source region for migrants to the United States (Samora, 1971; Dagodag, 1975; North and Houstoun, 1976). After 1965 there was a widespread shift from subsistence to cash crops in the small-farm sector, accompanied by a rapid increase in mechanization, increased use of high-yield seeds, expanded irrigation, greater application of insecticides and herbicides, and greater dependence on chemical fertilizers (Hewitt de Alcantara, 1976; Gregory, 1985; Massey et al., 1987). Together, these developments reduced substantially the demand for agricultural workers in rural peasant communities (Rendón, 1976; CESP, 1982; Massey et al., 1987). In addition, after 20 years of development under the aegis of the *Bracero* Program and nurtured by liberal US immigration laws, Mexican migrant networks achieved a critical mass and entered a rapid phase of self-sustaining growth (Reichert, 1979; Mines, 1981; Massey et al., 1987).

With the maturation of migrant networks and the mechanization of agriculture during the late 1960s and early 1970s, temporary and permanent

migration to the United States became increasingly popular as family economic strategies, and were widely employed by Mexicans for purposes of risk reduction, economic mobility, and family maintenance (Reichert and Massey, 1979; Reichert, 1981, 1982; Mines, 1981; Roberts, 1982; Massey et al., 1987). Mexican emigration grew steadily throughout the period. In the 20 years from 1965 to 1985, 1.2 million legal immigrants entered the United States (Immigration and Naturalization Service, 1987); and the best estimates suggest that at least 1 million undocumented immigrants arrived between 1965 and 1980 (Warren and Passel, 1987), with another 106,000 entering each year thereafter (Passel and Woodrow, 1987). These figures suggest a lower-bound estimate of 1.5 million undocumented Mexican migrants between 1965 and 1985, giving a total of 2.7 million emigrants in the most recent wave; or, if we assume that the number of undocumented migrants was twice as large, the figure is 4.2 million. These numbers represent 4.0 and 6.3 percent of Mexico's 1980 population, respectively, suggesting that even with liberal allowances for undocumented migration, Mexican emigration has remained quite modest.

In broad perspective, then, the histories of Mexican economic development and emigration do not indicate an exceptional phenomenon. During periods of economic growth, levels of productivity, output, and employment increased impressively. Especially between 1940 and 1970, growth rates were much higher than those of European nations during the nineteenth century (Hansen, 1974; Gregory, 1986). Given such rapid economic transformation, significant emigration is not surprising. But during three waves of emigration to the United States (1900–29, 1942–64, and 1965–85), the number of emigrants never exceeded 15 percent of the period population (compared with 41 percent in Britain, 36 percent in Norway, 30 percent in Portugal, 29 percent in Italy, 23 percent in Spain, and 22 percent in Sweden). Even total emigration from 1841 to 1985 does not exceed 15 percent of the 1980 Mexican population (or 25 percent of the 1960 population). Moreover, up to 1982 the process of rapid growth and development was interrupted only by the Mexican Revolution, which itself was a direct outgrowth of earlier development. European nations, in contrast, experienced successive periods of revolution, political instability, and bellicosity in the course of their development, culminating in the catastrophe of two world wars.

Thus, by the historical standards of Europe, Mexico's economic development from 1876 to the present has been remarkable for the small amount of political instability and emigration it has spawned. The modest level of emigration is especially impressive given Mexico's close economic integration with the United States (Barkin, 1986) and the demographic and technological context within which its development occurred.

The demographic potential for emigration from Mexico is much greater than it was for western Europe during the nineteenth century. In Europe,



the transition from high to low mortality conditions occurred slowly, and fertility levels were relatively modest because late marriage and permanent celibacy were common (Coale, 1974). After a fairly short lag, fertility began to fall because the desire for family limitation stemmed from the same social and economic changes that produced the mortality decline. As a result, the gap between birth and death rates was not large and it closed quite rapidly, yielding modest and progressively declining rates of natural increase.

In Mexico, however, the decline in mortality occurred rapidly in a few years after 1940, but fertility remained high because of universal early marriage and a lack of desire for family limitation (Alba and Potter, 1986). The resulting large gap between birth and death rates persisted for decades because to a great extent the declines in mortality stemmed from imported technologies and public health measures rather than socioeconomic changes that simultaneously reduced birth rates. The gap began to close only in the late 1970s when the government instituted an active family planning program that responded to latent demand for family limitation growing out of the social and economic changes that had accumulated in the course of development (Alba and Potter, 1986). As a consequence, during its period of dynamic growth, Mexico experienced very high rates of natural increase, far in excess of those characterizing European countries during the nineteenth century. These higher growth rates clearly exacerbated the pressures for emigration by increasing rural population densities.

At the same time, the technology of production was becoming increasingly capital intensive compared with earlier eras. During the nineteenth century, gains in productivity were achieved largely through the reorganization of production and the division of labor; the machines themselves were crude by modern standards. Thus, the number of peasants displaced by agricultural mechanization was limited, while the demand for unskilled labor in urban factories was large (Perry, 1978). During the twentieth century, however, technology has become increasingly capital intensive. Agricultural mechanization now has the potential to displace far more people from rural employment, while factories need fewer workers to produce the same output. As a result, the number of workers required to produce a given unit of output has fallen sharply in all sectors of the Mexican economy (Altamir, 1974; Alba, 1978). Again, these trends exacerbate pressures for emigration compared with the situation in nineteenth century Europe.

Technological improvements have also substantially reduced the time and money required to travel internationally, and modern mass communications have made virtually all Mexicans aware of the affluence of the United States. As a potential migrant, the average Mexican knows a great deal more about his destination than did European emigrants of the past and is able to travel back and forth with much greater ease; the two countries, of course, share a common border rather than being separated by an ocean.

All in all, Mexico's demographic, technological, and geographic situation appears to favor large-scale emigration far more than did conditions prevailing in Europe around the turn of the century, making the relatively modest scale of Mexican emigration to the United States all the more impressive.

In 1982, however, 40 years of economic expansion and rapid development came to an abrupt halt as Mexico experienced its worst economic crisis since the 1910 Revolution. Gross domestic product fell by 0.5 percent in 1982 and by 4.7 percent in 1983; industrial output declined by 2.7 percent and 8.3 percent, respectively; and open unemployment in the three largest metropolitan areas increased to 8 percent in 1982 and remained there throughout 1983 (Gregory, 1986). As stark as these indicators are, the force of the crisis was absorbed mainly by wages, which fell by 25 percent in real terms between 1981 and mid-1983. The real value of the minimum wage dropped by 20 percent over the same period (Gregory, 1986), and the 1982 inflation rate was about 480 percent.

This crisis originated in the government's decision to invest heavily in import-substituting industries in an effort to create employment, and at the same time to increase subsidies for foods and services in order to reduce income inequality. These efforts were financed with oil revenues and foreign borrowing. The government assumed that oil prices would rise at a rate high enough both to sustain social and economic spending and to service the foreign debt (Gregory, 1986: 270).

When oil prices fell, the economic bubble burst and the crisis ensued, just as the United States was entering the Reagan-era economic boom. Given the high degree of economic integration between Mexico and the United States, the well-developed state of Mexican migrant networks in the United States, and the wealth of historical data showing the sensitivity of migration to business cycles at home and abroad (D. Thomas, 1941; B. Thomas, 1954), an acceleration in emigration after 1982 is hardly surprising. Thus, legal Mexican immigration to the United States grew from 56,000 in 1982 to 72,000 in 1987, an increase of 29 percent in five years. At the same time, the number of apprehensions, the vast majority of which involve Mexicans, by the Immigration and Naturalization Service increased by 82 percent, growing from 970,000 in 1982 to 1.8 million in 1986 (Immigration and Naturalization Service, 1987, 1988).

From a broad historical perspective, this apparent acceleration in emigration is unremarkable and represents a normal adjustment to a downturn in the Mexican business cycle. As it has at other times in the past, Mexican emigration to the United States serves as a buffer against the dislocations of a strong recessionary cycle and is part of the country's larger strategy for dealing with the crisis. Not only does emigration ease the country's unemployment burden, but remittances provide a significant source of foreign exchange (Díez-Canedo, 1980) and cushion the decline in real wages for

many families; they also provide an important source of investment funds for small entrepreneurs (Massey et al., 1987). The favorable exchange rate of the US dollar and the Mexican peso, in particular, encourages the flow of capital back into the country from migrants abroad.

Reducing the flow of Mexican migrants to the United States, if it were possible, would impose a significant additional hardship on Mexico as it grapples with the serious social, economic, and political problems stemming from the crisis. It would cut off a natural, and very important, adjustment mechanism, and would probably prolong and deepen the recession. If it is in the US interest to promote economic development in Mexico and to facilitate its return to dynamic growth, then it is probably also in the US interest to accommodate the increase in Mexican immigration caused by the present crisis.

How long the acceleration in Mexican emigration will continue depends on the ability of the Mexican government to end the crisis and restore stable economic growth. Should the prior course of Mexican economic expansion be resumed and Mexican cities once again regain their attractiveness as centers of employment and opportunity, the rate of emigration can be expected to level off and decline. Moreover, if we look beyond the present cycle, there are reasons to believe that the potential for Mexican emigration has already peaked, or will soon do so. In essence, the fundamental processes producing emigrants are already well advanced in Mexico, and inevitably they will approach their natural completion.

First, the process of capital substitution has already permeated much of Mexico's small-farm sector. The number of tractors in use on rainfed fields nearly tripled during the 1970s and came to outnumber those in use on irrigated fields (Gregory, 1986). Thus, the land/labor ratio has increased steadily over the years, and by the 1980s labor shortages were beginning to appear in some rural districts. Second, further consolidation of farmland is unlikely. Virtually all arable land is either in private hands already, or is part of the state-sponsored *ejido* system. Private lands are already consolidated into relatively large tracts, and it is politically impossible for the government to promote the consolidation of *ejido* holdings, although some *ejido* owners have privately (and illegally) rented or sold their holdings to large companies and landowners. Third, markets and market-oriented behavior have penetrated most regions of the country to the point where models of the peasant economy are no longer applicable (de la Peña, 1981). A simple comparison of successive descriptions concerning one Mexican town (Tepoztlán) illustrates the extent to which peasant social and economic structures have been effaced in rural Mexican communities (see Redfield, 1930; Lewis, 1951; Lomnitz-Adler, 1982). Probably the only areas remaining outside of the market economy are isolated Indian regions in the south.

As a result of these development processes, the population from which emigrants are drawn has steadily dwindled. In 1940, two-thirds of the Mex-

ican labor force was employed in agriculture, and in 1960 the figure still stood at about 50 percent. By 1980, however, the share of Mexican workers engaged in farming had shrunk to 28 percent (Gregory, 1986). As this percentage becomes smaller and, as can be expected, fertility continues to fall, the pool of potential migrants will gradually decline. In addition, migrant networks have been expanding for 40 years now and are approaching the saturation point in key sending states. A variety of cases have been documented where networks are so well developed that virtually every town dweller has a tie to someone with US migrant experience (Reichert and Massey, 1979; Mines, 1981; Roberts, 1982; Massey et al., 1987).

Thus, if policymakers and citizens are worried about the effects of large numbers of immigrants entering the United States, then Mexico should not be the focus of their concern. In the first place, it is much too late in the process to have any realistic expectation of markedly affecting the level of Mexican emigration to the United States. In the second place, the powerful forces in Mexico that drive emigration are well on the way to running their course, and barring a major political catastrophe, the pressures for outmigration will probably diminish over the next two decades.

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## Note

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