Regional and Sectoral Development in Mexico as Alternatives to Migration
Series on Development and International Migration in Mexico, Central America, and the Caribbean Basin

Sergio Díaz-Briquets and Sidney Weintraub,
Series Editors

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Determinants of Emigration from Mexico, Central America, and the Caribbean

Volume II
Regional and Sectoral Development in Mexico as Alternatives to Migration

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About the Editors and Contributors
The Immigration Reform and Control Act of 1986 (IRCA) was a manifestation of widespread public concern over the volume of undocumented immigration into the United States. The principal innovation of this legislation—the provision to impose penalties on employers who knowingly hire undocumented immigrants—was a response to this concern.

This effort at restriction was tempered in IRCA by other provisions permitting the legalization of two types of undocumented immigrants—those who had resided in the United States since January 1, 1982; and what were called special agricultural workers (SAWs), persons who had worked in perishable crop agriculture for at least 90 days during specified periods from 1983 to 1986. Approximately 3.1 million persons sought legalization (what is popularly referred to as amnesty) under these two provisions. The breakdown was roughly 1.8 million under the regular program and 1.3 million as SAWs. Mexicans made up 75 percent of the combined legalization requests.

Two elements—punishment and exoneration—were essential ingredients of the compromise that made possible the passage of IRCA, but they also had the effect of working at cross purposes, at least temporarily. For a time, many persons who might have crossed the border without papers took the opportunity to regularize their status and thus enter legally. In our research we discovered many non-farmers who had not earlier considered temporary migration but who obtained papers as SAWs to enter the United States. Officials of the U.S. Immigration and Naturalization Service (INS) asserted that there was widespread fraud under the SAWs program for applicants from Mexico and elsewhere. We verified from the Mexican side of the border that, indeed, there was fraud, but our evidence does not permit making an estimate of its magnitude. The two provisions together did not slow immigration but instead permitted some switching from undocumented to documented border crossing. During the period that legalization applications could be submitted, therefore, data showing a decline in unauthorized border crossings (apprehensions) were deceptive.

In due course, however, undocumented immigration began to pick up again, and apprehension data and other evidence now indicate that it is at
a level similar to that before enactment of IRCA. There is ample proof of the production of fraudulent documents permitting immigrants to show employers that they are "legally" in the United States. It is probably impossible to end this entrepreneurial document production short of instituting a foolproof identity card, assuming the word "foolproof" is an accurate characterization of technology. The idea of Americans having to show an identity card when seeking employment has not been accepted.

It is an overstatement to say definitively that IRCA has failed to accomplish its main task, to staunch the flow of undocumented immigrants by means of penalties on employers, but that is the initial conclusion one must reach. Its failure means that the available options for reducing the inflow of undocumented immigrants—assuming this is still the U.S. goal—are reduced by the one option that was earlier considered the most promising.

An identity card is not acceptable. A high fence, patrolled by armed guards keeping persons without papers from entering the United States, would be unacceptably obtrusive and also alter the relationship with Mexico. It would be anomalous to forcefully close the border to people at the same time the United States and Mexico are planning to open the border to the free flow of goods and services.

There thus remains only one feasible option—short of leaving bad enough alone and letting those who wish to come do so—and that is to foster the economic development of those countries that send the bulk of undocumented migrants to the United States. If punishment is not the solution, then perhaps development is.

We did not know development was really the only option when this research project was started. However, IRCA had a little-noticed provision that established the Commission for the Study of International Migration and Cooperative Economic Development with the following mandate:

The Commission, in consultation with the governments of Mexico and other sending countries in the Western Hemisphere, shall examine the conditions in Mexico and such other sending countries which contribute to unauthorized migration to the United States and [shall explore] mutually beneficial, reciprocal trade and investment programs to alleviate such conditions.

THE RESEARCH PROGRAM

The research program of the Commission focused on two broad themes: why people emigrate from their own countries to enter clan-
destinely into the United States, and what cooperative development measures are most appropriate to reduce the economic incentive to emigrate. More emphasis in the research was placed on the second of these two issues, particularly job creation in migrant-sending countries, because there was already ample scholarly literature on the motives for emigration. These motives are not solely economic, but evidence from years of research demonstrates clearly that the economic dominates.

We have culled the research supported by the Commission to sort out those essays that we think make valuable contributions to the literature on the relationship between development and migration. The authors of the essays are experts in this field from migrant-sending countries, Europe, and the United States. The essays selected are organized into six volumes, each dealing with a specific aspect of the development theme; each volume is therefore self-contained. In our judgment, the six volumes together make the most original contribution that exists to date on the development-migration relationship. We are gratified that Westview Press reached a similar conclusion and wished to publish the series.

Both editors were involved in the research program of the Commission: Sergio Díaz-Briquets as research director and Sidney Weintraub as senior research adviser. Our motive in bringing out the series is to provide scholars with a base of research from which they can delve further into the development-migration nexus.

As the listing of the series shows, one volume (Volume II) deals exclusively with Mexico, and three others (Volumes I, III, and IV) with Mexico and with other countries in Central America and the Caribbean. For the sake of convenience, we use the phrase Caribbean Basin to refer to the collectivity of countries in this region. The emphasis on Mexico is warranted by the evidence that Mexicans constitute about 70 percent of the unauthorized immigrants in the United States. Volume V deals with Central America and the Caribbean, and the final volume (Volume VI) with U.S. policies relating to development in and emigration from Mexico and other countries of the Caribbean Basin. Although we take responsibility as senior editors for all the volumes, the editor for Volume V is Anthony P. Maingot. The final volume contains the executive summary of the report of the Commission submitted to the Congress and the president.

The essays deal mostly with migrant-sending countries in the Western Hemisphere because that was the Commission's mandate and because the bulk of undocumented immigrants into the United States come from Mexico and other countries of the Caribbean Basin. However, the Western Hemisphere emphasis is not exclusive, and several comparative essays on receiving-country policies in Europe are included in Volume VI.
Although research conclusions in the specific areas are discussed in each volume, some overall findings merit emphasis. The most important is the one already stated: that no viable alternative to economic development seems to exist that would significantly reduce undocumented immigration into the United States. It is hardly original to state that as a country becomes better developed, the economic pressure to emigrate is likely to be reduced. Historically, the development thesis has been demonstrated, particularly in Western Europe where countries of emigration became lands of immigration. Western Europe is now coping with its own undocumented, or unwanted, immigrants. Ireland, which has not enjoyed as much sustained growth as other countries in Western Europe, is still a country from which people emigrate. We observed, over time, that domestic economic well-being in European countries overcame the strength of networks in perpetuating outward migration.

Skeptics (including us) acknowledged the need for development, but they argued that it took too long to be relevant for dealing with current problems of undocumented immigration or, indeed, with anticipated migration movements over the next several decades. We do not know what income differential stimulates undocumented migration; nor do we know how much narrowing of this differential is necessary to deter emigration. We do know, however, that the difference between $1,900 and $19,000 a year—which are the respective 1990 per capita incomes in Mexico and the United States—is a stimulant to emigration. Completely closing this gap, even under wondrous estimates of Mexican economic growth, is apt to take more than 100 years. This is not the kind of assessment a policy maker likes to hear.

Yet, it is to this advice that our research leads. Sherlock Holmes was fond of saying that if all explanations but one to a conundrum must be discarded, then that one must contain the answer. This is the conclusion we reach. If emigration cannot be curtailed by other means, then the remaining viable option must be exploited; and it really does not matter if policy makers and legislators with a short-term outlook grumble at this conclusion.

The saving grace is that incomes do not have to be identical to act as a deterrent to clandestine migration. There is a natural desire of most persons to remain at home, which can be reinforced if economic hope is offered to would-be migrants and their children. We suspect, based on the research contained in the series, that absolute income differentials may matter less in the migrate-stay calculus than the direction of economic hope (that is, whether economic conditions at home are improving or
deteriorating). We are not referring here to improved economic conditions for one year or two, but sustained over a decade or so.

The importance of sustaining economic growth over some unquantifiable time period must be emphasized. What we found in study after study was that a short-term increase in income, over one or two years, leads to increased emigration. We came across no study that contradicted this finding. The reason, presumably, is that a modest increase in income makes it possible for people to afford the trip. If, as in the Mexican case, income per person increases by, say, 3 percent after inflation, this adds only $57 to the annual income of the average Mexican. Even this overstates the case; the “average” Mexican, some 50 percent of the population, earns much less than $1,000 a year. An increase in income of $57 or less is not enough to deter the economic incentive to emigrate. But adding 3 percent a year, compounded over 10 or 20 years, might make a difference.

The conclusion that it requires continued economic growth to have a meaningful influence on curtailing emigration has as its corollary that the “cooperative” U.S. policy contained in the Commission’s mandate must also be sustained. Although development is essentially an internal responsibility, and Mexico and other countries in the region are taking many needed steps to restructure their economies, the external environment plays a decisive role. This is not the place for a detailed discussion of U.S. economic policy except to note that if sustained economic growth is required in sending countries to reduce emigration pressures, then U.S. measures that frustrate this growth (particularly trade protectionism but also U.S. macroeconomic policy that slows U.S. growth or pushes up the interest rate that sending countries must pay on their foreign debt) will stimulate undocumented immigration. If the current push toward free trade between Mexico and the United States serves to augment the growth of income and employment in Mexico, it will also have a long-term effect of curtailing emigration pressure. Free trade between the United States and other countries of the region is a less immediate prospect, but it too may eventually help to stimulate the growth of income and employment of these nations.

One other overall conclusion that emerges from the research is that the economic development process as it has been pursued, certainly in the period since World War II, has stimulated internal migration. In country after country, the rural-urban population relationship has shifted in favor of the urban part of the ratio. Cities have burgeoned as the relative role of agriculture has diminished. Manufacturing and services have grown in importance compared with agriculture. This is the normal pattern of development, as witness the historical experience of Europe and the United States. Habits of migration have thus become commonplace
in sending countries in the Western Hemisphere, as elsewhere. Although it is more traumatic to pick up stakes and leave one's own country than to shift within the country, the difference is a matter of degree. Once networks, or ethnic diasporas, have been established in the United States, as they generally have for migrant-sending countries in the Western Hemisphere, even the difference of degree between internal and external migration diminishes. Thus, the number of undocumented immigrants to the United States should not be expected to diminish for the foreseeable future; and this fact increases the importance of sustained economic growth to keep people home.

The relative importance of Mexico as a sending country may decline in coming decades because its economic prospects are more auspicious than those of other countries in the region, particularly in Central America. In addition, migrant networks in the United States have now been established for Central American countries.

Populations in the migrant-sending countries are quite young, and none of these countries is creating enough jobs to satisfy all persons entering the labor force. This situation, once more, points to the primacy of economic growth as the necessary deterrent to emigration.

We have been struck in our investigations by how extensively people in the world are on the move. Our studies concentrated on the movement of people in the Western Hemisphere to the United States, but there are large migrations within Africa and Asia, and into Western Europe from the east (the former Communist countries) and the south (such as from North Africa into France and Italy). It is easier—not easy, but easier—to control immigration into Western Europe than it is into the United States, to which migrants can come across a large land border with Mexico. Yet the West Europeans are not having much success either in dealing with their immigration problem. As with the United States, the key to control is development in the sending countries. We are dealing, in other words, with a global phenomenon. The subject presents itself as a migration issue, but at its core it is a development matter.

WHAT COMES NEXT

The proper approach to development must differ from country to country—even apart from the conceptual or ideological model that is used. Mexico is a large, populous country in which there is scope for regional differentiation. This approach is not available to any meaningful extent for other countries in the Caribbean Basin. Mexico has a substantial industrial structure on which to base export-led growth, as it is now
The industrial structure is more modest in Central America and hardly exists in much of the Caribbean.

Overall findings of the type set forth in this preface can take a policy maker only so far. Understanding the link between development and migration, and then making policy to influence both phenomena, requires intimate knowledge of conditions in sub-regions and in each country. This is provided in the six volumes in this series.

Our objectives in bringing out these volumes are twofold: to augment understanding of the development-migration relationship based on the extensive research that was carried out; and, much more importantly in the long run, to stimulate further scholarly research about this theme.

Sergio Díaz-Briquets
Sidney Weintraub
The durable abatement of undocumented immigration into the United States from Mexico depends ultimately on a steady improvement of Mexican living conditions and a narrowing of wage differentials between the two countries. Greater economic opportunity at home can decrease the appeal of the U.S. labor market for Mexican workers. It will take considerable time to narrow the large wage gap—now at about a ten-to-one ratio—between the two countries. The influence of cross-border social networks driving migratory flows cannot be modified in the short term. Conditions in the U.S. labor market that provide a welcoming environment for undocumented labor migrants will not alter in the near future. These features of job markets and social networks between the two countries are well entrenched. Changing them will take a long time. In the interim—ten years, twenty years, or however long—migration pressures will persist.

Mexico is now making decisions that will have great bearing on the employment and migration choices of future generations of workers. Mexico's structural economic changes—opening the economy to foreign trade and investment, reducing the role of the state, and increasing that of the market—will result in winners; but there will also be losers who bear the major cost of adjustment. This restructuring is what makes possible Mexican consideration of a free trade agreement (FTA) with the United States. An FTA would make the two economies even more interdependent than they are now; an FTA would lead to the transformation of many sectors of the Mexican economy. These changes will be felt nationally and at the regional level.

The authors of the chapters in this volume examine a number of regional and sectoral developments in Mexico and assess how they are related to undocumented migration to the United States. The fundamental premise driving their analyses is that greater regional and sectoral development constitute the best antidote to undocumented migration. The chapters, which reveal a complex scenario, have several common threads. These threads include the excessively intrusive role of the Mexican state based on a highly centralized structure of government and uneven regional economic opportunity. Mexico's state-led development model can claim major accomplishments, but it endured well past
its time. The rural economy has suffered for the benefit of a few large
cities. This development asymmetry led to immense urban problems—
overpopulation, ecological damage, and traffic gridlock, to cite just a
few—and to the deterioration of many rural communities, many of
which are now dependent on emigration to the United States for their
economic survival.

Jesús Tamayo and Fernando Lozano provide a comprehensive ex-
amination of policy actions that emigrant-sending states and regions in
Mexico could take to enhance their development and thereby reduce
economic pressures to emigrate. Their study focuses on Zacatecas, one
of the poorest Mexican states and traditionally an important source of
undocumented immigrants into the United States. The authors contend
that the highly centralized Mexican political system, in which state
governments have limited authority, penalizes states such as Zacatecas.
National resources—including those generated within the state—are
allocated based on decisions made almost exclusively in Mexico City.
Many states receive from Mexico City only a small portion of what they
contribute to the national coffers. One option for Zacatecas—and other
states—is to demand at least that federal expenditures in the state be
more in line with the contributions made by the state. In principle,
poorer states should be net recipients of national resources.

Tamayo and Lozano found that most undocumented migration or-
iginates from some of the poorest regions of the state. They conclude that
it would be futile and costly to seek to promote the development of
regions in Zacatecas that have little economic growth potential. Instead,
they urge that a new policy be designed that includes mutually reinforcing
municipal, regional, state, and federal initiatives. They analyze strategies
for the development of Zacatecas’s agricultural, mining, industrial, and
service sectors, and note that different policy interventions have varying
time frames. The policies recommended by Tamayo and Lozano would
build on the considerable financial resources Zacatecas receives from
migrant remittances and on the state’s locational advantage at the crossroad
of Mexico’s major economic regions and most populous cities.

Jesús Arroyo Alejandre, Adrián de León Arias, and Basilia Valenzuela
Varela consider the question of emigration and development from the
regional perspective of the state of Jalisco. They contend that “it is
possible to influence the magnitude of the migratory flow to the United
States through the development of regional centers that serve as hubs
after having defined their potential and identified their geographic
integration with the regional economic system.” These regional centers
would be able to attain the economies of scale and specialization needed
to achieve self-sustained growth. They could serve as alternative des-
tinations for migrants originating from areas in Jalisco and nearby regions
with limited development potential who would otherwise migrate to one of Mexico's large cities or to the United States.

Like Tamayo and Lozano, Arroyo Alejandre, Arias, and Varela conclude that an attempt to promote the development of migrant-sending regions with limited development possibilities would waste resources and distract attention from the development of regional centers with better potential. They believe these promising regional centers can base their development on regional and export-oriented expansion of agribusiness, light manufacturing, and services. These policies, they believe, would generate jobs and contribute to the diversification of regional labor markets.

Arroyo Alejandre and his colleagues also view the extreme concentration of authority in Mexico City as an impediment to balanced regional development. They are encouraged by the current tendency of Mexico's political and economic policies toward decentralization and by the government's encouragement of more active participation by the private sector in the country's development. They believe these policies will enhance the prospects for further regional development. Arroyo Alejandre and his colleagues advocate fostering small and medium-sized businesses; expanding the communications infrastructure; increasing investment in promising secondary cities; promoting credit instruments attuned to local needs; and reorienting education to serve regional needs. Their premise is that as these initiatives begin to take effect, and as regional development occurs, increasingly fewer workers would rely on the extraregional emigration option. This outcome, however, is not guaranteed. The authors note that it is difficult to integrate rural communities into wider urban systems and that, just as local conditions can encourage emigration, emigration can hinder local development.

The emigration-development issue is also addressed by Wayne A. Cornelius. Cornelius and his colleagues conducted surveys in 1988-1989 in three migrant-sending communities, one each in the states of Jalisco, Michoacán, and Zacatecas, which they also had studied earlier, before the passage of the Immigration Reform and Control Act (IRCA). The policy question posed by the emigration-development dilemma is how to create a viable local alternative to undocumented migration. The answer, Cornelius finds, is complex because there is a deeply ingrained emigration tradition that pervades the culture of many communities. The solution to economic problems is almost always sought in the United States and emigration "becomes a complete substitute for local economic activity." There is little incentive to invest resources in communities of origin, which many migrants visit only for short periods of time. These attitudes can be changed only if local opportunities are available.

Those surveyed stated that what was needed were more and better jobs, particularly factory jobs, and an improved social and economic
infrastructure. Few cited the need for improvements in agriculture, an indication of the widespread despair about upgrading this activity. Migrants who have worked in higher-paying jobs in services and manufacturing in the United States reject agricultural work.

There were striking differences in responses from persons with different status. Persons who had legal access to the U.S. labor market were more concerned about local infrastructure improvements and better social facilities than those who could not legally cross the border, while undocumented migrants were preoccupied mainly with finding jobs. Cornelius concludes that the residents of the labor-exporting communities are seeking "the creation of permanent, nonagricultural employment opportunities, preferably in small-scale manufacturing enterprises [and that] such nonagricultural microenterprises may be the only strategy to appreciably reduce future migration flows from them."

Cornelius argues that the viability of small rural industries can be enhanced by providing them with specialized support services, relatively easy access to credit, and the cooperative purchase of inputs and marketing of outputs. Under these circumstances, rural industries would help retain some prospective emigrants, but even then it is doubtful that a policy of promoting small rural industries would significantly reduce undocumented migration. These industries, mostly microenterprises, are not known for their durability. They are vulnerable to economic downturns.

Arroyo Alejandre and his colleagues favor fostering the establishment of larger manufacturing facilities—not in small rural communities from which many people emigrate, but in more dynamic and larger communities nearby that could serve as alternative destinations to potential migrants; Cornelius, however, is skeptical of this approach. His reservations are based on research findings that indicate that migrants from rural communities do not even consider going to nearby cities with relatively good employment prospects. Arroyo Alejandre and his associates recognize this problem. In order to overcome this obstacle, they recommend establishing employment information services to guide prospective migrants to alternative destinations within their own regions.

Cornelius recommends that because of deeply ingrained patterns of behavior in many rural regions of Mexico, policy should focus on finding alternatives for "would-be, first time migrants to the United States, rather than try to persuade already experienced individuals and families to abandon this source of income."

Mexico's northern border cities are experiencing extremely high demographic growth rates. These cities, while relatively prosperous in Mexican terms, are much poorer than localities on the U.S. side. This difference, coupled with the high cost of health and human services and an aging population in the United States, led David C. Warner to
conclude that both countries would benefit if more U.S. citizens could receive these services in Mexico. The health services in question include nursing home care, extended hospital care, care for the mentally retarded, for head-injured persons, and for the chronically mentally ill. Warner believes these services could be provided at low cost to U.S. nationals at convenient locations in Mexico near the U.S. border. Mexico would gain foreign exchange and many new low-skilled and semiskilled jobs.

The costs for many of the health services under discussion are covered by U.S. federal and state programs, such as Medicare and Medicaid, and regulations would have to be changed to permit Mexican providers to be reimbursed for providing care to U.S. beneficiaries. Warner notes that use of these services in Mexico by Americans would have to be on a strictly voluntary basis. Health care providers would have to meet U.S. standards, and in some cases facilities would have to be operated jointly by service providers from both countries.

Although benefits accruing from the growth of maquiladoras (plants in Mexico, mainly near the U.S. border, which complete labor-intensive operations on materials sent largely from the U.S.) have been significant—in the form of employment creation and foreign exchange earnings—many Mexicans are uneasy about them. They are concerned that the maquiladoras are in Mexico only to take advantage of the country's cheap labor. Although the maquiladoras are in Mexico, critics note, they are not part of Mexico's industrial structure. If wage rates in Mexico were to rise more rapidly than in other countries, or protectionist sentiments in the United States to prevail, maquiladora operations could suffer.

Sidney Weintraub argues that the promise of the maquiladoras extends beyond their demonstrated capacity to bring in billions of dollars in foreign exchange and create hundreds of thousands of jobs. They are best viewed "as a transitional phenomenon, as a source of wages and employment in the process of moving to a higher level of development, when other more secure jobs will be available." If the promise of the maquiladoras is to be realized, and if Mexico is to become an efficient industrial competitor, the country must continue to upgrade the quality of its labor force and take steps to integrate the maquiladora industry into the national economy. As this occurs, the maquiladora plants will cease to be enclaves and will contribute to the diffusion of modern technology. This process will accelerate dramatically if the United States and Mexico enter into a free trade agreement. In the absence of tariffs and other trade barriers between the two countries, the maquiladora plants would lose their current tariff advantage but, on the positive side, would become part of the industrial structure of the integrated market.
Patricia A. Wilson’s survey of over seventy maquiladoras in Guadalajara, Monterrey, Juárez, Nuevo Laredo, and Tijuana, is the basis for her examination of spatial and organizational features of the industry. The industry today has few links to domestic suppliers of material inputs, so the larger part of Mexico’s value-added inputs comes from labor utilization. The share of domestic inputs used by maquiladoras in Mexico’s interior, though larger than those in towns near the border, is still small.

Wilson’s principal finding is that the higher percentage of domestic material inputs in interior locations corresponds to the utilization of preexisting capacity. In their search for markets during the economic crisis of the 1980s, domestic suppliers directed some of their output to the maquiladora sector. In Guadalajara, many suppliers to maquiladoras started from a tradition of craft manufacturing; most of these producers still direct part of their output to domestic users, including maquiladoras. This has not been the case, however, for electronic maquiladoras established by foreign firms. The percentage of Mexican inputs used by these maquiladoras is much lower than among crafts manufacturers, but by virtue of their size the volume of inputs purchased by electronic maquiladoras is important.

The wholly foreign-owned electronic maquiladoras acquire some inputs from Mexican firms and have contributed to the establishment of several local companies as suppliers. They also frequently use local service firms for their tool and die needs, metal stamping, and plastic molding needs. Many auto parts firms that produce primarily for the domestic market also function partially as maquiladoras and use many Mexican inputs. They are able to do so thanks to a strong local metalworking industry that has an experienced labor force. The availability of these workers was one reason why these firms located in Guadalajara. Monterrey’s large industrial groups began producing for the maquiladora sector as a way to utilize idle capacity when domestic demand for their output declined during the 1980s.

Wilson’s main conclusion is that the obstacles and opportunities of the maquiladoras are specific to the sector in which they operate and where they are located. Wilson recommends that, in regions of Mexico where feasible, steps be taken to encourage local links among clusters of related industries to achieve greater integration. This was the path followed by crafts industries in northern Italy and other countries that have become internationally competitive. The firms in a cluster reap benefits from working together while still retaining flexibility. This development would be in keeping with the transitional role for the maquiladoras foreseen by Weintraub as Mexico continues its march toward modern industrial development.
One sector that is generally believed to hold promise for absorbing much Mexican labor is fisheries. Because Mexico has extensive coastlines along the Gulf of Mexico and the Atlantic and Pacific Oceans and exclusive access to major fisheries, it has been assumed that the sector would flourish if Mexico devoted more resources to its development. The findings reported by Alejandro Nadal Egea, however, cast doubt on this assumption: Nadal Egea gives evidence of the limits to development of Mexico's coastal resources, which, he argues, are being poorly managed. He also criticizes current policies in the sector. Because of price controls, there is little incentive to invest in modern canning facilities to process valuable sardines caught in Mexican waters. Instead, much of the catch is processed into animal feed despite strong domestic demand for human consumption and the high price fetched by many varieties of sardines in international markets.

Furthermore, concentration on a few species such as shrimp is leading to their being over-fished, while many other species are only sparingly fished. Nadal Egea urges that, in Mexico's prevailing climate of deregulation, attention be given to respecting natural catch limits in order to sustain renewable resources.

Nadal Egea argues that by and large employment potential in the fishing sector is modest. For example, Mexico has one of the world's most modern tuna fleets. However, relatively few jobs are generated and the cost of creating each job is high. Links between tuna fishing and other economic activities are limited. If traditional fishing methods were improved, employment prospects would be better in the harvesting and marketing of coastal species. Aquaculture, particularly for shrimp, has the potential for substantial growth because of prices and demand in international markets. Employment generation in relation to investment is relatively high in shrimp aquaculture.

Agriculture, Mexico's economic mainstay for much of its history, has stagnated or has been in decline for decades. This deterioration can be attributed partly to the industrial bias of Mexico's modern development strategy, which was financed at the expense of agricultural investment. Agricultural output has failed to keep pace with population growth, net exports have declined, as have rural employment and real wage levels. A decline in rural employment is not necessarily symptomatic of agricultural stagnation because modern farming implies the introduction of labor-saving technology. In addition, a shift away from agricultural to service and industrial employment is the most visible and inevitable consequence of modern economic development. Nevertheless, Mexico's agricultural policy has been wanting, and production has not been optimal, nor has the employment potential of the rural sector been fully
exploited. These themes are addressed by two independent teams of investigators.

Antonio Yúnez-Naude and Ramón Blanno-Jasso examine foreign trade trends in agricultural products and the impact of official policies on these trends. Agricultural stagnation, they conclude, is the result of the price-distorting effects of urban-biased state interventions. Traditional peasant producers of basic grains in rain-fed land were penalized by support policies that set prices too low, while modern producers were given the incentive to specialize in noncontrolled crops whose prices for inputs—water, fertilizer, seeds, pesticides—were subsidized. Yúnez-Naude and Blanno-Jasso argue for agricultural policies that combine market incentives and state interventions to maximize output and employment. Liberating the prices of nonstaple crops would allow efficient producers to benefit from market opportunities, and the state's limited resources could then be devoted to small producers of staple crops. Also, the small producers could be protected and encouraged by state-funded price supports and regulation of imports of staple commodities. Yúnez-Naude and Blanno-Jasso conclude that further deregulation of Mexican agriculture should take place only within the context of a more open international trading regime. Under the current circumstances of state intervention elsewhere, they believe that state intervention is necessary in Mexico as well.

Amado Ramírez Leyva, Marcos Portillo Vázquez, and Celia Sánchez Solano, a team from the Autonomous University of Chapingo (a leading Mexican agricultural, teaching, and research center) examine the export potential of Mexico for many commodities traded in international markets. Their analysis is based on an evaluation of data from the Food and Agricultural Organization of trends in world export volumes and prices and on an assessment of market responses to these trends by producing, exporting, and importing countries. In their detailed analysis, the Chapingo investigators identified those crops that offer promising international marketing opportunities for Mexican producers. They believe that Mexico is well suited to develop a diversified agricultural export profile because it is blessed with ecological and climatic diversity. In their view, Mexico can diversify its agricultural exports without compromising production for internal consumption. To this end, they examined the potential of many crops for which world marketing conditions are favorable and which could be produced on underutilized Mexican lands.

The Chapingo chapter evaluates the global agricultural export potential of the various Mexican states, and also gives the results of a pilot study assessing opportunities and constraints in three rural development districts in Zacatecas. Both evaluations considered the availability and current use of productive resources, crop composition, and local pro-
duction limitations. The methodology took into account marketing bottlenecks, existing development programs, and tradeoffs between income yields and job creation. In the view of the editors, this is a path-breaking study whose methodology could usefully be replicated in many regions of Mexico.

The employment potential of the tourist industry is significant, and tourism is likely to absorb a rising share of Mexico's labor force in the 1990s. Because the industry relies heavily on unskilled and semiskilled workers and is geographically dispersed, tourism is a high-priority sector for Mexico. In 1988, the industry created 650,000 direct jobs and many more indirect jobs. However, Daniel Hiernaux Nicolás and Manuel Rodríguez Woog argue in their analysis that the strategy followed to promote the sector's overall growth has failed to maximize its employment generation potential.

Until recently, Mexico's tourism development strategy was based on considerable capital investment by the state, particularly in modern beach resorts such as Cancún and Ixtapa. Three main objectives were behind this approach: the generation of foreign exchange; the promotion of regional development; and job creation. The strategy was generally successful, although the achievements were below expectations for the last two objectives. Tourism has become one of Mexico's main sources of foreign exchange. However, although the areas immediately surrounding the main resorts experienced economic growth, this development was uneven and of only limited benefit to the population of the region. Many of the gains accruing from links between tourism and other sectors of the economy continue to flow to the economically more advanced regions of Mexico.

The strategy entailed a high opportunity cost in that the cost of each job created in large, modern, and heavily capitalized resorts is far higher than in smaller, less costly, and more geographically dispersed resorts catering to national as well as international tourists. Although smaller resorts generate fewer direct jobs than do larger resorts, indirect employment is greater in the smaller resorts because of their economic links with other sectors in the region, including informal activities. In this respect, the tourist industry is different from the fishing industry, which has fewer regional links. Hiernaux Nicolás and Rodríguez Woog recommend that the issues of cost per job, regional development, and economic ties be kept in mind as Mexico formulates policies to encourage greater private sector involvement in tourism development.

Nature-oriented tourism, which relies on natural areas and outdoor recreational activities, is a specialized but growing branch of the industry. Although limited in its job-creation potential, nature-oriented, or ecological, tourism is ideally suited for rural and isolated areas with restricted
development potential. However, as Art Pedersen and Héctor Ceballos-Lascurain show in their evaluation of the nature-oriented tourism potential of the state of Guerrero, there are obstacles to the development of this specialized branch of tourism. These obstacles are related to how the local population is incorporated into the process, the need to preserve the natural appeal of tourist sites, and the difficulty of coordinating the activities of different government entities. In Guerrero, there is also a security problem in some sites with great potential. Nature-oriented tourism can also serve an important environmental preservation function.

In the concluding chapter, Jesús Tamayo and Fernando Lozano review how different Mexican administrations have viewed undocumented immigration to the United States. They evaluate the government's attempts—usually as part of national or regional development initiatives—to influence the determinants of undocumented migration. These include the Programa de Inversiones Públicas para el Desarrollo (PIDER), Coordinación General del Plan Nacional de Zonas Deprimentes y Grupos Marginados (COPLAMAR), Sistema Alimentario Mexicano (SAM), Programas Regionales de Empleo (PRE), and Programas Regionales de Desarrollo (PRD). Tamayo and Lozano conclude that although these rural development programs may have had political and symbolic value, they had little effect on regional development and the employment needs of the Mexican countryside.

Taken together, the analyses in this volume suggest that more can be done to promote the development of the regions of Mexico from which many undocumented migrants depart. This is not always true in particular communities of origin, but it does apply generally to the broader economic regions in which these communities are found. The contributors argue that the role of the central government in Mexico City—almost the only major force in setting regional development policy—should be reduced, and that greater authority and resources should be given to state and local governments for their own development. But even under the best circumstances, achieving balanced regional development is a difficult task. The policies most appropriate for one region may be inapplicable in others.

Despite the infrastructural and environmental problems associated with rapid growth along the border, this region, due largely to its proximity to the United States, has considerable advantages in attracting investment and in generating employment. Although much attention has been focused on the maquiladora industry, the potential for expansion in services is significant and has been only partially exploited. Regardless of what transpires with respect to the free trade agreement negotiations, the border is likely to continue to be an important center for Mexican manufacturing and spinoff activities.
The potential for labor absorption in many sectors of the Mexican economy is impressive. Maquiladoras, or their successors, are likely to continue to generate many new jobs, particularly if these plants are incorporated into the national economy. With the proper policy framework, the agricultural sector can make a greater contribution than it does now to the alleviation of rural poverty. Tourism already generates significant employment, but it could provide even more, given policy adjustments favoring less grandiose projects. Even in fisheries there is room for growth in employment, though less than in other economic sectors.

The contributors of this volume provide support for their policy recommendations. However, there is no simple way to significantly increase regional employment; and, even if the number of jobs increases, a corresponding slowdown in undocumented migration may be some time in coming.
NOTES


3. It is not sensible to recommend, for example, how best to use land in Zacatecas and ignore the existence of the National Commission on Arid Areas (CONAZA). This institution may now perform more of a political than a technical function though.

4. In a presidential system like Mexico’s, where the municipal authorities are deprived of resources and political power, the policies, if they are to be effective, must almost always stem from the federal government.


6. In recent months, on the pretext of pursuing drug traffickers, but perhaps testing the public’s response, the police were used to limit the flow of migrants. Rejection of this policy was immediate.

7. The orientation of the proposed change was anticipated when it was asserted that: “1.3. . . . various sectors of production have shown deficiencies in their dynamism or even have stagnated or shrunk. In agriculture, there are many holdings of less than 5 hectares, mostly on land of poor quality. This situation makes it difficult to adopt modern and efficient techniques.” National Development Plan, 1989–1994 (Mexico City, May 1989).

8. “While we are fighting for better and more realistic guaranteed prices, the government upsets our hopes by opening the borders to imports,” said the members of the National Peasants Confederation (CNC) in their last Ordinary Congress. “Estímulos y precios justos buscan productores: Autosuficiencia en maíz en, tres años, prevé la SARH,” La Jornada, 17 December 1989.

9. Last November, the Secretariat of Finance proposed to the Chamber of Deputies a Federal Revenue bill that included, as part of the tax “adjustments”, the elimination of the special tax treatment for agricultural producers, an exceptional fiscal privilege they have enjoyed since 1955. The political opposition as a whole and some of the official party’s members rejected the proposal. The political cost of the initiative was very high.

10. Despite its aridity, only 1.5 percent of Mexico’s agricultural land was irrigated in 1980. With even less water, only 1 percent of Zacatecas was irrigated (3 million and 50,000 hectares, respectively). Instituto Nacional de Estadística, Geografía e Informática (INEGI), Manual de estadísticas básicas del estado de Zacatecas (Mexico City, 1984).
11. Zacatecas' per capita output is the second lowest in the country. Agricultural and livestock activities in 1980 contributed 23 percent to the State's product and employed nearly half of the economically active population. See INEGI, *Estructura económica del Estado de Zacatecas, Sistema de cuentas Nacionales, Estructura Económica Regional* (Mexico City, 1986).


13. This interpretation is shared by the National Development Plan 1989–1994, which states that one of the nation's most serious problems is the consideration of income. “(1.3) . . . which to a great extent was the result of the industrialization strategy followed for many years, and which favored capital at the expense of labor, industry at the expense of agriculture, the city at the expense of the country. . . .”

14. According to press information, until 1987 Compañía Nacional de Subsistencias Populares (CONASUPO) held a 49.9 percent share of the marketing of corn, 80 percent of powdered milk, and 12.3 percent of beans and soya. However, in the last few years, CONASUPO's shares have dropped drastically. “Aumenta la Producción de ICONSA,” *La Jornada*, 6 November 1989.

15. The case of corn is exemplary. Until 1972, Mexico exported corn and, for a few years, exported more than a million tons per year. During that period, national producers supplied more than 99 percent of national consumption. Since 1973, there has been a major drop. In 1980–1986, purchases of corn amounted to 25 percent of total agricultural imports. Since 1986, CONASUPO has imported on average 2.5 million tons of corn a year. In 1989, imports of corn accounted for 21.5 percent of national demand. In the last decade, corn imports totaled 23 million tons, according to the State of Jalisco's Research Institute on Forestry and Agriculture. “La comercialización del maíz no logra el ajuste para elevar la oferta,” *La Jornada*, 16 December 1989.

16. Aside from the low productivity of Mexican farmers and the subsidies granted by foreign governments to their producers, their production costs and final domestic prices, like those on all the goods produced in Mexico, decline from day to day vis-à-vis that of foreign producers. This is due to the sliding peso-dollar rate and progressive overvaluation of the peso in relation to the dollar. It is, therefore, not surprising that Mexican cereals are increasingly unable to compete with imports.

A recent study, comparing the evolution of domestic prices to “real guaranteed price” (average international price, plus transport, plus protection to domestic farmers), concludes that guaranteed prices have lowered national producers' in-
come and redistributed it to urban areas and industry. Quoted in Fernando Cal-
zada and Francisco Hernández, “Descapitalizacion Agrícola,” La Jornada, 7

A few months ago, the domestic scandal about guaranteed prices made it clear
that they are one product of an agreement between the technico-political au-
thorities of some ministries, which frequently compete among themselves. The
technocrats act under a constraint: the government’s agreements with the IMF,
which force domestic prices into line with international prices. In the inter-
ministerial discussions, some groups are supposedly more radical than the Fund;
others seem to act on the assumption that the constraint is more formal than real.
Yet others feel that guaranteed prices should ignore this constraint and that prices
be fixed on the basis of domestic production costs. No one could fail to share the
intention of getting the economy and public finances back on sound footing. But,
many of us disagree with the treatment given to some sectors of the economy,
especially agriculture, where the poorest sectors of the population are found. Our
planners, in their search for macroeconomic equilibrium, at any cost, have made
agricultural production plummet.

17. There is abundant documentation for this statement. Here we mention just a
few examples. According to the National Agricultural and Livestock Council
(Consejo Nacional Agropecuario, CNA), in 1988, between 7.5 and 8 million tons
of basic grains were imported. It is anticipated that, in 1989, imports will reach 12
million tons. Since the guaranteed prices do not cover the producers’ expecta-
tions, the CNA states that sowing for this cycle has declined because there is no
confidence of obtaining a good price for the harvest. “CNA: Se deberá importar 12
millones de granos básicos,” La Jornada, 11 January 1989. The President of the Na-
tional Federation of Bean Producers (Federación Nacional de Productores de Frijol),
when demanding 1,711,000 pesos for a ton of beans (now paid at the rate of
760,000 pesos), warned that the output deficit is already 200,000 tons. He de-
manded that the two million pesos per ton that the government pays to foreign
farmers should be used to encourage national production. “De no más del 17 per-
cent será el alza para frijol, trigo y arroz,” La Jornada, 8 November 1989. According
to figures from the Bank of Mexico, between January and August 1989, agri-
cultural imports recorded a 36 percent increase in comparison with the same
period the year before. “Déficit de 8 millones 196 mil dólares en la balanza agrícola

Some readers might believe it useless to demand higher guaranteed prices. Re-
cent events, unfortunately, prove that it is not. A year ago, on a working trip
through Zacatecas, we witnessed the disgust and disillusionment of the Fresnillo
bean producers. It is now known that bean production in Zacatecas during the
spring-summer cycle declined by a third and that the authorities, with the help of
the army, forced the producers to sell their scant production to CONASUPO.

18. The same “highly placed” source announced that guaranteed prices for corn
and beans for the present agricultural cycle should be 435,000 and 930,000 pesos a
ton, respectively. “Aumentos de 41.69 y 17.9 percent para maíz y frijol,” La Jor-
nada, 31 October 1989.

19. The Subcommission for an Agreement on Agricultural and Livestock Prod-
ucts (Subcomisión de Concertación de Productos, Agropecuarios) announced that
the new guaranteed price for beans will not be more than 17 percent higher. “De
no más de 17 percent será el alza para frijol, trigo y arroz,” La Jornada, 8 November
1989.
20. At the end of the 1970s, Zacatecas was already a big producer of basic staples, especially beans. The 1980s confirmed its specialization, thanks in part to the weak growth of national production: in 1985, a third of the beans produced in Mexico were from Zacatecas. See following table, taken from Raúl Delgado Wise, "Consideraciones sobre la crisis y orientación del crecimiento en Zacatecas," in Diálogo, Revista de la UAZ, no. 4 (November–December 1987) p. 46.

21. Everyone knows that official purchasing prices are today even lower than so-called "production costs." The latter are really the costs of the for-production inputs, since they do not include labor costs. Ignorance on the part of producers and the way official credit is handled have made this situation possible. The peasants are in debt to the official banking institutions; they, in turn, operate permanently in the red, but the producer remains tied politically. From time to time, the government grants credits, thus enhancing the president's image.

22. An economist has recently proposed an emergency strategy for overcoming stagnation in agriculture. It is oriented toward the small farmer under the leadership of the state and involves the reincorporation of "vast agricultural areas and large segments of the rural population displaced by the modernization process that went hand-in-hand with Mexico's entry into the world market." The reincorporated peasants would produce for the domestic market. In brief, his proposal is to foster the production of basic foodstuffs on rain-fed land that is presently idle. The key element of his program is to "raise the price of corn to a suitable level, so as to guarantee a minimum wage . . . to the producers who cultivate medium quality land in the rain-fed areas." The higher prices for the agricultural products would be made up for by subsidies to the most poverty-stricken sections of the population and by the direct and indirect effects that the increase in the farmers' income would have on the whole of the Mexican economy. He backs his arguments with an econometric model that estimates the multiplier effects of each peso paid to the sector. The author even finds his proposal compatible with the Mexican government's macroeconomic adjustment strategy. David Barkin, "La economía de guerra: una estrategia rural frente a la crisis," La Jornada, 10 April 1989. Another version of this proposal was published under the title, "El sector social, al rescate de México," El Sector Social de la Economía, Una Opción ante la Crisis, A. Labra, coordinator (Mexico City: Siglo XXI Editors/UNAM, 1988).

23. This proposal is not a novel one. In fact, some farmers requested it a year ago. "Piden campesinos fijar por region precios de garantía," La Jornada, 22 December 1988.


25. Notice the agroindustrial orientation toward the Guadalajara urban market.

26. Zacatecas' peculiar central position or "centrality" is an advantage for marketing this type of article. Its producing regions are located at 310 and 450 kilometers from the second and third biggest urban markets in the country, Guadalajara and Monterrey. This does not include other neighboring urban markets which are significant in size: Aguascalientes (131 kms.), San Luis Potosi (190 kms.), and even Durango (22), Saltillo (365), and Torreón (378).

27. Cuauhtemoc Esparza, Historia de la Ganadería en Zacatecas 1531–1911 (Zacatecas: UAZ, 1988); also, Pedro Martínez, "Transformacion de la ganadería en


<table>
<thead>
<tr>
<th>Year</th>
<th>Tons Beans</th>
<th>National% Beans</th>
<th>Tons Corn</th>
<th>National% Corn</th>
</tr>
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<tbody>
<tr>
<td>1970</td>
<td>85,477</td>
<td>9.2</td>
<td>291,133</td>
<td>3.3</td>
</tr>
<tr>
<td>1975</td>
<td>67,100</td>
<td>6.5</td>
<td>85,300</td>
<td>1.0</td>
</tr>
<tr>
<td>1976</td>
<td>77,800</td>
<td>10.5</td>
<td>236,800</td>
<td>2.3</td>
</tr>
<tr>
<td>1977</td>
<td>119,000</td>
<td>15.5</td>
<td>257,049</td>
<td>2.5</td>
</tr>
<tr>
<td>1978</td>
<td>163,923</td>
<td>17.3</td>
<td>351,817</td>
<td>3.2</td>
</tr>
<tr>
<td>1979</td>
<td>84,381</td>
<td>14.0</td>
<td>139,206</td>
<td>1.4</td>
</tr>
<tr>
<td>1980</td>
<td>106,704</td>
<td>11.5</td>
<td>194,635</td>
<td>1.6</td>
</tr>
<tr>
<td>1981</td>
<td>297,006</td>
<td>19.4</td>
<td>399,028</td>
<td>2.7</td>
</tr>
<tr>
<td>1982</td>
<td>201,704</td>
<td>21.0</td>
<td>243,788</td>
<td>2.4</td>
</tr>
<tr>
<td>1983</td>
<td>363,793</td>
<td>28.7</td>
<td>459,475</td>
<td>3.5</td>
</tr>
<tr>
<td>1984</td>
<td>295,100</td>
<td>30.3</td>
<td>357,172</td>
<td>2.8</td>
</tr>
<tr>
<td>1985</td>
<td>302,203</td>
<td>33.4</td>
<td>295,744</td>
<td>2.1</td>
</tr>
<tr>
<td>1986</td>
<td>298,089</td>
<td></td>
<td>252,493</td>
<td></td>
</tr>
</tbody>
</table>


31. We are not unaware of the existence of feed lot operations in the north of Mexico. This is not the case for Zacatecas. The owners of feed lots in northern Mexico are oriented toward the U.S. market and used for higher profit margins that the urban markets of central Mexico cannot provide.

32. Last November, the Secretary of Commerce announced the liberalization of cattle exports, bringing to an end a long period in which cattle raisers in northern Mexico required export permits. These were assigned annually and at the discretion of the Secretariat of Agriculture and Water Resources.


34. The lack of water resources is a nationwide deficiency, although official concern is directed more to urban areas. For example, in late 1989, the deputy director of the National Water Commission announced that 24 million Mexicans had no piped drinking water in their homes. “Se estudia una inversion de 23 billones para cinco años—CNA,” La jornada, 20 December 1989. The following day he was removed from his post for “giving wrong information.”
35. A former undersecretary for Planning in the Secretariat of Agriculture and Water Resources recently commented that there is a lack of rain water reservoirs. Approximately 75 percent of rainfall flows unused to the sea. “Faltan obras para captar y aprovechar el agua de lluvia,” La Jornada, 20 December 1989.


38. An example of the policy “restructuring” was the recent decision to sell the Minera Real de Angeles, located in the Noria de Angeles municipality, Zacatecas. This is one of the biggest open seam gold and silver mines in the world. According to some reports, its starting offering price was extraordinarily low.


40. “The mining industry is an integrated process consisting of various basic stages: extracting, smelting and refining.” “Zacatecas, because of its históric and economic phenomena . . . concentrated on the tasks of extracting, which are the ones with least value-added in mineral production. This limits the regional multiplier effect as far as production of value and employment is concerned. Miguel Ochoa Santos, “La Minería Zacatecana en los Óchenta,” Dialogo, Revista de la UAZ, no. 10 (March–April 1989).

41. The concentrates are sent to Belgium, Greece, the United States and neighboring Mexican states for further processing. According to a report by the Commission for the Encouragement of Mining in 1988, more than 31,000 tons a day of Zacatecan concentrates are sent to San Luis Potosí, Coahuila and Chihuahua. Ochoa Santos, “La Minería Zacatecana,” 1989.


44. The case of Ciudad Juárez is a good example. In the 1960s, federal officials and private entrepreneurs designed a regional policy directed toward converting the city into an “export platform.” They may not have had a strategy for training the labor force, but did channel resources into the productive infrastructure and into promoting their project with U.S. businessmen.

45. Center for the Research and Teaching of Economics (CIDE), Regional Studies Program, “Importancia de la ejecución o puesta en march de las modificaciones a

46. This is a national scandal. However, it is no different from what the English, for example, did last century to the Irish or their own compatriots emigrating to America. At the end of 1989, the Secretariat of the Interior put into effect a program known as "Paisano", to protect emigrants visiting Mexico. We are not aware of any prosecutions yet.

47. Two offices in the diocesan headquarters in Zacatecas and Guadalajara, and a third in a parish in the "Los Altos" region (in Pegueros, Jalisco) were providing this service throughout the region until late 1988.


49. Economic geography uses some notions of the network analysis to study the characteristics of the road and rail systems. In them, the localities are linked together by roads and the whole set of junctions and roads makes up the network. Some junctions are more "accessible" than others, according to their relative position in the system. Thus, we understand "centrality" to be a topological characteristic of some junctions in the system.
NOTES


2. For a detailed report on the results of research, see Jesús Arroyo Alejandre, Adrián de León Arias and Basilia Valenzuela Varela, Migración rural y semiurbana de Jalisco y el Desarrollo regional, (Guadalajara, Jalisco: Institute for Economic and Regional Studies at the University of Guadalajara, 1990).

3. In western Mexico, we considered the states of Aguascalientes, Colima, Guanajuato, Jalisco, Michoacán, Nayarit, Sinaloa and Zacatecas. Migratory flows have been constant throughout their history (see J. Gómez and David Maciel, Al Norte del Río Bravo (pasado lejano) (1600–1930), ed. Siglo Veintiuno, Colección COHM, 16, Mexico City, 1981). During the 1930s, due to the Depression, it was considered a problem (see Carrera de Velasco, Mercedes, Los mexicanos que devolvió la crisis, 1929–1932. Secretariat of Foreign Relations, Mexico City 1984). This view changed during the period of the bracero program, when the migration phenomenon entailed no great problems (see Howard Lloyd Campbell, "Bracero Migration and the Mexican Economy, 1951–1964," Ph.D. dissertation, The American University, 1972, University Microfilms, Ann Arbor, Michigan, 1972).


6. See Harry A. Cross and James A. Sandos, Across the Border: Rural Development
The Development of Mexico's Patterns of Migration


13. It has been found that many U.S. industries, especially restaurants, electronics, clothing, etc., have been able to meet outside competition thanks to their increasing use of foreign labor which, in the final analysis, has created a considerable dependency on this type of worker. See Cornelius, 1988 and Council of Economic Advisors on United States Immigration in Population and Development Review, vol. 12, no. 2, 1986, pp. 361–374.

14. For a follow-up on this evaluation, see the results published in El Correo Fronterizo, by the Colegio de la Frontera. During 1987, the review Foro International published a series of articles with this end in mind. Other efforts carried out in the Colegio de México can be found in the volumes of the Mexico-United States collection corresponding to the years 1984–1987. Jesús Arroyo Alejandre, “Algunos Impactos de la Ley de Reforma y Control de Inmigración (IRCA) en una Región de Jalisco de Fuerte Emigración Hacia Estados Unidos de Norteamérica”, to be published by the Rand Corporation, 1989; supports these statements with information from case studies.

15. International Labour Office, World Labour Report, 1–2, Oxford University Press, Oxford, England, 1987. Bustamante's work is an important step forward. With photographic techniques and surveys taken at the main points on the Northern border, he constantly monitors the behavior of the flow. As a result, considerable progress has been made in defining its seasonal nature and the way it has been adapting to the new conditions.

16. See Jorge A. Bustamante, “Migración indocumentada México-Estados Unidos; hallazgos preliminares del proyecto Cañón Zapata,” Paper presented at the 1st International Conference on the Effects of the Immigration Reform and Control Act (IRCA), Guadalajara, Mexico, 1989. For a detailed analysis, see Cornelius, 1988, who holds that in the last decade the state of California—particularly its urban areas—has been the main migrant-receiving area in the country. This is due in part to the maturing of the migration networks and the dynamism of the California economy.


24. Jesús Arroyo Alejandro, and Luis Arturo Velázquez, "Las ciudades menores de Jalisco y la migración interna” in Investigación demográfica en México-1980, (Mexico City: Consejo Nacional de Ciencia y Tecnología (CONACYT), 1982, pp. 391-406 study this type of migration (through sample surveys) in six cities of Jalisco that attract a relatively large number of people from their "immediate area of influence or local attraction.” They found that the population of these cities on average is 45 percent immigrant, the majority of whom stem from their area of influence. In addition, the more consolidated the city's economic base is for self-sustaining growth, the more rural population it attracts from its area or from further afield.

25. In our field work we found cases of people who even had a master's degree who had migrated to the United States because of a lack of expectations in Mexico:


27. In December 1988, we made a survey of 67 migrants who were visiting their home towns and who had in some way or another been affected by IRCA. This survey is not claimed to have any statistical representativity. However, we did manage to gather information in 19 of the places with the strongest “push” factor.

28. Jalisco is the state that contributes the most migration to California. In 1973, it was 26.2 percent (Jones, 1984); this coincides with our information from the survey of key informers.

29. This index is built on the basis of socioeconomic variables from the Census (1980) for all the municipalities of Jalisco, using the factorial analysis method.


31. See Arroyo, De León and Valenzuela, 1990.

32. Cornelius, 1978, also reported that migrants invest the income earned in the United States in productive activities in his study on rural communities in the Lagos de Moreno area of influence, carried out in 1976.


35. In other studies, it has been found that there is nothing typical about remittances, for example, Diez-Canedo, 1984.

36. This fact has been widely pointed out by Taylor, 1988, who holds that if there is a positive relationship between the sum of family income and the goods produced locally, it is to be assumed that the families' marginal propensity to consume these goods goes down as their income increases; therefore one can assume that there is a strong association between income earned and the demand for imported consumer goods.

37. The creation of wage-jobs in this type of business is almost nil. 3.20 percent of the migrant families and 1.96 of the nonmigrant ones create one job. Other studies have found that the average for jobs created is around 2 family workers and hired labor is less than 1 (see Massey, Alarcon, Durand and Gonzalez, 1987).


39. Curiel Gutiérrez, Federico and Victor Aguilar Peña. “El financiamiento popular ante la crisis de los ochenta” in Carta Económica Regional, vol. 2, no. 9, (Guadalajara, Mexico: Instituto de Estudios Economicos y Regionales at the University of Guadalajara, 1989). This article is a partial result of a broader project on popular financing in Jalisco.
NOTES

This study has been a binational, collaborative research enterprise involving graduate students, faculty and staff researchers from the University of California-San Diego, El Colegio de México, El Colegio de Michoacán, the Universidad Autónoma de Zacatecas, El Colegio de Jalisco, the Universidad Nacional Autónoma de México, El Colegio de la Frontera Norte, Cornell University, the University of California-San Francisco and the U.S. Department of Labor.

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4. In two of the three research communities, the annual town fiesta is held in January; the third occurs during the first ten days of February. Almost immediately after the fiestas end, migrants begin returning to the United States.

5. The highest sample replacement rate was recorded in the community of Gómez Farias, Michoacán, which also has the highest frequency of emigration to the United States among the three research sites. In that community, 26.5 percent of the originally sampled households had to be replaced. In 83 percent of those cases, replacement was necessary because the originally sampled household failed to return from the United States during the July–January 1988–1989 fieldwork period. Most of the other replacements were made, in this and the other two communities, because the household head was discovered to be older than 68 years of age.

6. Copies of all three questionnaires administered in this study can be obtained from Wayne Cornelius, Center for U.S.-Mexican Studies (D-010), University of California-San Diego, La Jolla, Calif. 92093.

7. For example, when interviewees in our research communities who said they were considering emigration were asked why they had not yet left, 32 percent of the females mentioned family constraints (usually, parental opposition), while only 12 percent of the males cited such reasons.

8. Other researchers have also noted higher noncooperation rates among foreign-born Hispanics who have lived longer in the United States and who had greater command of English. See Gerardo Marín and Barbara VanOss Marín, "A Comparison of Three Interviewing Approaches for Studying Sensitive Topics with Hispanics," Hispanic Journal of Behavioral Sciences, vol. 11, no. 4 (November 1989), p. 334.


10. This fieldwork was done by Rafael Alarcón and Macrina Cárdenas, based in the San Francisco Bay Area. Their findings are reported in several unpublished papers, the most detailed of which is "Migratory Tradition, the Simpson-Rodino Law and Economic Crisis in the Mexican Region," prepared for the Commission on the Study of International Migration and Cooperative Economic Development, Washington, D.C., February, 1990.
11. This all-respondents sample is made possible because, despite the use of three different questionnaires, the recent U.S. migrants and prospective first-time migrants answered most of the same questions asked of heads of household as well as several series of more detailed questions about migration. Our purpose in constructing this pooled sample was to increase the representation of people with post-1982 migratory experience and of nonmigrants (people who haven't migrated to the United States) in the sample under analysis, and thus to expand the range of variance on key variables relating to migratory behavior.


13. Secretaría de Industria y Comercio, Directorio de ejidos y comunidades agrarias: V Censo Ejidal, 1970 (México, D.F.: Dirección General de Estadística, 1972). Figures supplied to the author in 1975 by local leaders differed considerably. They claimed that fewer than 1,000 hectares of land remained in the hands of the town's ejidatarios. Presumably much of the original dotation had been transferred, illegally, over the years to private landowners through sale or rental agreements. Such practices are widespread in Mexico's ejidal sector.


16. The Los Altos region consists of 19 municipios (counties), forming the northeastern portion of the state of Jalisco. Since the 1880s, this region has been one of the principal contributors to the flow of Mexican migrants to the United States, as well as a zone of exceptionally heavy emigration to urban centers within Mexico. See Paul S. Taylor, A Spanish-Mexican Peasant Community: Arandas in Jalisco, Mexico (Berkeley, Calif.: University of California Press, Iberoamericana Series, 4, 1933); William W. Winnie, Jr., La movilidad demográfica y su incidencia en una región de fuerte emigración (Guadalajara, Jalisco: Universidad de Guadalajara, 1984), especially pp. 76–77; Andrés Fábregas, La formación histórica de una región: Los Altos de Jalisco (México, D.F.: Ediciones de la Casa Chata, 1986); Jesús Arroyo Alejandre, et al., Migración a centros urbanos en una región de fuerte emigración: el caso del occidente de México (Guadalajara, Jalisco: Universidad de Guadalajara, 1986). The region's total population in 1980 was 491,167, according to the official census of that year.

17. The 1976 census data were collected by the author and his research team in the month of January. The 1988 household census was conducted by the author and several research associates in May. The estimate of total 1988 population is derived
from the household census result combined with more detailed data on household size gathered in our sample survey of 201 Tlacuitapeño households, conducted in 1988-1989. The same procedure was used in estimating total 1988 population size for the other two research communities.

18. Animenos are significantly better educated than residents of the other two research communities. The median years of schooling completed among Animenos in 1988-1989 was five years, compared with three years in Gómez Farías and four years in Tlacuitapa.

19. The 1979 population census of Las Animas was conducted by Richard Mines and a research assistant in January. Mines found a very high birth rate among the women of child-bearing age still living in the community. His census results are reported in Mines, Developing a Community Tradition, p. 65. Another census, conducted by a federal government rural development agency (Programa Integral para el Desarrollo Rural, Secretaría de Programación y Presupuesto) in 1983, counted 1,351 persons living in 211 households.


21. Unauthorized migrants from Gómez Farías must seek housing in central Watsonville, where whole families can be found living in garages, basements, single rooms in multifamily apartments and improvised shacks in backyards.

22. The sheer volume of mail from the United States—most of it bearing money orders or checks—that is received in the research communities is impressive. In Gómez Farías, for example, nearly 900 letters are received each month from the United States by the local post office. (López Castro, “La migración a Estados Unidos,” p. 130.)

23. Most previous studies have also shown that, at least since the 1960s, two-thirds or more of the money remitted by Mexican migrants from the United States typically has been used for family maintenance purposes. See, for example, Robert M. Brown, “The Impact of U.S. Work Experience on Mexican Agricultural Workers: A Case Study in the Village of Jacona, Michoacán, Mexico,” unpublished Ph.D. dissertation, University of Colorado, 1975, p. 262; and Ina R. Dinerman, “Patterns of Adaptation Among Households of U.S.-Bound Migrants from Michoacán, Mexico,” International Migration Review, vol. 12, no. 4 (Winter, 1978), pp. 485–501.

24. The survey question was: “How has the economic situation of the country in the last few years affected you and your family?” There were 758 valid responses to this question.

25. Merilee Grindle has detected a similar change in the use of remittance income in the rural municipio of Tepoztlán, Morelos, where “prior to 1982, remittances were often used to purchase construction materials for housing. Many also used this money to pay for their children's education or to invest in small businesses. Increasingly in the 1980s, however, remittances were needed to ensure mere subsistence and fewer investments in the long-term sustainability of the household

26. Our census excluded small-scale agricultural enterprises as well as home work, most commonly, knitting of garments by women working individually in their homes.

27. In addition to the reduced profitability of agriculture in recent years, Richard Mines has observed another causal mechanism at work in the community of Las Animas. He notes a tendency for land in Las Animas to fall increasingly into the hands of an absentee landlord class made up of long-term, permanent emigrants to the United States. These people hold land not to generate income from agriculture but for prestige, security and food for their parents. He attributes much of the recent decline in agricultural production in the community to this change in land tenure. See Mines, *Developing a Community Tradition*, pp. 133–35. Similar problems have been observed in the town of Acuitzio, Michoacán; see Raymond E. Wiest, "Implications of International Labor Migration for Mexican Rural Development," in *Migration Across Frontiers: Mexico and the United States*, (eds.) Fernando Cámara and Robert Van Kemper (Albany, N.Y.: Institute for Mesoamerican Studies, State University of New York at Albany, 1979), pp. 85–100.


29. Note that the wording of the questionnaire item seems to emphasize long-term or permanent emigration rather than temporary wage-labor migration. Nevertheless, the responses indicate that many interviewees interpreted it as a question about emigration in general. It is possible that the proportion of favorable evaluations would have been higher, if the question had specified short-term migration as the phenomenon to be evaluated.


31. The most striking example of this neglect of community needs that we encountered in our fieldwork was in Las Animas. Ten years after a project to supply potable water to the Las Animas community was begun, and five years after a water pipe system had been installed throughout the community and a well had been dug to supply it, the system was still not operative because the well had not yet been connected with the distribution network. And because there was no functioning water system, the town's sewage system—also completed years before—was still disconnected from the dwellings. Trying to explain this situation
to us, one nonmigrating Animeño complained that "if the norteños spent more of their time here rather than there, perhaps they would be more concerned" about such problems. The head of the municipal government in nearby Nochistlán was somewhat more diplomatic in his explanation: "the returning migrants know that there are better living conditions elsewhere; they have broader horizons. But their presence is too brief to get things in motion."

32. The survey item was: "Some people say that a young person born here in this town can progress in life without leaving the town. Other people say that to get ahead in life, a young person born here has to move somewhere else in order to get ahead. What do you think?" There were 753 valid responses to this question.

33. "Rodino" is the term popularly used in the research communities to identify an applicant for legalization under the U.S. Immigration Reform and Control Act of 1986 (the "Simpson-Rodino Act").

34. The standard used was a t-statistic with an absolute value of at least 1.96, indicating a confidence interval of 95 percent.

35. For an elaboration of this argument, based in part on data collected in the Los Altos de Jalisco region, see Merilee S. Grindle, Searching for Rural Development in Mexico (Ithaca, N.Y.: Cornell University Press, 1988).

36. The same conclusion has been reached with respect to the possible expansion of export-oriented tomato production in northwestern Mexico. See Gary Thompson, Ricardo Amon and Philip L. Martin, "Agricultural Development and Emigration: Rhetoric and Reality," International Migration Review, vol. 20, no. 3 (Fall 1986), pp. 575–97. It does not necessarily hold for all regions of Mexico, however. For example, Los Altos de Morelos is one of the few central plateau regions that has virtually stopped exporting labor to the United States. In the 1960s, braceros returning from the United States introduced new production techniques for tomato growing, which stimulated the local economy and stabilized the workforce. See Guillermo de la Peña, "Social Change and International Labor Migration: An Overview of Four Agrarian Regions in Mexico," in Migration and Narcotics: Background Papers Prepared for the Bilateral Commission on the Future of U.S.-Mexican Relations (Mexico City and La Jolla, Calif., Spring, 1988), pp. 21–24.

37. Such enterprises have become a particularly important source of employment for women in rural communities. See Arias, "Maquila."

38. The following account is based on fieldwork conducted by the author in Villa Hidalgo in the late 1970s. The town was revisited briefly in January 1989.


40. Preliminary findings from a business census in Jalisco being conducted by the Mexican Center, Institute of Latin American Studies, University of Texas-Austin, in collaboration with El Colegio de Jalisco and El Colegio de Mexico, as reported


43. Self-proprietorship does not necessarily end migration by the proprietor or other members of his family. Indeed, 68 percent of the post-1982 migrants who owned nonagricultural businesses in our research communities continued to use dollars earned in the United States to sustain their business. Also, a lower proportion of migrant-owned businesses (78 percent) than businesses owned by non-migrants (89 percent) were open throughout the year.

44. Alarcón, "Tradiciones migratorias," p. 15.

45. See Jesús Arroyo Alejandre, El abandono rural: un modelo explicativo de la emigración de trabajadores rurales en el occidente de México (Guadalajara, Jalisco: Universidad de Guadalajara, 1989).


47. The available evidence bearing on this point, from several different field studies, is summarized in Wayne A. Cornelius, "Los Migrantes de la Crisis: The Changing Profile of Mexican Labor Migration to California in the 1980s," in Labor Market Interdependence between the United States and Mexico, (eds.) Jorge Bustamante, Raul Hinojosa and Clark Reynolds, (Stanford, Calif.: Stanford University Press, forthcoming).


49. Among prospective first-time migrants to the United States interviewed in our research communities, 71 percent believed that unauthorized migrants could still get jobs in the United States, despite the employer sanctions provision of the 1986 U.S. immigration law; and only 40 percent thought that it was more difficult to cross the border clandestinely now than before passage of the 1986 law. A total of 47 percent had considered migrating to the United States during the 12 months preceding the interview. For further data concerning the impact of IRCA on perceptions of the U.S. job opportunity structure and propensity to migrate in our research communities, see Wayne A. Cornelius, "Impacts of the 1986 U.S. Immigration Law on Emigration from Rural Mexican Sending Communities," Population and Development Review, vol. 15, no. 4 (December 1989), pp. 689–705.
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24. Veterans Administration, Caring for the Older Veteran.


32. National Head Injury Foundation, “Average of Total Lifetime Costs for an Individual with Severe Head Injury in Appropriate Settings,” and addendum to


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2. A good example of this is Maria Patricia Fernandez-Kelly, For We Are Sold. I and My People: Women and Industry in Mexico’s Frontier (Albany: State University of New York Press, 1983).


7. Banco de México, Indicadores económicos.

8. The one-third figure assumes that imported inputs constitute one-third of the value of Mexico’s non-maquila manufactured exports, so that in 1988, value added in Mexico was roughly $7 billion ($10.5 billion total manufactured exports, less $3.5 billion of imported inputs). A further assumption is that all maquiladora exports were manufactures. This is an exaggeration; the proportion of value added of maquiladora to total manufactured exports may be about 30 percent, instead of 33 percent.


11. In the textile and clothing industry, the choice of locations was also determined by the availability of quotas for entering the U.S. market.

12. Under the harmonized system introduced in the United States on January 1, 1989, these tariff items are now 9802.00.60 and 9802.00.80.


15. Data are from Scheopfle and Perez-Lopez, "Employment Implications of Export Assembly Operations in Mexico and the Caribbean Basin.

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8. Pre-testing of the survey instrument along the border showed these three productive services to be the most sought after by the maquiladoras.


10. Among craft-related sectors in the border sample, only three plants were identified, two in footwear and one in apparel. Only one of the footwear plants identified itself as primarily a manufacturer as opposed to assembly plant. All three are large, ranging from 240 line workers to 1,300. None of the three reported any local inputs.


12. Shizuki bought out the old TRW maquiladora in 1987, closed it, then con-
structured a new plant in 1988.

13. The Kodak plant had been established in Guadalajara in 1966 to make film for the Latin American market, including Mexico. (Source: interview with plant manager, December 1988).

14. Paul Castillo, master's candidate in community and regional planning at the University of Texas, identified most of the endogenous electronics firms and conducted interviews with them as part of his master's thesis on technology transfer in the Guadalajara computer industry (forthcoming).

15. Very few maquiladoras anywhere in the sample subcontract. Only one other maquiladora in Guadalajara—a footwear plant—subcontracts as much as Honda does. It seems that the maquiladoras are at the end of the international subcontracting line.

16. The total number of maquiladora plants in Monterrey is difficult to pinpoint. The list provided by the local Association of Maquiladoras in February 1989, had 58 plants listed, but included many that were not yet built and many that had registered in Monterrey, because of the particular bureaucratic ease of registering there, but were located along the border or elsewhere. Also, in 1988 some of the maquiladoras changed to PITEX, which allows more national inputs and national sales than maquiladora registration, and involves less red tape. The Association itself had only 25 local members at the time of the survey, some of which were not maquiladoras, but simply wanted to stay informed. I used the government figure of 34 plants as the base (data for June, 1988, from INEGI, Secretaría de Programación y Presupuesto), and interviewed 15, or 44 percent, of them.

17. We found two maquiladoras that were created by the same local grupo as part of their restructuring process using foreign capital: USEM, using Emerson Electric, created a manufacturing maquiladora and an assembly plant maquiladora in 1986, the former making metal castings for electric motors, the latter assembling electric motors. Both export all their production to the United States, the former using GSP and the latter 806/807. There are no supplier relations between the two plants.


19. We were unable to determine the national origin of this supplier.

20. While not included in this survey, the Sony plant in Nuevo Laredo was one of the plants I visited during the pretest of the survey instrument.


24. Italian law defines craft manufacturers, or artisan firms, as businesses with up to twenty two workers and a full-time owner/operator. (Hatch, 1987, p. 7).


34. Scott, 1989.

35. Scott, 1989, p. 75.


38. Why even bother with small craft firms as a source of employment? Young small firms have a high failure rate. They produce low-wage, low-quality jobs. Their existence is dependent on demand by large firms who subcontract out to them. Escobar points out that in Guadalajara many of the local large firms are former small-craft shops, that until the crisis of 1982 the craft producers were regularizing employment conditions, and that the craft sector has been a long-term source of vitality, including a channel of upward mobility for workers from employee to owner. Gabayet adds that they also present a flexible source of income for female workers.

39. Monterrey presents a different set of circumstances. Since much of the large-scale maquiladora industry in Monterrey is not foreign initiated, its phenomenal growth should be seen largely as a short-term strategy by local economic groups to survive, restructure and enter the export market. To increase local sourcing in the long run will require, as for the Guadalajara craft producers, a more autonomous conduit to the exterior.
NOTES

The author wishes to express his gratitude to Carlos Salas Páez for his collaboration in the second part of this essay. His work on the input-output matrix was essential for the analysis of the direct and indirect employment coefficients of the fishing sector. Mr. Rodrigo Moya, editor of the fisheries journal Técnica Pesquera, also provided useful comments and insights on the particular problems of the fishing sector.

1. Consumption trends are an important indicator of production evolution. This aspect of the problem is not covered here. However, fish are not an important component of the regular diet in Mexico. In fact, consumption shows rather intense variations associated with the Christian calendar, with two high points in Lent and Christmas. This situation may have improved only marginally in the last 15 years. In 1987, annual per capita consumption of fish and fish products stood at an estimated 13 kilograms. This consumption level is very high, implying that Mexico ranks with countries like Spain that are traditionally big per capita consumers. This figure is, therefore, unreliable, and we conclude that consumption levels are low. Thus, with adequate commercialization policies, domestic consumption can probably be increased.


3. Against this background, it is clear that one of the key issues is stock management. The standard economic models for fisheries management show there is a need to regulate fishing effort to avoid misallocation of resources. But the sophisticated models proposed by Geoffrey Waugh in Fisheries Management: Theoretical Developments and Contemporary Applications (Boulder: Westview Press, 1984) require detailed information of population dynamics, which is far from being available in the case of most fisheries, particularly in developing countries. Therefore, no spectacular increases in landings should be expected in Mexican fisheries. Total catch in the four most important fisheries is stabilized, and evidence suggests that maximum sustainable yields have already been attained.

4. SEPESCA is the acronym for the Ministry of Fisheries. For the period 1981–1986, FAO’s statistics revealed a slightly darker picture with a rate of −3.22 percent. The differences between FAO’s figures and Mexican official fishery statistics can be explained by the adjustments made by FAO to assure international uniformity in fishery statistics.

5. Species concentration is a global phenomenon and is also present in the two fishing zones adjacent to Mexico: the western-central Atlantic Ocean and the eastern Pacific Ocean (FAO’s fishing zones 31 and 77 respectively). This is part of a global trend toward excessive exploitation of species that have higher commercial values and have an acceptable fishing effort-to-yield ratio. Unfortunately, fishery management has systematically ignored the fact that yield rapidly collapses for species that are excessively exploited. In many cases, recovery can extend through decades; sometimes, previous levels of fish stock are never recovered.

6. This important decrease must be investigated further but, at this stage, one of the possible explanations that emerges is the climatic phenomenon of “El Niño.”
The consequences of this phenomenon, which appears annually around December 24, hence its name, have been devastating for the Peruvian anchovy industry. Since 1972, the Peruvian fleet has not been able to recuperate from losses in nominal catches caused by the shifts in the patterns of anchoveta's trajectories. The effects of El Niño sometimes have an impact on Mexican fisheries, and it is possible that this explains why anchoveta has been gradually losing ground in total nominal catch. The trend for the first half of this decade can be appreciated if we consider the data on Mexican nominal catch for each year of the period 1981–1986. For Engraulis mordax (North Pacific anchovy) the nominal catch in metric tons was 366,969 in 1981, 318,070 in 1982, 97,917 in 1983, 126,892 in 1984, 147,116 in 1985, and 116,906 in 1986.

7. Observations usually come from experimental stations gathering egg or larval concentrations. The density of these concentrations is analyzed and, through standard statistical methods, estimates are made of adult reproductory population. Different estimates of fish stock and fishing yields can be made in this fashion. However, they do depend much on the frequency of observations and the geographical coverage of experimental stations. If there are few observations and the geographical coverage is small, the results will be limited; heroic assumptions regarding oceanographic and biotic parameters can be introduced in order to enlarge (somewhat artificially) the scope of a particular study, but the credibility of results is negatively affected.

8. The case of tuna is a good example of the problems with these estimates because this is a highly migratory species. As a recent study by J.M. Grande Vidal, C.A. Severino H., and A.J. Valdez G., "Evaluación tecnología de las posibilidades de explotación comercial de atún en el Golfo de México," Ciencia Pesquera, 6 May 1988, p. 112, points out: "Highly migratory pelagic populations are very difficult to evaluate quantitatively, due precisely to their almost instantaneous horizontal movements that cover vast oceanic surfaces. In addition, their vertical movements in the ocean column are another factor that prevents determining their relative abundance from the point of view of time and space." (Our translation). For a country with a modern fleet of purse seiners that may fish in distant waters, estimates of available stock in the Pacific and Gulf Coasts are not very significant.

9. Important indicators cast a shadow on the realism of these estimates. First, these estimates reflect the same structure of actual landings, suggesting the necessity to revise the methodology and supporting studies behind availability estimates. In fact, this exercise may be more the result of projecting partial results of research on the most important species of Mexican fisheries. These estimates may simply reveal that there are very few studies on the species that are not within the top four or five. Needless to say, this is not the best way to encourage the diversification of Mexico's fisheries. The geographical or regional distribution of these estimates is closely related to actual landings. The Pacific coastline is responsible for almost 80 percent of available stocks. In 1984, it accounted for more than 66 percent of total landings.

10. The figures for sardines and anchoveta are not realistic. The table shows that 38 percent of total available stock is being exploited. However, most analysts share the view that both fisheries have stabilized at the limits of sustainable yield, and it will be difficult to see spectacular increases in landings of these two species.


13. This expansion is sustained by a catch of the one-to-two-year old population, in contrast with the two-to-five-year old catches of the early 1980s. The continuous exploitation of this species before individuals reach maturity will necessarily result in a reduction of the available resource.

14. A study undertaken in 1986 in the Gulf of California to determine the extent of the reproductive population of California pilchard and Japanese sardine (Etrumeus teres) established a total of 343,000 and 295,000 metric tons respectively. See R. M. Olvera and M. Padilla, "Evaluación de la población de sardinas japonesa (Etrumeus teres) y Monterrey (Sardinops caerulea) en el Golfo de California," *Ciencia Pesquera*, 5 March 1986, pp. 1–16. However, as the authors admit, these estimates are very rudimentary and have two main problems. First, in most cases very strong assumptions have to be introduced in relation to the number of eggs per station or size of the fish as a function of mesh size. Second, the success or failure of sardine fisheries in the Pacific is a consequence of anomalies in the dynamics of water masses. Abrupt changes in physio-chemical and biological parameters and these changes have not been well studied. Finally, another important point is the apparent competition between sardines and anchovies.

15. Most of the attention is concentrated on Pacific Ocean tunids. However, there are studies confirming the existence of tuna in commercial concentrations in the Gulf of Mexico. See J. M. Grande, C. A. Severino H. and A. J. Valdez G, "Evaluación tecnológica de las posibilidades de explotación comercial de atún en el Golfo de Mexico," *Ciencia Pesquera*, 6 May, 1988, pp. 104–118. These studies show that Atlantic blackfin tuna (Thunnus atlanticaus) and other tuna related species have important spawning areas off the coasts of Campeche and southern Veracruz. The studies were carried out through longline fishing techniques and the catch per unit of fishing effort (CPUE) coefficients, as well as with other efficiency coefficients, seem encouraging. Other studies (see Olvera et al, 1986) reveal that not only the Gulf of Mexico, but also the Caribbean Sea, is an important spawning area for Blackfin, Skipjack, Bigeye and other species of tuna. The importance of these resources is difficult to evaluate because the stock estimates are based on sparse data. However, all figures are related to exploitable stock within Mexico's EEZ.


17. To appreciate the importance of these resources, consider that this figure is more than 53 percent of total nominal catch for the 20 most important species in Mexico's fisheries in 1986 (see Table 2).

19. These are also the results of the highly abstract, theoretical models used in fishery economics. Both the static version of surplus yield models and the dynamic pool with eumetric yield models reach the same general conclusion: because property rights are not defined, open-access fisheries require regulatory systems in order to prevent overfishing and the excessive concentration of capital and labor.

20. As of June 1987, Mexican purse seiners operating in the Eastern Pacific Ocean tuna fishery must employ a double-depth fine mesh dolphin safety panel which, during the backdown procedure, helps reduce dolphin mortality.

21. Sea bass and marine turtles are on the list of endangered species. An absolute prohibition forbids fishing sea bass, while turtles are subject to a system of strict quotas. Lobster, oysters and clams have a high commercial value, but together they represent 3.1 percent of total value of Mexican fisheries (data for 1987). Because of their habitat, the large scale commercial exploitation of rock hind is not possible.

22. According to the Fisheries Law of 1986, fishing cooperatives could launch investment projects as joint ventures. They could thus become partners with ejidos and other cooperatives formed by nonfishermen. The law recognized the possibility that the private sector might intervene, but such intervention had to come through the formation of new cooperatives. Too much bureaucratic red tape was still needed to launch and approve a project.


24. These figures correspond to SEPESCA's statistics. Other official sources of statistics in the case of Mexico suggest that these figures may overestimate the actual levels of employment. In particular, as will be shown in the section on production and employment linkages, the Ministry of Labor's 1982 estimates on direct employment in the fishing sector, and adjustments made by Teresa Rendón and Carlos Salas for the employment figures in the population census should be considered more reliable. Data from SEPESCA is 100 percent higher than these alternative figures. See Teresa Rendón and Carlos Salas, "La población económicamente activa en el Censo de Población de 1980. Comentarios críticos y una propuesta de ajuste," Estudios Demográficos y Urbanos, Vol. 2(2), 1986, pp. 291–309; and Comisión Consultiva del Empleo y la Productividad, "Proyecto para la planificación de recursos humanos. Necesidades de recursos humanos de México 1980–2000. Anexo Estadístico," (México, D.F.: 1982).

25. Infrastructure requirements in extensive methods of aquaculture frequently imply large earth-moving operations, which allow for the use of labor-intensive techniques.
26. Regulatory agencies are unable to control moonlighting and clandestine fishing off-season, or to control fishing in prohibited zones. Thus, an unspecified capture tonnage of high commercial value, such as shrimp and tuna, is simply not registered adequately. In this way, the employment per ton coefficient will appear lower than it would be otherwise.

27. Direct employment is the name given to the set of jobs directly related to capture, including search, capture, transportation to docks and discharge. Indirect employment is the name given to employment generated through forward and backward linkages—upstream and downstream economic activities. Official statistics from SEPESCA are presented with a classification between direct and indirect employment that has nothing to do with this standard nomenclature. For SEPESCA, direct employment refers to jobs generated by state-owned firms and indirect employment is generated by cooperatives and private firms.

28. This analysis is presented in Section Two of this report.

29. Indirect employment in this case is underestimated because only forward linkages are considered. There is no information outside the input-output matrix on indirect employment generated in industries that supply inputs to the fishing sector. The term indirect employment in the following comparisons would correspond to direct employment in the context of input-output analysis.

30. A few comments about these statistics are necessary. First, the inclusion of administration has a marginal effect on these calculations. Second, employment in infrastructure, essentially docking services, maintenance of ports, etc., can be set aside because employment in these activities is also related to other economic activities. Third, it is not possible to distinguish between processing and marketing activities exclusively associated with capture or with aquaculture production. Perhaps this is not a very important limitation for the objectives of this aggregated analysis. It should be noted, however, that aquaculture production has stronger links with indirect employment in marketing activities. The nature of its produce is such that little or no industrialization takes place. For example, common carp (Cyprinidae), tilapia (Cichlidae) and oysters, the most popular species, accounting for more than 87 percent of total aquaculture production, are taken to market, either as fresh fish or frozen product, but very little is processed industrially.

31. Productivity may decrease due to a series of factors. One of them is the possible effect of excessive exploiting of some of the existing resources. This would mean that as fishing grounds closer to the coast, or the most productive grounds, become overexploited, productivity decreases. Boats will tend to move to other fishing grounds, probably farther away from the coastline. An irrational exploitation of existing fish stock may also lead to increased numbers of juveniles in total catch, with the resulting decrease in yields in the medium and long term. This would reflect itself in the increase of fishing effort (for example, in terms of total fishing days) per unit of catch.

32. See Nadal and Salas Páez, 1989.

33. One final point warrants attention. Cooperatives have resorted to hired labor; this is a negative trend because it seriously distorts the spirit of truly cooperative structures. This artificial employment generation is not an encouraging trend be-
cause it is associated with contraband of reserved species and, thus, mismanage-
ment of resources.

34. In many cases, population employed in fishing activities is occupied in multi-
species fishing so that evaluating employment generation potential by individual 
fisheries is not possible. This is particularly true in the case of finfish and small-
scale fishing activities that are not species discriminating.

35. Data on investment costs for direct and indirect employment for specific fish-
eries is not available, except for estimates of the tuna section of the National 
Chamber of the Fishing Industry (CANAINPES). According to this source, total 
capital investment in the tuna fleet, direct and indirect employment between 1982 
and 1986 evolved as follows:

<table>
<thead>
<tr>
<th>YEAR</th>
<th>INVESTMENT*</th>
<th>DIRECT</th>
<th>INDIRECT</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1982</td>
<td>232.5</td>
<td>904</td>
<td>2,088</td>
<td>2,992</td>
</tr>
<tr>
<td>1986</td>
<td>533</td>
<td>1,500</td>
<td>3,750</td>
<td>5,250</td>
</tr>
</tbody>
</table>

*Millions of current US dollars.

Fixed capital investment per unit of direct employment went from $257,190 in 1982 
to $355,333 in 1986. Although these figures are lower than those previously men-
tioned, they do confirm an increasing trend in fixed capital investment per unit of 
direct employment.

36. Finfish includes a group of coastal species, such as the high-value red snap-
per, groupers, snook, sea bass, flounders and other species. These species are 
very important for direct human consumption in Mexico's urban centers, and they 
may be the key to a more balanced development of Mexico's fisheries, breaking 
away from the extreme concentration in the sardine-anchovy-shrimp-tuna com-
plex. Local fishing exploits these species, sometimes for autoconsumption, but 
also for waterfront markets.

37. On the other hand, the specific problems of waterfront markets must be ex-
amined because there are indications that infrastructure and institutional factors 
may constitute important obstacles in the development of this fishery. Those de-
serving particular attention include the lack of adequate freezing equipment, of 
middlemen and credit suited to the needs of small fishermen, who find it difficult 
to offer an acceptable collateral.

38. The total production of crustaceans by aquaculture was 3,510 tons in 1987, of 
which 3,224 was river prawns (Macrobrachium americanum and M. rosenbergi), 
and only 286 tons—not more than 8.1 percent of total aquaculture production of 
crustaceans—was of shrimp. However, studies to evaluate the potential of aqua-
culture for shrimp in Mexico have not differentiated between prawns and shrimp 
and have relied on this aggregate data to carry out their analysis. Two examples 
of this mistake are Francisco Gil Diaz, "El potencial del sector camaronero en Mex-
ico," ITAM-CINDE seminar on Institutional Aspects of Economic Development 
in Mexico, 1988, and Booz-Allen & Hamilton and INFOTEC (1988). The produc-
tion technology and inputs are not equivalent and careful analysis should treat 
these two items separately. But a point of critical importance in these two studies
is that prawns are not a reserved species for exclusive exploitation by cooperatives in the so-called social sector. The conclusion of these studies—mainly that production is lagging behind because of regulations in the production of shrimp through aquaculture—is based on a high proportion of prawns (92 percent), and the exploitation of this species has always been open to private enterprise.


42. See Booz-Allen, 1988.


44. See Andres Armenta González, El potencial de la producción de acuacultura en México, presented to SEPESCA by the National Chamber of Commercial Fishing (Mexico, D.F.: 1989).

45. The figures are overestimates because, first, not all the surface considered potentially useful can be effectively used in production. Second, not all the surface that has been identified will be subjected to production with the labor intensive methods. There will be a combination of methods of production (extensive, semi-intensive and possibly intensive methods) used at any given moment in time.


47. The lack of adequate attention for the fishing sector is revealed by the fact that it appears together with hunting, which is not an important economic activity. For the purposes of our analysis, we will consider that figures for hunting are negligible and that data for Sector 4 correspond to the fishing sector.

48. The figure for absolute employment in the fishing sector does not correspond with SEPESCA's data. According to Table 1, employment in capture activities alone in 1980 was 100,100 people. This disparity is due to different criteria in defining "fishing population in direct capture activities." For example, SEPESCA's data include members of cooperatives involved in administration, transport of catch, maintenance and servicing of boats, in addition to vessel crews.

49. In addition, the total employment linkage coefficient should not be considered independently of the absolute employment generation capacity of each sector. In absolute terms, construction occupies one of the highest positions, with 1,191,028 people employed in this activity. The important point here is that the low indirect employment linkage coefficient for the fishing sector is explained by the weak technical linkages between the fishing sector and the rest of the economy.
50. An interesting feature of the fishing sector is the level of requirements from the transportation sector. Total purchases from this sector represent 3.7 percent of inputs. Transportation services are required to take catches to markets and the employment generated here is through a forward linkage of the fishing sector with processing and marketing activities.

51. This situation is similar to the case of commerce and the other services sectors, because a large part of total nonwaged labor is concentrated in them.

52. Technical interdependencies between the manufacturing sector and the fishing sector do not appear to be a solid base for employment generation. In the case of the fishing sector, direct employment is the most important component, accounting for two-thirds of the total employment linkage coefficient. It is possible that a higher level of integration with some of the manufacturing industries that furnish capital goods could translate into a slightly higher employment generation coefficient. Once again an exception must be made in the case of small artisanal fisheries. The production of small boats, nets, line-and-pole gear, etc., are mostly local. The development of small fishing may generate more employment through the production of these components. However, small outboard motors are not produced in Mexico and, at this stage, it is difficult to conclude that the size of domestic and foreign markets justifies investment in a modern competitive plant.
NOTES

1. The study presents the principal results of research conducted at El Colegio de México. It was written at the Center for U.S.-Mexican Studies of the University of California, San Diego and translated by Santiago J. Rodriguez. The final report, with the same title and in the hands of the Commission for the Study of International Migration and Cooperative Economic Development for reference, is a complete version of the results. The section entitled “Trends: 1965–1988” corresponds to Part I of the Report (pp. 3–7); the next, “Determinants: 1965–1988,” to sections II.2 and II.3 and to Part III (pp. 13–43); “Agricultural and Livestock Foreign Trade: 1977–1988” summarizes what is presented in pp. 8–13 and in Part IV (pp. 44–71); and the “Analysis of Effects . . . ” and “Towards the Definition . . . ” sections correspond to Part V (pp. 71–88). Ramón Blanno-Jasso, Associate Researcher of the project, made the quantitative analyses used in the reflections on structural interdependence and analyses of effects. However, the principal author is exclusively responsible for the interpretation. The collaboration of César Pérez Valdespino in editing the Final Report and in gathering data and calculations is appreciated. A summary of the results of the research on the period 1976–1988, made by Yunez-Naude and entitled “El Comercio Exterior Agropecuario Durante el Auge y la Crisis,” is currently in the process of publication.

2. Unfortunately, livestock products are not treated systematically due to problems in the information; see Final Report, notes 38 and 47 and Table 13.

3. These are: 1965–70, Gustavo Díaz Ordaz; 1971–76, Luis Echeverría Alvarez; 1977–82, José López Portillo; 1983–88, Miguel de la Madrid Hurtado. The official data include agriculture, livestock and apiculture, forestry and game and fish.

4. It could be argued that the conclusion would have been modified if trade of processed products had been included. However, the available data indicate the opposite, see Antonio Yunez-Naude, “Factores Determinantes de la Balanza Comercial Agropecuaria de México, 1965–87.” Comercio Exterior, no. 39, 1989, pp. 675–86, notes 2 and 3.

5. Made with annual data from 1965 through 1985 for seventeen of the principal traded products or the crops on which information is available for the entire period. They are: barley, beans, corn, rubber, sorghum, soya, wheat and wool, and cantaloupe and watermelon, coffee, cotton, garbanzo beans, tomatoes, sesame, strawberries, tobacco and honey. See Antonio Yunez-Naude, “Factores Determinantes.”


7. See Final Report, Tables 6–9.


9. Rubber and wool are not included due to the lack of information on their domestic demand. In addition, domestic production of rubber is marginal and the
wool obtained in Mexico is of low quality, which is why there are strong restrictions on import-substitution.

10. Cocoa can be added, since even though its per capita production increased, its exports decreased.


12. This has been clearly observed since late 1987. The policy of freezing and controlling prices of the recent “Stabilization Pacts” has depressed the domestic price of beef and encouraged exportation. Consequently, the government has had to intervene to offset the reduced supply for the domestic market. To this must be added the growing deficits of a derivative of livestock activity: powdered milk (imports by the National Agency for Popular Subsistence [CONASUPO] have increased at an average annual rate of 10 percent from 1972 to 1988. “El Comercio Agropecuario,” mimeo, CONASUPO).

13. The trend is seen in checking the figures on volumes produced, areas harvested and cultivated pasture lands. Compare Final Report, pp. 27–32 and Tables 11–16.


15. These transfers can be made through fiscal and credit means, as well as by pricing policies and by foreign trade, Final Report, pp. 35–37.


17. Final Report, pp. 40–43, Tables 17 and 18, and Appendix V.


19. Although in less overwhelming form, a similar conclusion is obtained when taking as reference the three-year periods of 1974–76 and 1977–79, Table 1 and Final Report, p. 9.

20. It could be argued that it is not valid to include 1988 due to the substantial change in economic policy decided upon since its first quarter and, especially, because the “controlled devaluation” of the Mexican peso, adopted in the same year, had negative effects on the agricultural and livestock trade. However, the same conclusions are reached when ignoring the events of 1988, Final Report, pp. 9–11.
21. Among other reasons, this is because economic behavior and the dynamics of its components are different and consequently, economic policy measures do not affect them equally.

22. In general, typical peasant crops will be those of which 70 percent or more were harvested on rainfed lands during the period 1977–1985, and as entrepreneurial those grown in the same proportion and in the same time frame, but on irrigated lands. The classification would be as follows: A) Peasant crops: barley grain, beans, cocoa, corn, garbanzo for animals, henequen, oats (grain and forage), oranges, pasture, pineapple, pumpkin and pumpkin seed, sesame and sunflower (up to 1982); B) Entrepreneurial crops: alfalfa, cantaloupe, cotton, cucumbers, garlic, grapes, onions, sorghum, soya, squash, strawberries, tobacco, tomatoes and wheat; C) Mixed crops: barley for animal consumption, coffee, garbanzo beans for human consumption and since 1983 for animal consumption, rice, safflower, sesame, forage corn, watermelon, pineapple (since 1983), sorghum, grain and forage wheat. Table 3 indicates rainfed or peasant crops with an "r", irrigated or entrepreneurial crops with an "i" and mixed crops with an "m". For details, see Final Report, pp. 33, 34, 44, 45, and Table 19.

23. The result on the factors encouraging production by source of demand for the period 1980–1985 is consistent, since it is the only export product for which external demand was the most important determinant of production, Final Report, pp. 48–55 and Appendix I.

24. The estimates of the factors encouraging production lead to similar conclusions, Final Report. The results of a thorough quantitative analysis of the factors that influenced demand of the main exports of winter fruits and vegetables during Miguel de la Madrid's term do not contradict the argument about the low impact of the devaluation of the peso. Of the nine products studied (squash, tomatoes, cucumbers, strawberries, cantaloupe, watermelon, grapes, pineapples and oranges), only squash and cantaloupe experienced the positive effect expected from the peso's devaluations during that period. In contrast, the other variables considered—U.S. demand and seasonality—were significant for most of the products: the first effect for tomatoes, cucumbers, cantaloupe, pineapple and oranges, and the second for tomatoes and cucumbers, as well as for strawberries, watermelon and grapes. Last, the study indicates the possible existence of trade barriers. See Alfredo Hernández Martínez, "La Demanda por Exportaciones de Frutas y Legumbres Mexicanas de Invierno a Estados Unidos: Un estudio de Casos," Master's Thesis, El Colegio de México, 1989.

25. Table 2. The data on the evolution of domestic production are in Table 14 of the Final Report.

26. In the case of rice, the effect of final demand was negative but close to zero, which is why beans were the only exception: imports decreased and the effect of domestic final demand continued to be positive. The case of rubber is not mentioned because it is not disaggregated in the agricultural and livestock matrix.

27. The results on the factors encouraging production support this because the most important effect for honey was external demand and was positive in the case of bovine cattle; see Final Report, p. 55 and Appendix I.
28. However, the evaluation of the SAM's effects and cost is a controversial subject (this is not due exclusively to ideological concerns about the issue of state intervention, but to other reasons having to do with the great variability of rainfall during the time SAM was in effect). If this evaluation compares what happened in 1981 with the program's goals for 1982, the conclusion will be favorable since the volumes produced, the areas farmed and the yields of rainfed corn amply surpassed the goals, and the bean picture was favorable. In contrast, the result is the opposite if the averages obtained in these variables during SAM's three-years (1980–82) are compared, since the only goal accomplished was that of yields, Final Report, pp. 55–59 and Table 22.

29. The comparison of the averages of the first two three-year periods is fortunate, since rainfalls were similar, while those of the last three-year period give an upward bias to the figures on production since 1983 and 1984 were normal years and 1985 was a good one.

30. It is important to mention that the number of paid agricultural workdays experienced positive growth rates: of an annual 0.9 percent during 1979–81 compared to 1974–76, and of 1.4 percent in 1983–85 in relation to 1979–81. This is explained by a generalized increase in the number of workdays in those crops whose production increased, and even in some in whose production became stagnant, Final Report, Table 17. This is interesting as it indicates that the sector, by offering a larger number of jobs during the first years of the crisis, could offset some of its effects.

31. The phenomenon could have been due to peasant producers' ability to fend off the first blows of the crisis, to their relative isolation from the rest of the economy or to the favorable weather from 1983 to 1985.

32. Final Report, Tables 24, 11 and 13 respectively.


35. Coffee is a separate case since, through the Mexican Coffee Institute (Instituto Mexicano del Café), the state intervenes in its production, processing and marketing. In addition, its exports depend heavily on world market conditions and international agreements, p. 25.

36. Final Report, pp. 73–75, table 27 and Appendix V.

37. The impacts on the employment of production of rice, henequen and coffee were excluded since the agricultural and livestock input-output matrix does not register any value in its final demand components. This is because national accounts considers these products as intermediate and subject to manufacturing. This is unfortunate, especially for coffee, which is the most exported product and employs a considerable portion of the agricultural workforce (8.5 percent, Final Report, note 105 and Table 17).
38. The estimates included another two cases with minor growth in imports and exports. They are not discussed because they lead to similar conclusions, Final Report, pp. 74–80.

39. The same cannot be said when considering the economy as a whole, since employment and production generated in the high-growth scenario with imports are larger than those generated in the low-growth scenario.

40. They are grouped in the agricultural and livestock matrix under the title “Other Agricultural Products,” which also includes alfalfa, garbanzo, linseed, nuts, oatmeal, olives, potatoes and yams. Aggregating this component with fruits and vegetables is therefore an approximation forced by the way the different products were classified.

41. The subject of state intervention in storage, supply, distribution and processing will not be discussed, since it is being reviewed by the government and the World Bank. It is enough to say that the Carlos Salinas de Gortari administration should continue to target its subsidies only to poor producers and consumers.

42. The proposal is intended to stress the urgent need for a policy aimed at a certain type of producer and crop; this is not to say that certain support for producers of other labor-intensive crops on rainfed lands should be abandoned completely. Investment, credit and subsidies are obviously not enough in themselves to encourage production. Experience shows that such assistance is frequently diluted, since it does not reach the producer. This is due to the power structure in rural areas, to paternalism and to corruption. Thus, a basic component of agricultural development would be the active participation of the producers themselves in the processes of strategy formulation and decision making. See, for example, Gustavo Gordillo, Estado, Mercados y Movimiento Campesino, Mexico: Plaza y Valdés, 1988, and Fernando Rello, “La Agricultura.”

43. The available information on rice shows that, even though it is a mixed product, it has characteristics similar to those of wheat, and therefore the effects of liberalization would be comparable. See Final Report, Table 17, and CEPAL, Economía Campesina y Agricultura Empresarial: Tipología de Productores del Agro Mexicano, Mexico: Siglo XXI Editores, 1982, pp. 161–163.

44. The recommendation is similar to the policies followed during the period of the SAM. The differences would perhaps be that resources would not be squandered, it would be systematic, and its support would directly benefit producers with scarce resources. All this, together with an active involvement of peasant farmers, are necessary for them to become more efficient and competitive in the world market.

45. This shows that purchases abroad of sorghum depend much less on prices than on domestic demand, and that those of soya are influenced by trends in its domestic price (with a positive relation) and its international price (with a negative relation). See Antonio Yúnez-Naude, “Factores Determinantes de la Balanza Comercial Agropecuaria de México, 1965–87,” Comercio Exterior, no. 39, 1989.


47. The disequilibrium is of such a magnitude that Mexico has become one of the world’s largest importers of powdered milk.
NOTES

1. Banco de México, Requerimientos de financiamiento externo para la economía mexicana en crecimiento (Mexico City, 1989).


3. We abstracted existing conditions in the international context.


5. Rural Development Districts are the basic operational units of the programs organized and implemented by the federal government and the states in behalf of rural areas.

6. These were chosen as the most important in terms of their potential for agricultural development.


9. Measures under consideration in the present Program for Rural Modernization currently promoted by the government.
NOTES

This study was conducted under the supervision of Mexico's National Population Council and received logistical support from the Secretariat of Tourism (SECTUR). We would like to express our gratitude to the Mexican government officials who lent us their support. Furthermore, our very special thanks go to Dr. Sergio Díaz Briquets of the Commission and Dr. Sidney Weintraub and Dr. Chandler Stolp, of the University of Texas at Austin, who devoted many hours to reviewing the preliminary document and providing us with highly relevant observations.


4. In Mexico, the term "tourist" is defined in the General Population Law, Article 42, which states, "The tourist is deemed to be the non-immigrant who enters the country temporarily for recreational or health purposes, to take part in artistic, cultural, or sports activities that are neither remunerative nor lucrative, for a maximum period of six months, non-extendable."


9. Throughout this work, we used the most frequently publicized official statistical sources on Mexican tourism in addition to our own research. Our secondary sources included:
   • Banco de México: "Indicadores del sector externo," "Encuestas de turismo receptivo, egresivo y transacciones fronterizas," miscellaneous editions.
   • Instituto Nacional de Estadística, Geografía e Informática (INEGI): "Manual de estadísticas básicas del sector turismo," miscellaneous editions; input-output tables and national account systems, miscellaneous years.


12. This phenomenon, particularly interesting and potentially unhealthy for Mexico's net tourism balance, has a high income elasticity, according to 1988 SECTUR data. There is no doubt that improvement in certain socioeconomic sectors brought about by the growth in several areas (e.g., the in-bond and automotive export industries and imports of consumer goods, among others) provided the resources for an increase in the number of outbound Mexican tourists.


14. The concept of a sequence of "related productive activities" has been developed by several Latin American authors and applied to a number of sectors. Its most innovative feature is to describe the economy in terms of linkages between economic activities that cater only partially to the tourist industry. These activities are then related to different sectors of the economy, such as manufacturing, transportation, and marketing structures, in an effort to understand flows rather than to produce a static analysis. This represents an important contribution to the study of tourism.


NOTES


5. Ingram and Durst, "Nature Oriented Travel," p. 16

6. Ingram and Durst, "Nature Oriented Travel," p. 16


15. The differences between consumptive and nonconsumptive can be subtle. Any disturbance of a habitat, even by tourist birdwatchers can cause a negative impact on a species (e.g., whooping crane observation at Aransas Wildlife Refuge, Texas). While this is nowhere as dramatic as killing wildlife with a weapon, wildlands managers are aware that any outdoor recreational activity has, in varying degrees, an impact on both the environment and on wildlife. With any form of
outdoor recreation it is an overriding concern to manipulate and manage the
trade-offs between the natural environment and the desires of visitors.

16. Conservation Department, Mescalero Apache Reservation, New Mexico. Interview with several Department members (June 1988).


18. McShane conversation.


21. Ingram and Durst, “Nature Oriented Travel,” 1987, pp. 3–5. The sample of tour operators for this study was taken from the Specialty Travel Index magazine. Some activities, such as hunting, fishing and skin diving, may concentrate their marketing efforts in other publications. Other firms may not use the magazine. By studying other sources, a planner may conclude that the activities could be ranked in a different order of popularity.


28. Interview with Mr. Ignacio O. Ortiz Ocampo, assistant to the Municipal President of Taxco, February, 1989.


31. G. Donald Jud and Walter Krause, “Evaluating Tourism in Developing Areas:

32. Reports and letters from Inter-American Foundation Project (ME-091), Inter-American Foundation, Rosslyn, VA.

33. Lic. Angel Aguirre, Secretary of Economic Development of the state of Guerrero, Mexico and Lic. Ernesto Vélez, Director of the Instituto de Empresas del Sector Social, private interview, Chilpancingo, Guerrero, Mexico, 12 April 1989.

34. Kevin Healy and Elayne Zorn, “Lake Titicaca's Campesino-Controlled Tourism,” *Direct to the Poor, Grassroots Development in Latin America*, ed. by Sheldon Annis and Peter Hakim (Boulder and London: Lynne Rienner Publisher), pp. 45–57.


37. Healy and Zorn, “Lake Titicaca.”

NOTES


6. The information in this section was taken mainly from Ministry of Planning and Budget, Comprehensive Program for Rural Development, PIDER, Report 1977–1981, Mexico City.


12. COPLAMAR, *Necesidades*.


17. Bustamante also proposed an agreement between the two countries to regulate the migratory status of undocumented Mexicans in the United States. In the same style that years later the IRCA was to use, this program proposed legalizing the migratory status of those who were working or who had had a job one year before the regularization measure was decreed: Bustamante, “Emigración.”
18. In the National Development Plan a drop in product of between 2 and 4 points was predicted for 1983 (this was a stage of necessary adjustment, after the economy had had an average growth of over 6 percent per year during the 12 previous years); in the medium-term a slight recovery in economic activity, of between zero and 2.5 percent was predicted for 1984 (the stabilization stage), and growth of between 5 and 6 percent during the period 1985–1988 (recovery stage). This meant increases of the order of 3.5 percent to 4 percent in job creation and increases in real wages no lower than productivity gains after the initial adjustment period (Federal Executive, National Development Plan 1983–1988, Mexico City, 1983).


20. The Development Agreements, or CUDs, are a political-administrative figure to consolidate investment expenditure in a certain state over a given period. This a tricky way of presenting total public investment, be it federal, state or municipal, in a particular territory. The agreement is, mainly, a political tool in the process of planning public spending, especially on the geographical allocation of spending. The federal government, the state governments and the direct beneficiaries all participated in the agreement.


24. CIDE/Regional Studies Program, "Importancia de la ejecución o puesta en marcha de las modificaciones a la Ley Migratoria estadounidense (enmienda Simpson-Rodino): Algunas respuestas políticas posibles," August 1987 (restricted document prepared for the Ministry of Planning and Budget, Mexico City).


