

NONTRADITIONAL AGRICULTURAL EXPORTS IN LATIN AMERICA

Bradford Barham, University of Wisconsin–Madison

Mary Clark, University of Wisconsin–Madison

Elizabeth Katz, University of Wisconsin–Madison

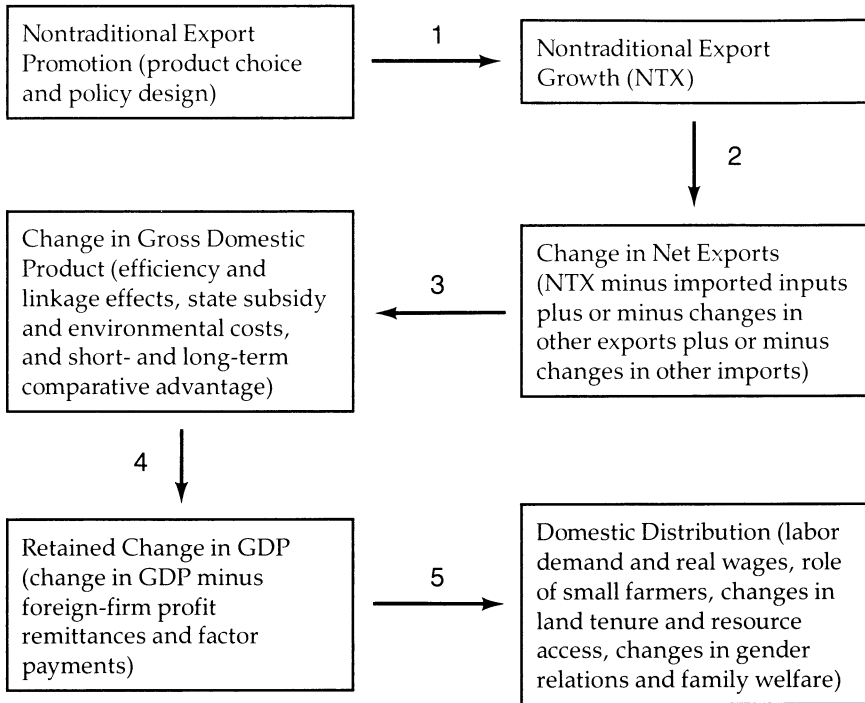
Rachel Schurman, University of Wisconsin–Madison

After a decade of debt crisis and severe economic decline, countries throughout Latin America are seeking radical new treatments for their economic ills. Under pressure from internal political actors, international lending and aid agencies, or some combination of these, many Latin American countries are turning to outward-looking development strategies to stabilize their balance of payments and revitalize economic growth. Serving as the centerpiece for the new strategies is the promotion of “nontraditional” exports.¹

Despite the zeal with which its advocates have promoted nontraditional exports in recent years, we found no studies that provide a comprehensive analysis of the impact of such strategies on Latin American economic development. This article will set forth the issues that we perceive as germane to future attempts to analyze the effects of nontraditional exports on economic growth and development in Latin America. Our objective is as much to lay out what we do know about nontraditional

1. The term *nontraditional exports* is used in the literature to describe three distinct phenomena. First, an export can be nontraditional because it involves a product that has not been produced in a particular country before, such as snow peas in Guatemala. A second type of nontraditional export is a product that was traditionally produced for domestic consumption but is now being exported, like various tropical fruits. Finally, the term can refer to the development of a new market for a traditional product, such as exporting bananas to the Soviet Union. We are grateful to David Kaimowitz for suggesting these distinctions. At the same time, the term *nontraditional export promotion* in international policy circles often serves as a touchstone for a more far-reaching package of policy adjustments meant to deal with the internal structural problems that are credited with getting countries into the debt crisis in the first place. According to the proponents of neoliberalism, what Latin American countries need in order to address these “structural imbalances” is to move away from policies stressing import-substitution industrialization (and the associated reliance on imported components, protected domestic markets, and a few traditional exports) and toward policies that exploit their comparative advantages in international trade. Liberalizing trade and investment regulations, “getting prices right,” and letting markets work are all part of the recommended structural adjustments. For an example of this approach, see Balassa et al. (1986).

FIGURE 1 *The Impact of Nontraditional Exports on Economic Development*



exports in Latin America as to determine what we do not know—but should.

To clarify what we mean by the impact of nontraditional exports on economic development, we designed figure 1 to depict the various levels on which the repercussions may be felt. The selection of nontraditional commodities themselves as well as the policy instruments intended to encourage exports rests on the first level and presumably leads to an expansion of such exports as indicated by the first arrow. Moving through the flow chart takes one toward the growth and distribution impacts of the development strategy, incorporating along the way such macro-level concerns as the degree of government subsidy and environmental degradation that might be associated with export-promotion schemes and such micro-level issues as how cash-crop schemes may affect the allocation of labor and distribution of income within the household.

The structure and content of the article resulted from our selective review of the relevant conceptual and empirical literature concerning export-promotion strategies as well as field research on nontraditional

exports in Chile, Costa Rica, and Guatemala.² Although we do not discuss all of the levels of impact presented in figure 1, the second section will focus on product choice and the macro-economic performance of nontraditional exports. The third section will examine the effect of nontraditional export expansion on economywide growth and distribution, and the fourth section will present three brief country studies in which we attempt to analyze some of the major issues according to the most recent field research available. Our review of the literature and country studies suggests that although the short-run growth potential of many of the nontraditional commodities may be high, crucial questions remain unanswered regarding the longer-term impact of the strategy on Latin America's economic growth and development potential.

Most of the recent research on nontraditional exports concentrates on the policy instruments and economic efficacy of efforts to expand nontraditional exports. Much less emphasis has been placed on issues such as how the expansion of nontraditional exports might affect domestic growth, distribution of income at the social-class and household levels, and the division of labor within the household. We will attempt to remedy this imbalance by devoting relatively more attention to these questions in the third section.

The focus of this article is nontraditional agricultural or natural-resource-based exports (NTAX). The NTAX focus is based on considerations of scope and expertise but also on the observation that among the small and medium-sized Latin American countries, primary products form a major component of the nontraditional export strategy as it is currently unfolding. At the same time, we acknowledge that manufacturing exports will continue to play a leading role in the export portfolios of some Latin American countries, especially Brazil and Mexico. In terms of our country studies, it is noteworthy that Chile often serves as a model of NTAX promotion for the rest of Latin America, while Costa Rica and Guatemala have been among the first countries in the Caribbean Basin to adopt NTAX strategies.

EXPORT EXPANSION AND DIVERSIFICATION: GETTING NTAX GROWTH GOING

Given Latin America's dismal economic performance throughout the 1980s, revitalizing growth has been the imperative stressed in the recent literature on NTAX strategies. It is surprising nonetheless how little

2. The reported findings on the nontraditional sectors are preliminary because they are all based on work in progress. In Chile, Rachel Schurman is examining the impact of the growth of the southern Austral fishing sector on the social structure and the environment. In Costa Rica, Mary Clark has completed her fieldwork on the political economy of Costa Rica's nontraditional export strategy in the 1980s. In Guatemala, Brad Barham and Elizabeth Katz (as part of a collaborative project involving researchers from the Instituto de Nutrición de Central America y Panamá and the University of Wisconsin) are examining the effects of nontraditional agricultural exports on land-tenure patterns, gender relations, and nutritional status in the central highlands.

attention proponents of these strategies have paid to the actual economic and political processes that connect NTAX expansion to the reactivation of overall economic growth.

Commodity Studies

The recent outpouring of what are labeled here as NTAX business commodity studies usually open with a critique of Latin America's previous import-substitution strategy, arguing that the expansion of NTAX is essential for reactivating growth (e.g., IRI 1987; Paus 1988; and Salazar et al. 1988). Their usual focus is to identify supply and demand conditions for nontraditional export products. A particular country's land, labor, climate, infrastructure, and natural-resource endowments are generally matched with evolving international demand patterns in an effort to target the best products for a national promotion effort led by the private sector. Recent data on price trends for the commodities and interviews with distributors in the importing countries about future demand prospects are compared with estimates of costs of production, rates of return on land and capital, some provisos about production-investment risk, and potential sources of financing to determine which commodities might be a good bet. Particular attention is paid in the collection edited by Eva Paus (1988) to logistical questions like the adequacy of export infrastructure (transportation networks, utilities services, and storage capacity), bureaucratic requirements (especially regulatory bottlenecks), and state policies that will encourage "getting prices right" for export promotion. IRI (1987) and Salazar et al. (1988) focus on the specific resource requirements for a range of NTAX products that affect the viability of their promotion and adoption. The results have been presented on a commodity-by-commodity basis.

These NTAX analyses have served to identify potential avenues for export expansion and thus provide a basis for policy planning. Although they often suggest the levels of exports that might be obtained over time given national resources and international demand conditions, the issue of complementarity or substitutability between nontraditional and traditional exports has been discussed in a cursory manner at most. The same has been true with regard to the potential effect of expanding agricultural exports on basic grain production and the import requirements of the new exports. Thus the extent to which NTAX affect an increase in net export revenues has not been demonstrated in these commodity studies nor in other analyses of NTAX expansion.

Three additional caveats about these commodity studies should be mentioned: their implicit assumptions about elasticity of demand; their omission of risk issues, especially for small farmers; and their inattention to the potential for protectionism.

In general, these studies tend to assume that recent trends in price and export revenues for these products will not be adversely affected by additional supply, based on the idea that any given country will produce only a small share of the product. Although this assumption may be reasonable for one country, it overlooks the obvious potential for overproduction of NTAX, as many countries embark on promotion schemes involving the same products. Also, some of the products (especially the perennial tree and bush crops) require large sunk investments, implying that supply adjustments will be limited even if prices deteriorate. Thus unless demand remains elastic as supply increases, the potential arises for simultaneous NTAX promotion efforts to result in falling prices and revenues for Latin American countries. After all, how many macadamia nuts or mangoes can North Americans be expected to eat, even at lower prices?

A second caveat needed regarding these studies is that they do not treat issues of risk with much care. For example, they operate on the common presumption that simply expanding the number of exports will achieve significant reductions in the risks associated with price fluctuations in exports. Reductions in export earning fluctuations may not be achieved, however, if prices of the products in the new export portfolio move in the same direction (that is, if they covary positively). In fact, Michael Conroy (1990) argues that the mixture of NTAX recently adopted by some Central American countries may actually fluctuate more due to the increased price volatility and positive covariance among the products than they did before diversification took place.

At the producer level, the link between the decision to adopt particular NTAX crops and the existence of institutions that help mitigate the associated risk have not been given the attention that research on such adoption in other contexts suggests is essential.³ Especially for small farmers, the risks associated with NTAX crops can be substantively reduced by crop insurance, technical assistance on pest control (see Hoppin 1989; Murray and Hoppin 1990), improved credit access, or creation of diversified processing and distribution channels that offer competitive outlets (von Braun, Hotchkiss, and Immink 1989). But without attention to the need for such programs, higher returns and incomes may be foregone by small farmers, or worse yet, lost permanently because of one bad crop.⁴

3. The literature on adoption is quite rich. Lipton and Longhurst (1989) have reviewed empirical findings, especially of studies concerning high-yield varieties of crops contributing to the Green Revolution, while Feder et al. (1985) reviewed the analytical models and logic behind the issue of adoption.

4. The connection between the risk of adoption and access to credit has been discussed widely in recent years. For entry points to the literature, see Feder (1980) and Feder, Just, and Zilberman (1985).

A final limitation of the commodity studies is their failure to consider the possibility of protectionist efforts once NTAX make serious inroads into foreign markets. While the indefinite extension of the Caribbean Basin Initiative (via CBI II) and U.S. support for global reductions in agricultural protectionism through the General Agreement on Tariffs and Trade (GATT) are hopeful signs for reducing protectionism, Latin American NTAX producers have been hurt on several recent occasions by protectionist behavior once a sector has reached a significant scale of operation. For example, U.S. import restrictions on Costa Rican and Colombian flower exports are well-known cases from the mid-1980s in which protectionism seriously dampened early successes at export promotion. Less-known is the role played by Florida growers in bringing about Coca-Cola Foods' "indefinite suspension" in 1987 of a major citrus production project planned for the northwestern portion of Belize.⁵

Performance of NTAX Reactivation Efforts

The dynamic potential of NTAX is apparent from the export growth rates achieved in some Latin American countries. As seen in table 1, Chile, Costa Rica, and Guatemala experienced rapid expansion of non-traditional exports (NTX) between 1984 and 1989 (the vast majority of which were agricultural or natural-resource-based, i.e., NTAX). Chilean NTAX more than doubled, those of Costa Rica more than tripled in value, and Guatemala's rose by about 70 percent.⁶ Although traditional exports still predominate in all three countries (copper in Chile and coffee, bananas, beef, and sugar in Costa Rica and Guatemala), NTAX account for about a third of exports in all three countries.

Table 1 offers evidence that weakly supports the connection between NTX expansion and growth in gross domestic product (GDP). On the one hand, the two countries achieving higher average GDP growth rates between 1984 and 1989, Chile and Costa Rica, experienced more rapid growth in the NTX sector than did Guatemala. On the other hand, during the same period, Costa Rica appears to have had a more dynamic expansion of its NTX sector, which was similar in relative size (both Chile's and Costa Rica's ratios of NTX to GDP were 11 percent in 1989), yet Chile's economic growth rate was 60 percent higher than Costa Rica's. The more dynamic GDP growth in Chile and the apparently more dynamic NTX growth in Costa Rica suggest that without more careful attention to

5. See Barham (n.d.) for this case study of investment liberalization measures in an industry characterized by strategic (or imperfect) competition within the private sector.

6. In the cases of Costa Rica and Guatemala, the NTAX export data also include the contributions of light manufacturing, mostly of clothing articles. The sources are listed in table 1.

TABLE 1 Growth Rates of Nontraditional Exports (NTX) and Gross Domestic Product (GDP), 1984–1989

Country	Six-Year Growth in NTX (%)	NTX/GDP 1989 (%)	Annual NTX Growth (%)	Annual GDP Growth (%)
Costa Rica	348	11	28	4.0
Chile	222	11	17	6.4
Guatemala	78	8	12	2.3

Sources: Nontraditional export data for Costa Rica, CENPRO (1990, 1); for Chile, Banco Central de Chile, *Boletín Mensual*, nos. 694 and 751; for Guatemala, Gremial de Exportadores de Productos No-Tradicionales and the Banco de Guatemala. GDP data for Chile come from the Chilean finance ministry, *Chile Economic Report*, Mar. 1990, p. 7; GDP data for Costa Rica and Guatemala from the *IMF International Financial Statistics Yearbook*, 1990.

intervening variables that mediate the relationship between export expansion and economic growth, it is hard to push the connection further.

THE NTAX STRATEGY: ITS POTENTIAL FOR ECONOMIC GROWTH AND DEVELOPMENT

Modern Latin American economic history is rife with booms in primary product exports, dating back to such well-known cases as animal products and grains in Argentina, coffee and bananas in Central America and Colombia, and rubber in the Amazon and continuing on to the more recent oil bonanzas in Venezuela, Mexico, and Ecuador.⁷ The impacts of these booms on development processes have varied considerably depending on a wide range of factors, including ownership patterns (like domestic versus foreign or concentrated versus dispersed), linkages to the rest of the economy, “Dutch disease” effects on other sectors of the economy, and the evolution of the terms of trade and overall international economic conditions.⁸ Thus the issues that we will explore concerning the economic

7. The following studies make good starting points for each country: on Argentina, Díaz Alejandro (1970); on coffee in Central America, Cambranes (1985); on Colombia, McGreevey (1985); on bananas in Central America, Kepner and Soothill (1935) and Ellis (1983); on rubber in the Amazon, Bunker (1985) and Weinstein (1983); on oil in Venezuela, Randall (1987), Randall (1989), and Velasco (1983); and on Ecuador, Schodt (1986).

8. The concept of “Dutch disease,” taken from Corden (1982) refers to the frequently recessionary impacts of a booming resource sector on other sectors of tradable goods, such as manufacturing or agriculture. This associated slump in producing other tradable goods is based on the appreciation of the real exchange rate generated by the booming sector, which in turn makes production of other tradable goods less competitive. A rich literature exists on recent Dutch disease episodes (e.g., Kamas 1986; Auty and Gelb 1986; and Scherr 1989), but to the best of our knowledge, the edited volume by Cortés Conde and Hunt (1985) is the only recent work that compares different booming sectors in Latin America within the Dutch disease framework.

growth and development potential of the NTAX strategy are ones that students of Latin America have been grappling with for a long time.

Economic Growth: Expanding Domestic Value Added in the Economy

Proponents of NTAX strategies often call on an array of statistical studies, across a wide range of countries and data over the last thirty to forty years, to substantiate their claim that a strong and positive relationship exists between the growth of exports and expansion of the economy as a whole. Indeed, those proposing NTAX for Latin America seem to take this connection as proof of the need to expand exports, paying little attention to the actual mechanisms that link export growth and economic growth.⁹

This approach entails two important conceptual problems. The first arises in determining the direction of causation in the relationship between the growth of exports and growth of the economy. That is, are exports driving growth or is growth fueling exports? Second, as a cursory comparison of earlier Latin American export booms would demonstrate, not all exports are associated with similar growth trajectories even if export growth rates are similar. Nor do they hold the same potential for improving social equity, promoting sectoral shifts so as to improve resource use, or guiding the economy toward more productive technologies. These conceptual problems underscore the need to explore the micro and macroeconomic mechanisms that link export expansion to growth and transformation. We will begin with the empirical evidence connecting exports and economic growth.

Exports and Economic Growth: Empirical Evidence / Empirical studies examining the link between export expansion and sustained economic performance can be grouped into two categories: cross-national studies that characterize and compare trade regimes, export growth, and economic performance; and econometric models that test the link between exports and growth.¹⁰ Studies falling into the first category usually compare a group of ten or more developing countries over a decade or a longer period (e.g., Bhagwati 1978; Krueger 1978; Balassa 1982; Papageorgiou, Michaely, and Choksi 1991). Evidence is then offered on the outward or inward orientation of the trade regime, based on announced policy packages and indicators of trade protection such as average tariff rates and

9. Among the many proponents of export-led growth and NTAX strategies for Latin America are Balassa et al. (1986), Krueger (1978, 1984), Lindenberg (1988), Naya et al. (1989), and the Paus collective work (1988).

10. Edwards (1989) proposes this grouping of empirical studies linking exports and economic performance and provides a more detailed exposition of many of the points made in this section.

effective rates of protection for various sectors. Countries are grouped by the orientation of their trade regimes, and export-growth figures are compared along the spectrum of orientation, with more outward-oriented countries generally showing stronger performances.

The second category of studies attempts to test the effect of exports on growth in a more statistically rigorous manner (e.g., Michaely 1977; Balassa 1978; Tyler 1981; Feder 1983; Ram 1987). They do so by including more countries and longer time periods, sharpening the measurement of the variables used, and controlling for other variables that affect growth. In essence, most of these studies attempt to extend the analysis of aggregate growth pioneered by Solow (1956) and Dennison (1967) by adding in exports as another factor of production. Via their purported efficiency effects (higher productivity, better access to imported inputs, learning by competing, and similar effects), exports are then tested to see whether they enhance the ability of the Solow-Dennison model to explain variations in the growth of GNP (gross national product or net of exports) across a number of countries during a period of, say, ten years.¹¹ For various countries, time periods, and specifications, the coefficient for exports is positive, significant, and large, an outcome that has been viewed as evidence in favor of export-promoting policies.

Despite the large volume of research along these lines, as Edwards (1989) suggests, these studies fail on three critical fronts: assignment of causality, objective identification of a country's trade orientation, and careful selection of instruments for export promotion.¹² The problem of establishing causality between export growth and output growth is two-fold in attempting to determine the direction of the relationship as well as mechanisms driving the process. To determine directionality, Jung and Marshall (1985) and Hutchinson and Singh (1987) have used time-series analysis for a large number of countries to identify which outcome—export growth or GDP growth—tends to precede the other in time and thus “temporally” causes the relationship. For the majority of countries tested, however, two-way causality cannot be rejected. Indeed, temporal causation cannot be identified for South Korea or Brazil, two of the favorite cases cited by proponents of export-led growth.

11. Three key factors explain economic growth in the Solow-Dennison model: growth in the economy's capital stock, growth in the economy's labor force, and a residual that is often called technological change. Empirical tests of the model found that growth in capital stock and labor force accounted for only about one-third of aggregate growth in the U.S. economy. By placing exports into the aggregate growth model for a group of less-developed countries, the idea was to test whether this addition would strengthen the fit of the model. It is important to point out that the use of cross-sectional analysis makes a strong assumption, namely that all of the countries grouped together share the same aggregate production function or have access to similar technology and similar productive capabilities.

12. See Edwards (1989) for more detail, especially on the last two points concerning trade orientation and the selection of instruments for export promotion.

The second causality critique returns to the question of what drives economic growth by suggesting that a third factor, such as productivity improvements, could be driving both exports and growth. In other words, if certain industries achieve rapid increases in productivity and biases against exports are not too large, then firms are likely to realize some of their expanding sales in foreign markets. Such a process would show a strong correlation between export growth and output growth, yet the causal factors would be distinct from the economy's trade regime.

Identifying the trade orientations of various countries so as to allow comparisons along objective lines is a measurement question that the first category of studies has mostly finessed.¹³ The essence of the problem can be seen in the findings of recent research summarized in Pack and Westphal (1986) and Westphal (1990). Contrary to the outward-orientation label often assigned to South Korea because of its purported free-trade regime, recent findings suggest that Korea actually used a mixture of relatively free trade policies in well-established industries along with selective but heavy intervention in industries where learning and technological acquisition processes may have been fundamental. The question that then arises is, how can the combination of these policies be measured and compared with the trade policies of other countries?

Finally, even if a causal link between exports and economic growth can be assumed, researchers still need to identify exactly which policy measures stimulate exports. The findings in this area have been rather inconclusive. Is it free-trade regimes that count? So far, only stable and perhaps undervalued real exchange rates seem to be necessary to sustained export expansion efforts.¹⁴ Otherwise, the importance of trade liberalization and export-promotion measures seems to vary greatly in practice.

Exports and Resource Allocation / The connection between export expansion and economic growth hinges fundamentally on how exports affect resource allocation and activity elsewhere in the economy. Simon Maxwell and Adrián Fernando (1989) condense the arguments for how cash crops spur output growth into three categories: "vent for surplus," comparative advantage, and linkages. The first two focus on improved resource allocation while the latter looks for spillover effects to other parts of the economy, on either the production or consumption side. To avoid rehashing their excellent survey, we will cover here only select questions for NTAX in Latin America. Because the linkage literature of Melville

13. As suggested, what most studies do is either look at single measures of protection, such as tariff rates, without considering the full range of government policy instruments that may affect the trade regime, or observe national policy regimes over time and group the countries by category (outward, inward, or mildly one or the other). Both methods present serious problems: the first is incomplete, while the second is qualitative and subjective.

14. Edwards (1989) offers more discussion on this point.

Watkins (1963), Robert Baldwin (1966), and Albert Hirschman (1977) has no significant counterpart in recent NTAX research, it will not be discussed further.

Hla Myint's concept of "vent for surplus" focuses on how exports can provide a source of effective demand for mobilizing idle resources (Myint 1958). For example, if labor or land is underutilized, then NTAX exports can expand the use of these factors and propel economic growth. Accordingly, much of the current literature promoting NTAX emphasizes pushing labor-intensive exports (Paus 1988; IRI 1987; Salazar et al. 1988). But except for forest lands, the land underutilization present in Latin America may have as much to do with land tenure as with the design of export-promotion policies (Thiesenhusen 1989; Schweigert 1990). Although underemployed labor in Latin America may offer a better example of "vent for surplus," the positive impact of NTAX should not be taken for granted. Labor absorption depends on the product mix and ownership patterns in the new products. Products vary in terms of their labor intensities, and distinct classes of farmers will adopt different products and input mixes, with the corresponding intensities of labor absorption usually declining with the size of the farm.¹⁵ Because export-promotion policies can also foster land concentration and production of crops with low labor intensities or only seasonal labor demand, the feedback of NTAX expansion may actually worsen rural underemployment or the "vent for surplus" situation.

Two contrasting examples from Central America's recent NTAX history illustrate the importance of product mix and changes in access to land. Robert Williams (1986) has documented how the Central American cattle boom between 1958 and 1979 displaced tens of thousands of peasant farmers from land that they had previously farmed either without official title or with usufruct rights. This displacement effectively created unemployed labor due to the low labor requirements of cattle ranching. In contrast, the 1989 study by Joachim Von Braun, David Hotchkiss, and Maarten Immink has demonstrated that the 1980s boom in winter vegetables among small farmers in Guatemala substantially increased their needs for hired labor. This increased demand probably reduced underemployment in rural Guatemala, an example that would support the "vent for surplus" argument.

What points export-promotion policies toward NTAX in the first place is the principle of short-term comparative advantage for Latin America, with its rich natural-resource base. The basic argument is that, in the short run at least, by following the price signals of international markets and the cost signals of local technologies and resource availabilities,

15. The issue of product choice and factor use for farms of different sizes is explored in Carter and Wiebe (1990) and in the adoption literature cited in notes 4 and 5.

countries can specialize in products that they produce efficiently relative to the rest of the world. This specialization will maximize income from available resources and investible surplus for future growth. In the longer run, specialization and openness to the international market can allow for additional dynamic productivity improvements like technological absorption, economies of scale, and improved competition among firms.¹⁶

For Latin America, the anti-agricultural bias of import-substitution industrialization strategies and the associated overvalued exchange rates of recent decades have given extra salience to the argument for gains in efficiency via comparative advantage. Indeed, rather broad agreement has emerged from the literature on Latin American agriculture that lowering the biases against agriculture in general, and NTAX in particular, will probably improve the efficiency of resource use and thus the prospects for growth in Latin America.¹⁷

Two critical questions about the principle of “comparative advantage” can be illustrated by using the cattle and winter vegetable cases already cited. The first is the notion that comparative advantage may not be a “given” but rather the product of land tenure, investment, state policies, and institutional arrangements. Central America’s cattle boom offers a good example. In that case, road construction financed by international agencies in the 1950s and 1960s was key to the sector’s success, as was the provision of U.S. beef import quotas to Central American packing plants, a step that ensured preferential access to the U.S. market. The fact that many peasant households lacked official title to their land was also an important institutional factor explaining the boom because it meant that wealthier individuals and firms could easily gain access to farmers’ land by investing in government-issued land titles—and by enlisting support from military and paramilitary forces. It was the combination of these sociohistorical, institutional, and political conditions, not merely some natural characteristics of the land, climate, or labor force, that made cattle a product in which Central America had a “comparative advantage.”

The other critical question regarding comparative advantage concerns the costs of adjustment involved in following market signals. According to the theory of comparative advantage, resources move smoothly among sectors and do not require substantial adjustment costs. In reality, appropriate climate, good soil, and cheap labor may not be sufficient to enable local producers to become efficient producers of, say, winter vegetables. Indeed, the transfer of crops developed in other locales may re-

16. Krueger (1984) develops these arguments for outward- or export-oriented trade regimes. Rather wide agreement holds, however, that the theoretical foundations for export-led growth are not particularly convincing.

17. DeJanvry and Sadoulet (1989) discuss this point at length and make additional references to a work edited by A. Fernández (1988) and another by Michael Twomey (1989).

quire substantial experimentation to achieve viable levels of productivity, or conversely, to avoid problems with second generation pests that may undermine returns over time. The recent collapse of winter vegetable exports in the Dominican Republic suggests the potential for unanticipated problems in transferring production processes. Related concerns about the threat of similar pest and pesticide issues arising in the Guatemalan highlands are spreading rapidly.¹⁸ Thus because “comparative advantage” in NTAX is often not inherent but is actively constructed or may involve substantial adjustment costs, a more careful look must be taken at the underlying social, historical, and microeconomic mechanisms that create these advantages.

NTAX and Considerations of Long-Term Growth / Four concerns about long-term growth warrant attention. The first two, government expenditures on NTAX promotion subsidies and the costs of environmental degradation associated with NTAX expansion, can be viewed as adjustments that should be made to measure accurately the growth effects of the NTAX development strategy and as processes that may eventually make NTAX unsustainable. The latter two concerns focus on the kind of opportunities for long-term growth made possible by trends in the terms of trade for exporters of primary products and the effects of NTAX strategies on “dynamic comparative advantage” or the range of technologies and products that will be adopted over time.

One of the biggest problems currently plaguing export-promotion schemes in Latin America is the fiscal cost incurred by governments that provide incentives to exporters of nontraditional exports, often in the form of direct subsidies and tax exonerations. Whether policymakers did not foresee the problems that would be caused as fiscal outlays rose right along with exports or whether private-sector pressure overcame objections to the high subsidy rates, the irony is that some heavily indebted Latin American countries are now disbursing a significant portion of central government funds (about 8 percent in Costa Rica in 1990, for example) to the exporters who are supposed to be helping shore up national finances. To finance such subsidies, governments generally must reduce other social expenditures, raise taxes on other economic agents or activities, or borrow internally, all of which can significantly reduce growth elsewhere in the economy. At what point the social benefits of the subsidies outweigh the social costs of financing them is an empirical question,

18. The recent collapse of NTAX in the Dominican Republic will be discussed in more detail in the next section. In Guatemala, the primary concern is that high levels of pesticide residues will lead to strict import restrictions on Guatemalan vegetable products, a worry voiced at all levels of the industry from the small grower to the leading processors.

but it tends to create political conflict as one group's benefits come at the expense of other groups' access to private or public resources.

After only a few years of policies promoting exports, export subsidies have become a source of serious political conflict for the governments of Costa Rica and the Dominican Republic. In Costa Rica, subsidies were recently renegotiated, substantially reducing the rates and tax breaks allowed nontraditional exporters and projecting further reductions. Under extreme fiscal pressures in recent years, the government of the Dominican Republic has generally honored agricultural export subsidy agreements only in the breach, while the NTAX sector has declined, if not collapsed.¹⁹ Neither country has received increased external support for maintaining the subsidy scheme. Indeed, the World Bank has urged both to reduce their fiscal deficits, and U.S. AID has cut back its economic assistance. It therefore seems reasonable to presume that external sources cannot be expected to fund subsidy schemes, export-promotion centers, new lines of bank credit, and related infrastructure projects even in the near future. As it stands, if U.S. attention to Central America and the Caribbean Basin continues to wither in the 1990s, so in all likelihood will assistance levels that might be used to partially offset the fiscal burdens of export subsidies.

The other problem regarding growth adjustment and possible sustainability arises on the environmental front. The evidence from the last round of NTAX expansion in Central America, as detailed by Jeffrey Leonard (1987) and Robert Williams (1986), points to the costs potentially associated with NTAX efforts. The pesticide runoff from cotton farming has imperiled terrestrial and aquatic food chains as well as water supplies. Deforestation, particularly from the clear-cutting or burning of tropical rain forests to accommodate cattle ranching and displaced campesinos seeking new land, has led to serious soil erosion and degradation and to associated deterioration of key watersheds and siltation of rivers and lakes. These intermediate outcomes, in turn, have reduced the capacity and life expectancy of major hydroelectric facilities and brought increased flooding of rural and urban developments.

At the same time, some evidence suggests increased attention to the environment in the current round of NTAX expansion. Two major proponents of NTAX, the World Bank and U.S. AID, have increased their emphasis on environmental issues in recent years.²⁰ By law, AID-financed projects must be approved by an environmental officer if they have the potential for serious environmental effects. As a result, several environmental impact studies were performed in the 1980s for NTAX-related

19. See Reynolds (1991) for more on the Dominican Republic's NTAX experience.

20. Rich (1990) provides an entry point to the literature on the increased environmental sensitivity of the World Bank. Barham and Davis (1991) review the environmental regulation process of the U.S. AID in the context of NTAX expansion in Central America.

projects in Central America, and considerable policy attention has been given to environmental issues in recent country action plans, especially those dealing with conservation projects and pesticide problems.²¹

Recent studies suggest nonetheless that the current round of NTAX growth may not be environmentally sustainable even in the short term. Douglas Murray and Polly Hoppin (1990), Hoppin (1989), and current research by Murray in Honduras have explored some major pesticide problems associated with NTAX production in winter vegetables and melons. One of the most common is excessive use of pesticides, which contributes to increasing pest resistance. Thus begins a vicious cycle, as each crop rotation requires more pesticides. Soon the pests are so resistant to the pesticide that they cannot be eliminated, and production may have to be abandoned. This pattern appears to explain what happened to several major NTAX crops in the Dominican Republic in the late 1980s. After several years of dynamic growth (on the order of 10 percent per year), pesticide problems led to USDA quarantines of Chinese vegetable products and to major pest losses in tomato and melon exports. In 1988 pest outbreaks caused almost a 60 percent decline in fresh tomato exports. The following year, acreage in tomato production fell by nearly 50 percent, and yields per acre by almost 25 percent.²²

In terms of human and environmental damage, epidemiological data concerning the effects of long-term exposure to pesticides are seriously lacking as are data on how particular pesticides affect surrounding fauna and flora. Despite this shortcoming, half of the NTAX producers interviewed by Murray and Hoppin (1990) reported symptoms of acute pesticide illness following pesticide use. Farmers also reported large bird and fish kills in surrounding areas following the introduction of new pesticides. Entomologists regularly find that pesticide abuse has not only bred more resistant pests but also killed off natural predators. Such an outcome endangers basic food crops, as pests become uncontrollable.

Denise Stanley (1990) offers preliminary evidence that the rapid expansion of commercial shrimp farming in southwestern Honduras is taking place at the expense of hundreds of hectares of coastal mangroves. These trees are essential to the rich ecosystem of coastal life, and access to them and the coastal ecosystem is also crucial to thousands of peasants who use these natural resources to generate income. Despite increased attention to environmental issues by U.S. AID, program support for NTAX promotion has apparently gone to a Honduran development bank

21. This increased attention is reflected in the increased U.S. AID funding made available to conservation projects in all Central American countries. Pesticide problems, meanwhile, have been the major focus of AID-sponsored research concerning NTAX projects. For examples, see Murray et al. (1989).

22. See Murray and Hoppin (1990, 22-25).

to help finance further expansion of shrimp farming and concomitant mangrove destruction in Honduras.²³

The third concern about long-term growth, the debate over terms of trade, is a historic issue that rose to international prominence after World War II along with the Economic Commission for Latin America (ECLA) and its Executive Secretary, Raúl Prebisch. For reasons of both supply and demand, structuralists criticized reliance on exporting primary products on the grounds that such exports suffer from a secular decline in their terms of trade relative to imported industrial goods. Prebisch (1950) and Hans Singer (1950, 1975, 1989) argued that agricultural products face inelastic demand with respect to income (as income rises, consumers spend a smaller proportion on food), while industrial products face income-elastic demand. This disparity leads to relative declines in the prices of Latin American primary products as the world economy grows. On the supply side, Prebisch contended that because of the monopolistic market structures and strong labor unions of industrialized countries, these countries are better placed to capture the gains of economic upswings, resist losses during downturns, and capture productivity increases. By contrast, the sharp reduction in primary product prices during downswings or following productivity improvements was attributed to the greater degree of competition among producers in the periphery.

This structuralist critique suggests that a return to primary products—however “nontraditional” they may be—raises important questions about long-term price trends. Moreover, the most recent empirical evidence on terms of trade supports the basic Prebisch-Singer hypothesis in that the secular trend has moved against producers of primary products during the twentieth century at a rate of about 0.5 to 0.7 percent per year.²⁴ Two important caveats need to be added, however. The first is that the most recent evidence incorporates the major decline in terms of trade between 1978 and 1982 and thus offers results that contrast with studies from the late 1970s, which suggested no clear trend in the long-term data after a decade of booming commodity prices. In other words, analyses of terms of trade are sensitive to the beginning and ending dates of the study

23. This example from Honduras typifies the kind of exemptions allowed by the environmental regulatory framework that governs AID development assistance (see Barham and Davis 1991). In this case, because the shrimp development activity is indirectly financed by AID assistance to a local development bank, AID financing meets the necessary requirements for a categorical exclusion from the regulatory framework, namely that the money is going to a financial intermediary. Chew (1988) offers an internal AID assessment of the efficacy of the environmental regulations governing AID project assistance.

24. Grilli and Yang (1988) utilize reconstructed time-series data for nonfuel commodity and manufactured prices from 1900 to 1982 to estimate the decline in terms of trade. A time-series analysis by Powell (1989) suggests that the downward trend may have resulted from asymmetric jumps at three critical historical junctures rather than from a steady secular decline.

and to cyclical movements. The second caveat concerns the perils of overaggregating trends in primary products.²⁵ For example, some industrial input products like cotton, rubber, and metals have experienced major price deterioration while tropical beverages, cocoa, and coffee have appreciated considerably. Thus trends in terms of trade can vary substantially depending on the mix of primary products and what they are being compared with.²⁶

Dynamic comparative advantage is our last concern. As has already been suggested, the conventional wisdom is that countries should specialize in producing and trading those goods in which they have a "comparative advantage." Accordingly, Guatemala's highland climate and cheap labor give it a special advantage in growing winter vegetables, while Chile's numerous coastal bays and forests make it a natural candidate for trade in fish and wood products. Yet recent work in growth and trade theory (Krugman 1990; Grossman and Helpman 1990) as well as the development performances of Japan and the East Asian newly industrializing countries suggest that this view of comparative advantage is a rather narrow and static one that, while potentially maximizing a country's "gains from trade" in the short run, may lock it over the long run into relatively low-skill, low-productivity activities. Operationally, this argument has different implications for Latin America than for more advanced countries. That is to say, Latin American countries are not likely to become innovators at the frontiers of many international technologies. At the same time, focusing economic activity and policy solely on NTAX may make the most of a country's abundant resources and cheap labor at the expense of private and social investments that, over time, could redefine a country's comparative advantage in a direction with positive implications for both economic growth and distribution.

National and International Distributional Implications of NTAX

As with the export-growth connection, the distributional impact of NTAX promotion cannot be specified a priori. Each country has its own historically evolved class structure and position in the international economic order, both of which will influence how the costs and benefits of NTAX strategies will be distributed. Distributional outcomes will also be affected by state policies and by the characteristics of the particular products being adopted. Finally, at the most micro level of the household,

25. For a fuller discussion of this topic, see Maxwell and Fernando (1989) and Grilli and Yang (1988).

26. Maxwell and Fernando (1989) suggest one other interesting comparison, namely of the terms of trade between tropical agricultural exports and basic grains (like wheat) that the tropical crop may be replacing in production. For many countries, this comparison would show a positive trend in the terms of trade.

intra-household gender relations will determine whether women and men are affected differently by NTAX adoption.

International Distributional Considerations / The question of whether surpluses generated in NTAX activities are diverted outside a country's borders or are reinvested in the domestic economy depends on a variety of factors closely connected with the specific products and production processes encouraged by NTAX promotion as well as on who is playing the leading role in NTAX expansion. Given space limitations, we will develop only one issue, the capacity of multinational companies to capture surpluses in NTAX sectors.

In a liberal investment environment, much revolves around whether multinationals hold strategic positions in the industry based on advantages in technology, access to inputs, and marketing and distribution networks. As the following examples suggest, the scope for these potential advantages may vary across products and countries.

In the case of Central American melon exports, multinational companies have at least two advantages over national producers: flexible sourcing and "economies of scope," which refer to a firm's ability to use its existing production, distribution, and marketing networks to diversify its product mix.²⁷ For example, Chiquita, Dole, and Del Monte all have well-established fruit-marketing networks from their long experience as producers and exporter-importers of bananas and other tropical fruits, allowing them to spread the fixed costs of a distribution network over many products. Moreover, the fact that each company has established a major presence in at least two countries means that each firm can shift production sourcing from one site to another whenever it is advantageous to do so.

In Guatemala, nontraditional production of winter vegetables was first introduced by a multinational firm, Hanover Brands, through its subsidiary, ALCOSA. In the process of expanding its operations, ALCOSA decided to move from owner production to contract farming in order to avoid the supervision costs associated with producing high-quality vegetables with a large wage-labor force (Kusterer, Estrada de Batres, and Cuxil 1981; von Braun et al. 1989). This approach paved the way for many small-scale growers to enter into production. ALCOSA also served as a demonstration project for national investors, with seven Guatemalan-owned firms following its lead and establishing processing plants and export networks. This trend has implied a shift in the distribution of earnings from winter vegetable exports toward domestic processors and

27. See Byrnes (1989) for more on the melon industry in Central America.

exporters, and the increased competition among buyers has probably meant increased prices—and therefore returns—for Guatemalan growers.²⁸

National Distribution and NTAX / Within any given country, distributional outcomes will obviously be affected by the class configuration existing at the time the nontraditional is introduced, by land tenure and other institutional arrangements, and by state policy. To explore some of these issues from a historical perspective, it is instructive to look at the case of the cattle boom in Central America, for which we rely on the work of Robert Williams (1986).

In *Export Agriculture and the Crisis in Central America*, Williams analyzed how national and internationally sponsored export promotion of cotton and cattle after World War II resulted in an increasing concentration of wealth and a dramatic proletarianization of the rural labor force in Central America. Especially in cattle, large amounts of credit or initial capital were required to establish a herd of the new breed appropriate for export. Credit was made available through private and state development banks, but only to those with sufficient collateral (large landholdings or other business assets) to back up the loans. This requirement put already wealthy landowners and the urban elite in a favored position to take advantage of efforts to promote cattle exports. Furthermore, the land-extensive nature of cattle production and the fact that cattle roam “wherever grass can grow” meant widespread displacement for peasant households. Peasants who were farming land on a usufruct basis or without title were pushed off their lands as these lands suddenly became coveted for cattle production.

Williams tells a similar story about the earlier boom in cotton exports. His detailed analysis of both these cases shows that while this early attempt at export diversification offered major profit-making opportunities for large landholders (including multinationals) and urban elites, the vast majority of small peasant farmers lost out in terms of control over assets, income, and the production process. The ultimate result was the collapse of the agroexport model under the onslaught of economic troubles and increasing social and political pressure. This collapse was particularly dramatic in Guatemala, Nicaragua, and El Salvador, where cotton and cattle expansion were promoted most vigorously and without concern for the distributional impact on the rural landless and nontitled small landholders.

In terms of forming hypotheses about distribution issues, Williams’s study offers two main directions. First, given the increased concentration of resources associated with the last Central American effort at

28. This argument is made in von Braun, Hotchkiss, and Immink (1989, 34–35).

export diversification, recent market-based strategies are likely to produce similar outcomes unless careful attention is paid to product characteristics and the underlying structure of resource access and control. Second, export-oriented growth or any growth that engenders increased inequality can generate political crisis by breaking down reciprocal relationships, physically displacing individuals, and making their means for earning a living more precarious. The extent of this process, which depends partly on the relative importance of NTAX activities in the overall economy and partly on the degree to which state policy aims at avoiding or ameliorating the impacts on the “losers,” is central to the integrity of the country’s political and social fabric.

CHILE, COSTA RICA, AND GUATEMALA: THREE LEADERS IN NTAX EXPANSION

The following surveys of recent NTAX expansions in Chile, Costa Rica, and Guatemala are based on ongoing research efforts of the authors.²⁹ These overviews address the broad themes discussed in the preceding section, with some variation in emphasis.

Chile

Chile’s contemporary experience with NTAX can be divided into two phases, one “pre-crisis” and the other “post-crisis.” In the first phase (1976–1981), the government sought to stimulate exports through macro-economic policy changes rather than through specific policy incentives (Moran 1989). Thus tariff reductions, elimination of non-tariff barriers, liberalization of trade flows, and exchange-rate policy were all used to convert the Chilean economy into an open one. This approach was partially successful: exports, particularly NTAX like fresh fruit and certain seafood and forestry products, grew notably between 1976 and 1981, reducing the country’s heavy dependence on copper exports (Moran 1989; Ominami and Madrid 1989).³⁰ With both fruit and forest products, however, it should be noted that state investments in these sectors under Presidents Eduardo Frei and Salvador Allende laid an important foundation for their subsequent expansion.³¹ The growth of these NTAX indus-

29. See note 2, *inter alia*.

30. While exports did grow, imports grew even faster (Moran 1989), financed by a tremendous inflow of capital between 1979 and 1981. Between 1978 and 1981, Chile’s total external debt more than doubled from 7 billion U.S. dollars to 15.6 billion (Moran 1989, 498).

31. Jarvis discusses the key role played by Chile’s 1966 National Plan for Fruit Development in promoting the development of Chile’s fresh-fruit sector and its later expansion in the 1970s and 1980s (Jarvis 1991, 3). Gómez and Echenique (1988) provide similar evidence of an early government role in the case of forestry.

tries was clearly reflected in macroeconomic growth rates, which averaged 7.2 percent over the period (Banco Central de Chile n.d.).

The second and more noteworthy phase of NTAX growth commenced in 1984 and continues into the present. As part of Chile's effort to revitalize economic growth after the worst crisis in half a century, the state adopted a number of specific measures designed to stimulate exports.³² These included eliminating the stamp tax on exports and the value-added tax on imported inputs to be used for export-oriented activities, offering a special "drawback" to exporters of nontraditional goods equal to 10 percent of the free-on-board (FOB) value of the exported merchandise,³³ and creating special credit programs to offer working capital to exporters.³⁴ These policies, combined with conditions prevailing inside and outside the country, led to a significant expansion in export activity. Between 1984 and 1989, nontraditional exports of agriculture, fishing, and forestry products more than doubled (from 1.22 billion dollars to 2.71 billion). During the same period, GDP growth averaged 6.4 percent a year, due at least partly to the dramatic rise in export earnings. The newfound importance of exports is expressed most dramatically in the fact that exports now represent more than a third of Chile's GDP, up from about 10 percent in the 1960s.

Chilean Participation in NTAX Activities and Labor-Market Effects / The literature on Chile's export fruit industry was the first to identify the apparent emergence of a new entrepreneurial class linked to Chile's NTAX sectors. Sergio Gómez (1986), José Miguel Cruz (1988), and Daniel Rodríguez and Sylvia Venegas (1989) all have shown that although traditional landholding families make up part of the empresarial class involved in fruit activities, Chile's agrarian bourgeoisie has expanded to include urban industrialists and professionals (like agronomists and MBAs), foreign investors, and multinational corporations. Many of these new fruit producers not only come from other areas of the economy but remain tied to them. For instance, Rodríguez and Venegas found that 59 percent of the 151 fruit growers whom they interviewed also engaged in economic activities outside the fruit sector (1989, 9). Preliminary results from interviews in the fishing industry confirm strong linkages to other sectors (Schurman, in progress).

For members of this "new empresarial class," their educational

32. It should be noted that after the economic crisis in 1982–83, the Pinochet government abandoned the more extreme elements of the neoliberal policy trajectory it had adopted in the middle to late 1970s and turned to a more pragmatic approach.

33. The definition of nontraditional exports utilized by this law stipulated that the total value of exports of a particular product had to be less than 2.5 million dollars in 1983 and 1984 to be eligible for a drawback.

34. See Ossa (1988), E. Rodríguez (1988), Moran (1989), and *Chile Economic Report* (1985).

level, professional training, and personal contacts have provided a special edge.³⁵ Fundamental to this edge is their access to capital, which has become an increasingly important factor of production within Chile's NTAX sectors (M. E. Cruz 1987, 342). Fruit production has turned into a highly sophisticated technical process requiring substantial capital investment and know-how. Growers who are able to acquire the necessary capital and invest in the latest technologies have managed to obtain yields as high as their counterparts in the United States and Europe (Rivera 1988, 5; Gómez and Echenique 1988). Not surprisingly, these requirements have tended to exclude smallholders, few of whom have enjoyed the same successes as large landowners and urban and foreign investors (Rivera 1988; Echenique 1989).

Although medium-size farmers play an important role in the production of many NTAX, particularly in the fruit sector (Rodríguez and Venegas 1989; Gómez and Echenique 1988), the general tendency in Chilean NTAX has been toward concentration. In forestry, two economic groups control half the country's plantations of radiata pine (M. E. Cruz 1987). In fish meal, which accounts for about 55 percent of Chile's fishing exports (by value), seven companies account for two-thirds of all production in the country (Duhart and Weinstein 1988, 2:6). Moreover, three of them are owned by the same economic group. Chile's new export sectors are also experiencing a process of "multinationalization." In fruit, three of the four top firms are owned by multinational companies,³⁶ and in the forestry sector, foreign investors have come to own a large share of the forestry patrimony (Gómez and Echenique 1988; Contreras 1988). Foreign companies from Japan, the United States, Norway, and Scotland are among the most important in Chile's new salmon industry.

Although the ownership of Chile's NTAX firms is concentrated, thousands of Chileans have been drawn into the orbit of these new industries as salaried employees and workers. The literature suggests a strong increase in the overall demand for labor in the fishing, fruiticulture, and forestry sectors, especially since 1984, although the estimates vary widely depending on author and source of data. Many of the new employment opportunities are seasonal, which has greatly expanded the use of temporary workers, as shown for the case of agriculture in table 2.

35. Cecilia Montero (1990) offers an insightful and provocative analysis of the new Chilean *empresariado* based on extensive interviews with selected empresarios in a wide range of economic activities. She advances the hypothesis that this group is primarily composed of professionals from middle-class backgrounds. Unusual structural conditions faced by this group during the economic transformation of the Pinochet era forced them to reorient themselves away from the career paths traditionally taken by this class (as public functionaries, politicians, and academics) and to develop private initiatives of their own. Schurman (n.d.) has found some evidence to support Montero's hypothesis in her interviews in the Southern Austral fishing sector.

36. See *El Mercurio*, 22 Oct. 1990, p. B-1.

TABLE 2 *Size of the Chilean Agricultural Wage-Labor Force during Three Decades*

<i>Agricultural Wage-Labor Force</i>	1964–65	1975–76	1986–87
Permanent	208,000	161,000	120,000
Temporary	147,000	198,000	300,000

Sources: Gómez and Echenique (1988, 64); original data, *Censos Agropecuarios INE*, 1986–87.

Similar seasonal variation has been observed in the forestry and fishing industries, due to natural conditions (relating to climate or growth cycle) and the organization of production (Schurman n.d.; Polo-Díaz 1983, 158).

The demographic composition of the work force has also changed significantly as a result of the NTAX boom. Women, urban and semi-urban dwellers (including underemployed heads of households), and youths are all important parts of Chile's temporary work force (Rivera 1987, 175; Gómez and Echenique 1988). About 30 percent of Chile's agricultural work force during the harvest season is urban or semi-urban in origin, a figure that increases to 50 percent when one includes the country's central valley, the main fruit growing region. Rigoberto Rivera has pointed to two explanatory factors for this phenomenon: the poverty generated by the crisis of urban industry and the inability of urban families to subsist on one income (1987, 172).

The conditions in which individuals live and work have been criticized by many who have studied Chile's NTAX sectors (M. E. Cruz 1987; Gómez and Echenique 1988; Duhart and Weinstein 1988; Falabella 1988; Jarvis 1989; Polo-Díaz 1983). Yet it is unclear to what extent low wages, harsh working conditions, and job instability can be attributed to NTAX per se versus the other policy measures of Chile's neoliberal model. As late as 1986, real agricultural wages still had not surpassed their 1965 levels (Jarvis 1989, 261), leading some to credit Chile's NTAX success to the availability of a cheap labor force (Rivera 1987, 171; M. E. Cruz 1987).³⁷ Some evidence suggests, however, that wages in fruiticulture have recently begun to rise due to greater labor demand (Gómez and Echenique 1988, 77).

The Sustainability of Chile's NTAX Activities / In Chile, where natural resources are the basis for the export boom, environmental sustainability

37. Wage and working conditions in the fish-processing plants in southern Chile are no exception to this generalization. Wages ranged from a legal minimum of about eighty dollars per month (in 1990) to about two hundred dollars for workers who are especially productive and work considerable amounts of overtime. The conditions, however, remain abysmal: the typical worker in a fish plant stands on her feet for nine hours a day in a freezing cold room, cutting and gutting fish that arrive on a conveyor belt. The normal work week averages more than fifty hours, making the average hourly wage range from forty cents to a dollar.

has become a key question. Of the three nontraditional growth sectors, fishing comes the closest to being a purely extractive or “mined” resource. The most important activity, fish-meal production, has been plagued by declining stocks due to natural phenomena (such as the changing offshore currents associated with El Niño) and overfishing (Duhart and Weinstein 1988, 29–36).³⁸ Certain shellfish species, another major export in recent years, have been severely depleted as a result of the export boom. This trend has forced the Chilean government to impose protective bans, which have been only moderately effective. The one bright spot in the sector’s future is the handful of fishery products that can be cultivated, like salmon, seaweed, and a small number of shellfish (mussels and oysters). Cultivated salmon are now a significant product: a projected one hundred million dollars in earnings for 1991 will amount to nearly 4 percent of NTAX activities. In the case of seaweed, however, which has become an important source of income for thousands of families in southern Chile, the economic viability of cultivation is already being threatened by the development of a synthetic substitute for agar-agar.

In a direct attempt to assess the issue of sustainability, Andrés Gómez-Lobo (1990) has reestimated the growth rate of Chile’s fishing sector, taking into account the draw-down on natural resources experienced between 1980 and 1989. This recalculation is based on the argument that current methods used to figure national income accounts fail to treat natural resources as depletable economic capital. Gómez-Lobo has calculated a rate of depreciation of fish stocks, which he used to adjust the sectoral growth rate (estimated at 8.8 percent per year in the 1980s) to determine what growth in the fishing sector would have been if natural resources had not been drawn down. The sustainable growth rate turns out to be 4.6 percent, about half of what was incorporated into the national income accounts. For the last five years (1985–1989), the growth rate adjusted for depreciation was actually a negative 2.2 percent.

The outlooks of resource supply for forestry and agriculture are less troublesome. Although vast expanses of native forest (consisting primarily of slow-growing hardwood species) were felled indiscriminately to produce wood chips for export, the backbone of Chilean forestry exports is radiata pine, which is grown in plantations. In 1974 a new law was passed establishing subsidies of up to 75 percent for reforestation, and since then more than half a million hectares have been planted in forest,

38. See also several publications of the Instituto Fomento de Pesquero (IFOP): “Análisis de la actividad pesquera extractiva nacional,” draft prepared for the Corporación de Fomento de la Producción (CORFO), Santiago, 1990; *Diagnóstico de las principales pesquerías nacionales bentónicas, III-IV, y X Región: estado de recurso* (Santiago: CORFO-IFOP, 1988, 1989); *Diagnóstico de las principales pesquerías nacionales palágicas-zona norte: estado del recurso* (Santiago: CORFO-IFOP, various years).

90 percent of them in pine.³⁹ The problems in forestry revolve more around economic viability and the distributional equity of subsidy payments, although evidence on those issues is lacking. In the case of export agriculture, the main questions surround chemical pollution from pesticides, herbicides, and fertilizers as well as problems associated with irrigation.

The other key question related to the sustainability of the NTAX boom concerns the political environment in which it took place. During the period of military rule, Chilean empresarios were presented with unusual conditions that were extremely favorable for production and investment.⁴⁰ Beyond a minimum of environmental regulation, the Pinochet government early on dismantled the power of organized labor, eliminating its capacity to bargain collectively and ensure even the most basic worker rights (Ruíz-Tagle 1985; Frías 1989). Furthermore, the economic policies followed during the 1970s and early 1980s led to the highest unemployment rates since the Great Depression. In essence, Chilean labor was recreated into a cheap, malleable factor of production.

At the political-economic level, the sustainability of Chile's NTAX model centers on two major challenges. The first is whether Chile's new empresarios will be able to move beyond the "easy phase" of export-led growth based on exporting simple primary products to a more demanding and complex stage, where greater value is added (Ominami and Madrid 1989). The second challenge is whether the NTAX strategy can withstand growing pressures for a more equitable distribution of the benefits of growth, pressures that are already being felt in the political arena.

Costa Rica

Despite its small size, Costa Rica presents a crucial case for evaluating NTAX strategies. First, the national economic crisis in the early 1980s was severe. With the fourth-highest debt per capita in the world and an economy highly dependent on a few agricultural exports (Zimbalist 1988,

39. These data extend only through 1988 (República de Chile 1988). Unfortunately, the subsidy represents such a strong financial incentive that many private landowners have cut or burned down native hardwood forests to plant them with the much faster growing radiata pine. This tree requires about twenty years to mature in Chile, compared with fifty to a hundred years for some other species. The environmental damage and economic waste stimulated by the subsidy policy has not been empirically estimated, but according to forestry expert Pablo Donoso, it has been enormous.

40. Chilean empresarios were given what might be characterized as *carte blanche* in terms of production practices. One such empresario in the fish industry recounted in an anonymous interview, "A kind of myth was created around empresarios, a theology with respect to the empresario. [We] empresarios became almost superhuman. In this country, there wasn't anything that an empresario couldn't do, nothing that wasn't within our reach."

25), Costa Rica certainly needed to generate additional foreign exchange and to diversify its economy. Second, in no small part because of its geopolitical importance to the United States during the 1980s, Costa Rica was the object of aggressive efforts to promote nontraditional exports by the Reagan administration and the World Bank.⁴¹ Third, Costa Rica is the only Latin American country where a long history of democratic government, concern for social equality, and a relatively successful record of NTAX promotion all intersect. Presumably, the legacies of democracy and social equality favor wider access to participation in NTAX than has been found in other Latin American countries.

Although nontraditional export promotion is not a new idea in Costa Rica, the institutions and legislation established in the 1960s and 1970s to encourage new exports were not particularly successful. Yet Costa Rica was the first Central American country to react to the economic crisis of the 1980s by using policy measures to launch a serious export-promotion drive. Beginning in 1983, the Costa Rican government took a number of steps intended to affect the macroeconomic environment (such as devaluing the exchange rate) and to encourage exports directly (as in grouping some already existing incentives together into attractive packages). Through various measures, agricultural policy was shifted away from supporting domestic food production and toward promoting exports.

The ensuing NTAX boom has been rather dramatic, with the value of nontraditionals almost doubling from 268 million dollars in 1985 to 519 million in 1990 and the percentage of total export earnings from these products soaring from 12 percent in 1984 to 43 percent by 1990. The portfolio is fairly well balanced among agricultural products, fish and seafood, and some light manufactures. In 1990 the leading Costa Rican NTAX products were flowers, ornamental plants, and foliage (58 million dollars), fresh and frozen fish and shrimp (45 million), and fresh pineapple (38 million dollars).

The Sustainability of NTAX in Costa Rica / Most of what is currently known about the distributional impacts of NTAX promotion in Costa Rica concerns the incentives and access to participation in exporting the new products. The main fiscal incentive available to nontraditional exporters in Costa Rica is an export tax credit known as the CAT (Certificado de Abono Tributario). CATs are awarded to firms that export nontraditional exports—regardless of the company's nationality, size, geographic location, or product line—with the proviso that exports must contain a minimum of 35 percent national value added. The tax-credit certificate equals

41. See "Costa Rica: Preparing for New Debt Negotiations," *Latin American Regional Reports: Mexico and Central America*, 15 Jan. 1987, p. 2; and "Costa Ricans Cheerfully Absorb U.S. Aid Sent as Immunization against Nicaragua," *Wall Street Journal*, 19 Sept. 1985, p. 36.

15 to 20 percent of the FOB value of a firm's nontraditional exports and is negotiable on the national stock exchange. Recently, a government ministry leaked a study showing that of the export tax credits paid between March 1988 and September 1989, 1.5 percent of firms receiving CAT payments got 27 percent of the total value and that the bottom 39 percent of firms got 1.4 percent. Del Monte's pineapple subsidiary, PINDECO, received the largest amount of tax credits.

The leading firms in the NTAX sector in Costa Rica are predominantly foreign. PINDECO controls nearly all of Costa Rica's fresh pineapple exports. Foreign capital also dominates flower and plant exports, especially the plant products with greater value added, although national participation in this sector is significant. Only a small portion of production in either sector is purchased from national growers, implying that participation by small farmers is limited.⁴²

Foreign domination in Costa Rica's NTAX sector appears to be based on superior access to market information, transportation, technological expertise, and credit.⁴³ For example, consumer preferences for variety and color in plants and flowers are fickle, and exporters therefore must have constant and reliable information about what to produce and when. U.S. and European investors often negotiate deals with importers in their own countries before starting to produce and export. Some Costa Rican producers do not know how marketing for their product works in another country and have few contacts to inform them. Moreover, plants and flowers normally require air transport, the capacity for which is limited in Costa Rica. Air cargo companies often give priority to large-scale exporters who can guarantee shipment of a set amount of cargo on a regular basis.

In pineapples, Del Monte has its own shipping fleet and can fill a ship's container with pineapples and other fruits that it grows or buys from independent farmers. Harvesting enough of a product to fill a container is a real problem for smaller exporters in contracting shipping space. On the production and quality side, foreign firms also have an advantage because they have years of direct experience in costly on-farm research or can more readily afford to import genetic material, learn specialized cultivation methods, and provide careful post-harvest han-

42. Several crucial government databases on nontraditional sectors are unavailable to the public in Costa Rica, precluding exact statistical descriptions of the new industries. The information on ownership was compiled from data obtained from the Banco Central de Costa Rica, the Centro de Promoción de Exportaciones e Inversiones (CENPRO), from interviews with industry experts and export firms, and from Thatcher (1990) and INCAE (1989).

43. This argument is based on Thatcher (1990, 8) and interviews with four NTAX firms, one in pineapple, one in flowers, and two in ornamental plants. Unlike agricultural exports, fish exports are dominated by two national firms and are supplied by thousands of small fishermen.

dling. Much of their edge comes down to being a better credit risk in that their larger and more diversified base of assets makes acquiring inputs easier.

Even though Costa Rica has a strong cooperative movement that is responsible for a substantial portion of gross domestic product, co-ops and small farmers export only a tiny portion of the new products.⁴⁴ This outcome has resulted partly from Costa Rican and AID policymakers' lack of interest in promoting participation by co-ops and small farmers and partly from the market disadvantages faced by these groups. Recent case studies suggest that agrarian reform beneficiaries who attempted to cultivate NTAX products were plagued by problems with plant diseases, poor technical assistance, lack of knowledge of market conditions, inadequate credit, and a weak bargaining position vis-à-vis exporters.⁴⁵

Several Costa Rican officials feel that the way in which NTAX policy has been promoted there has violated the country's sovereignty (Clark, in progress). For example, in May 1988 an advisor to President Oscar Arias accused the United States of setting up a parallel state in Costa Rica consisting of several AID-funded agencies that perform essentially the same functions as those assigned to government institutes.⁴⁶ Indeed, the *Coalición Costarricense de Iniciativas para el Desarrollo* (CINDE), founded by AID in December 1982 and wholly funded by the agency ever since, has the same basic purpose as the Costa Rican government's *Centro de Promoción de Exportaciones e Inversiones* (CENPRO). CINDE is far better financed and more active than CENPRO, although it is neither part of the Costa Rican government nor accountable to the Costa Rican public.

The most important stumbling block to Costa Rica's NTAX strategy is domestic politics. The CAT program has come under fire from forces within recent administrations and from the World Bank because of its drain on the fiscal budget. In the last five years, expenditures on CATs have increased by a factor of nineteen and in 1990 will account for 8 percent of the national government's budget, or more than 2 percent of GNP.

44. Although one of the two national fish-exporting firms is legally a cooperative, it is a cattle ranchers' cooperative from northwestern Costa Rica that has diversified from exporting beef into processing fish and seafood for domestic and foreign markets.

45. See Jiménez and Villalobos (1991), Nelson (1988), and Cascante and Rodríguez (1989) for more on the problems of small farmers in the current push for NTAX development. Small and medium flower growers often face additional obstacles at the international level. For example, in 1986 the U.S. International Trade Commission imposed a 46.5 percent duty on Costa Rican flowers, accusing growers of receiving unfair subsidies and dumping on the U.S. market. The duty was later reduced the same year that Costa Rican growers agreed to forfeit their CATs. This decision resulted in a dramatic restructuring of the Costa Rican flower industry. Many small and medium national exporters, who apparently relied on CATs to meet their profit margin, went bankrupt.

46. See "Costa Rica: Arias Advisor Criticizes U.S. Policy," *Central American Report*, 1 July 1988, p. 195.

CATs are being gradually reduced because of substantial fiscal deficits, documented cases of corruption in the CAT system, and growing evidence that a few large companies are benefiting disproportionately from the program. With the fate of CATs unresolved in Costa Rica, the former president of the *Cámara de Exportadores de Costa Rica* (CADEXCO) has argued that the uncertainty in export incentive policy is currently causing a serious downturn in NTAX sectors.⁴⁷ Only time will tell how dependent the Costa Rican export boom is on generous fiscal incentives.

Guatemala

In Guatemala the promotion of NTAX has been an integral part of U.S. economic assistance policy since the mid-1980s. The provisions of the Caribbean Basin Initiative have allowed for duty-free export of a wide range of new agricultural products such as melons, berries, flowers, broccoli, and snow peas. PROEXAG, an AID-financed NTAX promotion agency headquartered in Guatemala City, provides essential services like crop and market research and contacts with U.S. buyers for established and aspiring Guatemalan exporters. Financially, the United States has been supporting the NTAX sector with generous loans to the exporting companies. An early example of this practice was a series of loans made to ALCOSA, the first export-oriented frozen vegetable plant in Guatemala. More recently, AID provided funding to INAPSA, which in the summer of 1989 finished building the largest and most modern plant for freezing produce in Central America, with the capacity to handle fifty thousand pounds of product per hour.

From the U.S. perspective, NTAX have a central role to play in helping Guatemala “grow out of” its economic and political crises: on the economic side by generating much-needed foreign exchange and employment and on the political side by shoring up the neoliberal bourgeoisie, which has invested most actively in the sector. This group finds expression in the *Gremial de Exportadores de Productos No Tradicionales* and in the new daily *Siglo 21*. It is viewed as a modernizing force, as distinct from the old oligarchy clinging to semifeudal land and labor arrangements.⁴⁸

The Structure of NTAX in Guatemala / The organization of NTAX in Guatemala varies considerably according to crops and regions. To examine the variations, it is useful to divide the process conceptually into four compo-

47. Interview with Sylvia Fletcher, former president of the *Cámara de Exportadores de Costa Rica* (CADEXCO), 13 Nov. 1990, Heredia, Costa Rica.

48. It is interesting to note, however, that PROEXAG has been making an effort to draw the oligarchy into the NTAX sector by inviting them to informational meetings and the like. One PROEXAG official pointed out that the vast resources commanded by this group make them worth courting as potential investors.

nents: agricultural production, first-stage marketing, processing and packing, and exporting. For example, an export operation that is fully integrated vertically grows the crop on owned or rented land using hired labor (avoiding a first-stage market intermediary), processes or packs the product in its own plant, and exports directly to the United States or Europe. In Guatemala this kind of arrangement is most common with fresh specialty fruits and to some extent with snow peas. A variation on this pattern would be an exporter who contracts out some or all of the agricultural production but avoids an intermediary by dealing directly with growers. Such a practice is common in broccoli and melon production.

A 1990 survey of six of the eight companies that export frozen broccoli shows how production of this crop is distributed among companies' own land, agricultural cooperatives, and contracts with individual farmers (Katz, unpublished data). Only two of the six companies grew any amount of broccoli on land owned or rented by the company itself, representing about 3 percent of the total production of all growers. Contracts with cooperatives were somewhat more significant. Four of the six firms procured product from cooperatives, with INAPSA (the AID-funded processing plant mentioned earlier) obtaining more than 80 percent of its volume from agricultural cooperatives. Overall, cooperatives accounted for about one-sixth of the production of all six firms. Contracts with individual farmers were the most important source of raw material for broccoli exporters, accounting for over 80 percent of production. What is most striking about this last sector is the share of small farms in production. Farms of less than two manzanas account for 36 percent of broccoli production, and farms of two to ten manzanas account for 27 percent.⁴⁹

If we combine the production of the contract farmers with the smallest farms and the share represented by agricultural cooperatives (also generally made up of farmers owning less than two manzanas), this group is responsible for over half of all broccoli production in Guatemala. Export vegetables would therefore seem to be a distributional "best-case" scenario in which preexisting patterns of land tenure along with climatic conditions and the labor intensity of the crops have prevented small farmers from being excluded from NTAX, unlike the trends in Chile and Costa Rica. Yet along with participation have come the risks associated with the new crops, such as the displacement of food production, rejection of produce by export processors as part of quality control, and rising input prices with fixed contract prices.

Distributional Impact of NTAX in Guatemala / The most complete study to date of the distributional impact of NTAX in Guatemala is the collabora-

49. One manzana equals about 1.7 acres.

tive work of the Instituto de Nutrición de Centroamérica y Panamá (INCAP) and the International Food Policy Research Institute (IFPRI) on the recent expansion in producing winter vegetables in the highlands just west of Guatemala City (von Braun, Hotchkiss, and Immink 1989). Their case study of the *Cooperativa Agrícola Cuatro Pinos*, Guatemala's most successful agricultural cooperative, compares the patterns of farm production, incomes, and nutritional attainment of co-op members and their families with those of a control group of nonmembers from the same villages.

According to the *Cuatro Pinos* study, co-op members' incomes are rising. Indeed, many have done well enough to accumulate additional small plots of land. Seasonal labor migration to the coffee-growing piedmont and to the cotton and sugar plantations on the south coast has declined for co-op members, their families, and other local workers. Instead, these communities are working on cultivating two to three rounds of export vegetables as well as their traditional corn and beans.

The work of INCAP and IFPRI sheds light on another major distributional concern: the effect of export expansion on food production and food prices. At the farm level, *Cuatro Pinos* members continue to grow corn on a majority of their land (50 to 60 percent compared with more than 80 percent in the control group), and their corn yields were significantly higher than those of the control group. Despite planting proportionately less land in corn than nonmembers, *Cuatro Pinos* farmers produced more corn per hectare of farmland than nonmember households. Possible explanations for these higher yields are better access to fertilizers and other agricultural inputs, the nitrogen-fixing property of snow peas, and careful cultivation practices essential to farming export vegetables. At the least, the evidence from *Cuatro Pinos* suggests that the effect of NTAX expansion on food supply and thus on the real wage is not necessarily negative.

The central focus of the INCAP-IFPRI study, namely the nutritional impact of the NTAX expansion, allows exploration of one more crucial distributional question: what is happening at the level of allocating resources within households? As is well known from previous studies of agricultural commercialization, changes in production relations within the household can have important effects on claims to output within the farm unit and thus on consumption patterns (Blumberg 1985; Kennedy 1989). The *Cuatro Pinos* study found only slight differences between the nutritional attainment of children of co-op members and those of the control group, despite clear evidence that co-op families are earning higher incomes and achieving higher grain yields. This result is particularly unsettling in that it implies continuing problems with nutritional deficiencies for children even on the "successful" farms.

Exploratory research by Blumberg (1985) and Nieves (1987) sug-

gests that gender-specific phenomena help explain the seeming paradox of higher incomes and unimproved nutritional status. They argue that the income generated by NTAX is by and large controlled by the male head of household and thus "there is less improvement in home and 'basic human needs' consumption—including diet/nutrition—than in economic consumption . . . [such as purchases of] . . . land . . . [and] . . . pickup trucks" (Blumberg 1985, 21–22). These results suggest the importance of considering intrahousehold resource distribution in evaluating the socio-economic impact of NTAX at the household level.

CONCLUSION

Any appraisal of the impact of nontraditional export strategies on economic development in Latin America faces the fundamental challenge of identifying which level or levels are going to be addressed. In this article, we have undertaken three basic tasks that we hope will be helpful to future evaluations. First, we have set forth in figure 1 and subsequent sections a framework that places the different levels of analysis in a logical order, starting with research on product choice and promotion of NTAX and then moving through the effects of NTAX expansion on net exports, economic growth, and distributional issues. Second, we have placed extra emphasis on long-term growth and distributional concerns to fill a void in the literature and also to recast the debate in the direction of questions fundamental to meaningful development in Latin America. Third, we have used preliminary results from ongoing research in Chile, Costa Rica, and Guatemala to bring some of these issues into sharper focus.

Evidence from the country studies suggests that research efforts focusing on these issues of long-term growth and distributional impacts are likely to be at the center of debates about the viability and welfare effects of NTAX strategies. In the case of Chile, where domestic experience with NTAX and the study of NTAX promotion are most advanced, serious questions can be raised about the continuing viability of NTAX growth in key sectors. These questions pertain to stricter "economic" reasons, such as market saturation or overplanting in the grape sector (Jarvis 1991) and overfishing in the fish sector, as well as deeper socio-economic reasons relating to increasing political pressure to redress the inequities that have developed from rapid growth with wage repression. In Costa Rica, the political debate over NTAX centers on the claim by a few large exporters to export subsidies in a tightly constrained fiscal environment and, to a lesser extent, on the limited degree of participation by smaller farms and cooperatives in the boom, especially given the cuts in support programs for basic grains that have accompanied the move to neoliberal agricultural policies in Costa Rica. Finally, while NTAX growth in Guatemala is still incipient and does not draw heavily on public

revenues, the NTAX strategy is important because of its potential impact on the highly inequitable agrarian structure of Guatemala, the rise of a broader-based rural capitalist sector, and the basic welfare of households on small farms in the highlands. In all three cases, analytical emphasis on the basic characteristics of NTAX products and their related market features will be crucial to exploring the mechanisms that link export expansion and economic growth, uncovering the likely distributional implications of different NTAX strategies, and providing vital information about how such strategies are likely to affect long-run development trajectories.

REFERENCES

- AUTY, RICHARD, AND A. GELB
 1986 "Oil Windfalls in a Small Parliamentary Democracy: Their Impact on Trinidad and Tobago." *World Development* 14, no. 9:1161-75.
- BALASSA, BELA
 1978 "Export Incentives and Export Performance in Developing Economies." *Weltwirtschaftliches Archiv*, no. 114:24-61.
- BALASSA, BELA, ED.
 1982 "Development Strategies and Economic Performance." In *Development Strategies in Semi-Industrialized Economies*. London: Oxford University Press.
- BALASSA, BELA, GERARDO M. BUENO, PEDRO-PABLO KUCZYNSKI, AND MARIO HENRIQUE SIMONSEN
 1986 *Toward Renewed Economic Growth in Latin America*. Washington, D.C.: Institute for International Economics.
- BALDWIN, ROBERT E.
 1966 *Economic Development and Export Growth: A Study of Northern Rhodesia, 1920-1960*. Berkeley and Los Angeles: University of California Press.
- BALESTRINI, CESAR C.
 1984 *Economía y política petrolera*. Caracas: Librería La Lógica.
- BANCO CENTRAL DE CHILE
 1989 *Indicadores de Comercio Exterior*, July, p. 1450.
 n.d. Unpublished data from the Departamento de Cuentas Nacionales sobre Producto Geográfico Bruto.
- BARHAM, BRADFORD
 n.d. "Foreign Direct Investment in a Strategically Competitive Environment: Coca-Cola, Belize, and the International Citrus Industry." *World Development*, forthcoming.
- BARHAM, BRADFORD, AND MARY DAVIS
 1991 "Reconciling Economic and Environmental Issues in Central America: Prospects for the Current Nontraditional Export Strategy." Mimeo, Department of Economics, University of Wisconsin.
- BARRANTES C., VICTOR J.
 1990a "Insiste en creación del Instituto de Pesca." *La República*, 6 June, p. 28A.
 1990b "Decisiva reunión hoy en Puntarenas." *La República*, 20 June, p. 3A.
- BARRERA, MANUEL, AND J. SAMUEL VALENZUELA
 1986 "The Development of Labor Movement Opposition to the Military Regime." In *Military Rule in Chile: Dictatorships and Oppositions*, edited by J. Samuel Valenzuela and Arturo Valenzuela. Baltimore, Md. Johns Hopkins University Press.
- BAUER, ARNOLD
 1975 *Chilean Rural Society: From the Spanish Conquest to 1930*. Cambridge: Cambridge University Press.
- BHAGWATI, JAGDISH
 1978 *Anatomy and Consequences of Exchange Control Regimes*. Cambridge, Mass.: MIT Press.

BLUMBERG, RAE LESSER

1985 "Following up on a Guatemalan 'Natural Experiment on Women in Development': Gender and the ALCOSA Agribusiness Project in 1985 vs. 1980." Mimeo, University of California, San Diego.

BUNKER, STEPHEN G.

1985 *Underdeveloping the Amazon: Extraction, Unequal Exchange, and the Failure of the Modern State*. Chicago: University of Illinois Press.

BURBACH, ROGER, AND PATRICIA FLYNN

1980 *Agribusiness in the Americas*. New York: Monthly Review Press and North American Congress on Latin America (NACLA).

BYRNES, KERRY J.

1989 "From Melon Patch to Market Place: How They Learned to Export a Nontraditional Crop." Paper presented to the AID/LAC/CDIE Trade and Investment Workshop, 13-14 Nov., Alexandria, Virginia.

CAMBRANES, J. C.

1985 *Coffee and Peasants*. Stockholm: Institute of Latin American Studies.

CAMPERO, G., AND J. SAMUEL VALENZUELA

1981 *El movimiento sindical chileno en el capitalismo autoritario*. Santiago: Programa de Economía del Trabajo, ILET-Academia de Humanismo Cristiano.

CARTER, MICHAEL, AND KEITH WIEBE

1990 "Access to Capital and Its Impact on Agrarian Structure and Productivity in Kenya." *American Journal of Agricultural Economics* 72, no. 5 (Dec.):1146-50.

CASCANTE, FABIAN TREJOS, AND MARTIN UGALDE RODRIGUEZ

1989 "Reproducción económica de las Unidades Campesinas Productoras de Piña y Yuca del Asentamiento El Encanto." Thesis, Universidad Nacional, Heredia, Costa Rica.

CENPRO (CENTRO PARA LA PROMOCION DE LAS EXPORTACIONES Y LAS INVERSIONES)

1990 "Costa Rica: datos estadísticos sobre exportaciones tradicionales y no tradicionales, zonas francas, y turismo." In-house report, September.

CHEW, SIEW TUAN

1988 *Environmental Assessments of Development Projects: A Preliminary Review of AID's Experience*. AID Evaluation Occasional Paper no. 17. Washington, D.C.: U.S. Agency for International Development.

CHILE, REPUBLIC OF, MINISTERIO DE AGRICULTURA

1988 *Memoria Anual: Corporación Nacional Forestal (CONAF)*. Santiago: CONAF.

CONROY, MICHAEL E.

1990 "The Diversification of Central American Exports: Chimera or Reality?" Paper prepared for the Coloquio sobre las Crisis Económicas del Siglo XX, 17-19 Apr., Madrid.

CONTRERAS, RODOLFO

1989 *Más allá del bosque: la explotación forestal en Chile*. Santiago: Editorial Amerinda.

CORDEN, W. MAX

1982 "Booming Sector and De-Industrialization in a Small Open Economy." *Economic Journal*, no. 92:825-48 (published by the Royal Economic Society in York, England).

CORFO (CORPORACION DE FOMENTO DE LA PRODUCCION)

1985 *Chile Economic Report*, no. 169 (Aug.) (published in Santiago and New York).

CORTES CONDE, ROBERTO, AND SHANE J. HUNT, EDS.

1985 *The Latin American Economies: Growth and the Export Sector, 1880-1930*. New York: Holmes and Meier.

CRUZ, JOSE MIGUEL

1988 "La fruticultura de exportación, una experiencia de desarrollo empresarial." *Colección Estudios CIEPLAN*, no. 24 (Dec.):79-114.

CRUZ, MARIA ELENA

1987 "Pobladores y cambio agrario en el sector agrícola chilena." *Estudios Rurales Latinoamericanos* 10, no. 3 (Sept.-Dec.):341-53.

CRUZ, MARIA ELENA, AND R. RIVERA

1983 *Cambios ecológicos y de poblamiento en el sector forestal chileno*. Serie Apuntes de Trabajo no. 2. Santiago: Grupo Investigaciones Agrarias.

- DEJANVRY, ALAIN, AND ELISABETH SADOULET
 1989 "Rural Development in Latin America: Relinking Poverty Reduction to Growth." Paper presented at the Poverty Research Conference, 25–28 Oct., Airlie House, Virginia.
- DENNISON, EDWARD
 1967 *Why Growth Rates Differ: Post-War Experience in Nine Western Countries*. Washington, D.C.: Brookings Institution.
- DIAZ, ALVARO
 1988 "La reestructuración industrial autoritaria en Chile." *Proposiciones*, no. 17 (July): 14–35 (published in Santiago by Ediciones Sur).
- DIAZ ALEJANDRO, CARLOS
 1970 *Essays on the Economic History of the Argentine Republic*. New Haven, Conn.: Yale University Press.
- DUHART, SOLANGE, AND JAQUELINE WEINSTEIN
 1988 *Pesca industrial: sector estratégico y de alto riesgo*. 2 vols. Santiago: Programa de Economía de Trabajo (PET).
- ECHENIQUE, JORGE
 1989 "Tendencias, coyuntura y perspectivas de la agricultura chilena." Santiago: Agraria.
- EDWARDS, SEBASTIAN
 1989 "Openness, Outward Orientation, Trade Liberalization, and Economic Performance in Developing Countries." Mimeo, World Bank.
- ELLIS, FRANK
 1983 *Las transnacionales del banano en Centroamérica*. San José, Costa Rica: EDUCA.
- FALABELLA, GONZALO
 1988 "El sistema de trabajo temporal." Paper prepared for SUR.
- FEDER, GERSHON
 1980 "Farm Size, Risk Aversion, and the Adoption of New Technology under Uncertainty." *Oxford Economic Papers*, no. 32 (July): 263–83.
 1983 "On Exports and Economic Growth." *Journal of Development Economics* 12:59–74.
- FEDER, GERSHON, RICHARD JUST, AND DAVID ZILBERMAN
 1985 "Adoption of Agricultural Innovations in Developing Countries: A Survey." *Economic Development and Cultural Change*, no. 33:255–98.
- FERNANDEZ, A., ED.
 1988 *Ajuste macroeconómico y sector agropecuario en América Latina*. Buenos Aires: Instituto Interamericano de Cooperación para la Agricultura.
- FRENCH-DAVIS, RICARDO, AND DAGMAR RACZYNSKI
 1988 *The Impact of Global Recession and National Policies on Living Standards: Chile, 1973–1987*. Notas Técnicas no. 97. Santiago: CIEPLAN.
- FOXLEY, ALEJANDRO
 1983 *Latin American Experiments in Neo-Conservative Economics*. Berkeley and Los Angeles: University of California Press.
- FRIAS F., PATRICIO
 1989 *El movimiento sindical chileno en la lucha por la democracia, 1973–1988*. Santiago: Programa de Economía del Trabajo.
- FUENTES, JUAN ALBERTO, LIGIA GARCIA, AND LARS PIRA
 1988 "Las exportaciones en Centroamérica: Informe 1." Paper prepared for the Institute of Social Studies and the European Commission Advisory Group on Latin America, June, San José.
- GOMEZ, SERGIO
 1988 "Nueva estructura agraria en América Latina." Paper presented at the Seminario Internacional, La Agricultura Latinoamericana: Crisis, Transformaciones y Perspectivas, 1–4 Sept., Punta de Tralca, Chile.
 1989 "La fragilidad del modelo." *La Epoca*, 23 March.
- GOMEZ, SERGIO, AND JORGE ECHENIQUE
 1986 *Nuevos empresarios y empresas agrícolas en Chile*. FLACSO Documento de Trabajo no. 177. Santiago: FLACSO.
 1988 *La agricultura chilena: las dos caras de modernización*. Santiago: FLACSO.

- GOMEZ-LOBO, ANDRES
1990 "Desarrollo sustentable del sector pesquero chileno en los años 80." CIEPLAN mimeo, Santiago.
- GONZALEZ, RODRIGO B.
1987 "Consideraciones sobre el censo agropecuario de 1984." *Revista de Ciencias Sociales*, no. 37:91-101.
- GRILLI, E. R., AND M. C. YANG
1988 "Primary Commodity Prices and the Terms of Trade of a Developing Country: What the Long Run Shows." *World Bank Economic Review* 2, no. 1 (Jan.):1-47.
- GROSSMAN, GENE, AND ELHANAN HELPMAN
1990 "Comparative Advantage and Long-Run Growth." *American Economic Review* 80, no. 4:797-815.
- HIRSCHMAN, ALBERT O.
1977 "Generalized Linkages Approach to Economic Development, with Special Reference to Staples." In *Essays on Economic Development and Cultural Change*, edited by Manning Nash. Chicago, Ill.: University of Chicago Press.
- HOPPIN, POLLY
1989 *Pesticide Use in Four Nontraditional Crops in Guatemala: Implications for Residues*. Baltimore, Md.: Center for International Crop Protection.
- HUTCHINSON, M., AND N. SINGH
1987 *Exports and Economic Growth in Developing Countries: Identifying Externality Effects*. Berkeley: Department of Economics, University of California, Berkeley.
- INCAE (INSTITUTO CENTROAMERICANO DE ADMINISTRACION DE EMPRESAS)
1989 *Costa Rica's Non-Traditional Agricultural Exports: Analysis and Recommendations*. Alajuela, Costa Rica: INCAE.
- IRI RESEARCH INSTITUTE
1987 *Twenty-One Nontraditional Crops for Export from Costa Rica, Volume 1*. Stamford, Conn.: IRI Research Institute.
- JARVIS, LOVELL S.
1985 *Chilean Agriculture under Military Rule: From Reform to Reaction*. Berkeley: Institute of International Studies, University of California, Berkeley.
1989 "The Unraveling of Chile's Agrarian Reform, 1973-1986." In *Searching for Land Reform in Latin America*, edited by William Thiesenhusen. Boston, Mass.: Unwin Hyman.
1991 "Chilean Fruit Development since 1973: Manipulating the Cornucopia to What End?" Paper presented at the Latin American Studies Association, 4-6 Apr., Crystal City, Virginia.
- JIMENEZ, LUCRECIA, AND ROBERTO VILLALOBOS
1991 "Agricultura de cambio y reproducción de la unidad campesina: el caso de Costa Rica." Thesis, Universidad Nacional, Heredia.
- JUNG, WOO, AND PEYTON MARSHALL
1985 "Exports, Growth, and Causality in Developing Countries." *Journal of Development Economics*, no. 18:1-12.
- KAMAS, LINDA
1986 "Dutch Disease Economics and the Colombian Export Boom." *World Development* 14, no. 9:1177-98.
- KENNEDY, ELAINE
1989 *The Effects of Sugarcane Production on Food Security, Health, and Nutrition in Kenya: A Longitudinal Analysis*. Research Report no. 78. Washington, D.C.: International Food Policy Research Institute.
- KEPNER, CHARLES, AND JAY SOOTHILL
1935 *The Banana Empire: A Case Study of Economic Imperialism*. New York: Vanguard.
- KRUEGER, ANNE
1978 *Foreign Trade Regimes and Economic Development: Liberalization Attempts and Consequences*. Cambridge, Mass.: Ballinger for the National Bureau of Economic Research.
1984 "Comparative Advantage and Development Policy Twenty Years Later." In *Economic Structure and Performance*, edited by Moshe Syrquin, Lance Taylor, and Larry Westphal, 135-56. New York: Academic Press.

- KRUGMAN, PAUL
1990 *Rethinking International Trade*. Cambridge, Mass.: MIT Press.
- KUSTERER, KENNETH, MARIA R. ESTRADA DE BATRES, AND JOSEFINA X. CUXIL
1981 *The Social Impact of Agribusiness: A Case Study of ALCOSA in Guatemala*. U.S. AID Evaluation Special Study no. 4. Washington, D.C.: U.S. AID.
- LEONARD, H. JEFFREY
1987 *Natural Resources and Economic Development in Central America*. New Brunswick, N.J.: Transaction.
- LINDENBERG, MARC
1988 "Central America's Elusive Economic Recovery." *World Development* 16, no. 2 (Feb.):237-54.
- LIPTON, MICHAEL, AND RICHARD LONGHURST
1989 *New Seeds and Poor People*. Baltimore, Md.: Johns Hopkins University Press.
- MCGREEVEY, WILLIAM P.
1985 "The Transition to Economic Growth in Colombia." In CORTES CONDE AND HUNT 1985, 23-81.
- MAXWELL, SIMON, AND ADRIAN FERNANDO
1989 "Cash Crops in Developing Countries: The Issues, the Facts, the Policies." *World Development* 17, no. 11:1677-1708.
- MICHAELY, MICHAEL
1977 "Exports and Economic Growth: An Empirical Investigation." *Journal of Development Economics*, no. 1:49-53.
- MONTERO, CECILIA
1990 "La evolución del empresariado chileno: surge un nuevo actor?" Unpublished working paper, CIEPLAN, Santiago.
- MORAN, CRISTIAN
1989 "Economic Stabilization and Structural Transformation: Lessons from the Chilean Experience, 1973-1987." *World Development* 17, no. 4:491-502.
- MURRAY, DOUGLAS, AND POLLY HOPPIN
1990 *Pesticides and Nontraditional Agriculture: A Coming Crisis for U.S. Development Policy in Latin America?* Austin: Institute of Latin American Studies, University of Texas, Austin.
- MURRAY, DOUGLAS, MICHAEL GIULIANO, ANWAR RIZVI, AND MARLIN BENSINGER
1989 *Dominican Republic: The Agricultural Exports Protection Report*. Washington, D.C.: Development Alternatives.
- MYINT, HLA
1958 "The 'Classical Theory' of International Trade and the Underdeveloped Countries." *Economic Journal* 68, no. 270:317-37.
- NAYA, SEIJI, MIGUEL URRUTIA, SHELLEY MARK, AND ALFREDO FUENTES, EDS.
1989 *Lessons in Development: A Comparative Study of Asia and Latin America*. San Francisco, Calif.: Institute of Contemporary Studies.
- NELSON, LISA K.
1988 "The Burden of Development: The Effects of Agricultura de Cambio on the Small Farmer in Costa Rica." Manuscript, Associated Colleges of the Midwest, San José, Costa Rica.
- NIEVES, ISABEL
1987 *Exploratory Study of Intrahousehold Resource Allocation in a Cash-Cropping Scheme in Highland Guatemala*. Washington, D.C.: International Research Center on Women.
- OMINAMI, CARLOS, AND ROBERTO MADRID
1989 *La inserción de Chile en los mercados internacionales: elementos para la evaluación del desarrollo exportador y propuesta de políticas*. Santiago: Dos Mundos.
- OSSA, FERNANDO
1988 *Políticas de fomento al sector exportador chileno*. Working paper no. 114. Santiago: Instituto de Economía, Universidad Católica de Chile.
- PACK, H., AND LARRY E. WESTPHAL
1986 "Industrial Strategy and Technological Change: Theory versus Reality." *Journal of Development Economics*, no. 22 (June):87-128.

Latin American Research Review

- PALMA, J. GABRIEL, AND MARIO MARCEL
1989 "Kaldor on the 'Discreet Charm' of the Chilean Bourgeoisie." *Cambridge Journal of Economics*, no. 13 (Mar.):245-72.
- PAPAGEORGIOU, DEMETRIS, MICHAEL MICHAELY, AND ARMEANE M. CHOKSI, EDs.
1991 *Liberalizing Foreign Trade*. Cambridge, Mass.: Basil Blackwell.
- PAUS, EVA, ED.
1988 *Struggle against Dependence: Non-Traditional Export Growth in Central America and the Caribbean*. Boulder, Colo.: Westview.
- POLO-DIAZ, HARRY
1983 "Forestry Labour, Neo-Liberalism, and Authoritarian State: Chile, 1973-1981." Ph.D. diss., York University, Toronto, Canada.
- PONTIFICA UNIVERSIDAD CATOLICA DE CHILE, DEPARTAMENTO DE ECONOMIA AGRARIA
1989 "Exportación de frutas frescas: un diagnóstico." *Panorama Económico de la Agricultura*, no. 62 (Jan.):2-14 (published in Santiago).
- POWELL, A.
1989 *Commodity and Developing Country Terms of Trade: What Does the Long Run Show?* Applied Economics Discussion Paper no. 80. Oxford: Oxford University.
- PREBISCH, RAUL
1950 *The Economic Development of Latin America and Its Principal Problems*. New York: United Nations.
- QUIROZ MARTIN, TERESA, ALLAIN GALAUP, CARMEN VIOLETA LEON, AND JAIME VALVERDE
1984 *Nuevas estrategias de desarrollo en Costa Rica: la agroindustria y el campesinado (II Parte: Comercialización)*. Avances de Investigación no. 52. San José: Instituto de Investigaciones Sociales, Universidad de Costa Rica.
- RAM, RATI
1987 "Exports and Economic Growth in Developing Countries: Evidence from Time-Series and Cross-Section Data." *Economic Development and Cultural Change* 36, no. 1:51-72.
- RANDALL, LAURA
1987 *The Political Economy of Venezuelan Oil*. New York: Praeger.
1989 *The Political Economy of Mexican Oil*. New York: Praeger.
- RAYNOLDS, LAURA
1991 "Export Substitution and the Rise of Non-Traditional Agricultural Commodities in the Dominican Republic." Paper presented to the Latin American Studies Association, April 4-6, Crystal City, Virginia.
- RICH, BRUCE
1990 "The Emperor's New Clothes: The World Bank and Environmental Reform." *World Policy Journal* 7, no. 2 (Spring):305-29.
- RIVERA, RIGOBERTO
1987 "Las políticas económicas neoliberales y su impacto en la producción y empleo agrícola en Chile." In *Políticas agrarias y empleo en América Latina*.
1988 "La transición agraria en Chile: cambios en la estructura social." Paper presented at the international seminar La Agricultura Latinoamericana: Crisis, Transformaciones y Perspectivas, 1-4 Sept., Punta de Talca, Chile.
- RODRIGUEZ, DANIEL, AND SYLVIA VENEGAS
1989 *Los empresarios frutícolas chilenos: orígenes, estilos de vida, opiniones*. Estudios Agrarios no. 14. Santiago: Grupo de Estudios Agro-Regionales.
- RODRIGUEZ, EDUARDO J.
1988 *Exportaciones: las claves del éxito*. Santiago: Qualitas.
- RUIZ-TAGLE, JAIME
1985 *El sindicalismo chileno después del Plan Laboral*. Santiago: Programa del Trabajo.
- SALAZAR, JOSE MANUEL, PEDRO A. MORALES, TANIA LOPEZ, ALEXIS VASQUEZ, AND FRANKLIN SALAS
1988 *Plan de acción para la promoción de las exportaciones agrícolas no tradicionales*. Report no. 4 of *Proyecto: precios, incentivos y reformas de política en el sector agropecuario de Costa Rica*. San José, Costa Rica: Ministerio de Planificación Nacional (MIDEPLAN).

- SCHERR, S.
1989 "Agriculture in an Export Boom Economy: A Comparative Analysis of Policy and Performance in Indonesia, Mexico, and Nigeria." *World Development* 17, no. 4:543-60.
- SCHODT, DAVID W.
1986 *State Structure and Reformist Politics: Ecuador during the Petroleum Period, 1972-1983*. Austin: Institute of Latin American Studies, University of Texas.
- SCHURMAN, RACHEL
n.d. "The State, Class Structure, and Non-Traditional Exports in Chile: The Case of the Southern Austral Fishing Industry." Ph.D. diss. in progress, University of Wisconsin-Madison.
- SCHWEIGERT, THOMAS
1990 "Land Distribution and Land Use in Guatemala." Ph.D. diss., University of Wisconsin-Madison.
- SINGER, HANS
1950 "The Distribution of Gains between Investing and Borrowing Countries." *American Economic Review* 40, no. 2:473-85.
1975 "The Distribution of Gains from Trade and Investment Revisited." *Journal of Development Studies* 11, no. 4 (July):377-82.
1989 "Terms of Trade and Uneven Development." In *The New Palgrave: Economic Development*, edited by John Eatwell, Murray Milgate, and Peter Newman. New York: W. W. Norton.
- SOLOW, ROBERT
1956 "A Contribution to the Theory of Economic Growth." *Quarterly Journal of Economics*, no. 70 (Feb.):65-94.
- STANLEY, DENISE
1990 "Environmental Processes and Economic Development: A Study of the Honduran Shrimp Industry." Manuscript, University of Wisconsin.
- TEUBAL, MIGUEL
1987 "Internationalization of Capital and Agroindustrial Complexes: Their Impact on Latin American Agriculture." *Latin American Perspectives* 14, no. 3 (Summer): 316-64.
- THATCHER, THOMAS
1990 "Agricultura de Cambio, Non-Traditional Agricultural Export Expansion in Costa Rica: The Role of Foreign Investment, An Obstacle to National Participation in the Export Sectors of Ornamental Plants, Flowers, and Foliage." B.A. thesis, Carleton College, Minnesota.
- THIESENHUSEN, WILLIAM, ED.
1989 *Searching for Land Reform in Latin America*. Boston, Mass.: Unwin Hyman.
- TWOMEY, MICHAEL J.
1989 "The Debt Crisis and Latin American Agriculture." *Journal of Developing Areas* 23, no. 4 (July): 545-66.
- TYLER, W.
1981 "Growth and Export Expansion in Developing Countries." *Journal of Development Economics*, no. 9:121-30.
- VELASCO, JESUS-AGUSTIN
1983 *Impacts of Mexican Oil Policy on Economic and Political Development*. Lexington, Mass.: Lexington Books.
- VON BRAUN, JOACHIM, DAVID HOTCHKISS, AND MAARTEN IMMINK
1989 *Nontraditional Export Crops in Guatemala: Effects on Production, Income, and Nutrition*. Research Report no. 73. Washington, D.C.: International Food Policy Research Institute.
- WATKINS, MELVILLE
1963 "A Staple Theory of Economic Growth." *Canadian Journal of Economics and Political Science*, no. 29:141-58.
- WEINSTEIN, BARBARA
1983 *The Amazon Rubber Boom, 1850-1920*. Stanford, Calif.: Stanford University Press.

Latin American Research Review

WESTPHAL, LARRY

1990 "Industrial Policy in an Export-Propelled Economy: Lessons from South Korea's Experience." *Journal of Economic Perspectives* 4, no. 3 (Summer):41-59.

WILLIAMS, ROBERT G.

1986 *Export Agriculture and the Crisis in Central America*. Chapel Hill: University of North Carolina Press.

ZIMBALIST, ANDREW

1988 "Costa Rica." In PAUS 1988, 21-40.