

Credit Where Credit Is Due: Open Economy Industrial Policy and Export Diversification in Latin America and the Caribbean

ANDREW SCHRANK
MARCUS J. KURTZ

Do activist trade and industrial policies offer developing countries a viable alternative to either neoliberal or mercantilist development regimes? We hope to answer the question by, first, distinguishing the “open economy industrial policies” in vogue today from either their “closed economy” predecessors—i.e., import-substituting industrialization—or more orthodox approaches to development policy making; second, tracing the growth of nontraditional exports from Latin America and the Caribbean to the diffusion of more active approaches in the 1990s; and, third, accounting for activism’s apparent success in an otherwise inauspicious spatial and temporal context by identifying three distinct limits to rent-seeking in the open economy: infant exporter maturation; the costs of government support; and the reactions of foreign rivals.

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A substantial and growing body of literature heralds the demise of neoliberalism—and the rebirth of industrial policy—in Latin America and the Caribbean. For example, John Sheehan draws a distinction between the “stan-

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ard” approach to free market economic reform and the “competitive” strategy adopted by Chile in the late 1980s and early 1990s. While the former approach is designed to maximize allocative efficiency, and therefore “most fully embodies the logic of eliminating state intervention,” the latter “aims at building up the capacity of the country’s modern sectors to compete in open international markets,” and thereby offers a potentially powerful alternative to the regnant neoclassical orthodoxy.¹ Nor is Chile atypical. Carol Wise believes that elements of the competitive strategy are at work in contemporary Brazil, Colombia, and Mexico.² The Inter-American Development Bank (IADB) admits that a new breed of industrial policies has taken hold in much of Latin America and the Caribbean.³ And James Mittleman finds that the region’s public officials are at long last beginning to re-regulate many of the activities that they had deregulated in the 1980s and early 1990s.⁴

Observers part company, however, over the long-term implications of neoliberalism’s apparent demise. While Latin American and Caribbean policy makers tend to portray the competitive strategy as a valuable alternative to the by now embattled Washington Consensus, their critics hold that “a ‘right wing deviation’ in trade policy that discriminates in favor of exports is no better than the equivalent ‘left wing deviation’ that discriminates in favor of import substitution,” and therefore counsel caution.⁵ For example, the *Economist* decries “incremental government handouts in the name of industrial policy” and the related “risk of re-regulation by a thousand obscure decrees.”⁶ And Richard Ernsberger and Scott Johnson invoke “the specter of a return to the dark days of the 1970s and ‘80s when economic and political chaos were the norm.”⁷

Is industrial policy, in the evocative words of Howard Pack, a “growth elixir” or a “slow-acting poison?”⁸ We hope to answer the question by, first, distinguishing the open economy industrial policies in vogue today from either their closed economy predecessors—that is, import-substituting industrialization (ISI) and, in particular, tariffs and quotas—or more traditional approaches to international integration; second, underscoring the superiority of the activist approach to integration and outward orientation; and, third, accounting for activism’s apparent success—and growing popularity—in the otherwise inauspicious Latin American and Caribbean context by examining the likely limits to rent-seeking in the open economy. We utilize both quantitative cross-national data and qualitative case study materials to achieve our goals. The quantitative data divide the region’s open economy industrial policies into their principal components—fiscal incentives and credit subsidies—and thereby provide a number of particularly fine-grained insights into their consequences.⁹ First, they suggest that credit subsidies have played an indispensable role in the growth of exports from the leading Latin American and Caribbean exporters over the course of the past decade. By insulating their firms from the ingrained imperfections of their underdeveloped credit markets, activist governments—and by way of extension their exporters—have

outperformed their laissez-faire rivals more or less consistently since 1995. Second, they suggest that neither international economic integration nor competitive rent-seeking need constitute an insurmountable obstacle to the successful use of industrial policy in the twenty-first century. After all, Latin American policy makers who have taken an active approach to export promotion have not only adapted to the pressures imposed by the World Trade Organization (WTO) but have in large measure avoided the temptations of rent-seeking and crony capitalism and have therefore—contra the conventional wisdom—engendered substantively and statistically significant increases in their respective export supply responses over time.

Why would open economy industrial policies work in the “constrained” Latin American and Caribbean environment?¹⁰ After all, Latin America’s closed economy industrial policies have historically—if not invariably—been associated with inefficiency, rent-seeking, and crisis. We hope to account for the apparent achievements of open economy industrial policy by examining three likely limits to competitive rent-seeking in three different Latin American countries: first, the process of infant exporter—as opposed to infant industry—maturation in Chile; second, the politically concentrated and economically burdensome costs of the subsidies in the Dominican Republic; and third, the adverse reaction of the international community in Brazil. The three country cases are used not to test our theory per se but to illustrate an important and heretofore overlooked distinction between the closed economy industrial policies which have traditionally dominated Latin American political economies and the open economy industrial policies which have gained ground over the course of the past decade. While the tariffs and quotas which underpinned the region’s closed economy industrial policies were costly to abandon and easy to retain, and therefore reproduced themselves over time, the fiscal incentives and credit subventions that underpin today’s open economy industrial policies are costly to retain and easy to abandon, and therefore *tend* to be temporary. Neither strategy is cost-free, in other words, but their costs are likely to differ in both origins and implications—a point which the extant literature all but completely ignores and which should redirect the debate over alternatives to neoliberalism away from the question of their economic desirability and toward the question of their political feasibility.¹¹

We have divided the paper into four principal sections. The first reviews the debate over the role of industrial policy in the contemporary developing world. The second introduces our quantitative data, describes our modeling strategy, and presents our statistical results. The third illustrates the apparent limits to competitive rent-seeking in Chile, the Dominican Republic, and Brazil. And the fourth discusses the distinct advantages of—and limits to—industrial policy in the open economy and offers suggestions for future research.

INTELLECTUAL CONTEXT

Orthodox analysts and their critics part company over the roots of export-led growth in the less developed countries (LDCs). While mainstream analysts treat price competition as the sine qua non of comparative advantage, and therefore advocate “getting the prices right” in the LDCs, their critics underscore the limits to the free market model, and therefore call for an active industrial policy.¹² Who is correct? A number of analysts have characterized the 1993 publication of the World Bank’s *East Asian Miracle* report as a turning point in the debate, for the international financial institutions (IFIs) no longer deny that “Japan, Korea, Singapore, and Taiwan benefited from careful policy interventions,” and their current approach to development policy making is therefore “market friendly” rather than “market maniacal.”¹³

Nevertheless, the market friendly approach to development policy making rests upon a profound, and ultimately self-defeating, contradiction. While higher-order comparative advantages, i.e., the comparative advantages that gave birth to the East Asian miracle, are portrayed as atypical, and are therefore attributed to “government-private sector cooperation,” their lower-order counterparts are treated as natural, and are therefore attributed to market liberalization.¹⁴ The distinction is of the utmost importance, for it is almost invariably used to defend the traditional, neoclassical development orthodoxy against heterodox or radical challenges. In fact, the IFIs no longer deny the potential efficacy of the “institutionally demanding strategies” utilized by the East Asian newly industrializing countries (NICs) in the 1970s and 1980s.¹⁵ They merely question the East Asian model’s social and political viability in the remainder of the developing world and offer market liberalization as a “second-best” alternative.¹⁶

Nor are the IFIs alone. A substantial and growing body of literature suggests that industrial policies are likely to be captured, compromised, and perhaps even rendered counterproductive by special interests and rent-seekers in impoverished countries.¹⁷ For example, Richard Auty describes “policy capture” as the “Achilles heel of industry policy,” and goes on to argue that

subsidies for infant industry tend to breed nationalistic, ‘go-it-alone’ strategies for the acquisition of technology which are then fiercely defended by workers, executives and technocrats alike. If such lobbies are successful in extending infant-industry support, [he concludes,] they retard sectoral maturation and set precedents for further undesirable state intervention.¹⁸

Auty’s argument is anachronistic, however, for the debt crisis of the 1980s gave way to the “dramatic repudiation” of infant industry protection in the 1990s, and the policies he is attacking are therefore no longer in vogue.¹⁹ While developing country governments continue to pursue industrial policy broadly defined, their current efforts are more subtle than their predecessors and are therefore less vulnerable to capture, corruption, and compromise: on the one hand, they use

		Degree of International Integration	
		High Tariffs/Low Integration	Low Tariffs/High Integration
Sectoral policy	Neutral	Leviathan: high, uniform revenue tariff; industrialization as by-product of revenue formation	Liberalism: low uniform tariff; allocative efficiency
	Nonneutral	Import-substituting industrialization: tariff escalation (i.e., high tariffs on consumer goods and lower tariffs on capital goods and inputs), high rates of effective protection, import-competing industry grows	Open-economy industrial policy: low but not necessarily uniform tariffs, fiscal and credit incentives for exports, pro-export bias

Figure 1. A typology of development regimes.

more precise policy instruments like tax breaks, tariff exemptions, and credit subventions that are designed to facilitate—rather than to suppress—international competition. And, on the other hand, they condition access to the aforementioned incentives on the conquest of foreign markets rather than the domination of local ones.²⁰

Why is the distinction overlooked? We believe that the extant literature tends to place development regimes on a continuum from inward-oriented/statist to outward-oriented/liberal and to thereby conflate two distinct questions: is the economy itself inward- or outward-oriented? And is the trade and investment regime neutral or nonneutral vis-à-vis particular sectors and activities? In other words, the existing literature tends to assume that inward-oriented development regimes demand sectoral policy and that outward-oriented development regimes preclude sectoral policy. Neither claim holds water, however, for sectoral policies (as well as their neutral rivals) are compatible with both inward- and outward-oriented regimes. While a uniform revenue tariff will tend to create a neutral, inward-oriented regime, a pro-export bias will tend to create a nonneutral, outward-oriented regime. A more attractive formulation would therefore disaggregate development regimes along two distinct dimensions: first, the degree of international integration; and, second, the opportunity for sectoral policy.

Figure 1 offers a stylized representation of the four possible outcomes.²¹ The southwestern and northeastern quadrants include the well-known inward-oriented/statist and outward-oriented/liberal options of import-substituting industrialization and classical liberalism respectively. While the former employs nonuniform tariffs and import controls (i.e., high rates of effective protection) to defend and nourish import-competing infant industry, the latter is designed to let market actors reach their own levels—whoever and whatever they may be. The

northwestern and southeastern quadrants include the revenue-maximizing Leviathan and open economy industrial policy respectively. While import-competing industries are largely unintended by-products of high revenue tariffs under Leviathan, nontraditional exports are deliberate products of precise policy instruments like tax breaks, duty drawbacks, and subsidized credit arrangements under open economy industrial policies.²²

Which approach is superior? We would expect open economy industrial policies to outperform their closed economy predecessors for at least two reasons. First, by restricting incentives and subsidies to export-oriented producers, developing country governments not only force their firms to compete in world markets but simultaneously offer their bureaucrats a more or less “easy to monitor” performance standard that was unavailable to their inward-oriented predecessors.²³ Exporters capture the subsidy, according to Alice Amsden, and import-competing firms do not.²⁴ And, second, export-oriented production is believed to induce a wide array of positive externalities including, perhaps most importantly, information and technology transfer.²⁵

Nevertheless, the closed economy is for the most part a thing of the past and today’s developing countries are therefore forced to choose not between openness and closure but between neutrality and nonneutrality. Therefore, the western quadrants are primarily of historical interest and the relevant question is whether the aforementioned export incentives offer their recipients an advantage over classical liberalism. Do they, in fact, provoke a significant export supply response? The authors of individual case studies answer in the affirmative. For example, Sean Ó Riain attributes the Irish software industry’s recent export success to the investment promotion efforts of Ireland’s “flexible developmental state” (FDS).²⁶ Jean Grugel traces Costa Rica’s diversification to a policy of “strategic liberalization” combined with “export promotion.”²⁷ And Greg Noble chronicles the Taiwanese government’s effort “to take an active role in developing high technology industries without resorting to the extreme statist approaches adopted in some neighboring countries.”²⁸

Indeed, Ó Riain goes so far as to portray the FDS as a potentially replicable twenty-first-century alternative to the East Asian “bureaucratic developmental state” (BDS) of yesteryear. Is he correct? We hope to answer the question by examining the relationship between two of the principal policy instruments available to flexible developmental states—tax and tariff incentives and credit subventions—and contemporary patterns of export growth in Latin America.

CROSS-NATIONAL QUANTITATIVE ANALYSIS

Robert Wade holds that theories of industrial policy require “systematic testing” on “middle-N” samples of developing countries, and Latin America and the Caribbean offer a fortuitous opportunity to follow his advice.²⁹ On one hand, they play host to a number of different states with a variety of different trade and invest-

Table 1
Summary Statistics of Export Promotional Intensity Measures

Index	Range	Minimum	Maximum	Mean	Standard Deviation
Overall	0-12	0	10	4.7	2.8
Fiscal	0-6	0	4	2.9	1.2
Credit	0-6	0	6	1.8	1.9

Source: Alberto Melo, "Industrial Policy in Latin America and the Caribbean at the Turn of the Century," Research Department Working Paper 459 (Washington, D.C.: IADB, 2001).

ment regimes, and therefore offer a wide range of variation on the principal independent variable: from orthodox liberalism to comprehensive industrial policy. On the other hand, they feature a tradition of populism, rent-seeking, and corruption, and are therefore—unlike their East Asian counterparts—more or less typical developing regions. In fact, most Latin American and Caribbean countries appear to be poorly governed for their respective levels of income, and they therefore offer a conservative test of the efficacy of industrial policy in the 1990s.³⁰ If export incentives work in Latin America, we argue, they will in all likelihood work in much of the rest of the developing world.

Does open economy industrial policy work? While analysts who hope to answer the question have until recently been stymied by the absence of reliable, cross-national data on the extent and scope of export incentives in the developing world, Alberto Melo of the IADB has collected data on two dimensions of industrial policy for twenty-six countries in Latin America and the Caribbean: fiscal incentives and credit subventions.³¹ Both types of incentive are designed to guarantee exporters—and for the most part only exporters—access to critical material and nonmaterial inputs and services at border prices or better. Fiscal incentives are designed to insulate exporters from otherwise burdensome taxes and tariffs and include (1) tax rebates, (2) duty drawbacks, (3) temporary admissions schemes, (4) duty exemptions, (5) internal tax holidays, and (6) export processing zones (EPZs).³² Credit subventions are designed to insulate exporters from the well-known inadequacies of the domestic credit market and include loans for (1) working capital, (2) discrete capital goods, (3) project finance, (4) export credit insurance, (5) overseas marketing activities, and (6) buyer-side export finance.³³ By assigning each component of each dimension a value of 1, we can create a straightforward—albeit admittedly blunt—additive index of the intensity of each individual country's promotional effort as well as subindices for each type of incentive.

Table 1 offers summary statistics for the "overall index" of promotional intensity as well as more precise indices of "fiscal promotion" and "credit promotion." Mexico is the leading country on each dimension. A number of Central and South American countries—i.e., Argentina, Bolivia, Brazil, El Salvador, Guatemala, Peru, Uruguay, and Venezuela—are tied with Mexico on fiscal incentives. And

Guyana and Suriname are by far the laggards with no incentives of any sort to speak of.

Fiscal Incentives and Credit Subsidies

Are Guyana and Suriname paying a price for their failure to embrace open economy industrial policies? We can begin to assess the effects of the policies in question by regressing the average annual rate of export growth from 1995 to 2001 on the export incentives summarized in Table 1 and a series of control variables. By examining the average annual rate of export growth from 1995 to 2001 rather than inherently volatile short-term growth rates, we hope to produce a relatively reliable estimate of the efficacy of industrial policy in the open economy environment. The 1995 base year is not chosen arbitrarily, however, for Melo holds that “the adoption of the new industrial policies was almost simultaneous in a significant number of countries and can be roughly dated to the three-year period 1994-1996.”³⁴ Consequently, the variables on the right-hand side of the equation are *genuinely exogenous* to export growth rates over the next six years.³⁵

Cross-national tests of the efficacy of industrial policy frequently include a host of control variables. We restrict our initial control variables to gross domestic product (GDP) per capita—a simple proxy for initially varying socioeconomic conditions—for three reasons. First, we are working with a small sample and are therefore suffering from a paucity of degrees of freedom under the best of circumstances. Second, our sample is limited to Latin American and Caribbean countries, and we are therefore less worried—albeit by no means unworried—about unmeasured country-level heterogeneity than we would be if we were using a worldwide sample. And, third, we are examining export growth rates rather than the overall economic growth rates examined by most observers of industrial policy and we expect the former to be affected by a smaller number of potentially omitted factors than the latter.³⁶

Table 2 presents the results of three simple models of export growth.³⁷ Model I treats export growth as a function of the initial level of GDP per capita and the overall index of export promotion. The coefficient for the export promotion index is both statistically and substantively significant. In fact, the addition of an extra promotional measure will generate more than an additional percentage point of annual export growth net of initial conditions. And movement from the low to the high end of the policy index will generate an increase of almost 15 percentage points in the average annual rate of export growth.

Which components of the index are most important? We begin to answer the question by regressing the average rate of export growth on GDP per capita and each of the different dimensions of export promotion: fiscal incentives and credit subventions. The results are reported in Models II and III. While fiscal incentives would appear to have a positive relationship to export growth, their coefficient is statistically insignificant—perhaps because they are by now rather commonplace

Table 2
Industrial Policy and Average Annual Export Growth,^a 1995-2001

	Model I	Model II	Model III
GDP/capita, 1995	-0.191 (0.393)	0.436 (0.419)	-0.363 (0.368)
Overall index	1.410*** (0.427)		
Fiscal index		0.707 (1.568)	
Credit index			1.993*** (0.477)
Constant	-2.124 (3.198)	2.183 (6.227)	2.024 (2.328)
<i>N</i>	25	25	25
Adjusted <i>R</i> ²	0.311	-0.020	0.426

Source: Export growth is from World Bank, *World Development Indicators 2003* (Washington, D.C.: World Bank, 2003); GDP and GDP per capita are from World Bank, *World Development Indicators 2002* (Washington, D.C.: World Bank, 2002); and industrial policy indices are derived from Alberto Melo, "Industrial Policy in Latin America and the Caribbean at the Turn of the Century," Research Department Working Paper 459 (Washington, D.C.: IADB, 2001).

Note: Coefficients are placed next to their parenthesized standard errors. Bahamas dropped due to missing data. GDP/capita is in thousands of current international dollars at purchasing power parity (PPP). Export growth is the simple annual average rate of export growth over the period 1995-2001; however, we use the 1995-1998 average for Nicaragua due to missing data. Models were estimated by weighted least squares—weighting by gross domestic product in current international dollars at PPP—which corrects for the innate volatility of export performance in small economies and concomitant heteroskedasticity.

a. Export growth = $f(\text{GDP/capita, export incentives})$.

*** $p \leq 0.01$; ** $p \leq 0.05$; * $p \leq 0.10$.

and therefore do not offer any particular country a unique competitive advantage. Fully twenty-four of the twenty-six countries included in Melo's original sample offer exporters some sort of fiscal incentive. And the distribution of the fiscal incentive index is skewed toward the high end.³⁸

Credit subventions are not only less common but tend to yield more powerful statistical results (see Model III). A one-unit increase in the credit index, for example, produces significantly more export growth than a parallel increase in the overall index incorporated into Model I. Indeed, the results are both substantively and statistically significant, and they are arguably rendered more—rather than less—credible by the comparatively small size of our sample (since small samples tend to inflate standard errors).

Our findings are not necessarily surprising. On the contrary, they are broadly consistent with the qualitative literature on export-led growth in the developing world. For example, Alice Amsden holds that long-term credit subventions are the defining characteristic of developmental states like South Korea.³⁹ Carla Macario expects export finance to grow more valuable "as export subsidies are phased out to comply with the Uruguay Round Agreements."⁴⁰ And a further disaggregation of the credit index would appear to support their claims. We find, for instance, that an indicator variable for government-backed project finance—a rare incentive indeed ($n = 3$)—yields an estimated 6.8 percentage point increase in the average annual rate of export growth; loans for discrete capital goods ($n = 10$)

produce a corresponding 3.4 percentage point increase in the average annual rate of export growth; and subsidized working capital ($n = 14$) is associated with a 5 percentage point increase in the average annual rate of export growth net of GDP per capita (estimated as in Table 2; results available from authors upon request).

Industrial Policy, Corruption, and Rent-Seeking

While export incentives are known to work in theory, they are expected to be compromised by corruption, capture, and rent-seeking in practice—at least outside of East Asia.⁴¹ Our results would appear to gainsay the conventional wisdom, however, for they offer prima facie evidence that performance standards are in fact imposed upon subsidy recipients in Latin America—i.e., that subsidies are not mere “giveaways” but are instead subject to “the principle of *reciprocity*.”⁴²

Are the export incentives we have described really prone to corruption and capture? And, if so, what are the likely consequences? We begin to answer both questions by exploring the simple correlations between credit incentives and a popular—if by no means ideal—measure of the government’s ability to control corruption designed by Daniel Kaufmann and Art Kraay at the World Bank.⁴³ The control of corruption index is an aggregate measure derived from a variety of different surveys of experts and businesspersons; it tends to range in value from -2.5 to 2.5 (with higher scores indicating less corruption); and it is strongly correlated with neither the index of credit subsidies ($r_{\text{corr, credit}} = 0.050$), nor the index of fiscal incentives ($r_{\text{corr, fiscal}} = -0.235$), nor the overall index of export promotion ($r_{\text{corr, overall}} = -0.065$).⁴⁴

A second question, however, concerns the efficacy of industrial policy in less than transparent environments. Does industrial policy require public sector probity to be effective? We hope to answer the question by including Kaufmann and Kraay’s measure of corruption control as a control variable and interaction term in our export regressions (see Table 3). Model IV simply adds the corruption control variable to Model III from Table 1 to control for the effects of the institutional context. While the corruption control variable is appropriately signed, it is statistically insignificant and does nothing to compromise the effect of the credit index.

We next ask whether the efficacy of industrial policy is contingent on the probity of the public sector by including an interaction term—corruption control multiplied by the credit index—in Model V. If credit subventions work better in transparent environments, the interaction term should be positively signed and statistically significant. However, the interaction is neither substantively nor statistically significant; the bulk of the variation is accounted for by the credit subsidy variable alone; and we therefore question whether the benefits of an open economy industrial policy are contingent upon good governance.⁴⁵

Nevertheless, the limited size of our sample suggests a cautious interpretation of the results, and we therefore conclude by dropping the per capita GDP control

Table 3
Industrial Policy, Corruption, and Export Growth^a

	Model IV		Model V		Model VI	
GDP/capita, 1995	-0.525	(0.411)	-0.528	(0.422)		
Credit index	2.110***	(0.497)	2.173***	(0.730)	1.756**	(0.658)
Corruption control	1.640	(1.829)	1.022	(5.463)	0.432	(5.516)
Credit Index * Corruption Control			0.184	(1.533)	0.055	(1.550)
Constant	2.953	(2.558)	2.740	(3.160)	0.603	(2.695)
Adjusted R ²	0.421		0.392		0.376	
N	25		25		25	

Source: Export growth is from World Bank, *World Development Indicators 2003* (Washington, D.C.: World Bank, 2003); GDP and GDP per capita are from World Bank, *World Development Indicators 2002* (Washington, D.C.: World Bank, 2002); industrial policy indices are derived from Alberto Melo, "Industrial Policy in Latin America and the Caribbean at the Turn of the Century," Research Department Working Paper 459 (Washington, D.C.: IADB, 2001); and corruption control is from Daniel Kaufmann, Aart Kraay, and Massimo Mastruzzi, *Governance Matters III: Governance Indicators for 1996-2002* (Washington, D.C.: World Bank, 2003).

Note: WLS estimates; see Table 1 for details. The corruption measure for Barbados is the 2002 value, and that for Belize is from 1998—in both cases because earlier scores are not available.

a. Export growth = $f(\text{GDP/capita, export incentives, corruption control})$.

*** $p \leq 0.01$; ** $p \leq 0.05$; * $p \leq 0.10$.

variable—which is highly correlated with corruption control in any event ($r = 0.70$)—in order to save scarce degrees of freedom (see Model VI). The results are substantively unchanged. Only the credit index meaningfully affects the average annual rate of export growth.

One might wonder whether Kaufmann and Kraay's measure of corruption adequately addresses the risk of capture via legal means—that is, political bias toward government allies rather than bribery and outright malfeasance. We therefore substituted Kaufmann and Kraay's measure of overall "government effectiveness" for their measure of "corruption control" in the models in Table 3 and achieved all but identical results. The results of the alternative specifications are available from the authors upon request; neither the signs nor the significance levels were materially affected by the alternative measure.

Do the results presented in Tables 2 and 3 reflect enduring patterns or the idiosyncratic achievements of a few countries? Are they compromised by the inherently limited size of our sample, or will they prove more general as time goes on? We have already addressed the issue of spuriousness by focusing on medium-run average annual export growth rates—which should smooth out at least some of the volatility characteristic of year-to-year growth rates. We can assess the validity of our claims more directly, however, by examining the relationship between fiscal and credit incentives and two different measures of export performance: the average annual rate of *nontraditional* export (NTX) growth, and the *relative* performance of nontraditional and traditional exports between 1995 and 2001 (see Table 4).⁴⁶

Table 4
Industrial Policy and Nontraditional Export Growth,^a 1995-2001

	Model VII		Model VIII		Model IX		Model X	
GDP/capita, 1995	-0.957	(0.816)	-0.026	(0.871)	-1.218	(0.787)	-1.604	(1.294)
Overall index	2.549**	(0.973)						
Fiscal index			1.278	(3.476)				
Credit index					3.443***	(1.093)	3.193*	(1.797)
Constant	-7.187	(7.597)	2.226	(14.381)	0.625	(5.403)	-1.813	(8.886)
Adjusted R ²	0.213		-0.116		0.306		0.0690	
N	19		19		19		19	

Source: Nontraditional export growth is from World Bank, *World Development Indicators 2003* (Washington, D.C.: World Bank, 2003); GDP and GDP per capita are from World Bank, *World Development Indicators 2002* (Washington, D.C.: World Bank, 2002); and industrial policy indices are derived from Alberto Melo, "Industrial Policy in Latin America and the Caribbean at the Turn of the Century," Research Department Working Paper 459 (Washington, D.C.: IADB, 2001). n.b.: NTX data for the Bahamas are derived from World Bank, *World Development Indicators 2005* (Washington, D.C.: World Bank, 2005). Fuel exports are assigned a value of zero, for available data for 1998 and 2000 suggest that they are negligible.

Note: WLS estimates; see Table 1 for details. Nontraditional exports are defined to include all non-natural resource exports (i.e., merchandise exports other than ores and metals, fuel, or agricultural raw materials). Nontraditional export growth is the annualized rate of nontraditional export growth for the period 1995-2001. Model X regresses the difference between the average annual rate of nontraditional export growth and the average annual rate of traditional export growth on GDP per capita and the credit index.

a. Nontraditional export growth = $f(\text{GDP/capita, export incentives})$.

*** $p \leq 0.01$; ** $p \leq 0.05$; * $p \leq 0.10$.

Our alternative measures of economic performance offer at least two advantages. First, they allow us to cross-validate our findings with different data. And, second, they allow us to examine some of the causal mechanisms which allegedly link industrial policy to export performance more directly. Export subsidies are not typically utilized to enhance the viability of well-established, natural resource export sectors, after all, but to call forth nontraditional exports like manufactured goods.⁴⁷ If credit subsidies really account for the variation identified in Tables 2 and 3, therefore, they should have at least as large an effect on the average annual rate of nontraditional export growth—and the difference between NTX and traditional export growth—as they do on the more general measure of export growth used in the first round of estimates.

We examine the relationship between open economy industrial policy and NTX growth in Models VII-X in Table 4. The results of the first three models (VII-IX) are broadly consistent with the results of the three models displayed in Table 2 and thereby underscore the importance of deliberate promotional efforts. While fiscal policies would appear to be relatively unimportant, the average annual rate of NTX growth is invariably a positive and significant function of the level of credit subsidy.⁴⁸ In fact, the new models not only replicate the findings of the original models but yield substantially larger effect estimates—implying more than a full percentage point more NTX growth than overall export growth

for each unit change in the credit policy index. Given that the export incentives in question are indeed targeted toward NTX sectors, as they almost invariably are, the results are particularly convincing.

Finally, Model X treats the difference between the nontraditional and traditional export growth rates as the dependent variable. It reveals a relatively robust relationship between credit subvention and the NTX sector's ability to outperform the traditional export sector. Thus, Model X not only underscores the validity of our earlier findings but simultaneously implies that they are driven neither by country-specific omitted variables—since country-specific factor costs and the like would presumably affect traditional as well as nontraditional exports—nor by overall demand conditions which would presumably affect both traditional and nontraditional exports as well.

COMPARATIVE ANALYSIS

The standard critique of import-substituting industrialization is by now well known. ISI, it is argued, generates static and dynamic inefficiencies and thereby provokes an inevitable—and, in the absence of thoroughgoing market reform, irremediable—economic crisis. In a sense, the problem is political: while tariffs and import controls are designed to foster the growth of infant industries, their offspring tend to prefer the comfort of mother's bosom to the harsh realities of the international economy—and therefore tend to grow into troubled, costly, and demanding adolescents. They are economically feeble. They are politically powerful. And they are therefore likely to lobby the state for additional support rather than to specialize, invest, and accumulate.⁴⁹

The open economy industrial policies we have described are distinct, however, for they tend to draw the more sophisticated local producers into global—rather than local—markets. Take, for example, fiscal incentives like export processing zones, duty drawbacks, and temporary admissions schemes. What do they have in common? While tariffs and import controls keep foreign goods out of the hands of local consumers, and thereby insulate local producers from the risks and rewards of international competition, fiscal incentives lower or eliminate tariffs, and thereby facilitate competition by bringing foreign goods—and, in particular, foreign capital and intermediate goods—into the hands of local producers. In other words, fiscal incentives insulate producers not from competition but from the imperfections imposed by either ISI or a hypothesized free market alternative. Publicly subsidized credit has a similar rationale. It insulates infant exporters from the myriad imperfections which are common to Latin American and Caribbean credit markets: high interest rates, macroeconomic volatility, and overly cautious lenders more generally.⁵⁰ If fiscal incentives make imported inputs available at border prices, in other words, credit subventions make financial inputs available at (or sometimes below) border prices. Both types of measures therefore encourage, rather than suppress, international competition.

Perhaps the best way to understand the differences between ISI and the open economy industrial policies that are increasingly in vogue in Latin America and the Caribbean is to consider the prospects for—and implications of—rent-seeking under each regime. While infant industries are vulnerable to the withdrawal of tariffs and import controls in theory, they are all but untouchable in practice. Thus, Ha-Joon Chang, a well-known proponent of industrial policy, admits “that, once implemented, state-created rents may be difficult to withdraw.”⁵¹ And Marcus Noland and Howard Pack go even further: “There are no instances in the literature with which we are familiar,” they write, “of a government’s actually reducing protection to sectors that did not perform well.”⁵²

Open economy industrial policies face the opposite problem, however, for they are difficult to sustain rather than to withdraw. Consider, for example, the *Certificado de Abono Tributario* (CAT), a negotiable tax credit available to nontraditional exporters in Costa Rica from 1972 until 1999. While the CATs engendered a massive export supply response, they were extraordinarily costly to the government. They generated between \$US1.35 and \$US2.05 worth of additional exports per dollar’s worth of subsidy.⁵³ They were worth between 15 and 20 percent of the free-on-board (FOB) value of the exports in question. And they therefore consumed upward of 5 percent of the central government’s annual expenditures.⁵⁴ Consequently, President Oscar Arias and his successor, Rafael Calderón, phased out the subsidies over the course of the 1990s.⁵⁵

Costa Rica’s experience contravenes the conventional portrait of industrial policy in at least two ways. First, the Costa Ricans have—contra Noland, Pack, and the conventional wisdom—withdrawn a subsidy. New CATs have not been issued since 1992, and preexisting guarantees have gradually been abandoned. And, second, Costa Rica’s nontraditional exporters have nonetheless survived and prospered.⁵⁶ While nontraditional exports like cut flowers, pineapples, apparel, and electronics composed no more than 40 percent of Costa Rican exports in 1987, they were responsible for almost two-thirds of the country’s exports a decade later—the phase-out of the CATs notwithstanding.⁵⁷

Nor is Costa Rica unique. While nontraditional export incentives have fostered growth, employment, and diversification in nearby countries like El Salvador and Nicaragua, where they have been warmly embraced by entrepreneurs and investors, they have been curtailed—rather than captured—over time.⁵⁸ What, then, accounts for the success of open economy industrial policy in Central America? And why is it relatively immune from capture? The answer to the latter question derives from the answer to the former. After all, tariffs and quotas often stunt rather than facilitate the growth and maturation of infant industries, and their beneficiaries therefore come to depend upon their continued existence not simply for surplus profits but for their very survival.⁵⁹ Export incentives are designed to draw relatively sophisticated firms into world markets, however, and their beneficiaries are likely to grow independent of public support over time. Costa Rica’s experi-

ence is illustrative. By the mid-1990s, according to Mary Clark, the country's nontraditional exporters had come to accept the fact that the CATS would be eliminated and to "prepare to do business without the subsidy."⁶⁰

The process of infant exporter maturation is not the only limit to rent-seeking under an open economy industrial policy, however, for export incentives tend to generate at least two distinct sources of political opposition over time. On the one hand, they tend to be more costly than tariffs and quotas, and therefore tend to alienate their erstwhile sponsors in the increasingly beleaguered public sector. And on the other hand, they are more likely to generate a powerful surge of exports than tariffs and quotas, and therefore tend to provoke opposition from foreign firms and governments.⁶¹

Furthermore, and perhaps more importantly, the two sources of opposition can be expected to grow over time, for the costs and achievements of industrial policy are in large measure proportional to the number of firms and entrepreneurs exploiting the policy. While export incentives necessarily impose costs upon either their sponsors or their competitors, their costs are ultimately a function of their popularity, and they therefore *tend* to be self-limiting in practice—whether or not they are self-limiting in theory. Note the contrast with closed economy industrial policies in Table 5.

The table underscores not only the threefold distinction between closed and open economy industrial policies but the redundant nature of the limits to rent-seeking under the latter. First, producers who take advantage of open economy industrial policies—unlike their import-competing predecessors—have both an incentive and in many cases the ability to comply with their performance standards. They are relatively sophisticated from the outset.⁶² They exploit economies of scale. They learn by exporting. They confront northern tastes, technologies, price, quality, and delivery standards on a daily basis. And they therefore tend to mature into competitive enterprises—in which case they tend to grow out of their subsidies over time—or else to go bankrupt and leave the field of play.⁶³ Second, public officials who adopt open economy industrial policies are more likely to impose performance standards. They sponsor infant exporters. They call forth a broader export supply response. And they therefore tend to find themselves short of revenue and unable to make good upon their obligations to their industrial offspring. A number of developing countries including not only Costa Rica, El Salvador, and Nicaragua but also the first generation of Asian and Latin American NICs have therefore been forced to temper or abandon their export incentives over time.⁶⁴ And, third, foreign firms and investors who compete with LDC exporters—not to mention their political representatives—are unlikely to tolerate persistent and aggressive promotional efforts by LDC governments. On the contrary, they are likely to use bilateral pressures, multilateral institutions, and LDC dependence upon favorable access to developed country markets to combat their new rivals and to thereby offer LDC officials—who can use “international con-

Table 5
The Dynamics of Open and Closed Economy Industrial Policies

Issue	Closed Economy Industrial Policy	Open Economy Industrial Policy
Efficacy	Low efficacy: infant industry maturation uncommon; firms tend to grow dependent on protection; withdrawal of rents is nearly impossible.	High efficacy: infant exporters tend to grow into competitive firms; they prefer but are not dependent upon industrial policy; withdrawal of rents is feasible.
Cost	Diffuse costs: disorganized consumers pay for higher cost, lower quality goods; the government benefits from tariff revenues and opportunities for patronage; industrial policies are likely to become entrenched.	Concentrated costs: the government pays the cost directly in current spending; public officials face both fiscal constraints and competing citizen demands; industrial policies are more vulnerable.
Foreign reaction	FDI: foreign firms react by building local plants to serve the protected market; they compete with local firms, transfer profits overseas, and join forces with the ISI coalition.	Resistance: foreign firms resent LDC encroachment into their home markets; they use bilateral pressures and multilateral institutions to derail subsidy programs.
Policy outcome	Overprovision: closed economy measures are overprovided and difficult to abandon; all major organized actors gain a stake in their perpetuation.	Underprovision: open economy industrial policies are underprovided and more easily—if not necessarily—abandoned; major actors often come to favor or at least accept their withdrawal.

straints as domestic leverage”—a de facto ally in their own efforts to ward off capture.⁶⁵

In fact, the open economy industrial policies we have described are in many ways the political antithesis of import-substituting industrialization. While ISI frequently—if by no means inevitably—goes too far and is difficult to abandon, open economy industrial policies rarely go far enough and are difficult to maintain, especially if they are *not* producing socially desirable results.⁶⁶ A rent-seeking coalition might well attempt to defend export incentives; and it might well have some success in doing so; but it would be unlikely to survive all three of the constraints we have specified—especially in a democratic society with a free and increasingly independent media.⁶⁷

Chile: Why Infant Exporters Mature

Import-substituting industrialization is expected to call forth investors and entrepreneurs who require protection, abjure competition, and maximize their returns not by increasing productivity but by extracting rents from the state. We have argued, however, that the open economy industrial policies in use in Latin America and the Caribbean are likely to call forth internationally competitive pro-

ducers rather than rent-seeking industrial reprobates. We invoke the Chilean experience with both forms of industrial policy to illustrate the distinction.

Chile pursued an extensive ISI program from the 1930s until 1973. The story is well known and need not be rehearsed at length. While ISI fostered the country's industrialization, it did so at great cost, and the vested interests it forged were so powerful that by the 1960s no major political force—whether conservative, Christian Democratic, or Marxist—would challenge the strategy's wisdom. By 1970, public enterprises built by conservative or centrist administrations were important in energy, steel, coal, telecommunications, and transport, while state ownership was expanding in the all-important mining and banking sectors. The election of Salvador Allende in 1970 magnified both the state's role and the inward-looking character of the industrialization process, but added a self-conscious effort to encourage public or cooperative control of the commanding heights of the economy. Consequently, the country descended into a whirlpool of economic calamity, political crisis, and eventual military dictatorship in the early 1970s, for the private sector resisted the state's encroachments and Allende and his supporters lacked the power to either consolidate their strategy or contain the political forces they had unleashed.⁶⁸

Most of the firms created under ISI were incapable of competing in world markets. Instead, they relied upon tariffs, import controls, and subsidies. In fact, General Augusto Pinochet underscored the industrial sector's frailty—whether wittingly or unwittingly—by inaugurating an aggressive and sudden economic liberalization in April 1975. Liberalization ultimately gave way to a low and uniform tariff, and the consequences were profound: a massive wave of bankruptcies rocked the economy, a severe process of deindustrialization set in, and pronounced economic difficulties persisted for years to come.⁶⁹

The military government began to implement an open economy industrial policy approximately a decade later, however, and Chilean exports began to respond. The new strategy included both substantial fiscal measures—like tariff drawbacks, a rebate of the value-added tax on exports (Decreto Ley 825), and a direct export subsidy disguised as a tax rebate which is known as the *Reintegro Simplificado*—and credit subventions. The *Reintegro Simplificado* (or “simplified drawback”) has at least two interesting features. First, it is decidedly illiberal in conception, for it is not only targeted at new market entrants and smaller firms but it also incorporates domestic content requirements to promote backward linkages. And, second, it is both transparent—it is paid directly out of the treasury—and costly. According to Carla Macario, the Chilean government spent hundreds of millions of dollars per year on the subsidy in the mid-1990s.⁷⁰

On the credit side, the government provides cheap long-term dollar credit and partial loan guarantees to help local exporters gain access to finance at reasonable cost and with time horizons long enough to make repayment feasible. While the Corporación de Fomento (CORFO) offers buyers of high value-added Chilean

manufacturing and service sector exports low-interest, long-term credit, the government offers smaller nontraditional exporters (sales under \$30 million) subsidies for the purchase of inputs or capital goods. The common denominator in both programs is not simply the direct provision of financial resources for exporting firms in targeted sectors but the enforcement of sunset provisions that eliminate the subsidies when their beneficiaries are able to stand on their own two feet.

While both the tariffs and the quotas of the ISI era and the credit subsidies of the current era alter the relative prices confronted by domestic producers, their political and economic implications are distinct. In the ISI era, firms pursued ever-greater rents from ever-higher levels of effective protection and rarely managed to mature into internationally competitive producers. In the current era, however, the subsidies can only be captured if exports are actually registered, and they necessarily decline as firms learn, mature, grow, and thereby bring the sunset provisions into effect. Nor would the extant subsidies allow inefficient producers to survive, for the payments are small relative to the price of exports, international competition is fierce, and low costs are not enough to guarantee survival. Exporters need to meet northern price, quality, and delivery standards—factor costs and prices notwithstanding.

The point is not that Chilean exporters do not want to retain access to their subsidies but that—unlike their predecessors in the closed economy—they are able to withstand their withdrawal. While exporters could lobby the state for continued support in theory, they would be unlikely to achieve their goals in practice, for the relevant performance standards are easily enforceable: as foreign sales pass the stipulated threshold, the sunset provisions are put into practice. In fact, the sunset provisions are doubly beneficial to the Chilean government, for they simultaneously prevent the waste of public resources on already-viable firms and free up funds to promote the growth of other firms in distinct sectors.

Noland and Park hold that firms are rarely if ever weaned of their subsidies. However, the Chilean experience would appear to gainsay their pessimistic claim. Subsidies have not only fostered internationally competitive enterprises but have regularly been removed and reallocated to a constantly changing set of infant exporters.⁷¹ What are the long-term consequences? Aggregate export data offer prima facie evidence of industrial policy's efficacy in Chile. After all, the value of Chilean nontraditional exports more than doubled from \$2.1 to \$4.7 billion dollars between 1990 and 1995, and NTX currently account for more than one-quarter of the country's total exports.⁷²

Nevertheless, the Chilean state has frequently been portrayed as unusually capable. Are the achievements of the country's open economy industrial policies replicable in a less auspicious political context? We hope to answer the question by examining the consequences of credit subventions in the traditionally patrimonial environs of the Dominican Republic.

*The Dominican Republic:
Why Predatory States Withdraw Subsidies*

The Dominican Republic has traditionally played host to a dualistic industrial economy. Since the middle of the twentieth century, if not before, the domestic market has been subject to ample protection by tariffs and import controls of various kinds, and a politically powerful, publicly sponsored industrial sector has therefore grown up in Santo Domingo: first, under the dictatorship of Rafael Trujillo, who ruled the island nation from 1930 until his 1961 assassination; and, second, under the allegedly democratic reign of Trujillo's consigliere and successor, Joaquín Balaguer, who not only ruled the country in a highly personalistic manner from 1966 until 1978 but returned to power for ten more years beginning in 1986.⁷³

In the late 1960s and early 1970s, however, Balaguer inaugurated the gradual transformation of the Dominican Republic's trade and investment regime by authorizing the construction of three export processing zones (EPZs) in the secondary cities of La Romana, San Pedro, and Santiago.⁷⁴ While the EPZs offered manufacturers who agreed to export the entirety of their output a wide array of tax and tariff exemptions, and thereby rendered nontraditional export growth compatible with ISI in theory, they offered their tenants no alternative to the Dominican Republic's decidedly incomplete credit market, and thereby made NTX all but impossible in practice—at least for locally owned firms which lacked access to foreign sources of capital. Consequently, the country's traditionally import-competing manufacturers for the most part abandoned the zones to their foreign counterparts and continued to treat the domestic market as their natural hunting ground.

By the mid-1980s, however, the situation had changed markedly. The Dominican Republic had entered into a serious balance of payments crisis, and the government had therefore decided to use publicly financed credit to both *expand* and *domesticate* the EPZ sector. On one hand, developers who hoped to *build* and *administer* privately owned EPZs would be eligible for up to US\$5 million worth of credit at below-market rates. And, on the other hand, entrepreneurs and manufacturers who hoped to *invest* in the country's EPZs—whether publicly or privately owned—would be offered up to US\$500,000 at similarly subsidized rates.⁷⁵ The subsidies were not giveaways, however, for they included strict eligibility criteria including not only new fixed investments in the inherently export-oriented EPZs but also Dominican nationality, more than fifteen years of continuous residence in the Dominican Republic, or majority Dominican ownership (for corporations and partnerships).

The incentives were established and administered by the Central Bank of the Dominican Republic's Investment Fund for Economic Development (Fondo de Inversiones para el Desarrollo Económico, or FIDE). Unpublished FIDE data suggest that they were used to finance twelve new export processing zones, sev-

eral EPZ expansions, and eleven individual garment exporters. The former currently provide almost 40,000 jobs, approximately 25 percent of the EPZ sector's total. The latter have achieved varying levels of success in world textile and apparel markets. And even mainstream economists who are normally skeptical of "big government" and industrial policy therefore praise FIDE's promotional efforts.⁷⁶

Nevertheless, the government abolished FIDE and effectively abandoned the EPZs to the private capital markets in the mid-1990s. While nontraditional exporters are technically eligible for smaller loans made available by FIDE's institutional successors—the Central Bank's Department of Development and Project Finance (Departamento de Desarrollo y Financiamiento de Proyectos, or DEFINPRO) and more recently the National Bank for the Promotion of Housing and Production (Banco Nacional de Fomento de la Vivienda y la Producción, or BNV)—at higher interest rates, neither the volumes nor the rates are considered adequate by the NTX sector, and entrepreneurs and firms are therefore beginning to turn to private financial markets with increasing frequency.⁷⁷ Between 1996 and 2000, for instance, the commercial banking sector's share of all loans made in the Dominican Republic grew from 5.3 percent to 23.5 percent—the vast majority of which, according to economist Jaime Aristy, was directed toward the NTX sector.⁷⁸

Therefore, the Dominican Republic's credit incentive program contravenes the conventional wisdom in at least two ways. First, it actually generated an export supply response. And, second, it failed to entrench itself and generate a never-ending stream of rents. What, then, accounts for the program's abandonment? Interviews carried out in the Dominican Republic in 1998 and 2001 suggested an obvious answer: it was inordinately expensive and no longer necessary—at least not in the low value-added sectors that had not only come to dominate the country's export trade but had thereby gained access to private credit markets as well. While government officials would not reveal the actual quantities offered to the individual firms they had subsidized, the Dominican Republic's fifty-three EPZs currently play host to more than 500 firms—more than one-third of which are locally owned and most of which were established in the aftermath of the credit program's abandonment.⁷⁹ If the government had continued the program and supported all of the locally owned firms at US\$500,000 per establishment, the cost would have been prohibitive as well as concentrated, and the international reaction, as we shall soon see, would have been swift and sure.⁸⁰

The lesson of the Dominican experience is neither that the government always chose the ideal subsidy recipients nor that the subsidy program has been the principal source of growth in the EPZs. Open economy industrial policies have been far more successful in Chile than in the Dominican Republic.⁸¹ But the problem in the latter country is not—contra the conventional wisdom—the entrenchment of the subsidy regime and a failure to impose performance standards but the aban-

donment of the subsidy regime and the corresponding failure to draw capital into more risky and remunerative activities—that is, into potentially rewarding activities which are nonetheless frozen out of private credit markets. Economists and entrepreneurs are therefore beginning to call for a renewed public sector role in export finance in the Dominican Republic.⁸²

Brazil: Why the New International Rules of the Game Could Prove to Be a Mixed Blessing Rather than a Double-Edged Sword

If ISI is expected to call forth inefficient, rent-seeking firms, the open economy industrial policies we have described carry their own risks. According to their critics, for example, credit subsidies run the risk of either “propping up inefficient domestic companies” or “encouraging exports to countries/buyers which have no intention or ability to pay for them.”⁸³ We have advanced at least two distinct reasons to discount the aforementioned risks: first, the probability of infant exporter maturation; and, second, the inherent limits to public finance. However, Canada’s successful efforts to challenge Brazil’s aerospace financing arrangements in the WTO offer a third and no less important reason: the likelihood of foreign retaliation.

The Brazilian aircraft industry would appear to offer subsidy advocates a worst-case scenario. First, the Brazilian aircraft manufacturer, EMBRAER (Empresa Brasileira de Aeronautica), is a “national champion” in the classical sense of the term.⁸⁴ It was established by the armed forces to manufacture military aircraft in the late 1960s. It brought state, multinational, and local capital together in a “triple alliance” of the sort described by Peter Evans in the 1970s.⁸⁵ It entered the civilian aircraft market with a vengeance in the 1980s. It was sold to a powerful consortium of public and private interests led by one of Brazil’s major industrial and financial groups and backed by a number of politically influential pension funds in the 1990s. And it is currently responsible for more than 5 percent of the country’s export revenues.⁸⁶

Second, the Brazilian credit subsidy regime would appear to be responsible for EMBRAER’s successful penetration of foreign markets. In fact, José Cassiolato, Roberto Bernardes, and Helena Lastres have characterized the Brazilian government’s export financing arrangements as the “decisive factor” in American Eagles’s purchase of sixty-seven regional jets from EMBRAER—rather than from Canadian rival Bombardier—in 1997.⁸⁷ The multibillion dollar deal was not only the largest contract in EMBRAER’s history at the time but made an essential contribution to the troubled company’s successful effort to reinvent itself as a privately controlled supplier of high-quality civilian aircraft. “In addition,” according to Cassiolato, Bernardes, and Lastres, “it allowed the financial recovery of EMBRAER and ensured production of aircraft during the subsequent three years.”⁸⁸

In short, EMBRAER would appear to have been a prime candidate for “white elephant” status: a politically powerful firm that was all but dependent on government support in world markets. But the Canadians successfully challenged Brazil’s export financing arrangements at the WTO in the late 1990s, and the Brazilians were therefore forced to modify their subsidy regime accordingly. While the Canadians sued on behalf of Bombardier, EMBRAER’s principal rival in the regional aircraft market, their efforts did little to slow EMBRAER’s progress. On the one hand, the Brazilians brought their own suit against Canada and thereby forced the Canadians to abandon similar export financing arrangements. And, on the other hand, EMBRAER continued to grow. The company has recently surpassed Bombardier to capture the leading position in the world market for regional aircraft, and it is beginning to challenge Boeing and Airbus for the bottom end of the market for full-sized jet aircraft as well.⁸⁹

What conclusions might one draw from EMBRAER’s experience? On the one hand, it suggests that open economy industrial policies need not coddle—and may, in fact, energize—the often inefficient offspring of their closed economy predecessors. EMBRAER needed public support to break into world markets, but in the aftermath of the first WTO decision Bombardier officials admitted that the Brazilians would be worthy competitors on a level playing field.⁹⁰ They have since been proven correct. On the other hand, it suggests that public support is unlikely to be overprovided in the current international environment. After all, Brazil’s subsidy regime ultimately threatened to impose costs not only upon Brazilian taxpayers and government officials but upon exporters other than EMBRAER—for Canada does not import Brazilian aircraft, and the trade sanctions granted by the WTO would therefore have been imposed not upon EMBRAER but upon producers of steel, textiles, sugar, and coffee had the Brazilian government not agreed to a negotiated alternative.⁹¹ The fact that the Brazilians ultimately decided to modify—but not, it is worth noting, abandon—their export financing arrangements rather than endure serious trade sanctions suggests, therefore, that the WTO provides an additional check upon the rent-seeking proclivities of subsidized exporters.

A critic might ask whether the WTO would circumscribe the use of open economy industrial policies more generally—thereby rendering our own discussion anachronistic. Suffice it to say that the Brazilians have modified but by no means abandoned their export financing arrangements in recent years and that more than 300 different firms—which are collectively responsible for approximately 15 percent of the country’s exports—therefore receive public support.⁹² While EMBRAER is by far the most successful beneficiary of government largesse, and has therefore drawn the scorn of foreign governments, 90 percent of the beneficiaries are micro, small, and medium-sized producers of decidedly less conspicuous goods and services, and are therefore unlikely to attract similar attention until they too are able to stand on their own two feet. Thus, the third obstacle to capture, like

the first two, tends to work automatically: as recipients of government subsidies grow larger and more competitive, they tend to find that government support is both economically unnecessary and politically unsustainable. This is not, of course, a law but a tendency—and the degree to which it holds over time and space would appear to be worthy of further inquiry.⁹³

CONCLUSION

Orthodox analysts and their critics divide over the prospects for industrial policy in the open economy. While mainstream economists fear rent-seeking public and private interests, and therefore view industrial policy as irrational, their critics fear market failures and perverse equilibria, and therefore view industrial policy as indispensable. Who is correct? We have endeavored to resolve the debate by advancing three distinct but interrelated arguments. First, we have distinguished the open economy industrial policies that are currently gaining ground in Latin America and the Caribbean from either their closed economy predecessors or more traditional free market approaches to trade, investment, and development. Second, we have underscored the *potential* efficacy of the open economy industrial policies we have described by presenting prima facie evidence—i.e., systematic variation in export and nontraditional export performance—that the public officials who are in charge of distributing credit subsidies are in fact imposing performance standards upon their recipients. And, third, we have attributed the state's apparent willingness and ability to impose performance standards to (1) the likelihood of infant exporter maturation, (2) the costs of the subsidies themselves, and (3) the eventual reactions of foreign firms and governments.

The results of our admittedly preliminary analysis suggest not only that open economy industrial policies are functional—i.e., in the sense that they can generate a meaningful export supply response—but that they are ultimately less prone to rent-seeking and capture than their closed economy predecessors. The crux of the matter is straightforward: while ISI is cheap to defend and costly to abandon, and therefore tends to reproduce itself over time, export incentives are costly to defend and cheap to abandon, and therefore tend to be temporary. Neither strategy is painless or problem-free, in other words, but their respective problems are in many ways *sui generis*, and it would therefore be erroneous to expect export incentives to “provoke exactly the same negative result as that induced by the worst cases of ISI inefficiency.”⁹⁴

We would therefore counsel social scientists to abandon the hoary and overly simplistic “ISI versus *laissez-faire*” dichotomy which has governed the study of the developing world for more than a decade in favor of five new and largely unexplored questions: first, what are the relative costs and benefits of specific export incentives? Second, where can impoverished developing country governments find the resources they need to adopt and enforce the incentives in question? Third, do the incentives build upon or repudiate the legacy of ISI?⁹⁵ Fourth, do

export incentives improve the quality as well as the quantity of employment in the traditionally exploitative Latin American export sectors? And, finally, are the incentives subject to diminishing returns as they are adopted by more and more countries—as the statistical evidence on fiscal incentives would appear to imply—and, if so, can governments come up with novel alternatives which will allow their exporters (and perhaps even their workers) to stay ahead of the game? The answers are unlikely to come easily, but they will almost certainly be more useful than more inquiries into the costs, benefits, and sociopolitical underpinnings of ideal typical development strategies like ISI and laissez-faire which have increasingly been overtaken—and even buried—by events.

NOTES

1. John Sheehan, "Effects of Liberalization Programs on Poverty and Inequality: Chile, Mexico, and Peru," *Latin American Research Review* 32, no. 3 (1997): 10.

2. Carol Wise, "Latin American Trade Strategy at Century's End," *Business and Politics* 1, no. 2 (1999): 117-53.

3. Inter-American Development Bank (IADB), *Economic and Social Progress in Latin America. Competitiveness: The Business of Growth* (Washington, D.C.: IADB, 2001), ch. 17.

4. James Mittelman, *The Future of Globalization* (Kuala Lumpur, Malaysia: Penerbit Universiti, 1999), 13. See also John Ralston Saul, "The Collapse of Globalism," *Harper's* 308, no. 1846 (2004): 33-44.

5. Ronald Findlay, "Comments," in *Trade and Growth of the Advanced Developing Countries in the Pacific Basin*, ed. Wontack Hong and Lawrence Krause (Seoul: Korea Development Institute, 1981), 31. Latin American policy makers and intellectuals who support the competitive strategy include Brazil's Fernando Henrique Cardoso and Venezuela's Ricardo Hausmann. See, for example, Gay Seidman, "Former President of Brazil, Fernando Henrique Cardoso: A Most Public Sociologist," *Footnotes* 32, no. 3 (2004): <http://www2.asanet.org/footnotes/mar04/indexone.html> (accessed 9/23/05); and Bob Davis, "Seeking Latin American Growth—Some Economists Argue Government Policies May Be the Solution," *Wall Street Journal*, February 23, 2005.

6. "Wanted: A New Regional Agenda for Economic Growth," *Economist*, April 26, 2003.

7. Richard Ernsberger and Scott Johnson, "Darkest before the Dawn," *Newsweek*, November 10, 2003, 40.

8. Howard Pack, "Industrial Policy: Growth Elixir or Poison?" *World Bank Research Observer* 15, no. 1 (2000): 47. See also Joseph Ramos, "Industrial Policy and Competitiveness in Open Economies," in *Desarrollo Productivo*, no. 34 (Santiago: CEPAL, 1997); Bernardo Kosacoff and Adrián Ramos, "The Industrial Policy Debate," *CEPAL Review* 68 (1999): 35-60; and Alberto Melo, "Industrial Policy in Latin America and the Caribbean at the Turn of the Century," Research Department Working Paper 459 (Washington, D.C.: IADB, 2001).

9. See Melo, "Industrial Policy in Latin America," 14-15; as well as Colin Bradford and William Branson, "Patterns of Trade and Structural Change," in *Trade and Structural Change in Pacific Asia*, ed. C. Bradford and W. Branson (Chicago: University of Chicago Press, 1987), 21-22; and the United Nations Economic Commission on Latin America and the Caribbean, *Productive Development in Open Economies* (Santiago: CEPAL, 2004), ch.

5, on the distinction between fiscal and credit incentives. The term “open economy industrial policy” applies—but is not limited to—the specific measures under investigation. See, for example, Stephan Haggard’s discussion in “On Governing the Market,” *Issues & Studies* 40, no. 1 (2004): 23-24; as well as Anthony Venables, “Counsels of Imperfection,” *CEPR Bulletin* 12 (1985): <http://www.cepr.org/pubs/Bulletin1012/Venab.htm> (accessed 9/23/05).

10. See Stephen Johnson, “Is Neoliberalism Dead in Latin America?” Web Memo no. 332 (Washington, D.C.: Heritage Foundation, 2003), on the “constrained” Latin American context. We are by no means denying the potential for abuse or the need for government vigilance. In fact, Ben Ross Schneider has kindly drawn our attention to a well-known scandal involving fictitious exports (and corresponding subsidy payments) in Brazil. While Schneider agrees “that export incentives are generally easier to monitor than ISI subsidies,” he goes on to note that “rent seeking is possible under almost any subsidy regime” and that “state discipline is still necessary to police performance” (personal communication, February 4, 2005). We agree. Our claim is not that the performance standards imposed by export incentives are self-enforcing but that they are relatively easy to enforce and demand no more state capacity than the average Latin American or Caribbean government is able to muster.

11. Vivek Chibber’s recent book, *Locked in Place: State-Building and Late Industrialization in India* (Princeton, N.J.: Princeton University Press, 2003), is a rare exception to the rule. Although he uses different terminology, Chibber pays careful attention to the distinctive political logics of closed and open economy industrial policies.

12. The mainstream approach is hegemonic in North American economics departments and the IFIs. See, for example, Anne Krueger, “The Political Economy of the Rent-Seeking Society,” *American Economic Review* 64, no. 3 (1974): 291-303; Anne Krueger, “Asian Trade and Growth Lessons,” *American Economic Review* 80, no. 2 (1990): 108-12; Anne Krueger, “Government Failures in Development,” *Journal of Economic Perspectives* 4, no. 3 (1990): 9-23; Jagdish Bhagwati, “Rethinking Trade Strategy,” in *Development Strategies Reconsidered*, ed. J. Lewis and V. Kallab (New Brunswick, N.J.: Transaction Books, 1986); and Deepak Lal and Sarath Rajapatirana, “Foreign Trade Regimes and Economic Growth in Developing Countries,” *World Bank Research Observer* 2, no. 2 (1987): 189-215. The critical approach is more popular among dissident economists and radicals—many of whom operate outside of the confines of North American social science. See, for example, Ha-Joon Chang, *The Political Economy of Industrial Policy* (New York: St. Martin’s, 1984); Alice Amsden, *The Rise of “The Rest”: Challenges to the West from Late Industrializing Economies* (Oxford: Oxford University Press, 2001); and Robert Wade, *Governing the Market: Economic Theory and the Role of Government in East Asian Industrialization* rev. ed. (Princeton, N.J.: Princeton University Press, 2003).

13. See John Page, “The East Asian Miracle: An Introduction,” *World Development* 22, no. 4 (1994), 619; as well as the World Bank, *The East Asian Miracle: Economic Growth and Public Policy* (Washington, D.C.: World Bank, 1993).

14. According to Michael Porter, the higher-order comparative advantages include skilled labor, technology, and the ability to undertake design, innovation, and marketing; low wages, on the other hand, are the very archetype of a lower-order comparative advantage. See Porter, *The Competitive Advantage of Nations* (New York: Free Press, 1990); as well as the World Bank, *The East Asian Miracle*, 13, on the role “government-private sector cooperation” in fostering higher-order competitive advantages in Asia.

15. Page, “The East Asian Miracle,” 624.

16. Compare, for example, Kosacoff and Ramos, “The Industrial Policy Debate”; and Pack, “Industrial Policy.”

17. See, for example, Alberto Ades and Rafael Di Tella, "The New Economics of Corruption: a Survey and Some New Results," *Political Studies* 45 (1997): 496-515; Alberto Ades and Rafael Di Tella, "Rents, Competition, and Corruption," *American Economic Review* 89 (2000): 982-93; Marcus Noland and Howard Pack, "Industrial Policies and Growth: Lessons from International Experience" (paper presented at the Fifth Annual Conference of the Central Bank of Chile: Challenges of Economic Growth, November 29-30, 2001, Santiago); as well as Krueger, "The Political Economy of the Rent-Seeking Society"; Bhagwati, "Rethinking Trade Strategy"; and Pack, "Industrial Policy."

18. Richard Auty, "Industrial Policy Capture in Taiwan and South Korea," *Development Policy Review* 13 (1995): 214-15. See also Bhagwati, "Rethinking Trade Strategy," 101.

19. Dani Rodrik, "The 'Paradoxes' of the Successful State," *European Economic Review* 41 (1997): 412.

20. See Melo, "Industrial Policy in Latin America."

21. See Ramos, "Industrial Policy and Competitiveness," 34, for a slightly different representation.

22. Like open economy industrial policy, Leviathan is an empirical as well as a theoretical possibility. See, for example, the growing literature on the "incidental protection" offered by revenue tariffs in the Confederate States of America, including Richard Bensele, *Yankee Leviathan: The Origins of Central State Authority in America, 1859-1877* (New York: Cambridge University Press, 1990), 173-76; as well as Jay Carlander and John Majewski, "Imagining 'A Great Manufacturing Empire': Virginia and the Possibilities of a Confederate Tariff," *Civil War History* 49 (2003): 334-52.

23. Robert Wade, "Managing Trade: Taiwan and South Korea as Challenges to Economics and Political Science," *Comparative Politics* 25, no. 2 (1993): 158.

24. Amsden, *The Rise of "The Rest,"* 148-53.

25. G. K. Helleiner, "Introduction," in *Manufacturing for Export in the Developing World*, ed. G. K. Helleiner (London: Routledge, 1995); S. K. Clerides, Saul Lachs, and James Tybout, "Is Learning-by-Exporting Important? Micro-Dynamic Evidence from Colombia, Mexico, and Morocco," *Quarterly Journal of Economics* 113 (1998): 903-48; Howard Pack and Kamal Saggi, "Exporting, Externalities, and Technology Transfer," World Bank Country Economics Department Working Paper no. 2065 (Washington, D.C.: World Bank, 1999); and Carla Macario, "Introduction," in *Export Growth in Latin America: Policies and Performance*, ed. C. Macario (Boulder, Colo.: Lynne Rienner, 2000).

26. Sean Ó Riain, "The Flexible Developmental State: Globalization, Information Technology, and the 'Celtic Tiger,'" *Politics & Society* 28 (2000): 157-87.

27. Jean Grugel, "State and Business in Neo-Liberal Democracies in Latin America," *Global Society: Journal of Interdisciplinary International Relations* 12, no. 2 (1998): 229.

28. Gregory Noble, "Conspicuous Failures and Hidden Strengths of the ITRI Model: Taiwan's Technology Policy toward Hard Disk Drives and CD ROMs," UCSD/ISIC Research Report 2000-02 (San Diego: University of California, San Diego, 2000), 4.

29. Robert Wade, *Governing the Market*, xxii n. 19.

30. Daniel Kaufmann and Aart Kraay, "Growth without Governance," *Economia* 3 (2002), 172-73.

31. See Melo, "Industrial Policy in Latin America."

32. The tax rebates and holidays mean that exporters need not pass the costs of domestic taxes onto international customers. The drawbacks, duty exemptions, and temporary admissions schemes offer exporters access to foreign inputs at border prices. And the EPZs offer exporters who agree to locate in geographically circumscribed zones access to a wide array of tax and tariff holidays.

33. The Inter-American Development Bank forcefully states that “scarcity of credit is the principal problem faced by firms in Latin America. This is not surprising, given that the supply of private credit as a proportion of GDP is only a third that of the developed countries or Southeast Asia.” (IADB, *Economic and Social Progress in Latin America*, 3)

34. Melo, “Industrial Policy in Latin America,” 5.

35. See T. N. Srinivasan and Jagdish Bhagwati, “Outward Orientation and Development: Are Revisionists Right?” Economic Growth Center Discussion Paper no. 806 (New Haven, Conn.: Yale University, 1999), 35-36, for a discussion of endogeneity in cross-national growth models.

36. For example, most cross-country growth regressions include a control for the overall level of investment; however, aggregate investment—as distinct from the all-but-unmeasurable level of investment in export-oriented sectors—is not an obvious source of export growth.

37. The models are estimated using weighted least squares. We weight the observations by aggregate gross domestic product in 1995 to correct for heteroskedasticity and, in particular, to account for the fact that the volatility of export growth is in all likelihood proportional to the overall size of the economy. After all, the opening (or closure) of a single substantial firm can have dramatic effects on export growth rates in very small countries; in large countries, however, changes in export performance are likely to be much less sudden or dramatic. Regression coefficients are placed above their standard errors; diagnostic statistics are available from the authors upon request.

38. Note that prevalence need not imply unimportance—or that the removal of fiscal incentives would not have deleterious consequences for export performance. Unfortunately, however, we are unable to assess the full impact of fiscal incentives without data from an earlier period (i.e., before the fiscal incentives had been largely universalized) with which to run a parallel analysis.

39. Amsden, *The Rise of “The Rest,”* 148. Amsden notes that Korean exporters also received access to a protected local market.

40. Macario, “Introduction,” 16.

41. See David Hojman, “The Political Economy of Recent Conversions to Market Economics in Latin America,” *Journal of Latin American Studies* 26 (1994): 205; as well as Lal and Rajapatriana, “Foreign Trade Regimes and Economic Growth,” 208; Rodrik, “The ‘Paradoxes’ of the Successful State,” 427; and Pack, “Industrial Policy,” 64.

42. Amsden, *The Rise of “The Rest,”* 8.

43. Daniel Kaufmann, Aart Kraay, and Massimo Mastruzzi, *Governance Matters III: Governance Indicators for 1996-2002* (Washington, D.C.: World Bank, 2003).

44. The corruption control index is obtained from Kaufmann, Kraay, and Mastruzzi, *Governance Matters*, and values from 1996 or the next closest year in the data set are employed. The “corruption perceptions index” created by Transparency International yields broadly similar results but forces us to drop most of the English-speaking countries in the Caribbean due to lack of data. Neither index is ideal, of course, but their consistent results are at least suggestive.

45. The interaction hypothesis is also rejected by an alternative *F* test of model fit.

46. We classified all exports outside of the natural resource sectors (fuels, ores and minerals, or raw agricultural products) as “nontraditional.” While nonnatural resource exports are not necessarily coterminous with nontraditional exports, they are at least a reasonable proxy. Large-scale manufactured exports have only recently gained import in Latin America, natural resources dominated the region’s export profile in the colonial and the Caribbean; and immediate post-colonial eras.

47. Melo, "Industrial Policy in Latin America," 16. See also Sheehan, "Effects of Liberalization Programs," 10; and Chibber, *Locked in Place*, 35.

48. Models VII-IX were also re-estimated with Kaufmann, Kraay, and Mastruzzi's corruption control measure included as a control. The results were unaffected—credit subvention and the overall industrial policy index remain robustly related to nontraditional export performance.

49. See Albert Hirschman, "The Political Economy of Import-Substituting Industrialization in Latin America." *Quarterly Journal of Economics* 82 (1968): 2-32; Martin Bell, Bruce Ross-Larson, and Larry E. Westphal, "Assessing the Performance of Infant Industries," *Journal of Development Economics* 16 (1984): 101-68; as well as Krueger, "Political Economy of the Rent-Seeking Society"; and Krueger, "Government Failures in Development." The aforementioned authors—and the literature on rent-seeking under ISI more generally—tend to obscure the important difference between "working the system" and "corruption." See Chibber, *Locked in Place*, 190 for the distinction. We are less concerned with the precise nature of rent-seeking under ISI, however, than with the prospects for rent-seeking under open economy industrial policies.

50. Ramos, "Industrial Policy and Competitiveness," 35; and IADB, *Economic and Social Progress*, 3.

51. Chang, "Political Economy," 121.

52. Noland and Pack, "Industrial Policies and Growth," 46-47.

53. Alexander Hoffmaister, "The Cost of Export Subsidies: Evidence from Costa Rica," IMF Working Papers 91/94 (Washington, D.C.: IMF, 1991); and Manuel Agosin, Eduardo Gitli, and Lainer Vargas, *La promoción de exportaciones en Costa Rica: Diagnóstico y recomendaciones para la próxima etapa* (San José, Costa Rica: COMEX, 1996).

54. Mary Clark, "Nontraditional Export Promotion in Costa Rica: Sustaining Export-Led Growth" *Journal of Interamerican Studies and World Affairs* 37, no. 2 (1995): 196.

55. Ricardo Monge, "Costa Rica's Experience in the Area of Export Promotion" *Integration & Trade* 45 (1998): 147-77; as well as Clark, "Nontraditional Export Promotion."

56. Serge Kovaleski, "High Technology's Top Banana? Costa Rica Lures Intel, Other Industry Giants," *Washington Post*, March 11, 1998; as well as Clark, "Nontraditional Export Promotion."

57. Kovaleski, "High Technology's Top Banana."

58. Salvadoran officials have lowered the value of their nontraditional export subsidies by 25 percent. The Nicaraguans have abandoned their subsidies outright. See Manuel Agosin, David Bloom, and Eduardo Gitli, "Globalization, Liberalization and Sustainable Human Development: Progress and Challenges in Central American Countries," UNCTAD/UNDP Occasional Paper (Geneva: UNCTAD, 2000), 15-16, 24.

59. Bell, Ross-Larson, and Westphal, "Assessing the Performance."

60. Clark, "Nontraditional Export Promotion," 200.

61. See, for example, James Fox, "What Do Economists Know That Policymakers Need To?" *American Economic Review* 87, no. 2 (1997): 51, on the U.S. response to Costa Rica's subsidies.

62. For example, Mark Roberts and James Tybout find significant selection effects in the decision to export from Colombia. Exporters are larger, older, and organized better than their import-competing neighbors. See Roberts and Tybout, "An Empirical Model of Sunk Costs and the Decision to Export," World Bank Policy Research Working Paper 1436 (Washington, D.C.: World Bank, 1995). Schrank finds that the most competitive Dominican firms are owned and operated not by traditional import-competing industrialists but by former associates of foreign firms in the Dominican Republic's EPZs. See Andrew Schrank, "Entrepreneurship, Export Diversification, and Economic Reform: The Birth of

a 'Developmental Community' in the Dominican Republic," *Comparative Politics* 38(1) [forthcoming 2005].

63. See Chibber, *Locked in Place*, 37, for a broadly similar argument.

64. See Krueger, "Asian Trade and Growth Lessons," 108, on the Asian NICs; as well as Pedro de Motta Veiga, "Export Promotion Policies in Brazil: Background, Current Situation, and Main Trends," *Integration and Trade* 4/5 (1998), 90, on Brazil. Krueger attributes at least part of the "reason for the prevalence of tariffs relative to export subsidies" in the LDCs to "the fact that tariffs generate revenue, while export subsidies cost revenue." See Krueger, "Government Failures in Development," 21 n. 22.

65. Peter Evans, "Transferable Lessons? Re-examining the Institutional Pre-requisites of East Asian Economic Policies," *Journal of Development Studies* 34 (1998), 84 n. 15. Evans (83) holds that the new rules of international trade and investment "give would-be industrialising regimes some leverage in resisting capture. They can claim, for example, 'our hands are tied by international rules' when non-performing firms claim subsidies." See also Alice Amsden and Takashi Hikino, "The Bark Is Worse than the Bite: New WTO Law and Late Industrialization," *Annals of the American Academy of Political and Social Science* 570 (2000): 104-14, for a similar argument.

66. Indeed, Manuel Agosin and his colleagues hold that Nicaraguan authorities overreacted to a corruption scandal by abolishing an otherwise successful subsidy regime in the late 1990s. See Agosin, Bloom, and Gitli, "Globalization, Liberalization and Sustainable Human Development," 16.

67. Ben Ross Schneider underscores the media's disciplinary contribution in democratic Latin America (personal communication, February 4, 2005). See Rogério L. F. Werneck, "The Changing Role of the State in Brazil," *Quarterly Review of Economics and Finance* 36, no. 2 (1996): 153-65, for a Brazilian illustration.

68. See Sebastián Edwards and Alejandra Cox Edwards, *Monetarism and Liberalization: The Chilean Experiment* (Chicago: University of Chicago Press, 1991); and Felipe Larraín and Patricio Meller, "The Socialist-Populist Chilean Experience: 1970-73," in *The Macroeconomics of Populism in Latin America*, ed. Rudiger Dornbusch and Sebastián Edwards (Chicago: University of Chicago Press, 1991): 175-222.

69. Victor Tokman, "Global Monetarism and Destruction of Industry," *CEPAL Review* 23 (1984): 107-21; and Marcus Kurtz, "State Developmentalism without a Developmental State: The Public Foundations of the 'Free Market Miracle' in Chile," *Latin American Politics and Society* 43, no. 2 (2001): 1-25

70. Carla Macario, "Chile: In Search of a New Export Drive," in Macario, *Export Growth in Latin America*, 57. See also Kurtz, "State Developmentalism without a Developmental State." The law calls for a subsidy of 10, 5, or 3 percent of the f.o.b. value of exports, with the rate of subsidy declining to zero as the value of the exports approaches \$20.9 million. A number of Chilean economists have proposed the adoption of simplified drawback mechanisms elsewhere in Latin America. See, for example, Manuel Agosin, "Global Integration and Growth in Honduras and Nicaragua," United Nations University/WIDER Discussion Paper 2001/31 (Helsinki: UNU/WIDER: 2001), 22.

71. Others have noted the substantial role of the state in helping to engender export responses even in sectors characterized by static comparative advantages. See, for example, Rachel Schurman, "Chile's New Entrepreneurs and the 'Economic Miracle': The Invisible Hand or a Hand from the State?" *Studies in Comparative International Development* 31, no. 2 (1996): 83-109; and Rachel Schurman, "Snails, Southern Hake, and Sustainability: Neoliberalism and Natural Resource Exports in Chile" *World Development* 24, no. 1 (1996): 1695-709.

72. Banco Central de Chile, "Base de Datos Economicos," 2003, <http://si2.bcentral.cl/basededatoseconomicos/> (accessed December 30, 2003).

73. Frank Moya Pons, *Empresarios en Conflicto: Políticas de Industrialización y Sustitución de Importaciones en la República Dominicana* (Santo Domingo, Dominican Republic: Fondo para el Avance de las Ciencias Sociales, 1992); and Jonathan Hartlyn, *The Struggle for Democratic Politics in the Dominican Republic* (Chapel Hill: University of North Carolina Press, 1998).

74. Andrew Schrank, "Luring, Learning, and Lobbying: The Limits to Capital Mobility in the Dominican Republic," *Studies in Comparative International Development* 37, no. 4 (2003): 89-116.

75. See Fondo de Inversiones para el Desarrollo Económico (FIDE), *Sector Industrial* (Santo Domingo, Dominican Republic: Banco Central de la República Dominicana, n.d.); and Departamento de Financiamiento de Proyectos (DEFINPRO), *¿Que te ofrece el DEFINPRO?* (Santo Domingo, Dominican Republic: Banco Central de la República Dominicana, n.d.).

76. Jaime Aristy Escuder, "Lecciones económicas de Balaguer," *Listín Diario*, July 24, 2002.

77. One can track the decline in public export finance by examining the various resolutions of the Dominican Republic's monetary board (Junta Monetaria) in the mid-1990s. The NTX sector appears to have lost ground to other sectors—including the import-competing manufacturing sector—in relative as well as absolute terms. See, for example, Junta Monetaria, *Resoluciones JM*, no. 960125-05, January 25, 1996); and Junta Monetaria, *Resoluciones JM*, no. 960829-02, August 29, 1996.

78. Jaime Aristy Escuder, *Impacto de las exportaciones sobre el crecimiento: el caso de la República Dominicana* (Santo Domingo, Dominican Republic: Fundación Economía y Desarrollo, 2002), 11.

79. Schrank, "Entrepreneurship, Export Diversification, and Economic Reform."

80. In theory, the government could have taxed the newly established firms to generate revenue with which to keep the program running. However, the nontraditional exporters in the EPZs are also eligible for fiscal incentives and are therefore difficult to tax in practice.

81. Andrés Dauhajre, *El Programa: Programa Macroeconómico de Mediano Plazo para la República Dominicana: 1996-2000* (Santo Domingo, Dominican Republic: Fundación Economía y Desarrollo, 1996), 404-7.

82. Aleida Plasencia, "Sector exportador pierde competitividad," *Hoy*, September 28, 2004; Aleida Plasencia, "Explica causas de reducción cartera préstamos de banca," *Hoy*, January 15, 2005; Eduardo Tejera, *Una Economía en Transición: Política Monetaria, Fiscal y del Sector Externo para el 1996-2000; y Otros Temas Económicos* (Santo Domingo, Dominican Republic: Solar, 1996); and Eduardo Tejera, *Sugerencias sobre la reactivación económica* (Santo Domingo, Dominican Republic: Asociación Nacional de Jóvenes Empresarios, 2001).

83. Malcolm Stephens and Diana Smallridge, "A Study on the Activities of IFIs in the Area of Export Credit Insurance and Export Finance," INTAL-ITA-STD Occasional Paper 16 (Washington, D.C.: Inter-American Development Bank, 2002), 7-8.

84. Andrea Goldstein, "EMBRAER: de campeón nacional a jugador global," *Revista de la CEPAL* 77 (2002): 101-21.

85. See Goldstein, "EMBRAER," 105 as well as Peter Evans, *Dependent Development: The Alliance of Multinational, State, and Local Capital in Brazil* (Princeton, N.J.: Princeton University Press, 1979); and Andrea Goldstein and Ben Ross Schneider, "Big Business in Brazil: States and Markets in the Corporate Reorganisation of the 1990s," in *Brazil and*

South Korea: Economic Crisis and Restructuring, ed. Edmund Amann and Ha-Joon Chang (Washington, D.C.: Brookings Institution Press, 2004), 48-74.

86. José Cassiolato, Roberto Bernardes, and Helena Lastres, *Transfer of Technology for Successful Integration into the Global Economy: A Case Study of EMBRAER in Brazil* (New York: UNCTAD, 2002), 5; as well as Roberto Bernardes, "Passive Innovation System and Local Learning: A Case Study of Embraer in Brazil," in *Conferência Internacional sobre Sistemas de Inovação e Estratégias de Desenvolvimento para el Tercero e Milênio* (Rio de Janeiro: Globelics, 2003).

87. Cassiolato, Bernardes, and Lastres, *Transfer of Technology*, 53. See Regis Bonelli, "Brazil: The Challenge of Improving Export Performance," in Macario, *Export Growth in Latin America*, 73-114; and Motta Veiga, "Export Promotion Policies in Brazil," for detailed descriptions of Brazil's export financing arrangements.

88. Cassiolato, Bernardes, and Lastres, *Transfer of Technology*, 17.

89. Cassiolato, Bernardes, and Lastres, *Transfer of Technology*, esp. 18-19. Bombardier is still larger than EMBRAER overall due to advantages in other aircraft segments and extensive assets outside the aerospace industry. Overall, EMBRAER is the world's fourth largest civilian aircraft manufacturer behind Boeing, Airbus, and Bombardier. See Jonathan Doh, "The Bombardier-EMBRAER Dispute and Its Implications for Western Hemisphere Integration," *CSIS Policy Papers on the Americas* 14, no. 12 (2003): 1-18, for a comparison of the two firms; as well as Larry Rohter, "Brazil's Hot Commodity: Not Coffee or Soccer," *New York Times*, December 31, 2000; Jonathan Wheatley, "EMBRAER: The Sky's the Limit," *Business Week*, February 5, 2001; and Jonathan Wheatley, "EMBRAER Hits the Stratosphere," *Business Week*, April 19, 2004, on EMBRAER's origins and growth.

90. Rohter, "Brazil's Hot Commodity."

91. Rohter, "Brazil's Hot Commodity," and Wheatley, "EMBRAER: The Sky's the Limit." Ironically, Air Canada has recently moved toward the purchase of EMBRAER aircraft thanks in part to the Brazilian government's export financing arrangements. Bombardier is not allowed to offer similar financing since sales to Air Canada would not constitute exports. See "Bombardier Boss Blasts Critics," *Financial Times*, September 16, 2003.

92. See "Small Company Participation Increases in Proex", *Gazeta Mercantil Online*, January 19, 2004; as well as Donald Hay, "Industrial Policy in Brazil: A Framework," Texto Para Discussão no. 551 (Rio De Janeiro: Instituto de Pesquisa Econômica Aplicada, 1998); and World Bank, *Brazil: Trade Policies to Improve Efficiency, Increase Growth, and Reduce Poverty* (Washington, D.C.: World Bank/Brazil Country Management Unit, 2004).

93. For example, Amsden and Hikino (in "The Bark Is Worse than the Bite") offer a number of reasons to believe that a wide array of industrial policies are broadly compatible with the strictures of the WTO. However, Ken Shadlen notes that many regional and bilateral market harmonization agreements are decidedly more restrictive than the WTO and constitute genuine threats to open as well as closed economy industrial policies. See Shadlen, "Exchanging Development for Market Access? Deep Integration and Industrial Policy under Multilateral and Regional-Bilateral Trade Agreements," *Review of International Political Economy* 12(5): [forthcoming 2005].

94. David Hojman, "The Political Economy of Recent Conversions to Market Economies in Latin America," *Journal of Latin American Studies* 26 (1994), 205. See also Paul Streeten, "A Cool Look at 'Outward-Looking' Strategies for Development," *World Development* 5, no. 1 (1982): 163.

95. Our own case materials suggest that the answer is at least in part circumscribed by the size of the domestic market. While EMBRAER is an unambiguous product of ISI, for example, the Dominican Republic's most competitive exporters are parvenu entrepreneurs

who learned their trades from their former employers and partners in EPZs. Chile features examples of both infant industries that have matured under open economy industrial policies and younger exporters who were “born global.”

Andrew Schrank is an assistant professor of sociology at the University of New Mexico. He works on the political economy of export diversification, the social origins of entrepreneurship, and the prospects for labor market regulation in the developing world. He has published articles in a number of journals, including Theory and Society, Studies in Comparative International Development, Social Forces, and International Studies Quarterly, and he is currently completing a book manuscript on the political economy of Third World export platforms.

*Marcus Kurtz is an assistant professor of political science at the Ohio State University. He works on democratization, state building, and the political economy of development in Latin America. His publications have appeared in World Politics, Comparative Politics, Comparative Political Studies, International Studies Quarterly, Politics & Society, Comparative Studies in Society and History, and Theory and Society. And his most recent book, *Free Market Democracy and the Chilean and Mexican Countryside*, is available from Cambridge University Press.*