

THE POLITICAL ECONOMY OF U.S.
FOREIGN DIRECT INVESTMENT
IN LATIN AMERICA:
A Reappraisal

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Abstract: This study examines the political and economic determinants of U.S. foreign direct investment (FDI) in Latin America. The analysis focuses on fifteen Latin American and Caribbean countries for the period of 1979 to 1996. Market size, workers' skill levels, and political instability are found to have a statistically significant effect on the investment behavior of U.S. multinational firms. In addition, we find that a poor human rights record and military coups d'etat positively influenced U.S. FDI flows during the time series.

The flow of foreign direct investment (FDI) to Latin America and the Caribbean has grown significantly in recent years. While European and Japanese firms increased direct investment in some Latin American countries during the 1990s, U.S. multinational firms have led the recent investment wave throughout the region. Indeed, between 1980 and 1998, U.S. firms accounted for the vast majority of FDI in Latin America (Economic Commission for Latin America and the Caribbean [ECLAC] 1998, 199-210; Bureau of Economic Analysis [BEA] 1998).¹ In comparative terms, Latin America now receives more U.S. FDI than any other developing region, including Asia (BEA 2000, 2002).

Growth in U.S. FDI has important implications for the performance of Latin America's new democracies. Since 1982 governments in the region have lifted controls on FDI, reduced or eliminated trade barriers, and privatized state-owned enterprises, while simultaneously scaling

1. For an excellent overview of the history of FDI, trade, and economic policy in Latin America during previous periods, see the essays by Bulmer-Thomas (1998), and French-Davis and Muñoz (1998).

back on the level of public investment (Behrman 1995; Pastor and Wise 1997). Reflecting the shift toward market-oriented reform, states have increasingly relied upon private direct investment as a substitute for public finance in order to generate economic dynamism and employment (Inter-American Development Bank [IDB] 1997; ECLAC 1998). Given the increasing structural dependence of Latin American economies upon FDI, the investment decisions of multinational firms have a potentially important impact on domestic economic and political performance (De Soysa and Oneal, 1999). The failure of a state to secure inflows of FDI may reduce economic growth and employment and generate problems for political incumbents.² In this context, policy makers have sought to understand the bases of corporate investment decisions.

An analysis of U.S. FDI also contributes to an understanding of the controversy surrounding international influences on domestic policy formulation in Latin America. For many years now, the International Monetary Fund (IMF), the World Bank, and other international economic institutions have advised policy makers in the region to implement market liberalization in order to induce FDI. The conventional wisdom offered by these international institutions has remained the subject of intense debate, however (ECLAC 1998). There is broad consensus that neoliberal reform has generated social costs and political conflict,³ but analysts remain divided about whether liberalization has had a positive effect on FDI. For this reason, social scientists and public policy makers have remained interested in understanding the effects—if any—of structural reforms on FDI.

Recent scholarship recognizes the significance of direct investment, yet the determinants of the cross-national pattern of FDI in Latin America remain obscure. Most studies of U.S. FDI, in particular, suffer from two deficiencies. First, although a number of competing hypotheses have been proposed in the literature, the explanatory strength of these theories has not been examined systematically. Moreover, the few studies that employ rigorous methods have focused narrowly on economic variables, largely ignoring the potential effects of political factors (e.g., IDB 1993; Eaton and Tamura 1994).⁴ Indeed, although a

2. The existing fragmentary evidence suggests that political support for incumbents and neoliberal policies are influenced by voters' retrospective judgments about the state of the economy. For a discussion and analysis, see Kaufman and Zuckerman (1998).

3. Virtually all analysts agree that trade liberalization and other structural reforms have entailed unemployment and negative effects on income in the short run (for a review of the literature on Latin America, see Tuman, 2000). The larger political question is whether FDI and growth in the future are sufficient to compensate for the sacrifices that workers must accept under reform in the present.

4. Edwards' (1990) study included a composite measure of political instability but did not distinguish between the effects of different types of political variables, including revolution, human rights violations, and coups.

number of countries have experienced political instability, regime changes, and economic reforms, the effects of these variables on U.S. FDI have not been examined.

In this article, we attempt to develop a better understanding of the political and economic determinants of U.S. FDI in Latin America.⁵ Focusing on the period of 1979 to 1996, we test a number of competing hypotheses derived from the “eclectic” theory of FDI and other radical political economy approaches. In particular we analyze the possible effects of market size, free trade areas, workers’ skills, production costs, economic reform, political risk, and human rights on flows of FDI.

The findings of this study make two contributions to the literature. First, the empirical results challenge several commonly held assumptions about the effects of regional trade areas and human capital on inflows of FDI. Indeed, we find that regional free trade areas had no effect on FDI, although recipient countries that exhibited a more favorable performance in secondary education received more FDI. Second, the results contribute to the debate concerning human rights, authoritarian rule, and U.S. FDI (e.g., Oneal 1994; Spar 1999). After controlling for the effects of macroeconomic and political variables, we find that a poor human rights record and military coups have had a positive and statistically significant effect on direct investment in Latin America.

THEORETICAL APPROACH

The OLI Model and Eclectic Theory

In the literature of international political economy and management, the OLI model,⁶ or “eclectic” theory is the most prominent approach used to study FDI. Many studies draw on the OLI model to explain the cross-national pattern of FDI (Dunning 1980, 1988, 1995; see also Graham 1994). The first step in the theory is to explain why firms choose FDI as opposed to remaining in the home market or licensing a foreign company to produce. A firm that possesses an intangible asset (e.g., proprietary technology) enjoys a potential ownership advantage over other

5. We chose to focus on Latin America for the following reasons. Comparatively, Latin America has experienced more regime changes, political instability, and continuous economic reforms than nearly every other developing region in the world (IDB 1997). At the same time, regional integration has spurred more trade throughout Latin America. As a result, the region offers researchers a unique opportunity to investigate the effects—if any—of changing political conditions and increased trade on FDI flows for the period in question.

6. OLI refers to ownership advantages (“O”), location advantages (“L”), and internalization (“I”). The theory is often called “eclectic” because it blends together elements from the neoclassical theory of the firm and other behavioral approaches. For a critical appraisal of the OLI model, see Graham (1994).

companies operating in foreign markets. Under these conditions, the firm may consider maximizing the benefits of its ownership advantages by licensing a foreign company to produce its goods or services. Nevertheless, if there are high transaction costs associated with negotiation, monitoring, and enforcement of contracts with foreign companies, then the firm can be expected to choose FDI with its own multinational subsidiary as a superior alternative to licensing (Caves 1982; Dunning 1995).

The choice of the firm to engage in FDI occurs logically and empirically prior to the decision about where to locate (Graham 1994). The next step in the model, then, is to account for the variables that lead the firm to select a particular country for direct investment. This is a function of location-specific conditions in the recipient country. In what follows, we briefly discuss economic and political variables that are thought to influence location decisions.⁷

Location-Specific Variables: Economic Variants of the OLI Model The first economic variant of the OLI model, which may be termed “market potential,” hypothesizes that multinational firms seek markets with strong potential for growth (Frey 1984; Eaton and Tamura 1994). Countries with high real gross domestic product (GDP) per capita and growth in real GDP per capita should generate higher sales and profits for the multinational firm, making the recipient’s market attractive for FDI. Therefore, one might expect U.S. FDI to flow into countries that exhibit higher levels of per capita income and growth in real GDP per capita (Frey 1984, 80–1; IDB 1993, 43; Eaton and Tamura 1994, 9; Asiedu 2002). At the same time, because strongly inflationary economies tend to diminish sales, all things being equal, the market-oriented firm can be expected to avoid recipients beset by high inflation (Asiedu 2002).

Firms seeking large markets may also be attracted to a country when it participates in a regional free trade area or customs union, including, for example, the Andean Pact, the North American Free Trade Agreement (NAFTA), the Mercado Común del Sur (Southern Common Market, MERCOSUR), the Central American Common Market (CACM), or the Caribbean Common Market (CARICOM). These agreements permit multinational companies to gain access to a potentially large market of the trading partners of the recipient country and avoid costly tariffs, quantitative restrictions on imports, and domestic content rules. Under the rules governing most common market agreements, however, firms must produce in one of the member countries of the trade area in order

7. We present the main political and economic approaches associated with the eclectic model. For a discussion, see the review of literature in Eaton and Tamura (1994), Chakrabarti (2001), and Asiedu (2002).

to enjoy the benefits of preferential market access. Thus, regional trade agreements could be expected to spur FDI, both for the firm oriented to domestic markets and for export-oriented firms. Some studies suggest that multinational firms have invested in Colombia and Venezuela in order to gain access to other Andean Pact members (Shatz 2001). FDI in Brazil is also said to be oriented toward export production to other MERCOSUR partners (ECLAC 1998; Tuman and Morris 1998). Within the NAFTA market, U.S. firms and other multinationals might seek to reap the benefits of reduced tariffs by producing in, and exporting from, Mexico (Mortimore 1998).

Even when recipient countries are not part of free trade areas, openness to trade might be an important precursor to FDI (Edwards 1990). This is particularly important for companies that seek to shift labor-intensive assembly to their foreign subsidiaries, and then export finished products back to the parent firm. To establish export bases in recipient countries, subsidiaries must be able to import inputs and capital goods from the home market of the parent firm with a minimum of tariff cost. Overall, then, FDI might be a function of openness to foreign trade.⁸

Some economic variants of the OLI model also claim that firms seeking to use recipients as a base for exports will be influenced by the characteristics of the workforce (Shaiken 1990; Eaton and Tamura 1994). The greater skill levels of the workforce, the more likely that exports from the recipient country will be competitive in foreign markets, including the United States. Thus, particularly for firms that seek to use FDI to establish export operations in the recipient country, skill levels should have a positive effect on FDI.

Finally, some studies associated with the OLI model hypothesize that production costs in the recipient country may determine inflows of FDI. Production costs are influenced by many factors, but multinational firms pay attention to the real exchange rate as an indicator of production costs abroad (Goldberg and Klein 1998). The real appreciation of the currency in the home market of the firm cheapens the initial cost of FDI in the recipient country, lowers the wage bill, and makes exports from the recipient more competitive. One might therefore expect the real appreciation of the U.S. dollar to be associated with higher levels of U.S. FDI in that country.

8. The effects of openness and formation of regional trade associations are not identical. Trade liberalization may reduce tariffs between the recipient and the United States, but not reduce tariffs between the recipient and other countries in Latin America. For the market-oriented firm that seeks to "jump tariffs," regional trade areas are a strong inducement. This is less important, however, for firms that use FDI to create export operations and therefore place a premium on openness.

Location-Specific Variables: Political Variants of the OLI Model Political variants of the OLI model emphasize the importance of the recipient country's domestic political environment (Haggard 1988). Some political risk models claim that firms avoid countries racked by political instability (Howell and Chadwick 1994). Although aggregate measures of instability are often employed in the literature (e.g., Edwards 1990), some researchers have taken a more refined approach by examining the relationships between specific forms of political instability and FDI. For example, the emergence of revolutionary movements may threaten the security of multinational firms, particularly if left-wing movements attack foreign interests. Companies can therefore be expected to avoid investing in countries that are experiencing revolutionary movements (Thunell 1977; Frey 1984; Asiedu 2002, 111). Similarly, anti-government riots that result in large-scale property damage, deaths, or mass arrests may be interpreted by corporate decision makers as an indication of broader political instability (Tuman and Emmert 1999). Riots can therefore be expected to discourage FDI.

Class Analytical Theories

Unlike the OLI model, class analytical theories claim that FDI decisions should be viewed within the wider context of class conflict under global capitalism. This literature argues that developing countries became increasingly dependent upon foreign capital to finance economic development in the 1960s and 1970s. Multinational firms—who possessed capital badly needed by developing countries—demanded above-average profits and secure property rights before they would commit FDI to developing countries. As one step in meeting the demands made by multinational firms, political regimes in developing areas resorted to authoritarianism and the repression of labor and working-class demands for higher wages and the redistribution of income (O'Donnell 1979; see also Oneal 1994).⁹

Class theorists argue that recent regime transitions in Latin America have done little to change the relationship between human rights and FDI. According to this perspective, despite the growth of “electoralism”—i.e., the practice of administering free and fair elections—states continue to repress labor and working-class movements in order to safeguard the investment climate (see Spar 1999).¹⁰ U.S. multinational firms, in

9. Thus, although political variants of the OLI model posit that firms avoid political risk, class analytical theories argue that multinational firms invest in more repressive countries. We elaborate on this point in the conclusion.

10. Spar (1999) is critical of this approach, but does a good job of reviewing the literature.

particular, are said to invest in repressive countries because property rights and high profits are relatively more secure.¹¹ To this extent, class analytical theories expect U.S. FDI to concentrate in regimes that are more authoritarian, that have a poor human rights record, or in countries where the military has taken control via coups d'état.

DATA, VARIABLES, AND METHODS

To test competing hypotheses derived from the OLI model and class analytical approaches, we developed a multivariate model. The variables in the model allow us to analyze the effects of market potential, free trade areas, workers' skills, production costs, economic reform, political risk, and human rights.

The dependent variable for the study is net U.S. FDI in millions of U.S. dollars between 1979 and 1996.¹² We have normalized the dependent variable by using the ratio of net FDI to GDP in each recipient country for each year (see table 1).¹³ This controls for the tendency of U.S. FDI flows to concentrate in larger economies. The analysis includes fifteen Latin American and Caribbean countries for which complete data are available: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, Guatemala, Honduras, Jamaica, Mexico, Paraguay, Peru, and Venezuela.

The data for the dependent variable were obtained from the Bureau of Economic Affairs, U.S. Department of Commerce (BEA 1999). Used widely in the literature, the BEA data offer a reliable estimate of net U.S. FDI.¹⁴ The BEA employs a standardized measure of FDI from U.S. firms to recipient countries in Latin America. By contrast, data from official sources in Latin America are often difficult to compare because of differences in the way FDI is measured by each government (IDB 1993, 2; ECLAC 1998). In addition, the BEA data set offers a complete time series on net U.S. FDI in Latin America for the period in question.

11. Oneal and Oneal (1988) tested this claim previously and did not find that the profits of multinational corporations were above average in developing countries.

12. Although it would have been useful to extend the temporal scope of the study, we were unable to do so because of missing data for several of the independent variables.

13. The measure used is: $100 * (\text{Net U.S. FDI} / \text{Recipient GDP})$. This technique was suggested to us by an anonymous reviewer; it is also the preferred technique used in several econometric studies of FDI (see the discussion in Asiedu, 2002).

14. Similarly with all data sources on FDI, the BEA data set may overstate the amount of true direct investment because it includes data on offshore centers in the Caribbean and Latin America (ECLAC, 1998). To address this problem, we have followed the advice given by other researchers (e.g., IDB, 1993) and excluded countries known to be offshore centers for portfolio investment.

Table 1 *Net U.S. FDI/GDP, 1979–96*

<i>Country</i>	<i>Net U.S. FDI/GDP</i>
Argentina	.28
Bolivia	.68
Brazil	.44
Chile	.92
Colombia	.06
Costa Rica	.45
Dominican Republic	.44
Ecuador	.30
Guatemala	.07
Honduras	.30
Jamaica	1.61
Mexico	.45
Paraguay	.03
Peru	.20
Venezuela	.50

Source: Calculated from BEA (1999, 2001).

The first group of variables in the model is used to test hypotheses derived from economic variants of the OLI model. Designed to measure the size of the potential market, we use real GDP per capita (in constant 1987 dollars) and growth in real GDP per capita in each recipient, both lagged¹⁵ by one year. The data source for these variables is the World Bank (1994, 1998). As an additional measure of market potential, we employ the annual change in consumer prices in each recipient, with a one-year lag. Because some countries experienced hyperinflation during the time series, the inflation data are logged to limit the effects of extreme values. The inflation data were collected from the IMF (1998).

Next, we employ two variables to tap the effects of trade. First, we include a dummy variable for regional free trade and customs areas (e.g., Andean Pact, CACM, CARICOM, NAFTA, and MERCOSUR). This variable is coded 1 during all years Andean Pact, CACM, CARICOM, NAFTA, and MERCOSUR were in force, 0 for years prior to free trade among the member countries, and 0 for all years in non-member countries. The sources for the regional trade variables are MERCOSUR Investment (1999), the U.S. International Trade Commission (1997), and the Inter-American Development Bank (2003). Second, to examine the effects of openness to trade, we use the ratio of trade (imports + exports, in millions of U.S. dollars) with the recipient to recipient GDP, also with a one-year lag. This has been used as a proxy measure for openness in

15. The theoretical and case-study literature on FDI suggests that there is a small lag between changes in the recipient country and the reaction of corporate decision makers.

numerous studies (e.g., Edwards 1990; Chakrabarti 2001; Asiedu 2002). The source for openness is the IMF (various years).

In addition, for workers' skill levels, we use school enrollment data (i.e., the proportion of the school-aged population enrolled in secondary school); this measure is used in other studies (Frey 1984).¹⁶ Because of the paucity of data on real wages for many countries in this study, in order to measure production costs in the recipient, we employ the U.S. dollar/recipient country real exchange rate, given in the previous year (see Chakrabarti 2001). To avoid distortion of the analysis from extreme values, the real exchange rate data are logged. The sources for the real exchange rate and education data are the World Bank (1994, 1998), the IMF (various years), and Baxter (1999).

The second group of variables in the model is used to test hypotheses associated with political variants of the OLI model. To examine the effects of political instability in recipient countries, we use annual civilian and combatant deaths caused by revolutionary movements, and the number of annual anti-government riots, both lagged one year.¹⁷ The source for the revolution deaths and riots is Clodfelter (1992), Stockholm International Peace Research Institute (various years), and the News Database (*New York Times*, *Los Angeles Times*, *Washington Post*, *Wall Street Journal*, and *Christian Science Monitor*, various years).

We use two variables to test the class analytical hypothesis regarding military action and human rights. The first is the annual number of successful or attempted coups d'état in each case, lagged by one year. The data were obtained from the News Database (various years). For human rights, we employ the annual average rating of political rights and

16. Data were missing in 15 percent of the observations for gross enrollment ratios. In most countries, the gaps involved only one to two years. For years in which data are unavailable, we used the figure from the preceding available year. Because the available data show a small, incremental change in enrollment rates from year to year, it is unlikely that we missed a year where enrollment rates varied significantly from the preceding year.

17. The revolutionary movements include Fuerzas Armadas Revolucionarias de Colombia (FARC), Ejército de Liberación Nacional (National Liberation Army), M-19 (the April 19 Movement), and Ejército Popular de Liberación (Popular Liberation Army) in Colombia; Sendero Luminoso (Shining Path) and Tupac Amaru (Tupac Amaru Revolutionary Movement) in Peru; the Organización del Pueblo en Armas (Armed People's Organization), Ejército Guerrillero de los Pobres (Guerilla Army of the Poor), and the Unidad Revolucionaria Nacional Guatemalteca (Guatemalan National Revolutionary Unit) in Guatemala; Frente Morazanista para la Liberación de Honduras (Morazanist Front for the Liberation of Honduras), Fuerzas Populares Revolucionarias Lorenzo Zelaya (Lorenzo Zelaya Popular Revolutionary Forces), and the Movimiento Popular de Liberación Cinchoneros (Cinchoneros Popular Liberation Movement) in Honduras, and the Ejército Zapatista de Liberación Nacional (Zapatista National Liberation Army) in Mexico. Political violence committed in Chile 1986 (at El Melocotón) by the Frente Patriótica Manuel Rodríguez (Manuel Rodríguez Patriotic Front) is also included.

civil liberties given by Freedom House for each recipient country, with a one-year lag (Freedom House 1999).¹⁸ Freedom House uses a one-to-seven scale to rank political rights and civil liberties, with higher scores indicating a worse record.

Finally, we employ one control variable, net U.S. FDI in the previous year, to account for the possibility that outlays of FDI in each country are consistent over time.

ANALYSIS

The results of the statistical analysis are presented in table 2.¹⁹ As one can see from the data, the model explains 34 percent of the variation in U.S. FDI (Adjusted $R^2 = .34$) during the time series.²⁰ The coefficient for the control variable net U.S. FDI in the previous year is positive and significant. This suggests that outlays of FDI in recipient countries were consistent from year to year. Beyond the lagged dependent variable, the model provides empirical support for some aspects of the OLI model and for class analytical theory. In what follows, we briefly elaborate upon the significance of these findings.

Economic Variables Associated with the OLI Model

The model lends partial support to the claim that the market potential is a determinant of FDI. The coefficient for annual change in real GDP per capita is positive and statistically significant, which suggests

18. Previous studies (e.g., Oneal, 1994) have used the Polity data set (Marshall and Jaggers 2000) to examine the relationship between regime type and FDI. We believe that the Freedom House data set is more appropriate for this study because it includes varied measures of associational freedom, labor rights (including the freedom to form unions and to engage in collective bargaining), and other key political freedoms. The Polity data, by contrast, focus more on the degree of political competitiveness in the regime of the recipient country.

19. For a discussion of the results of various diagnostic tests (e.g., tests for autocorrelation, heteroscedasticity, contemporaneous correlation, unit effects, multicollinearity, endogeneity), and techniques used to estimate the model, see the appendix.

20. To check the robustness of the results reported in the full model in table 2, we estimated reduced models with only the economic and the political variables associated with the eclectic and class analytical perspectives. For the eclectic theory, the results of the models with political and economic determinants estimated separately were completely consistent with the results of the full model reported in table 2. For class analytical theory, the coefficients for military coups and human rights abuse remained statistically significant in a reduced model where the effects of market size, trade, and the real exchange rate were controlled for. This finding is consistent with class analytical theory, since virtually all class theorists recognize that, in addition to the protection of property rights, low labor costs (made possible by a weak real exchange rate), trade, and large markets permit the multinational firm to maximize profit and must be taken into consideration as explanations of FDI.

Table 2 *Determinants of U.S. FDI in Latin America and the Caribbean, 1979–96*

<i>Independent Variables</i>	<i>Regression Coefficient</i>	<i>z-score</i>
<i>OLI Model: Economic Variables</i>		
Real GDP per capita _(t-1)	.0006	.78
Annual Change in Real GDP per capita _(t-1)	.03**	2.17
Regional Trade Associations	.16	1.15
Inflation (logged) _(t-1)	.07	1.54
Trade/GDP _(t-1)	.02**	2.17
Secondary School Enrollment _(t-1)	.01**	2.50
Real Exchange Rate (logged) _(t-1)	.004	.24
<i>OLI Model: Political Variables</i>		
Revolution Deaths _(t-1)	-.02**	-2.57
Riots _(t-1)	-.29*	-1.75
<i>Class Analytical Theory</i>		
Human Rights Abuses _(t-1)	.09 ^a	1.93
Coups d'etat _(t-1)	.31**	1.96
<i>Control Variables</i>		
U.S. FDI/GDP _(t-1)	.50***	4.49
Intercept	-1.24***	-2.93
Adjusted R ²	.34	
Wald Chi-square (<i>df</i> = 11)	86.50***	

NOTE: Entries are OLS regression coefficients; z-values calculated using panel corrected standard errors. *N* = 270.

^a *p* < .053

p* < .10; *p* < .05; ****p* < .01 (two-tailed test).

that U.S. multinational firms tended to favor Latin American countries with higher growth in consumer purchasing power. The coefficient for real GDP per capita is also positive but its effects are small and insignificant; inflation displays an unexpected positive sign and fails to achieve statistical significance.²¹ Taken together, these results indicate that U.S. firms pay closer attention to wealth than to price volatility as indicators of market potential.

Although our results suggest that U.S. companies are partially market-oriented, we do not find that firms are induced to invest in

21. In separate trials, we also estimated the model with "volatility" variables for growth and inflation, measured by the normalized standard deviation of real GDP per capita and inflation. The coefficients for the normalized standard deviation of growth and inflation were small, negative, and not statistically significant.

recipients when they join regional free trade or customs areas such as the Andean Pact, CACM, CARICOM, NAFTA, or MERCOSUR. The coefficient for regional trade associations fails to achieve statistical significance. In explaining this outcome, it should be recalled that we employ a normalized dependent variable (the ratio of net FDI to GDP) that controls for differences in economic size among the countries in the sample. This is important since some members of free trade areas have very large economies (e.g., Mexico, Brazil), and other non-members have much smaller economies. We find that after the control for economic size is introduced into the statistical analysis, free trade and customs areas had no significant effect on FDI, on average, during the study period.

Beyond market potential and regional trade associations, the model provides some empirical support for the effects of recipient openness to trade. The coefficient for openness is positive and statistically significant. Openness is important to firms that seek to use the recipient country as a base for intra-regional production and trade with the United States. Indeed, as many case studies have noted, once U.S. subsidiaries are established in the recipient country, they frequently import components from the U.S. parent corporation, engage in final assembly in the recipient, and then export the finished product back to the U.S. market (Shaiken 1990; Tuman and Morris 1998). Openness tends to facilitate this type of intra-regional investment, production, and trade.

The effects of the education variable in the model are consistent with the supposition that U.S. FDI concentrates in countries that are well suited for intra-regional production and trade with the United States. As one can see from the data in table 2, the coefficient for secondary school enrollment is positive and statistically significant. Countries that exhibited higher enrollment ratios were rewarded, on average, with more U.S. direct investment. Education is strongly related to the overall skill levels and productivity of the workforce in Latin America (Behrman 1995, 11–18) and, particularly among multinational firms producing for export to the United States, the pressure to maintain high levels of productivity is quite strong. In this context, firms take education into consideration when deciding where to locate (Shaiken 1990).²² By contrast, the costs of production, as measured by movements in the real exchange rate, did not have a significant impact on the variation in FDI during the study period.

22. Although firms using sophisticated production technology (in automobiles and electronics) might seek more skilled workers, it is also possible that firms employing less sophisticated technology in other sectors might simply seek to employ workers with basic primary education. To examine this hypothesis, we estimated a separate model with the gross enrollment ratio for primary education in each recipient for each year. The coefficient for this variable failed to obtain statistical significance.

Political Variables Associated with the OLI Model

The results in table 2 also illustrate that the domestic political environment is an important determinant of U.S. FDI in Latin America. The coefficient for revolution deaths is negative and achieves statistical significance. In countries where revolutionary movements generated high numbers of deaths and casualties, including Guatemala, Peru, and Colombia, U.S. disinvestment grew in years when political violence was on the increase. This suggests that, above all other considerations, U.S. firms take the security of their property rights very seriously. The model shows a similar effect for riots. The coefficient for anti-governmental riots is negative and statistically significant. Countries that were racked by instability stemming from anti-governmental violence received less U.S. FDI, on average, between 1979 and 1996.

Class Analytical Theories

As noted, class analytical theorists suggest that multinational firms not only avoid political instability, but that they also actively seek out political regimes in developing areas that restrict unions, human rights, and sociopolitical freedoms. Firms do this, according to the theory, because more authoritarian regimes protect property rights against the threats posed by labor unions and the working class. The results of this study lend support to this claim. It should be recalled here that in the Freedom House data set, which is used to measure human rights abuses, a higher value indicates more abuse of political rights and civil liberties. The coefficient for the human rights abuse variable is positive and statistically significant. After controlling for the effects of the other economic and political variables,²³ countries with worse rights records—including Argentina, Brazil, Chile, and Mexico—received more U.S. FDI during the study period than other countries.

The results for the military coups variable gives further support to the class analytical hypothesis. The coefficient for this variable is positive and also statistically significant. In Latin American countries that experienced successful coups during the study period, the political assertiveness of the military was typically associated with an agenda that emphasized the security of private property rights and anti-communism (Loveman 1994, 113–14; Corradi 1997, 230–31). Even when coups did not lead to the creation of long-standing authoritarian regimes, the political assertiveness of the military probably signaled to firms that the military elite was willing to check civilian leaders contemplating nationalization or other left-wing policies. For these reasons, U.S. FDI may have concentrated in recipient countries that had experienced military coups.

23. On this point, see the discussion in n. 20.

CONCLUSION

This study has examined competing explanations of the cross-national pattern in U.S. FDI in Latin America. The model provides partial empirical support for some aspects of the OLI model as well as for radical theories of international political economy. Market size, openness to trade, and education had important effects on FDI, but firms also paid close attention to political instability and the security of their property rights. We find that the quest for stable property rights, in particular, may have led firms to seek out more authoritarian political regimes and avoid countries racked by revolutionary violence and riots.

One public policy implication of our findings concerns the potential effects of education policies on FDI. In the early years of neoliberal reform in the 1980s, some governments in Latin America reduced real spending on education as part of a broader effort to reduce government spending and budget deficits. The performance of primary and secondary schools may be influenced by many factors, but studies suggest that public investment has been clearly implicated in trends in enrollment and other educational outcomes among primary and secondary students in Latin America (Behrman 1995). To that extent that our analysis suggests that U.S. multinational firms invest in countries with more favorable secondary-school enrollment ratios, government-spending policies that compromise funding for public schools and undermine enrollment do so at the risk of jeopardizing some inflows of U.S. FDI.

The findings of this study also have implications for how future research on FDI might be refined and developed. First, researchers might want to compare the strategies used by firms of differing national origins. Although we find that U.S. multinational firms in Latin America were influenced by market size, trade, and education during the period in question, previous studies suggest that some of these same variables have had relatively little effect on the investment behavior of Japanese firms operating in the region (Tuman and Emmert 1999). The reasons for the divergence in the strategies of U.S. and Japanese firms remain unclear and might be usefully investigated in future studies.

Second, the recent theoretical literature on FDI in Latin America has focused almost exclusively on economic variants of the OLI model. By looking only at economic influences, this literature has provided only a partial understanding of the behavior of the multinational firm. Indeed, our findings suggest that political considerations figure prominently in the decision-making patterns of multinational firms. Therefore, future research would benefit from a more thorough examination of the effects of political variables on U.S. FDI.

Finally, theorists and researchers should give more attention to the role of human rights. With the onset of globalization, many labor rights

organizations have drawn attention to the tendency for FDI to concentrate in countries that have poor human rights records. This study suggests that the concerns raised by such groups have merit. During the period analyzed in this study, more repressive political regimes in Latin America received more U.S. FDI. Political action by the military, in the form of coups d'état, was also associated with higher inflows of FDI.²⁴ Clearly, more research has to be completed to see if the relationships among human rights, political action by the military, and U.S. FDI are extant in other developing areas. At a minimum, however, analysts and policy makers would be well served by a thorough reexamination of effects of labor and human rights on FDI flows.

24. These findings are not inconsistent with the hypothesis derived from the OLI model. In fact, the explanations of political factors developed by the eclectic theory and class analytical perspectives are potentially complementary. One way of interpreting our results is that the OLI model correctly predicts that the income-maximizing firm avoids political risk. Class analytical theory takes this understanding further by showing that the firm seeks to safeguard its property rights by investing in more politically restrictive regimes.

APPENDIX APPLICATION AND RESULTS OF DIAGNOSTIC TESTS

Autocorrelation Because the data set used in this study is a pooled cross-sectional time-series, there may be correlation among error terms within the same unit (country) over time. Preliminary testing of the pooled autocorrelation parameter indicated the presence of moderate autocorrelation ($\rho = .53$) in models specified without the lagged dependent variable. We followed Beck and Katz (1995; 1996) and included a lagged dependent variable, U.S. FDI ($t-1$), in order to address this problem. Estimation of the model with the lagged dependent variable successfully controlled for serial correlation ($\rho = -.13$) in the model.

Heteroscedasticity Pooled cross-sectional time-series data sets are also prone to the problem of heteroscedasticity. We performed the Cook-Weisberg test in preliminary trials and detected the presence of heteroscedasticity ($\chi^2 = 130.86$; $p < .001$). To address this problem, we followed the advice of Beck and Katz (1996; 1996) and used panel-corrected standard errors to estimate the model. Employing panel-corrected standard errors successfully addressed the problem. Similarly, we normalized the dependent variable by scaling it to a recipient's GDP in order to control for differences in economic size among the countries included for analysis. To assess the possibility that normalization of the dependent variable did not fully control for differences in population size, in separate trials we also estimated the full model with the natural log of a recipient's population (lagged by one year). The coefficient for population was negative and statistically insignificant, and the results for all other independent variables were consistent with the results reported in table 2.

Contemporaneous Correlation We performed the Breusch-Pagan test of independence to assess whether there was contemporaneous correlation (see Greene 2000, 601). The test revealed the presence of contemporaneous correlation. Estimation of the model with panel corrected standard errors successfully addressed this problem.

Unit Effects It is possible that the model explains the level of FDI more effectively for some countries than for others (i.e., unit effects). Following Stimson (1985), we tested for unit effects by calculating summed residuals and residual variance ratios for each country. We then included dummy variables for countries with summed residuals greater than 4.0 and/or with residual variance ratios greater than 2.0. None of the dummy variables achieved statistical significance ($p < .05$). The effects of all other variables were consistent with those presented in table 2.

Multicollinearity We regressed each independent variable on all others in order to test for the presence of multicollinearity (Lewis-Beck 1989, 58–66). Most equations resulted in low to moderate R^2 's (maximum adjusted $R^2 = .36$, for Inflation [logged] _{$t-1$}). Next, we estimated models with and without the most highly correlated variables and compared the results. The results were completely consistent with the model presented in table 2. We are reasonably confident that our results are not distorted by multicollinearity.

Endogeneity Some analysts might suppose that there is a simultaneity problem with treating real GDP per capita, trade/GDP and the logged real exchange rate as exogenous variables. To examine the potential of endogeneity, we performed the Hausman test. Real GDP per capita was defined as instrumental and regressed against all other exogenous variables in the original U.S. FDI/GDP equation. Next, we obtained the estimated residuals from the real GDP per capita instrumental equation. We then estimated the original U.S. FDI/GDP model with a variable for the residuals from the instrumental equation and performed a t -test on the coefficient of the residuals variable. The coefficient for the residuals variable was not statistically significant (at the .05 level), which implies that the null hypothesis that there is no simultaneity between real GDP per capita and U.S. FDI/GDP cannot be rejected. We performed the same procedure on the trade/GDP and logged real exchange rate and obtained the same results.

BIBLIOGRAPHY

- Asiedu, Elizabeth
2002 "On the Determinants of Foreign Direct Investment to Developing Countries: Is Africa Different?" *World Development* 30 (1): 107–19.
- Baxter, Timothy
1999 "Real Exchange Rates." Machine-readable data file, no. 88021. Economic Research Service, U.S. Department of Agriculture, Washington, DC.
- Beck, Nathaniel, and Jonathan N. Katz
1995 "What to Do (and Not to Do) with Time-Series Cross-Section Data." *American Political Science Review* 89 (3): 634–47.
1996 "Nuisance vs. Substance: Specifying and Estimating Time-Series Cross-Section Models." *Political Analysis* 6:1–36.
- Behrman, Jere
1995 *Human Resources in Latin America and the Caribbean*. Washington, DC: Inter-American Development Bank.
- Bethell, Leslie, ed.
1998 *Latin America: Economy and Society since 1930*. Cambridge: Cambridge University Press.
- Billet, Bret L.
1991 *Investment Behavior of Multinational Corporations in Developing Areas*. New Brunswick, NJ: Transaction Publishers.
- Bulmer-Thomas, Victor
1998 "The Latin American Economies, 1929–1939." In *Latin America*, edited by Leslie Bethell, 65–114. Cambridge: Cambridge University Press.
- Bureau of Economic Analysis (BEA)
Various Years "U.S. Direct Investment Abroad: Country Detail for Capital Outflows (Inflows-Outflows)." Machine-readable data files. Washington, DC.: U.S. Department of Commerce. <http://www.bea.doc.gov/bea/di/>.
- Caves, Richard
1982 *Multinational Enterprise and Economic Growth*. Cambridge: Cambridge University Press.
- Chakrabarti, Avik
2001 "The Determinants of Foreign Direct Investment: Sensitivity Analyses of Cross-Country Regressions." *Kyklos* 54 (1): 89–113.
- Clodfelter, Micheal
1992 *Warfare and Armed Conflicts: A Statistical Reference to Casualty and Other Figures, 1618–1991, Volume II*. Jefferson, NC: McFarland and Company.
- Corradi, Juan E.
1997 "Military Government and State Terrorism in Argentina." In *The Politics of Antipolitics*, edited by Brian Loveman and Thomas M. Davies, Jr., 228–38. Wilmington, DE: Scholarly Resources.
- De Soysa, Indra, and John R. Oneal
1999 "Boon or Bane? Reassessing the Productivity of Foreign Direct Investment." *American Sociological Review* 64 (5): 766–82.
- Dunning, John H.
1980 "Towards an Eclectic Theory of International Production: Some Empirical Tests." *Journal of International Business Studies* 11 (1): 9–31.
1988 *Explaining International Production*. London: Allen and Unwin.
1995 "Reappraising the Eclectic Paradigm in an Age of Alliance Capitalism." *Journal of International Business Studies* 26 (3): 461–91.
- Eaton, Jonathan, and Akiko Tamura
1994 "Bilateralism and Regionalism in Japanese and U.S. Trade and Direct Foreign Investment Patterns." Working Paper 4758, National Bureau of Economic Research, Cambridge, MA.
- Economic Commission for Latin America and the Caribbean (ECLAC)
1998 *Foreign Investment in Latin America and the Caribbean*. Santiago, Chile: ECLAC.
- Edwards, Sebastian
1990 "Capital Flows, Foreign Direct Investment, and Debt-Equity Swaps in Developing

- Countries." Working Paper 3497, National Bureau of Economic Research, Cambridge, MA.
- Ffrench-Davis, Ricardo, and Oscar Muñoz
1998 "The Latin American Economies, 1950–1990." In *Latin America*, edited by Leslie Bethell, 149–240. Cambridge: Cambridge University Press.
- Freedom House
1999 *Annual Survey of Freedom, Country Scores 1972/73–1998/99*. New York: Freedom House.
- Frey, Bruno S.
1984 *International Political Economics*. Oxford: Basil Blackwell.
- Goldberg, Linda S., and Michael W. Klein
1998 "Foreign Direct Investment, Trade and Real Exchange Rate Linkages in Developing Countries." In *Managing Capital Flows and Exchange Rates: Perspectives from the Pacific Basin*, edited by Reuven Glick, 73–100. Cambridge: Cambridge University Press.
- Graham, Edward
1994 "The (Not Wholly Satisfactory) State of the Theory of Foreign Direct Investment and the Multinational Enterprise." Paper delivered to the Conference at the Centro Interdipartimentale di Economia Internazionale (CIDEI), University of Rome, Italy, October 27–28.
- Greene, William H.
2000 *Econometric Analysis*. 4th ed. Upper Saddle, NJ: Prentice Hall.
- Haggard, Stephan
1988 "The Political Economy of Foreign Direct Investment in Latin America." *Latin American Research Review* 24 (1): 184–208.
- Haggard, Stephan, and Sylvia Maxfield
1996 "Financial Internationalization in the Developing World." *International Organization* 50 (1): 22–50.
- Howell, Llewellyn, and Brad Chadwick
1994 "Models of Political Risk for Foreign Investment and Trade." *Columbia Journal of World Business* 29 (3): 71–91.
- Inter-American Development Bank (IDB)
1993 *Foreign Direct Investment in Latin America and the Caribbean: An Overview of Flows from Europe, Japan, and the United States, 1979–1990*. Madrid and Paris: Inter-American Development Bank, Special Office in Europe, and Institute for European-Latin American Relations.
1997 *Latin America after a Decade of Reforms*. Washington, DC.: Inter-American Development Bank.
2003 "Information on Free Trade in the Americas." <http://www.iadb.org/int/intpub/nota/contents.htm>.
- International Monetary Fund (IMF)
Various years *Direction of Trade Statistics*. Washington, DC: IMF.
1998 *International Financial Statistics Yearbook*. Washington, DC: IMF.
- Kaufman, Robert, and Leo Zuckerman
1998 "Attitudes toward Economic Reform in Mexico: The Role of Political Orientations." *American Political Science Review* 92 (2): 359–75
- Lewis-Beck, Michael
1989 *Applied Regression*. Beverly Hills, CA: Sage.
- Loveman, Brian
1994 "'Protected Democracies': Antipolitics and Political Transitions in Latin America, 1978–1994." *Journal of Inter-American Studies and World Affairs* 36 (2): 105–89.
- Loveman, Brian, and Thomas M. Davies, Jr., eds.
1997 *The Politics of Antipolitics: The Military in Latin America*. Wilmington, DE: Scholarly Resources.
- Marshall, Monty G., and Keith Jagers
2000 *Polity IV: Political Regime Characteristics and Transitions, 1800–1999*. Machine-readable data set. <http://www.bsos.umd.edu/cidcm/inscr/polity>

- Mercosur Investment
 1999 "Trade Compliance Center and Country Reports." <http://www.mercosurinvestment.com/>
- Mortimore, Michael
 1998 "Corporate Strategies and Regional Integration Schemes Involving Developing Countries: The NAFTA and Mercosur Automobile Industries." *Science, Development and Technology* 16 (2): 1–20.
- News Database
 Various Years Database of newspaper articles from the *New York Times*, *Los Angeles Times*, *Washington Post*, *Wall Street Journal*, and *Christian Science Monitor*. Information Access Company.
- O'Donnell, Guillermo
 1979 "Tensions in the Bureaucratic-Authoritarian State and the Question of Democracy." In *The New Authoritarianism in Latin America*, edited by David Collier, 285–318. Princeton, NJ: Princeton University Press.
- Oneal, John R.
 1994 "The Affinity of Foreign Investors for Authoritarian Regimes." *Political Research Quarterly* 47 (3): 565–88.
- Oneal, John R., and Frances H. Oneal
 1988 "Hegemony, Imperialism, and the Profitability of Foreign Investments." *International Organization* 42 (2): 347–73.
- Pastor, Manuel, and Carol Wise
 1997 "State Policy, Distribution, and Neoliberal Reform in Mexico." *Journal of Latin American Studies* 29 (2): 419–56.
- Pauly, Louis W., and Simon Reich
 1997 "National Structures and Multinational Corporate Behavior: Enduring Differences in the Age of Globalization." *International Organization* 51 (1): 1–30.
- Shaiken, Harley
 1990 *Mexico in the Global Economy: High Technology and Work Organization in Export Industries*. San Diego: Center for U.S.- Mexican Studies, University of California-San Diego.
- Shatz, Howard J.
 2001 "Expanding Foreign Direct Investment in the Andean Countries." Working Paper 64, Center for International Development, Harvard University, Cambridge, MA.
- Spar, Debora
 1999 "International Lessons - Foreign Investment and Human Rights." *Challenge* 42 (1): 55–80.
- Stimson, James
 1985 "Regression in Space and Time: A Statistical Essay." *American Journal of Political Science* 29 (4): 914–47.
- Stockholm International Peace Research Institute
 Various Years *SIPRI Yearbook*. Oxford: Oxford University Press.
- Teece, David J.
 1986 "Transaction Cost Economics and the Multinational Enterprise." *Journal of Economic Behavior and Organization* 7 (1): 21–45.
- Thunell, Lars H.
 1977 *Political Risks in International Business: Investment Behavior of Multinational Corporations*. New York: Praeger Publishers.
- Treaster, Joseph
 1988 "Foreign Investors Fearful of Border Violence." *New York Times*, May 23, 28.
- Tuman, John P.
 2000 "Labor Markets and Economic Reform in Latin America: A Review of Recent Research." *Latin American Research Review* 35 (3): 173–87.
- Tuman, John P., and Craig F. Emmert
 1999 "Explaining Japanese Foreign Direct Investment in Latin America, 1979–1992." *Social Science Quarterly* 80 (3): 539–55.
- Tuman, John P., and John T. Morris
 1998 "The Transformation of the Latin American Automobile Industry." In *Trans-*

forming the Latin American Automobile Industry: Unions, Workers and the Politics of Restructuring, edited by John P. Tuman and John T. Morris, 3–25. New York and London: ME Sharpe.

U.S. International Trade Commission

1997 *The Impact of the North American Free Trade Agreement on the U.S. Economy and Industries: A Three-Year Review*. Washington, DC: U.S. International Trade Commission.

Vernon, Raymond

1966 "International Investment and International Trade in the Product Cycle." *The Quarterly Journal of Economics* 80 (2): 190–207.

World Bank

1994 *World Tables 1994*. Baltimore: Johns Hopkins University Press.

1998 *World Development Indicators*. Machine-readable data set, CD-ROM. New York: The World Bank.