

Managing Multinationals
Industrial Policy, State Institutions, and the
Quality of Foreign Direct Investment in Brazil

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Abstract

Patrick Egan: Managing Multinationals: Industrial Policy, State Institutions, and the Quality of Foreign Direct Investment in Brazil
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Foreign Direct Investment (FDI) has increased in many countries, and it is a potential catalyst for development. Yet all FDI is not equal. This dissertation uses the case of Brazil since 1990 to demonstrate how host country political institutions can have an effect on the investment profiles of multinational firms. Specifically, I argue that innovation-intensive and efficiency-oriented FDI is relatively uncommon in Brazil due in part to the characteristics of state institutions. I develop theoretical frameworks of institutional coherence and firm incentive structures, and support my argument with original interviews and firm-level data from Brazil and other developing countries. I concentrate on the automotive and information technology industries in Brazil, which are dominated by multinational firms. I argue that increasingly integrated global value chains change the context for host country governments and industrial policy, but that states do retain influence over the production models pursued by firms and potential developmental spillovers from investment.

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Table of Contents

List of Tables.....	vii
List of Figures.....	ix
List of Abbreviations.....	x
Chapter 1. Introduction.....	1
Chapter 2. States, Multinationals, and Investment Models.....	13
2.1 Introduction.....	13
2.2 States and Foreign Investment: Theoretical Perspectives.....	16
2.3 Multinational Production and the New Context.....	30
2.4 Theoretical Foundations: Institutions and Multinational Incentives.....	41
2.5 Case Selection.....	57
2.6 Methodological Approach.....	65
Chapter 3. Investment Policy and Domestic Institutions: Historical Perspectives.....	72
3.1 Introduction.....	72
3.2 Institutions and Brazilian Investment Promotion Policy.....	74
3.3 Brazilian Investment Policy: An Historical Perspective.....	86
3.4 Institutions and Brazilian Investment Policy.....	137
3.5 Conclusion.....	144
Chapter 4. The Institutional Basis for Innovative FDI.....	145
4.1 Introduction.....	145
4.2 Determinants of Global Innovation Networks.....	150
4.3 The National System of Innovation in Brazil.....	159
4.4 Innovation among Multinationals in Brazil.....	177

4.5 Innovation, Policies, and Institutions in Brazil.....	213
Chapter 5. Export-Oriented Investment: Global Integration and Domestic Institutions.....	217
5.1 Introduction.....	217
5.2 The Determinants of Export Orientation among Multinational Firms.....	224
5.3 Brazilian Export Promotion Policies and Institutions, 1990-2010.....	235
5.4 The Commercial Balance of Multinationals in Brazil.....	248
5.5 Institutions and the Commercial Balance of Multinational Firms: A Synthesis.	286
Chapter 6. State Institutions and Models of Investment: Beyond Brazil.....	293
6.1 Introduction.....	293
6.2 Testing the Argument: Country-Level Analysis.....	305
6.3 Testing the Argument: Firm-Level Analysis.....	321
6.4 Implications of Country-Level and Firm-Level Analysis.....	327
6.5 State Institutions and Multinational Investment in Latin America.....	329
6.6 Conclusions: FDI Profiles and Institutions.....	355
6.7 Appendix: Descriptive Statistics.....	357
Chapter 7. Conclusion.....	359
Works Cited.....	373

List of Tables

Table 3.1 Elements of fragmentation in Brazilian investment policy.....	75
Table 3.2 Current federal agencies with investment promotion mandates.....	80
Table 3.3 Brazilian inward FDI flows, 1985-2009 (millions US\$).....	102
Table 3.4 FDI flows and stocks, by sector of activity (percentages).....	105
Table 3.5 FDI stocks by geographic origin, 1995 and 2000.....	109
Table 3.6 Estimates of participation of foreign firms in total sales, in select sectors (percentages).....	112
Table 3.7 Net inflows of FDI, by destination sector, 2003-2008.....	125
Table 3.8 Macro goals of the Production Development Plan, 2008.....	136
Table 4.1 Fiscal incentives and subsidies of R&D spending, 2006 to 2008, millions R\$.....	166
Table 4.2 Innovation propensities in various countries (most recent year available).....	175
Table 4.3 Innovation activities of industrial enterprises in the state of São Paulo, 1999-2001.....	181
Table 4.4 R&D expenditures of majority-owned foreign affiliates of US multinationals, selected countries – 2007.....	185
Table 4.5 Notable automotive assembler investments in Brazil, 1995-2005.....	187
Table 4.6 Aggregated interview responses, multinational firms active in the Brazilian IT and automotive sectors.....	199
Table 4.7 Notable IT flagship investments in Brazil as of 2005.....	207
Table 5.1 Exports and imports of multinational companies in Brazil, by ownership category and sectors of economic activity, 1995 and 2000.....	252
Table 5.2 Intrafirm trade, as a percentage of all imports and exports of multinational firms, by sectors of economic activity, 1995 and 2000.....	254
Table 5.3 Brazilian automotive industry trade balance, 1990-2008. \$US millions.....	256
Table 5.4 Export destinations and import origins for the Brazilian auto parts industry: 2000 and 2009.....	261

Table 5.5 Aggregated interview responses on export incentives, multinational firms active in the Brazilian IT and automotive sectors.....	266
Table 5.6 Commercial balance of the Brazilian IT manufacturing sector, 2003-2009. \$US millions.....	273
Table 5.7 Net revenue of Brazilian software and IT service enterprises resulting from foreign activities, 2004 and 2005. R\$ thousands.....	276
Table 5.8 Import and export patterns for the consumer electronics and IT industry in the Free Zone of Manaus, 1990 to 2009.....	278
Table 6.1 Correlation matrix: indicators of governance for country-level analyses, 2006 base year.....	310
Table 6.2 Country-level analysis, 2006-2009 firm surveys.....	317
Table 6.3 Country-level analysis, 2002-2005 firm surveys.....	320
Table 6.4 Firm-level analysis, 2002-2005 firm surveys (R&D Intensity) and 2006-2009 firm surveys (Export Intensity).....	326
Table 6.5 Technological intensity of FDI in comparative perspective.....	334

List of Figures

Figure 2.1 Foreign Direct Investment in Brazil, 1980-2006.....	32
Figure 2.2 A model of state agency and firm incentives for investment.....	46
Figure 4.1 R&D expenditures of majority-owned affiliates of US multinationals in Brazil, by economic activity.....	182
Figure 4.2 R&D expenditures of majority-owned affiliates of US multinationals in Brazil, by manufacturing category.....	183
Figure 5.1 Brazilian auto parts trade balance, 1989-2009.....	264
Figure 5.2. R&D and export propensity among 85 multinationals operating in Brazil.....	291
Figure 6.1: Scatterplot of export propensities of multinational firms in developing countries, World Bank enterprise surveys.....	332
Figure 6.2: Scatterplot of average export intensity of exporting multinational firms in developing countries, World Bank enterprise surveys.....	333

List of Abbreviations

ABDI	Brazilian Agency for Industrial Development
ANFAVEA	National Association of Automotive Vehicle Manufacturers
ANPEI	National Association of R&D of Innovative Companies
APEX	Brazilian Trade and Investment Promotion Agency
APPRI	Agreement for the Protection and Promotion of Investments
BNDES	National Development Bank
BPO	Business Process Outsourcing
CACEX	Foreign Trade Department of the <i>Banco do Brasil</i>
CADELEC	Electronic Productive Chain (Mexico)
CAMEX	Chamber of Foreign Trade
CANIETI	Industry, Electronics, Telecommunications, and IT Chamber (Mexico)
CDI	National Development Council
CEITEC	National Center for Advanced Electronic Technology
CEPD	Council for Economic Planning and Development (Taiwan)
CGT	General Confederation of Workers
CINDE	Costa Rican Investment Promotion Agency
CM	Contract Manufacturer
CNDI	National Industrial Development Council
CNIE	National Commission of Foreign Investments (Mexico)
CNPq	National Council of Technological and Scientific Development
CORFO	Production Development Corporation (Chile)
CPIA	Country Policy and Institutional Assessment

CRP	Costa Rica Supply
CSLL	Federal Social Contribution on Net Income
CUT	Unified Workers' Central
ECLA/ECLAC	Economic Commission for Latin America and the Caribbean
EOI	Export Oriented Industrialization
EPZ	Export Processing Zone
FAPESP	São Paulo Research Foundation
FIESP	Industrial Foundation of the State of São Paulo
FINAME	BNDES Special Agency for Industrial Financing
FINAMEX	BNDES Export-Import Financing
FINEP	Research and Projects Financing
FOB	Free on Board
FUNTEC	BNDES Technology Fund
GVC	Global Value Chain
IB	Invest Brazil
IDB	Industrial Development Bureau (Taiwan)
IEDI	Institute of Studies for Industrial Development
II PND	Second National Plan of Development
IPA	Investment Promotion Agency
IPEA	Institute for Applied Economic Research
IPI	Tax on Industrialized Products
ISI	Import Substitution Industrialization
KPO	Knowledge Process Outsourcing

MCT	Ministry of Science and Technology
MDB	Brazilian Democratic Movement
MDIC	Ministry of Development, Industry, and Trade
MRE	Ministry of External Relations
NSI	National System of Innovation
PDP	Production Development Plan
PDS	Democratic Social Party
PFL	Liberal Front Party
PIS/COFINS	Social Integration Program/Contribution to Social Security
PITCE	Policy for Industry, Technology, and Foreign Trade
PLN	National Liberation Party (Costa Rica)
PMDB	Party of the Brazilian Democratic Movement
PNBE	National Thinking of Entrepreneurial Bases
PND	National Program of 'Destatization'
PPB	Basic Productive Processes
PPP	Public Private Partnership
PRN	National Reconstruction Party
PROCOMER	Foreign Trade Corporation of Costa Rica
PROSOFT	BNDES Program for Software Development and IT Services
PSD	Social Democratic Party
PSDB	Brazilian Social Democratic Party
PT	Workers Party
PTB	Brazilian Workers Party

PUSC	Social Christian Unity Party (Costa Rica)
RA	Automotive Regime
RECAP	Special Regime for Acquiring Capital Goods for Exporters
RECOF	Industrial Customs under Computer Control
RENAI	Brazilian Investment Information Network
REPES	Special Regime for Exports of Technology Services
RHAE	National Program of Vocational Education for Technological Development
SEBRAE	Brazilian Support Service for Micro and Small Enterprises
SECOM	Commercial Promotion Sector
SENAI	Brazilian Social Services for Industry
SIPRI	Investment Promotion and Technology Transfer System
SUMOC	Superintendent of Currency and Credit
TCU	Brazilian Court of Audit
TRIM	Trade-Related Investment Measure
UDN	National Democratic Union
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Program
VC	Venture Capital
WAIPA	World Association of Investment Promotion Agencies
WGI	World Governance Indicators
ZFM	Free Zone of Manaus

Chapter 1

Introduction

Multinationals, modern enterprises that countries seek to attract, are viewed (in Brazil) with mistrust. If they were ruinous, as has been said, then São Paulo would be the poorest state in Brazil and Piauí would be the richest.

Roberto Campos, 1989

Brazil has enriched itself, developed, but it maintains its subordination to the grand centers, to decisions negotiated outside the country.

Celso Furtado, 1999

The modern international system is one of global production. Advances in technology and changing comparative advantages have made it profitable for firms to produce goods and services in different locations around the world. While geographic distance is still important and the mobility of firms is limited by various factors, global flows of investment have increased steadily in recent decades and in some cases dramatically. Developing countries increasingly participate in global production networks, whether through absorbing international capital, providing locational advantages for incoming multinational companies, or sending their own multinationals abroad. According to the United Nations' Conference on Trade and Development (UNCTAD), global inflows of Foreign Direct Investment (FDI) are expected to rise to between \$1.3 and \$1.5 trillion in 2011, and perhaps approach \$2 trillion in 2012. Developing and transition economies are now responsible for almost half of global FDI flows, and are leading the recovery in FDI after the global economic crisis of 2008 (UNCTAD 2010).

The increase in FDI around the world has prompted much work within the subfields of comparative and international political economy. Scholars have investigated questions about the relationships between types of political regimes in host countries and flows of FDI (Jensen 2003, 2006; Li and Resnick 2003; Oneal 1994; Kenyon and Naoi 2010). Other cross-national studies have linked FDI variation to internal political characteristics of host countries, such as the number of veto players (Henisz 2000), or connected FDI flows to international political and economic agreements (Büthe and Milner 2008). There are numerous other research avenues in the political economy of FDI, some less explored than others. This research, much of it recent, has contributed greatly to our understanding of the political determinants and consequences of foreign investment. Yet most of this cross-national research on FDI has only considered aggregate stocks and flows. FDI is often treated as a singular entity, ignoring the tremendous heterogeneity in investment models. This dissertation seeks to complicate the relationship between politics in developing countries and incoming FDI by asking how political institutions in developing countries affect specific types of incoming FDI, not only its amount. There are numerous ways to subdivide FDI according to its unique characteristics, from vertical vs. horizontal FDI to market-seeking vs. efficiency-oriented vs. technology-intensive. This work focuses specifically on the political determinants of efficiency-oriented and technology-intensive FDI, arguing that the institutions of the state and state policies matter for the composition of incoming FDI and the evolving investment models of individual firms.

This work also addresses questions about the relationship between foreign investment and development. In the comparative tradition, scholars have in the past considered the contribution foreign investment might make toward development. This is especially true in

Latin America, where dependency theory provided rich theoretical ground for interpreting relationships among governments, foreign investors, and local capital (Evans 1979, Bennett and Sharpe 1979). In the 1980s and 1990s, however, Latin American political economy became dominated by analysis of economic reform. The investigation of bargaining relationships between firms and states has not received as much emphasis as it has in the past. Yet the increase in foreign investment in Latin America, and the developing world more generally, continued throughout this period, placing large chunks of developing country economies in the hands of foreign investors. The cumulative stock of FDI in developing countries represented 27.9 percent of GDP in 2009¹. Foreign firms are responsible for increasing shares of manufacturing capacity and developing countries' exports². Yet the development literature has not dealt adequately with the increasing importance of international production networks, instead focusing on older debates about the support of national champions or protectionism vs. free trade. Put simply, the dramatic internationalization of production in the last thirty years creates a new context for development theory. Theoretical perspectives on what global production networks mean for development strategy remain underdeveloped. This dissertation therefore also analyzes how states interact with multinational firms and attempt to extract developmental benefits from foreign investment. I identify key characteristics of state institutions that endow them with sufficient leverage to successfully integrate multinationals into their development strategies.

Foreign investment has quite clearly been more beneficial for some countries than others. What explains this divergence? This puzzle has been partially answered by

¹Retrieved from UNCTADstat (<http://unctadstat.unctad.org>)

²As a sample, in 2000 foreign firms were responsible for an estimated 28 percent of Chile's exports, 31 percent of Mexico's exports, and an impressive 50 percent of China's exports (UNCTAD 2002).

economists, who have outlined various determinants of ‘high quality’ FDI (Kumar 2002, Mutti 2003, Reuber et al. 1973, Pearce 1989). Yet the political determinants of developmentally-catalytic FDI remain underspecified. In this dissertation, I seek to understand how political settings in developing countries condition investment, both in the aggregate and at firm level. To do this, I combine an in-depth study of the Brazilian state’s interactions with foreign investors with cross-national comparisons in Latin America and the larger developing world.

The question of state efficacy in the context of international production networks is an important one, and ties in with larger debates about the effects of the global economy on state prerogatives. On the one hand are scholars who suggest that global economic forces constrain the ability of governments to make independent decisions, and that firms or financial market participants will ‘punish’ unorthodox policy with disinvestment or other sanctions (Rodrik 1997, Strange 1996). On the other hand are scholars who argue that international economic constraints are relatively insignificant, and that states retain significant policy autonomy with distinct policy options (Boix 1998, Garrett 1998). With respect to FDI and development, the debate centers around whether state policies and institutions can condition the investment models pursued by multinational firms so that developmental goals may be realized. In this work, I argue that states do retain significant ‘policy space’ in their interactions with multinational firms.

What, then, determines successful integration of FDI into a developing economy? Or, to put it differently, what are the political determinants of ‘high quality’ FDI? To answer these questions, I adopt a comparative institutional approach. In the 1980s, a group of social scientists launched a campaign to bring the analysis of state institutions back to the forefront

of political analysis (Evans et al. 1985). This was done partly in response to neoclassical interpretations, which had reduced the ‘state’ to a venue in which societal groups pursued self-interested goals. The institutionalists countered that the state existed as an autonomous entity with its own history and objectives, and that state institutions could have an independent effect on societal outcomes. Or, as March and Olsen (1984, 738) explained the institutionalist argument:

The bureaucratic agency, the legislative committee, and the appellate court are arenas for contending social forces, but they are also collections of standard operating procedures and structures that define and defend interests. They are political actors in their own right.

The basic premise of the institutionalist argument was that the form and function of the state mattered. Applied to development theory, institutionalists argued that the state could impede development or assist it, but to simply ignore the state as an actor would be a mistake³. In this work, I adopt the institutionalist perspective and argue that the institutions of the Brazilian state have been influential in determining the qualities of incoming investment and also in conditioning the investment models of firms already in Brazil. I use the simple definition of institutions applied by Hall and Taylor (1996, 938) in their discussion of historical institutionalists, who according to the authors “associate institutions with organizations and the rules or conventions promulgated by formal organization.” North (1990; 1994) adopts a more expansive definition of institutions, defining institutions as formal rules (constitutions, laws and regulations) and informal constraints (norms, conventions, and codes of conduct). While I recognize the contribution of informal institutions to a wide range of socio-economic outcomes, in this work I concentrate on formal

³As an example of an applied institutionalist argument, Rodrik et al. (2002) found that institutions (property rights, the rule of law) were more influential than geographic measures (climate, natural resources) or economic openness and trade in explaining rates of economic growth.

elements of institutions, including both state rules and regulations and the agencies through which these policies are channeled.

This dissertation makes a number of significant improvements on previous research in both comparative and international political economy. First, I demonstrate that domestic political institutions have an impact not only on the amount of incoming FDI but also its dominant characteristics. I argue that multinational firms make investment decisions based in part on the characteristics of policies and institutions in host countries. The distinction between policies and institutions is best characterized as a distinction between state strategies and capacities. That is, policy relays information about the intentions of the state and the strategies to achieve those intentions, but the characteristics of state institutions help determine whether those intentions can be realized. In other words, institutions channel state policy and condition its effectiveness. Policies and institutions are engaged in constant interaction, and the interaction between them determines outcomes. The best-designed policy may be ineffective if institutions responsible for its implementation do not function well. Well-functioning institutions can put into place poorly-designed policy. Both policies and institutions are important for investment outcomes, and both are considered in this dissertation. Specifically, I argue that active, sectorally discriminating investment promotion policies are more likely to lead to spillover-intensive investment profiles. On the institutional side, I argue that firms are more likely to adopt export-oriented and technology-intensive investment profiles when state institutions are consistent, coordinated, and closely networked with firms. I test the links between domestic political institutions and the characteristics of FDI using an in-depth analysis of investment policy and investment promotion institutions in Brazil. I make an additional contribution by connecting institutional characteristics with

FDI-linked development outcomes, such as innovation and trade balances. The dissertation therefore introduces new ideas about the relationship between politics in developing countries and the characteristics of incoming FDI and the role of the state in an era of global production networks.

The example of Brazil is mostly a negative one. That is, despite attracting a great deal of FDI in the 1990s Brazil has not attracted much 'high quality' investment. Multinationals in Brazil do not, in general, use Brazil as an export platform with significant backward and forward linkages. Nor do they display particularly innovative characteristics. This is important because proponents of FDI often argue that it can generate 'spillovers' in the domestic economy, therefore energizing development. This work identifies instances of export-intensive and innovation-intensive investments in Brazil, with significant spillovers in the domestic economy. However, these investments are the exception. FDI in Brazil, as elsewhere in Latin America, has been largely market-seeking. That is, firms invest in Brazil in order to sell to the domestic population. Brazil has a large population, and a growing consumer class. There are important benefits to be had from market-seeking FDI. However, it is not as prized as other forms of investment, and may lead to detrimental outcomes such as negative trade balances or low value-added characteristics. For these reasons and others, organizations such as the Economic Commission for Latin America and the Caribbean (ECLAC) have long advocated other forms of investment for Latin America besides, or in addition to, market-seeking investment. Brazil, despite its potential, has not moved far beyond a market-seeking FDI profile. Other countries to which it is often compared, such as China and India, are used more often by firms as export platforms or as locations for global R&D centers.

There are many potential explanations for this puzzling state of affairs. In this work, I concentrate on policy and institutional explanations. On the policy side, I argue that in the last twenty years Brazil has pursued largely passive investment promotion strategies. That is, successive Brazilian administrations have failed to actively pursue FDI, preferring instead to dismantle barriers to investment and allow it to enter the country. I also argue that Brazilian administrations have not distinguished among more or less desirable forms of investment, contributing to the market-seeking FDI profile. This changed after 2004, when Brazil adopted a set of industrial policies that did display a more discriminating approach to FDI. This change is an important source of temporal variation within the Brazilian case study, and allows me to demonstrate linkages between varying policies and investment profiles of firms.

With regard to domestic institutions, I argue that the attributes of institutions charged with investment promotion in Brazil contributed to a diffuse approach to investment. These ‘institutional attributes’ have less to do with the institutions’ internal rules or regulations, and more to do with the activities of institutions in relation to firms. I argue that the proliferation of investment promotion bodies within the Brazilian bureaucracy created coordination problems, and that institutions were often inconsistent in their approach to FDI. Political support for these institutions was sporadic until the revival of industrial policy during the Lula administration. Importantly, institutional characteristics have proven difficult to change. Some of these characteristics, such as a lack of consistency, diluted the effects of more active investment agendas during the Lula administration. Finally, institutions were not well integrated with international production networks. The distance between firms and political institutions in Brazil contributed to low efficacy for those same institutions.

There are important exceptions to these broad patterns. There are a few institutions within the sprawling Brazilian bureaucracy that demonstrate the characteristics which lead to leverage on investment models. These institutions have a much greater likelihood of extracting spillovers from FDI. These so-called ‘pockets of efficiency’ (Geddes 1990, Evans 1995) often display all of the characteristics outlined above, such as high levels of coordination and close networks with firms. In addition, they also display other characteristics, such as insulation from political interference and stable funding, which allow them to more effectively incentivize FDI. Just as with temporal variation in policy, institutional variation allows me to draw out contrasts and connect institutional characteristics with investment outcomes.

The dissertation proceeds as follows. In chapter two, I introduce the theoretical framework. I draw together diverse strands of literature, integrating important ideas about investment from the dependency tradition and newer work in international political economy. In this chapter I also assert the superiority of comparative institutionalist approaches over neoclassical interpretations of the state, which denied the possibility of developmentally catalytic policymaking autonomous from societal groups. I allude to the debate over East Asian industrialization and the role of state institutions. I also argue that the explosion of FDI in the developing world since the 1980s necessitates new theoretical constructs concerning both bargaining relationships between states and firms and the role of foreign investment in domestic development processes. I then assemble a model of multinational incentive structures, and argue that state incentives and domestic political institutions have a not-insignificant impact on the models of investment chosen by multinational firms. I distinguish among different types of policies countries may pursue, and their potential

effectiveness. I then outline the institutional characteristics which may give states greater leverage over the investment models of firms. The chapter concludes with a justification of the methods employed, and a preliminary discussion of the industrial sectors under consideration in Brazil.

Chapter three traces the historical development of investment policy in Brazil, beginning in the 1950s but concentrating on the reform period after 1990. This chapter identifies those institutions in Brazil charged with investment promotion, and singles out those which function as pockets of efficiency. This chapter also elaborates on the determinants of institutional efficacy, and explains how investment promotion policies are channeled through multiple institutions to the detriment of a fully integrated vision for the role FDI plays in development. The chapter then moves in chronological order, explaining the development of FDI policy. Special attention is paid to the Cardoso administration's efforts to attract investment after the introduction of the inflation-taming Real. I also analyze the development of the short-lived investment promotion agency *Investe Brasil*, and the abortive attempts at public-private partnerships in infrastructure projects. This chapter concludes with a discussion of industrial policy changes during the Lula administration, and increasing evidence of active, targeted policy for FDI.

Chapters four and five deal with investment outcomes among firms, and the connections between those outcomes and policy and institutional characteristics. As such, these chapters rely on original interview data with multinational firm representatives in the information technology and automotive sectors. I complement firm interviews with data from government ministries in Brazil and other sources, along with government and non-governmental organization reports. Chapter four deals with the innovative activities of

multinational firms in Brazil, and chapter five considers modes of insertion in global production networks. In chapter four, I argue that multinational auto assemblers and auto parts manufacturers in Brazil do not participate in substantial design activity or innovation in Brazil. Firms in the IT industry, despite receiving some incentives for innovation, have not conducted significant R&D activities in Brazil. I argue that characteristics of investment promotion institutions, such as an excessive focus on manufacturing rather than intangible goods, contribute to this state of affairs. In chapter five, I extend the analysis to the exporting activities of multinational firms. I examine the commercial balance of firms, and find that despite increasing their export activity, multinationals are in general heavily import-dependent and therefore do not generate significant foreign exchange. I contrast the experience of the auto sector, where temporary export incentives for assemblers in the 1990s generated exports in the context of Mercosul, with the IT sector, where efforts to develop significant export activity have not been successful. In both chapters four and five, I use the automotive and IT industries as examples of sectors where multinationals are dominant, and potential exists for domestic spillovers from foreign investment.

Chapter six extends the analysis of investment profiles beyond Brazil. In this chapter, I use firm-level data from surveys of enterprises conducted by the World Bank in developing countries around the world to investigate the links between domestic institutions and investment profiles. In country-level and firm-level analyses, I demonstrate that evaluations of institutional efficacy have an impact on both the export and innovative choices of multinational firms. More specifically, I argue that higher assessments of institutional quality, whether by firms themselves or by outside observers, are associated with greater R&D and export incidence and intensity. I develop and test these hypotheses using a series

of econometric models. I then apply ideas of institutional efficacy and firm profiles to three other cases in Latin America: Chile, Costa Rica, and Mexico. For each of these cases, I explain how the characteristics of domestic institutions differ from those in Brazil, and how these variations are connected to investment profiles. Chapter seven concludes with a summary of the primary contributions of the project and suggestions about possible future research agendas.

In sum, this study utilizes a broad range of methodological tools to analyze the relationship between state policy and institutions and the activities of multinational enterprises in Brazil and other developing countries. I argue that institutions do matter for investment outcomes, and that firms make investment decisions at least partly based on policy realities in host countries and the degree of institutional coherence. The analysis focuses on investment policy, and broader industrial policies, in the specific case of Brazil. However, the implications of the analysis are applicable in many developing and transition economies. The dissertation addresses important questions about the limits of state agency in an era of international production, the evolving role of the state in conditioning development, and the political determinants of variations in FDI.

Chapter 2

States, Multinationals, and Investment Models

2.1 Introduction

In early 2005, Brazilian President Luiz Inácio Lula da Silva spoke in Porto Alegre to thousands of delegates who had gathered there for the World Social Forum, an annual conference of activists and left-leaning political groups from around the world. Lula had been elected in 2002 as Brazil's first working-class president, and his life's trajectory epitomized the hopes of organizations within the forum that had tirelessly campaigned for reductions in global poverty and inequality. There was little doubt that Lula would be the star of the show – he had received top billing and his speech on confronting poverty was greeted with raucous cheers by his own PT supporters in attendance. Yet almost as soon as he began his speech, a group of about fifty activists began to heckle the President. It quickly became apparent that this group of attendees was unhappy with Lula's first few years in office. Specifically, they objected to his closeness to Washington and his willingness to toe the Wall Street line in matters of social spending and macroeconomic policy. Lula handled the protesters with a measured response: “One day, they’ll mature and we’ll be waiting with open arms to welcome them,” he said of the hecklers, whom he portrayed as “sons and daughters of the workers’ party who rebelled.”⁴

⁴According to the Los Angeles Times, most of the people in attendance were supportive (Chu 2005).

Lula's magnanimity aside, the protesters tapped into a deeper concern among those on the left in Latin America. Lula's conversion from leftist union leader to pragmatic and accommodating centrist has been well documented, but a debate on the causes of that conversion is perhaps inevitable. Certainly there was political calculation; it is perhaps no accident that Lula's previous three campaigns for the presidency joined more heterodox economic policy with electoral defeat. But among the more nervous and conspiracy-minded, Lula's more moderate program was interpreted as a result of economic forces beyond the president's control⁵. Indeed, the general drift of Brazilian economic policy since the 1980s had been towards more liberal economic policy. Was this movement a result of conscious policy choice? Or were leaders in Latin America confronting the collective and immovable will of international economic actors? In the words of Bolivian President Evo Morales, were presidents in Latin America destined hereafter to be "prisoners of neoliberal laws?"⁶

This work addresses one facet of the relationship between international economic actors and government policy in the developing world. It is founded on the central question that motivates much recent work in comparative and international political economy: in a world where production is increasingly multinational and interconnected, can government have an impact on industrial models and therefore, development? I examine one element of this larger question by considering the impact of state policies and institutions on the investment profiles of multinational firms in Brazil. The central question considered is this: do policy and institutional environments in host countries have an impact on the investment

⁵Lula's election in 2002 followed a concerted effort to portray the candidate as friendly to international financial organizations and investors. The reactions of various markets to the prospect of a Lula presidency and its eventual confirmation have generated some scholarly interest. For an interpretation of international bond markets' reactions to the 2002 Brazilian election, see Hardie (2006).

⁶This statement was issued during an interview with BBC News (Mason 2006).

models of foreign firms? In other words, do firms take into account host country policy and institutions when deciding what types of activities are to be located in that country, and do they change investment models in response to state characteristics? I argue that state policies and institutions, while certainly not the only factors determining the investment profiles of incoming investment, nonetheless have a significant impact on both the composition of incoming investment and the investment profiles of individual firms through time. I argue that active, sectorally discriminating investment promotion policies are more likely to lead to innovation- and export-intensive investments. I also argue that the qualities of domestic institutions charged with investment promotion matter to firms, and that firms are more likely to adopt innovation- and export-intensive investments when state institutions display certain characteristics, such as consistency through time and inter-institutional coordination. I argue that Brazil has largely displayed passive, general policy approaches to FDI since the 1990s, but since 2004 Brazil has shifted to a more active, discriminating approach. Brazil's institutions have not in general displayed the characteristics conducive to spillover-intensive FDI, though there are isolated 'pockets of efficiency' within the state apparatus.

This chapter provides the theoretical and methodological foundation for the analysis that follows in chapters 3 through 6. In the next section, I situate the research question of this work within larger debates that have occupied development theorists for years, such as dependency theory, neoclassical interpretations of development, and institutionalist perspectives. These are the big questions of state agency in development, and it is important to acknowledge the precedents of established theoretical frameworks even when the focus of this work is narrower. Section 2.3 argues that the dramatic increase in foreign investment in the developing world changes the context of institutionalist arguments. Relationships

between multinational firms and host country governments have assumed greater importance for questions of development and state agency, and this is not always recognized in existing literature. I argue that the bargaining perspective on firm-state interaction is especially useful as an analytic tool. In section 2.4, I elaborate on the theoretical framework used to interpret this bargaining relationship. I outline the incentive structure facing multinational firms, and how states can influence firm investment models to extract developmental spillovers. Also in this section, I lay out the attributes that endow state institutions with leverage in their bargaining relationships with firms. In section 2.5 I justify the case selection of this work, and in section 2.6 I elaborate on the methodological approach adopted here.

2.2 States and Foreign Investment: Theoretical Perspectives

In concentrating on the interactions among multinational enterprises and various state bodies in Brazil through the last thirty years, I show not only the boundaries of state efficacy in industrial transformation but also how the calculus of multinational production changes the incentives and tools available to both firms and states. On the one hand, this is new territory. The development literature has not come to grips with the profound impact multinational production has had on the nature of state development strategies in the semi-periphery. Too often, this literature remains locked in well-traveled debates about the merits of infant industry protection or privatization. Studies of the political determinants and consequences of FDI in the developing world have multiplied within the subfield of international political economy, but the link with development theory and the comparative tradition is often weak. Many of these IPE studies adopt a cross-national perspective and do not investigate the intricacies of investment policy within countries. On the other hand, this study is deeply intertwined with some very old debates on the role of the state in economic development. It

is imperative to begin with these debates, consider more recent contributions, and finally to explain where this work fits in the established theoretic framework.

Many of the debates about the relationship between foreign capital and development fall within the general framework of three important and overlapping dichotomies⁷. Two of these are more normative and the third is more positive in nature. The first normative debate concerns the contribution that international capital should make to domestic development. This debate in Latin America has a long intellectual lineage, most perfectly captured by the modernization and dependency approaches to development. Modernization theories suggested that Latin American countries could develop quickly by embracing international capital and could, under certain conditions, move through stages of development in quick succession or even skip some stages altogether⁸. Dependency theorists, in contrast, argued that an international division of labor had developed over a long period of time whereby international economic actors conspired quite naturally to keep Latin America in a perpetual state of underdevelopment (dos Santos 1970, Hymer 1979, Cardoso and Faletto 1978). While earlier *dependistas* argued that international capital played the primary role, later more sophisticated analyses acknowledged the role of domestic capital and admitted some conditional and contextual benefits to foreign capital penetration⁹. However, the dependency school in its broadest sense discounted the benefits from international economic integration and formed part of the theoretic justification for the continuation of many of the Import

⁷Stallings (1990) and Shapiro (1994) identify different dichotomies, which overlap to a degree with the ones presented here.

⁸Modernization proponents also considered democratic and economic development to be mutually reinforcing. See Valenzuela and Valenzuela (1978) for an overview of both approaches and contrasts.

⁹See Evans (1979), also Cardoso and Faletto (1978). Both concentrated on the role of domestic elites in perpetuating situations of dependency. Evans in particular examined the benefits derived by local capital from international linkages.

Substitution Industrialization (ISI) policies so common to Latin America from the 1930s until the 1980s¹⁰. Modernization, in contrast, extolled the benefits of international economic integration: access to new technologies, employment, entry into foreign markets, and advantages from trade. In terms of academic impact, both paradigms remain influential today in highly modified forms.

2.2.1 The neoclassical approach

A second, more positive dichotomy concerns the ability of the state to effect change independent of societal forces. Though this debate has in some ways appeared constantly in Latin American development analyses (not to mention politics), it achieved a special level of prominence in the 1980s. Neoclassical interpretations conceived of the state as an abstract entity, not particularly worthy of investigation and in practice little more than a central locale for the collection of societal interests. The state in this guise was especially susceptible to rent-seeking activity and sub-optimal development outcomes¹¹. Bureaucrats were rapacious and self-serving, and would divert any resources to benefit their societal benefactors and selves. Development policy was no exception. Neoclassical theorists, and their normative counterparts espousing neoliberal policy, believed that state interference in a functioning market necessarily indicated an attempt to subvert global gains for local privileges¹². By reducing societal interaction to an accumulation of individual utility maximizers, the state

¹⁰Shapiro (1994, 11) points out that later dependency theorists criticized the Prebisch/ECLA focus on the divisions between center and periphery without also accounting for the internal class divisions within developing countries. Dependency theorists also pointed out the role of foreign capital in promoting dependency, complaining especially when ECLA promoted ISI as a means to attract capital goods from abroad for further industrialization.

¹¹Rent-seeking is here defined as returns on resources which are higher than opportunity costs or market returns on the same resource.

¹²Some of the more notable examples of neoclassical economic frameworks include Mancur Olson's (1982) collective action framework, which contended that free riders will subvert the agendas of any but the smallest societal groups, and Deepak Lal's (1983) *Poverty of 'Development Economics'*.

became little more than a venue for the pursuit of specific privileges. While neoclassical theorists accepted this venue role as the normal vocation of a flawed bureaucracy, neoliberals turned this interpretation into a direct attack on the state itself. The state, in other words, was captive to distributional coalitions and prone to failure.

The neoclassical approach enjoyed particular currency among international financial organizations in the 1980s, and provided a seemingly persuasive explanation for the failure of Latin American governments of that decade to provide economic growth in the face of spiraling inflation and ballooning debts. In retrospect, the neoclassical approach was too quick to blame a large number of societal ills on bureaucratic failure (as opposed to market failure). It also explained away or ignored the developmental successes of the same government strategies during the initial ISI period. However, the logic of neoclassical interpretations of Latin American development failures seemed elegant and sound. The neoclassical approach even exhibited a strange symbiotic relationship with early dependency paradigms, at least in Latin America, in that both were pessimistic about the ability of states in the region to independently move development forward (if for entirely different reasons).

2.2.2. The state-centric approach

In the 1980s, the neoclassical political economy literature became ever more strident in its attacks on development economists' faith in government agency. The captive nature of the state to distributional coalitions meant not only that states could not impact development trajectories, but that *any* attempt would have deleterious consequences for the society as a whole. Yet almost as soon as this movement reached its peak, it generated a set of ideas that affirmed the importance of analyzing the state as an actor capable of overriding societal

demands¹³. The state-centric school challenged the neoclassical theorists' efforts to explain away the state and sought to bring the analysis of the state back to the forefront of academic discourse. Hailing mostly from the social sciences, these theorists claimed that effective institution building was the key variable that set countries with high growth rates apart from those with low growth rates. Often referred to as 'institutionalists', these theorists recognized the ability of poor institutions to wreck an economy, but also insisted that state agency did exist and that effective bureaucracy could also exist, independent of societal pressures. While not denying the existence of rent-seeking behavior, state-centric theorists observed that this behavior might be overcome with effective institutions. Poorly functioning institutions might torpedo an economy, but if designed well they could also move it forward. Thus the principle explanation for development failure turned from rent-seeking behavior of individuals to poorly designed and implemented policy. Or, as Evans (1995, 40) explained it:

A comparative institutional approach turns the neo-utilitarian image of the state on its head. It is the scarcity of bureaucracy that undermines development, not its prevalence.

The proponents of this state-centric interpretation of economic growth are a diverse group, and vary in their policy prescriptions for developing countries. They do, however, share a belief that market forces alone cannot entirely explain developmental outcomes. In this respect, they follow in the tradition of Alexander Gerschenkron. Gerschenkron emphasized the capacity of the state as a key explanatory variable for economic success in late developing countries. In his influential examination of European late developing economies, Gerschenkron (1962) claimed that when domestic capital does not have the ability to contribute a market framework on its own (either from a lack of domestic sources

¹³See Evans, Rueschemeyer, and Skocpol (1985), also Gereffi and Wyman (1990), Evans (1995).

or the unwillingness of international capital), the state must act as a risk-taking entrepreneur itself. However, the state is not necessarily capable of filling this role either. Even if it can act as the primary mover of development, an increasingly powerful state in a late developing country may also move a country towards authoritarianism (as was the case in Russia).

There are no guarantees that states will be able to provide the kind of framework that will encourage growth. Because of this, a comparative analysis of the strength and efficacy of institutions becomes necessary. Gerschenkron remained doubtful that non-state actors would be able to bring about industrial upgrading in late developers without the assistance of an active state. For developing countries, there is simply too much to do, sometimes even for markets and states acting in concert.

The final normative dichotomy that underlies much of the debate on international capital concerns the role that the state ought to take in a modern developing economy. Whereas the debate between neoclassical theorists and state-centric theorists raged over whether a state *could* act as an independent agent of development, the third dichotomy between neoliberals and those recommending more interventionist methods revolves around whether a state *should* act as an agent of change. Naturally there are strong connections between the neoclassical and neoliberal poles of these two dichotomies, and while the association between interventionist theorists and state-centric theorists is less strong it bears stating again that these three dichotomies are interrelated. Neoliberals telegraph into policy the neoclassical theorists' lack of faith in the state as anything other than an opportunity for rents, arguing that most attempts at state intervention are wrongheaded. Neoliberalism is at once evangelistic in its faith in the market to advance development and pessimistic in its discounting of the bureaucratic impulse for public good. Those advocating intervention often

propose a strong role for the state in development policy. This often takes the form of industrial policy, which can act as a coordination mechanism for production¹⁴. At its extreme, interventionist thought interprets economic development as simply a matter of political will. If policies can benefit an industry, they should be implemented. Growth rates and other economic outcomes can be explained simply by examining and evaluating the activities of state institutions. Similarly, neoliberal designs promote the absence of state interference as the most likely precondition for development. The popularity of neoliberal policy prescriptions, reinforced by the popularity of neoclassical theory among international financial institutions and governments after the Latin American debt crisis, is truly noteworthy. Though these models have come under serious attack from state-centric theorists and other sources, they do represent the dominant paradigm in the 1980s and still hold influence in the region today.

The three dichotomies outlined here have shaped the debate on international capital and the role of the state for decades. The normative debates about the desirability of foreign capital and state-led development, when interlaced with the positive debate on the independence of state action, have informed heated arguments on how to best achieve development. I will return to these debates before moving on to the core of the arguments concerning multinational enterprises, but we must first consider a region of the world where these debates have assumed added importance for recent development theorists and for Latin America.

¹⁴There have been a number of new theoretic developments in the political economy of industrial policy in recent years, and these have resurrected the idea of industrial policy as a tool to promote growth in specific sectors of developing countries' economies (see Chang 1994; Schrank and Kurtz 2005). Investment promotion policy may be viewed as a sub-category of overall industrial policy.

2.2.3 *The East Asian comparison*

Scholars of all stripes have been attracted to analysis of East Asian industrializing countries, either in isolation or in contrast with Latin America. This happened for a number of reasons. First, East Asian states offered comparative institutionalists the chance to focus on a number of domestic organizations within these countries that appeared to have been remarkably successful in formulating development strategy. Second, scholars were interested in discovering how countries in the region had managed to combine high growth rates with export promotion and import restrictions. The state's role in providing credit to potential winning industries, encouraging domestic savings, subsidizing competitive exports, protecting vulnerable domestic markets, and attracting or developing technology pointed to a potential confluence of good policy and efficient institutions. Finally, the example of East Asia encouraged scholars to look beyond debates on competing state agency claims and consider how development policy success can also depend on structural conditions¹⁵.

Of course, both neoclassical and state-centric theorists had differing interpretations of what lay behind such success. The World Bank and other international financial organizations initially attempted to link the neoliberal approach to development with the experience of East Asia, arguing that the countries of the region had succeeded in 'getting the prices right' at an early stage. This interpretation of the region's success came under a great deal of criticism on a number of fronts. Amsden's (1989) classic case study of South Korea, approaching the topic from a comparative institutional perspective, shows an industrial policy quite at odds with the conventional wisdom of the period. She attributed South

¹⁵Some scholars have suggested that East Asia's lack of natural resources compelled it to find another form of comparative advantage, and invest heavily in exploiting that potential niche (Sheehan 2002). Pempel (2002) claims that labor as a class was not as entrenched in East Asia as in Latin America, and that the power of agricultural workers was much diminished by the time an industrial strategy for development hit full stride.

Korean success to the qualitatively superior subsidization policies enacted and strategic use of state export promotion. These arguments are echoed in Wade's (1990) study of Taiwan, which demonstrated a mutually beneficial relationship between sheltered domestic industry and state institutions. Haggard's (1990) investigation was more sympathetic to neoclassical interpretations, arguing that legislatures were not particularly powerful in East Asia, and political decision makers were therefore insulated from direct rent-seeking political pressures from below. However, he attempted to reconcile the two approaches and devoted significant energies towards analyzing the successes of domestic institutions.

Comparative work attempted to explain the reasons for East Asia's success and Latin America's failure, coming to a variety of conclusions. Rodrik (2000) emphasized that the domestic institutions of conflict management, especially industrial conflict management, were too fragile in Latin America and thus constituted a real weakness for development strategy in the region. Gereffi and Wyman (1990) proposed five phases of industrialization: commodity export, primary ISI, secondary ISI, primary Export Oriented Industrialization (EOI), and secondary EOI. They claimed that the regions' paths began to diverge when Latin America chose secondary ISI while East Asia instead opted for primary EOI. These works demonstrated that comparisons were possible, even while acknowledging cross-regional differences in economic structure and history¹⁶.

By the early 1990s, the World Bank had ceded some ground to the institutionalist perspective, admitting that selective government intervention could in some contexts generate rapid industrial growth. However, the controversies over the root causes of the East Asian successes continue. These debates matter a great deal for analyses of Latin American

¹⁶Gereffi and Wyman (1990) pointed out that cross-national analysis was justified as there were many important differences within these regions, and not just between them.

development, as they inform policy prescriptions for states at intermediate levels of development. Institutional interpretations of development, for example, would recommend that states in Latin America concentrate on strengthening those portions of the state apparatus deemed essential to development. Strengthening the rule of law, reforming regressive tax systems, strengthening property rights, and various other reforms are often mentioned as institutional fixes that can move development forward. Neoclassical interpretations of East Asian success stories sometimes touch on these reforms, but they often encourage policymakers to adopt a different set of priorities, mostly aimed at eliminating price distortions. The two perspectives draw quite different lessons from the East Asian experience.

2.2.4 The inadequacy of neoclassical theory

The neoclassical political economy literature has contributed greatly to our understanding of development processes. Its most important contribution has been to force analysts to confront the state's potential for rent-distribution. Many development economists before the neoclassical assault were overly confident in the state, not only in its ability to bring about change but also in its good intentions. Neoclassical political economists forced groups within the academic community to examine the source of state power and the interests of individual actors within the state apparatus. This was undoubtedly a positive development, although perhaps in shifting the focus back to the state neoclassical economists inadvertently provided ammunition for the institutionalist criticisms that would come¹⁷.

Neoclassical political economists and their more strident neoliberal acolytes, despite their many contributions, have followed some flimsy theoretic constructs. These have by

¹⁷Evans (1995) and Shapiro (1994) both make the point that neoclassical political economy has moved the focus of the debate from imperfect markets to imperfect states, thus laying the groundwork for later institutionalist discoveries of well-functioning states.

now become a familiar series of complaints, but they bear repeating. In denying the ability of the state to promote economic advancement for an entire society (as opposed to select groups within that society), neoclassical theorists deny the possibility that bureaucracies can be insulated from societal demands or have institutional histories that instill them with bureaucratic cultures. In democratic systems, representation at its most base becomes a means to translate constituent interests into rents. Representatives are not conditioned by the norms of the chambers in which they work, according to neoclassical theory. In authoritarian systems, the constituency may be smaller but the same principle applies. There is no room for institutional culture or institutional evolution in this theoretic framework. In denying the possibility of evolving bureaucratic norms, the neoclassical paradigm erred on the side of theoretical purity.

Neoliberal application of neoclassical theory is therefore strangely ahistorical and impracticable. Neoclassical economic theory often translates into universalistic claims about desirable policy, without consideration of context, structure, or cross-national variation in market governance. This is problematic because there are no real-world examples of societies where development is governed by market forces alone. In contrast, every society on earth is governed by an imperfect state. The utility-maximizing behavior of elites forms a conundrum from which neoclassical theorists cannot escape. Even if bureaucrats were to remove themselves from the picture, the skeletal state left behind would never be completely without opportunities for rents. This harkens back to Weber's point that markets must be constructed, they do not arise spontaneously. Yet the construction of a state along neoclassical lines also carries with it some paradoxes. According to the neoliberal prescription, an autonomous group of policymakers must disregard rent-seeking pressures

and implement policies that benefit society as a whole while depriving rent-seeking groups of influence. After reform is launched, it is argued, economic incentives will increase the influence of larger consumer groups, who profit from the neoliberal order. This will allow the state to gradually diminish its influence, and its size. However, this process requires a number of strong assumptions. First, it assumes that the ‘strong’ state institutions in the first step will be able to disregard rent-seeking pressures. Secondly, it assumes that the state will then be willing to relinquish its special decision-making powers after new interests become influential¹⁸. Finally, the model assumes that the newly empowered interests do not also have rent-seeking proclivities¹⁹.

The historical record has not consistently aided the neoclassical cause. Although there are some instances of societies with relatively small and impotent states functioning well and developing quickly, there are also a number of bureaucratic behemoths which have managed to pull off stunning growth rates for extended periods of time. Brazil during the period from 1968 to 1973 hardly exhibited a wallflower state, and yet the country consistently hovered near double-digit growth rates. Brazil has not equaled that performance in years since. Perhaps the high water mark of ISI is too far removed, and the pains of the debt crisis are too fresh, for analysts to properly emphasize what these episodes mean for contemporary political economy. However, it is important to consider the long track record of state strategy in developing economies, and not just its retreat since the 1980s.

¹⁸Kahler (1990) has noted that the implementation of even a close-to-perfect neoliberal state requires that bureaucrats with special privileges give up those privileges willingly and content themselves to be individual maximizers with no special access to scarce resources.

¹⁹This notion has been challenged, particularly in Latin America, with the revelation that many groups benefited by neoliberal reform can also engage in rent-seeking (Schamis 1999; Haggard and Maxfield 1996).

Finally, and perhaps most problematic, the role of change in developing economies is not adequately addressed in the neoclassical framework. Neoclassical theory works very well in explaining how unfettered markets can produce optimal outcomes in situations of perfect information. However, in developing countries full information is rarely the case. Moreover, it is not clear that markets will escort developing countries into the best positions in an international division of labor. The principle of comparative advantage provides compelling rationales for developing states to do what international markets demand. However the incentive for change in the pursuit of long-term gains, if temporarily painful or inefficient, is suppressed in the neoclassical framework²⁰.

By now it should be apparent that this work advocates and adopts an institutionalist framework to explain how the Brazilian state has impacted, and failed to impact, the presence and activities of multinational enterprises operating within its borders. While societal forces and the activities of rent-seeking groups are important determinants of investment policy and industrial policy in general, they do not account for the full complexity of the relationship between the Brazilian state and multinational enterprise. To do this, the role of Brazilian political institutions must be considered. Institutions are the lenses through which political action are refracted to produce interpretable outcomes. Political economists interested in complete interpretations of development trajectories therefore ignore institutions at their peril.

The adoption of an institutionalist framework should not be interpreted as discounting the possibility of poorly planned and implemented development policies. It would be the

²⁰As Srinivasan (1985) pointed out, the long-run benefits of changes may not be apparent for developing states and therefore economies may end up taking the best advantages of sub-optimal stages of development. That is, neoliberal principles may lead states to confine themselves to doing the best they can with what they have, instead of seeking alternate pathways. Innovation often demands more than a market framework, and states have sometimes filled the gap.

height of irresponsibility to suggest that the Brazilian state has committed an error in dismantling parts of its often redundant and counterproductive state apparatus over the last twenty years. It would be equally foolish to examine successful state initiatives without acknowledging the numbers of missteps along the way. As the rest of this work will show, the Brazilian state has had more failure than success in its attempts to wrest benefits from international investment. However, the absence of state success does not always indicate the absence of the possibility of success, or deny the state its ability to influence international capital. The positive dichotomy on the question of state agency should err on the side of the institutionalists. On the other two more normative questions, the answer must be more subtle. There is no use in attempting to decide whether state involvement in development strategy is universally appropriate or not, just as there is no use in trying to decide whether Foreign Direct Investment is universally beneficial for the host country. The answers to these questions are inevitably context-driven. The debate has happily moved from questions of ‘more’ or ‘less’ state or foreign capital in the economy to more interesting questions of ‘when’ and ‘how’.

One further caveat is needed before proceeding. Referring to ‘the state’ as a monolithic entity with singular goals and unity of purpose is of course problematic. Indeed, one of the singular contributions of neoclassical political economy is to remind us that the state is made up of a huge number of cross-cutting and competing interests. More pluralist-oriented theorists will find fault in many of my claims about what ‘the state’ wants and is able to achieve. However, there is value in considering the state as a latent construct, in the sense that it is broadly responsible for economic management and, if democratic, ultimately answerable to its population. Moreover, ‘the state’ functions as a kind of shorthand to

account for governmental priorities, without referring to the competing interests that were involved in determining those priorities. However, it is necessary to acknowledge the many interests at work within an expansive bureaucracy. This analysis will endeavor when possible to separate those portions of ‘the state’ that have been successful in achieving their goals from those which have not, and what interests in society are served by different parts of the state bureaucracy. It is a delicate exercise to consider both the whole of the state and its parts, but necessary for a more complete understanding of state capacity.

2.3 Multinational Production and the New Context

As recently as a decade ago, debates about the role of state in jump-starting development centered on what sorts of things the state could do to encourage the emergence or advancement of national firms. In Latin America, the enduring legacy of Import-Substitution Industrialization had conditioned a generation of scholars and policymakers to believe that infant industry protection could generate substantial rewards in the long run by encouraging the emergence of entrenched domestic industrial groups. Before the debt crises of the 1980s, a number of countries in the region had developed sophisticated and diversified economies, almost always behind walls of protective tariffs, selective subsidies, and other means of support for priority sectors. Though most of these industries did not make the transition from domestic maturation to full international competitiveness, the emergence of these industries did constitute a validation of sorts for those who argued that development policy should primarily concentrate on channeling resources to strategic domestic industry. International capital, when it was considered by economic planners, was looked on primarily as a source of capital goods or financing²¹. There were sectors of the economy where multinational firms dominated, but even in these sectors there were often strong supporting

²¹ECLAC was among the organizations that encouraged this perspective in the 1970s and into the 1980s.

networks of local firms. In the inflationary environment of the 1980s and early 1990s, multinationals were reluctant to pursue new investments in the region. Those multinationals already in country were content to maintain their operations at survival levels, and did not commit large amounts of new resources (ECLAC 2005, 17). For development theorists, the most important questions therefore continued to revolve around how to allow resources to reach productive domestic firms.

How things have changed. The past decade and a half has witnessed a veritable invasion of Foreign Direct Investment into Latin America. Satisfied with the region's continued macroeconomic stability, firms have established new operations in growing markets and have infused existing operations with new capital. Latin America's own multinationals have also been expanding abroad, snapping up partners in other countries in the region and also in the developed world. This explosion of cross-border investment has had profound impacts on the region's economies.

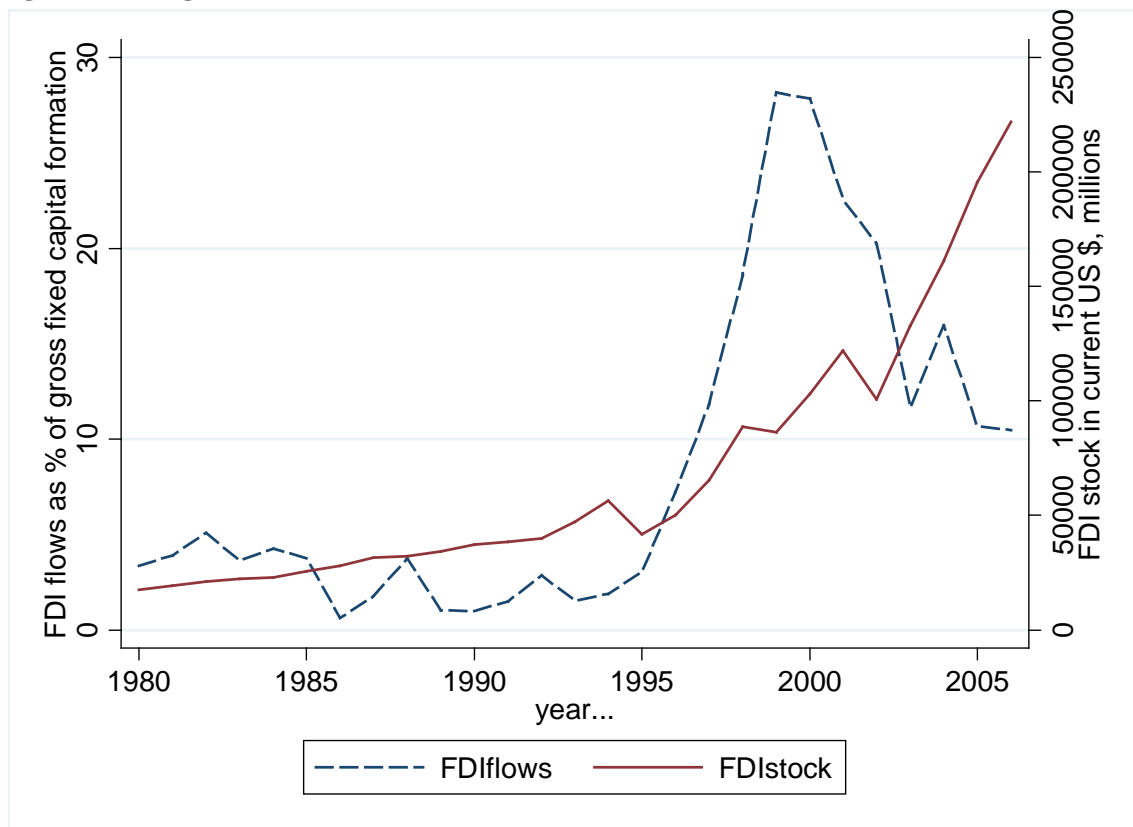
In Brazil, the privatizations of the 1990s put a number of enormous and lucrative sectors of the economy into foreign hands. Privatizations occurred in every sector of the economy, with some of the largest occurring in the telecommunications and energy industries. Brazil's struggling steel firms were sold in the period from 1990 to 1994. In 1998, Telebrás was broken up and sold off. The privatization of the energy sector proceeded more slowly. In addition, a number of new foreign automobile manufacturers entered Brazil in this decade, challenging the supremacy of the 'big four'²². As figure 2.1 shows, the share of capital formation accounted for by foreign firms skyrocketed.

The reasons for this dramatic increase are well known. The Brazilian government had conquered runaway inflation and therefore provided a much more stable investment

²²Fiat, Volkswagen, GM, and Ford

climate. Beginning with the 1994 *Plano Real*, Brazil's domestic currency was progressively tied to a series of international benchmarks. Save for a brief but substantial devaluation episode in 1998 and 1999, the value of the currency has proven remarkably stable. The reform programs of the 1980s and 1990s had also involved a number of other measures generally viewed favorably by international firms, such as the 1995 amendment to the constitution which allowed foreign investment in sectors of the economy which had previously been off limits. Though the pace of reform in Brazil was slower and more piecemeal than in other countries, its overall tenor was decidedly pro-market and pro-investment. The combination of a stable currency and steadily growing domestic market proved irresistible to international business.

Figure 2.1 Foreign Direct Investment in Brazil, 1980-2006



Source: United Nations Conference on Trade and Development, FDI Database

2.3.1 *Multinational production and state agency*

This influx of foreign investment has profound implications for development theory and strategy, and forms the empirical justification for this project. Multinationals control a large and increasing share of the Brazilian economy, and yet the theoretic implications of this increase for industrial policy have not been adequately addressed. In his study of the Brazilian informatics industry in *Embedded Autonomy*, Peter Evans notes the dramatic increase in foreign participation in Brazilian informatics during the early 1990s. Because his study is more concerned with the 1980s and Brazil's efforts to create a domestic computer industry, Evans is not able to dwell on the consequences of these developments²³. However, he does ask whether increased penetration of domestic economies by foreign firms will correspond with a decrease in 'embeddedness' of states in their national economies (ch. 8). In other words, does the internationalization of production result in a loss of influence for states attempting to encourage economic development? The importance of this question is obvious.

My contention is that the internationalization of domestic industry in Brazil does alter the development discourse in fundamental ways. It stands to reason that states cannot have as much influence over international firms as they have over domestic firms. States do not participate in international business networks in the same way that they are enmeshed in domestic societal groups, and therefore may have less room to maneuver than when dealing with domestic firms. This idea is reflected in popular notions about the effects of globalization; that somehow states are limited by international investment competition.

²³Evans (1995) does point out, however, that the emergence of a domestic informatics industry, nurtured by the state, did endow domestic informatics firms with bargaining leverage in their interactions with multinationals. In effect, the emergence of the informatics industry in Brazil set the stage for its later attractiveness to foreign firms.

However, it is also true that states are far from powerless in dealing with international production networks. States are able to condition the behavior of multinational firms within their borders, sometimes in profound ways. The institutionalist impulse, so important to assessing the ability of states to effect development, is still applicable in the age of multinational production. The nature of state agency is quite altered, but it has not disappeared altogether. After all, states are the ultimate arbiters of what transpires inside their borders.

There are a number of ways in which the role of the state has irrevocably changed. Except in a few cases of natural resource extraction, the state has removed itself from direct control of domestic industry²⁴. In the context of multinational production, the state (again with a few exceptions) has not inserted itself as a replacement or competitor to private firms. The trend has been in the opposite direction: a retreat of the state from direct control over productive capacity.

The changing structure of international production also has implications for the boundaries of state agency. The economic reform processes of the 1980s, together with the dramatic increase in investment, have resulted in a variety of changes for multinationals' organizational models in Latin America. Tariffs have been lowered, local content requirements dropped, and employment regulations have been loosened. Decreases in transport costs have led some firms to adopt *global* production strategies, in which production tasks are distributed among countries based on their comparative advantages and factor endowments. These changes have moved firms to consider a variety of investment models to best take advantage of local conditions. In decades past, multinational firms often

²⁴Minor (1994) notes the demise of expropriation as a tool of developing country policy. From its height in the 1970s, the rate of nationalization has declined precipitously.

chose between flexible models of organization that reproduced assembly lines in each country of operation and other models that integrated production across geographic boundaries. According to this simple dichotomy, horizontal models of production enabled firms to duplicate the same activities in many countries, thereby gaining access to local markets. These models were often reinforced by local content requirements, which encouraged firms to locate production close to target markets. The alternative end of the spectrum is vertical production, in which firms locate separate stages of production in different geographic areas. This simple dichotomy has since been greatly expanded to incorporate the growing complexity of organizational models for firms seeking to take advantage of production in developing countries. Global value chain (GVC) analysis, a growing body of research, attempts to come to terms with the growing complexity of international production models. The GVC literature has developed broad analytic categories that convey the relative power enjoyed by individual firms in different sectors, such as buyer-driven chains and producer-driven chains²⁵. As multinational firms expand their production networks, the taxonomy required to analyze their behavior is becoming more detailed. This growing complexity has important implications for industrial policy in developing countries and for the institutions charged with implementing those policies.

In Brazil, the evidence of increasing transnational linkages within industries and firms is undeniable. In its two recent censuses of multinational firms operating in Brazil, the central bank found that the percentage of imports accounted for by multinational corporations had risen from 39% in 1995 to 57% in 2000. Multinationals' share of exports increased from

²⁵Where a small number of firms exert great power over their supplier base, as is the case in the automotive sector, a producer-driven value chain model exists. Buyer-driven chains rely on less direct control over suppliers. Global supermarket networks (such as those of Wal-Mart) are good examples of buyer-driven chains (Gereffi et al. 2005, Sturgeon et al. 2008)

47% to 60% in that same period. There is considerable evidence that much of this trade activity is taking place intra-industry and intra-firm. Baumann's (1993) preliminary study suggested that by 1988 up to 20% of Brazilian trade with North America was within-industry. In the two central bank reports, intra-firm imports grew to \$ 18 billion in 2000 from \$ 8 billion in 1995, and intra-firm exports grew from \$ 21 billion from \$ 9 billion (Franco 2003). These numbers indicate increasing connections between firm affiliates in Brazil and their worldwide production networks.

As intra-industry and intra-firm trade increases and multinationals grow larger, institutional variation among states will impact not only where firms decide to locate investments but also where firms decide to locate specific activities within their global value chains. The largest multinationals increasingly face decisions about where to locate different productive processes in order to best take advantage of local conditions, which include the state institutional framework. This poses a new set of questions for development theorists. Dependency theorists for years worried about countries being locked into an international division of labor. The expansion and global rationalization of multinational enterprise renews this concern, but in the current context the organizational complexities of large firms assume greater importance.

All of these developments raise serious problems for traditional ways of looking at the role of the state in economic development. The rising tide of multinational production has changed the context for states. Some options are no longer available to interventionist states. Developing country governments rarely nationalize industries, and the barriers (technological and otherwise) of entry into the international marketplace sometimes make promotion of national champions unrealistic. It is also increasingly difficult for even the

best-funded state agencies to determine how firms will react to interventionist policy. However, there are a number of ways in which states do retain agency in the new context. There is no guarantee that this agency will be used effectively, but it does exist in modified form.

The reluctance of development theorists to come to terms with international production is in some ways understandable. The global imperatives of multinationals add another layer of complexity to the analysis of state-firm relations. Moreover, FDI has long been viewed with suspicion by those theorists operating within the dependency tradition. The state-centric school in the 1980s often concentrated on state efforts (and failures) to develop domestic industry in lieu of foreign penetration. Yet the growing influence of multinational investment in developing countries should not be ignored, nor should its implications for state agency.

2.3.2 The bargaining perspective on firm-state relations

In order to understand the nature of state agency in the context of international production networks, it is useful to consider the body of work that interprets multinational-state interaction as a bargaining relationship. Especially influential in the field of international political economy, this literature conceives of the interaction between firms and their hosts as a potentially beneficial game, in which both sides have benefits to offer the other. Of primary concern is the degree to which different endowments of technology, mobility, and proprietary knowledge across sectors and countries can interact to produce different outcomes in firm influence²⁶. Bargaining relationships can be conflictual but also

²⁶Vernon (1971) and Moran (1975) emphasized the lack of bargaining power for firms in natural resource industries. Also see Kobrin (1987) for a consideration of bargaining outcomes across sectors.

can involve benefits for domestic and foreign parties²⁷. In this literature, both states and firms are equipped with various qualities that attract one to the other. The motivations that draw firms toward international production are by now well established²⁸. Advantages in organization, access to natural resources and finance, labor cost advantages, and economies of scale have all been cited as factors that offset the cost of overseas production for firms. These advantages were more formally documented in Dunning's (1980) Ownership, Location, and Internalization (OLI) framework, which proved to be a durable model for explaining business organization. This framework illuminated the ways in which optimal patterns of firm organization could translate into profits even in an environment of high transaction costs and inimical policy, which developing countries often exhibited.

For host countries, the potential benefits of multinational enterprise are also well known, if sometimes controversial²⁹. Multinationals can provide developing countries with technological upgrading through backward and forward linkages with local firms. Multinationals often exhibit novel management structures, and can transfer organizational know-how. They can boost productivity, lead to exports, and generate a set of spillovers that can positively affect host economies. These qualities, when coupled with the benefits enjoyed by firms through multinational expansion, can lead to positive-sum outcomes for both firms and states.

²⁷See Bennet and Sharpe (1979) for an investigation of conflicts between the Mexican state and transnational automobile corporations. Evans (1979) showed that interactions among states, domestic firms, and multinationals could realize benefits for all parties involved.

²⁸The dependency school drew heavily on theories of market imperfections to explain the entrance of multinationals in Latin America, and other authors emphasized the strategic advantages multinationals had over domestic firms (Kindleberger 1969, Hymer 1976).

²⁹See the Moran, Graham, and Blomström (2005) edited volume for a recent and comprehensive treatise that investigates whether FDI promotes economic development.

The bargaining perspective is essential in order to properly interpret the role of the state in the era of multinational production. In contrast with earlier decades, where the emphasis of development theorists was on infant industry protection and the timing of liberalization, the increasing participation of multinationals in developing countries requires a wider perspective. The boundaries of state action are now limited not only by what is achievable domestically, but also by what multinationals can be made to accept.

There are reasons to hesitate before pressing on. One may legitimately ask whether the motivations and behavior of multinational firms are really so different from national firms. After all, both types are both profit-seeking enterprises. The only difference is the ultimate source of control. Does this really necessitate a new analytic framework? Should the developmental state not have the same set of tools in dealing with both multinational and domestic firms? These are important questions, and to be sure there are no guarantees that specific domestic firms will be easier to control than their multinational counterparts. However, the element of multinationality does introduce new dimensions to the debates on state involvement in development strategy. In particular, multinationals are more able to threaten exit (dependent on sector and the nature of the investment), and they increasingly have global investment perspectives. This complicates state strategy, and may lead to a decrease in state efficacy. International competition for FDI is often cited as a constraint on state initiative, and this is especially true in sectors where firms are highly mobile.

This element of multinationality also requires some important considerations about the degree to which firms may be manipulated by host country governments. Because these firms are tied to foreign governments, their operations are also governed by international treaties. The reduction in Trade-Related Investment Measures (TRIMs) agreed to in the

Uruguay Round of the GATT/WTO had an impact on what host countries could and could not require of international firms. Trade-Related Investment Measures are trade-affecting conditions on foreign investors imposed by host governments, most often to encourage investment that furthers national priorities. Some of these measures were deemed inconsistent with articles III (national treatment) and XI (prohibition of quantitative restrictions) of the GATT. In practice, this means that host country governments cannot force firms to meet domestic content requirements, for example. Brazil was a signatory to the Uruguay Round, and has been phasing out most of its TRIMs. Does this mean that countries are forbidden by their WTO commitments from influencing the production models of multinational firms? In practice, no. The agreement is limited in scope. States are not always prevented from imposing export requirements as a condition of investment. They are not prohibited from insisting that a foreign investor must use recent technology or must conduct a specific level or type of R&D locally (Low and Subramanian 1995). Brazil was already phasing out its domestic content requirements when the Uruguay Round was completed, and some of the more controversial aspects of TRIM removal are still being debated. In short, developing country governments still have ample opportunities to condition the investment models of firms.

Another possible complaint concerns the novelty of FDI, particularly in Latin America. Foreign investment in the region is not particularly new. Firms from the developed countries have been establishing operations in the regions for decades, even centuries. From the British railroad companies of the early 1900s through United Fruit's misadventures in Central America, this is not a region that has struggled to attract the attention of foreign capital. However, there are new qualities to this most recent wave of

multinational activity. First and foremost, the transition from models of development that emphasized protective barriers to ones that emphasize openness has generated massive dislocations in domestic economies of the region. The transition, in some cases rapid and/or painful, has left governments groping for new policy frameworks and development models. Second, the communications revolution of the last twenty years, along with advances in productive technology and transportation, has integrated worldwide business in ways unimaginable only a few decades ago. These connections and massive investment flows make traditional development models less relevant.

2.4 Theoretical Foundations: Institutions and Multinational Incentives

If we imagine the bargaining relationship between multinational firms and states as a continuum, we could imagine two ideal points. One point would be the ideal set of circumstances for the multinational considering investment. This point would connote a generous set of incentives for the firm, perhaps including tax exemptions and reliable infrastructure. A location with a highly skilled and quiescent workforce might be desired. The firm would look for proximity to hungry markets. If engaging in exports to third countries, the firm would hope for a liberal trade regime. Every attribute of that ideal point would be designed to increase profit and ease operations. What would the point on the continuum that represents state interests indicate? This work concentrates on two potential benefits of multinational production, often prized by host countries: innovation and export activity. On the innovation side, the state would emphasize technology transfer, moving innovations from the multinational to partnered domestic firms so as to bring about industrial upgrading. The state would also emphasize export production, encouraging the multinational to contribute to the Balance of Payments. Even if we assume clear intentions from both state

and firm, it is not difficult to see that these ideal points may be quite distant from one another. Firms are designed to increase profits – we should not expect them to do otherwise. Potential development of the host country, while perhaps a happy benefit of investment, is not a motivating factor for multinational enterprise. Large multinational firms operating truly global value chains prioritize ‘globally rational’ models that take advantage of comparative advantages and factor endowments in different locations. Yet the productive activities the multinational desires for a country are not guaranteed to be those activities most conducive to development. States, especially democratic states, are beholden to a different and more diverse set of interests. In contrast to the multinational, states are concerned only with the contribution firms can make to local development (or rent production in the case of predatory states). An ideal equilibrium for a developmental state would extract from the multinational just enough concessions for the firm to go through with the investment, while providing maximum benefits to development objectives. The contrast between the globally rational strategies of firms and locally rational strategies of states inevitably produces divergence and conflict. Neither the state nor the firm is able to get everything it desires, so what determines whether the firm invests or not, and what form that investment takes?

2.4.1 Multinational incentive structures and state policy

There are a large number of factors that determine the investment activity of multinational firms in developing countries, many of which are outside the control of the host country government. Because of this, isolating those institutional and policy variables which influence the character of multinational investment is a challenging task. One of the primary concerns of this work is to delineate the boundaries and character of state agency in an environment of high multinational penetration. Therefore it is important to first acknowledge

the incentive structure facing multinationals, which includes host country policies and institutions. In this work I endeavor to separate policy (state strategy) from institutions (capacity), though this separation is relaxed somewhat in chapter six. In this subsection I consider policy, and in the next I consider institutions.

Figure 2.2 is a graphical representation of the general incentive structure facing multinational firms. The first two categories of investment incentives cannot be influenced directly by potential host countries. There are a number of internal firm characteristics that determine whether multinational production makes sense³⁰. Obviously, the sector of the economy imposes limitations – barbershops cannot engage in sophisticated multinational production (though services are increasingly governed by multinational management structures). Firms that do not have the capacity to expand abroad must wait until they have accumulated enough capital to do so. The international economic environment is also largely beyond the control of potential host countries, though larger countries like Brazil can have some impact on this investment incentive. Firms typically scale back investments abroad during worldwide downturns, though selective investments may occur if local markets in the host country are growing enough to offset potential losses.

The third category of the multinational incentive structure encompasses a great deal. There are a number of host country structural characteristics that are largely beyond state control – geography, population, etc. Yet these variables often have a profound impact on capital flows to developing countries. Brazil has developed a sophisticated and diversified multinational base whereas FDI in Honduras is largely confined to agricultural and textile production. However, there are a number of structural incentives at least partly under the

³⁰Classic treatises on the structure and motivations for multinational production include Vernon (1971) and Dunning (1980).

control of states. Class structure, democratic development, and other qualities can affect the investment decisions of multinationals. These characteristics are ingrained in societies, though not permanent. They are often slow to change, and therefore should be distinguished from more malleable policy or institutional capacity. Much work in comparative political economy analyzes the role that these kinds of internal arrangements can have on the development of capitalist systems. In its broadest sense, the study of complementarities among different historical/structural characteristics within states and their corresponding capitalist models harkens back to a wide body of literature on the relationship between capitalism and democracy³¹. Though little of this literature concentrated on FDI, it does serve to emphasize the larger point that structural characteristics internal to developing countries do have a great deal of influence on the course of development.

More recently, a new body of work has appeared, primarily in the field of international political economy, which considers the impact of political and social characteristics on the character of multinational investment. Much of this new research is cross-national in nature and attempts to discern the domestic institutional and policy determinants of FDI flows³². Scholars have considered various potential determinants of FDI, from democracy (Jensen 2003, Li and Resnick 2003, Oneal 1994) to federalism (Jensen 2006). Others have investigated those FDI determinants specific to Latin America (Tuman and Emmert 2004; Biglaiser and DeRouen 2006). These works share a common objective: to link changes in overall investment levels with structural variation across countries. These

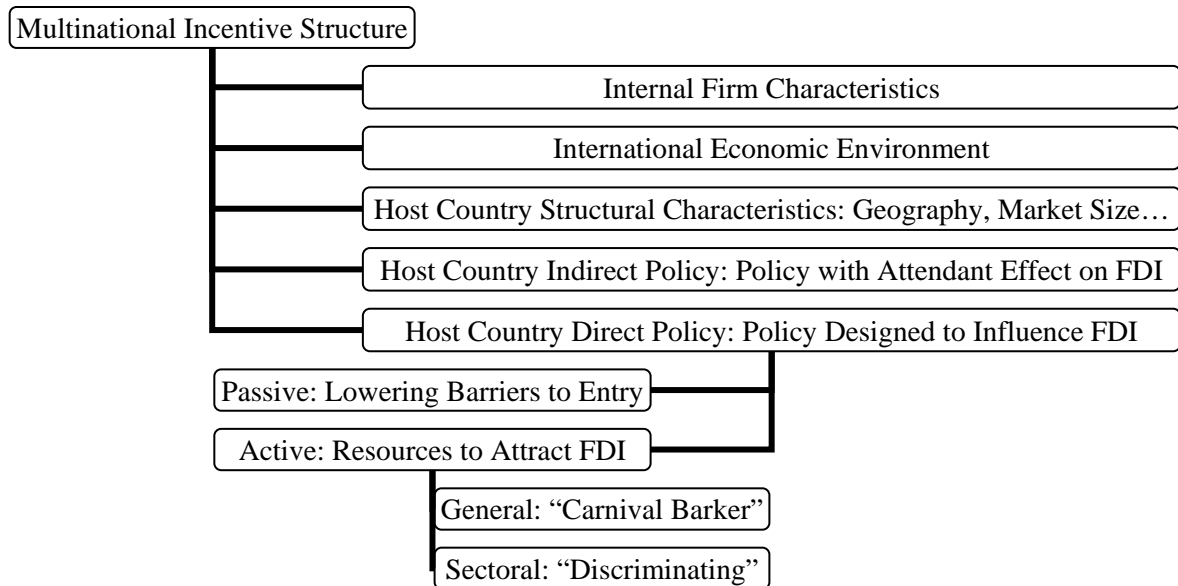
³¹Rueschemeyer, Stephens, and Stephens (1992) examine the impact of class structure on variations in capitalism and democracy. Przeworski et. al. (2000) resurrect old modernization debates to ask whether democratization and capitalism are mutually reinforcing.

³²For a comprehensive overview of this literature in the field of International Political Economy, see Jensen (2006).

‘structural’ variables and the policy and institutional variables that are the primary concern of this work sometimes overlap. However, the primary distinction for the purposes of this investigation is between larger state-societal arrangements and the manifestations of state agency, as revealed through policy and conditioned through existing state institutions. This work focuses not on aggregate levels of foreign investment but instead on the specific investment models pursued by firms and how those models are conditioned by the state. Moreover, the institutions considered in this predominantly case-study investigation are the specific state bodies that serve as intermediaries between firms and state policymakers.

The two remaining categories of the multinational incentive structure displayed in Figure 2.2 are more proximate concerns of this work, and therefore receive the most theoretic elaboration and empirical attention. Direct policy in particular is the primary venue of investigation. Firms may respond to everything from legislation on intellectual property rights to changes in exchange rate regimes to tariff reductions on inputs. Therefore it is useful to analytically separate types of investment policy. A common distinction in policy circles is between direct and indirect measures, though the exact terminology may vary. This refers to those measures which are specifically designed to change the behavior of firms in country or attract new entrants (direct) and those policies that are designed for other purposes but may have concomitant impact on multinational investment (indirect). The stabilization of the domestic currency in Brazil in 1994 is an example of indirect policy. Though the objectives of this initiative went far beyond the bounds of international investment, it had a profound impact on investment flows.

Figure 2.2 A model of state agency and firm incentives for investment



Direct policy is most important for this work, because it allows us to test questions of state agency. Direct policy is that which is designed specifically to influence the volume and character of FDI. There are a variety of tools available to states interested in affecting investment. Potential host countries may create Investment Promotion Agencies (IPAs), which have been shown to influence aggregate investment flows under certain conditions³³. States might also ease restrictions on foreign capital, which are still in place in much of Latin America. This brings us to a further distinction within direct policy. State direct action may involve committing resources to investment attraction (active), or may involve reducing barriers to entry (passive). Until recently in Brazil, most changes have been passive in nature, as the old ISI model was dismantled. However, Brazil and other developing countries have increasingly been devoting resources to the active recruitment of FDI, as evidenced by the increasing number of IPAs worldwide. An example of direct, active policy would be an

³³Morisset (2003) found that greater investment promotion is associated with higher FDI flows, in addition to the influence of a country's investment climate and market size. However, the effectiveness of the agency depends on the context in which it operates.

initiative designed to increase linkages between multinational auto parts firms and academic institutions in the host country, in order to encourage technological spillovers. Changes in corporate tax rates specifically for multinationals should also be considered active and direct.

The last distinction relates to the scope of the active, direct measure: sectoral policy privileges a certain sector or sectors, while general active policy is policy designed to encourage investment across the board. The most appropriate analogy here is to the carnival barker, whose indiscriminate entreaties encourage all within earshot to enter. The sectoral, or ‘discriminating’ investment promotion attempts to discern among types of investment, and devote the most resources to attracting the investments that are considered most beneficial for state goals. Of course these are ideal types; states in the real world employ a broad mix of strategies to influence firm behavior. As we shall see in Brazil’s case, however, there are times when certain strategies are dominant over others, due to a number of institutional and political factors. Brazil has, up until recently, very rarely employed discriminating active direct policies to influence investment.

This is a partial taxonomy of host country policy, and because the scope of this work is limited to the domestic determinants of FDI policy there are doubtless more complex ways of characterizing multinational incentive structures. In particular, the international forces operating on multinationals remain under-elaborated here. Moreover, the boundaries between the different categories are not always distinct (are labor regimes structural or policy-based?). However, the theoretic distinctions among different types of state strategy allow some important insights. It is interesting to note the inter-relationships among different incentives. Institutions such as ECLAC have advocated distinctions similar to the active/passive dichotomy for some years now.

There are some other essential caveats to this construct that must be elaborated before proceeding. First and most important, all the components of the incentive structure are acting on multinationals at the same time. Some may be favorable for investment to take place while others may not. It then becomes quite difficult to assess the impact of policy on investment flows. An incentive that works in a low-inflation environment might not otherwise, even though the incentive itself is unchanged. The host of factors that potentially influence an investment decision include the variables that can reveal state agency, but are not limited to them. As Shapiro (1997, 77) explained in her study of export-promotion policies in Brazil:

It is difficult to disentangle the impact of structural shifts from macroeconomic phenomena and export promotion policies must be understood within the context of the overall policy environment and the dynamics of the domestic economy.

The same point can apply to FDI. Timing plays a role; indirect or direct policy must have appropriate international and other conditions in order to have an effect on FDI. Strong policy may overcome countervailing pressures from outside, but it may also fail. Along these lines, it is also important to note that indirect policies do not necessarily have less of an impact on firm behavior than direct policies. Indeed, the opposite may well be true³⁴. However, there is often a demonstrable impact of direct policy on FDI, especially when channeled through effective institutions.

Another necessary clarification concerns internal firm characteristics, the first of our five categories in the multinational incentive structure. This is not to be confused with firm

³⁴In various surveys of multinationals, targeted investment promotion policies were often ranked below exchange rate policies, general tariff policies, and other indirect measures in terms of importance to individual firms (Blonigen 2005). However, even when controlling for indirect policy and macroeconomic factors, targeted policies do seem to influence investment flows at the firm level (Loree and Guisinger 1995). As detailed in chapters four and five in this study, respondent firms often noted that while indirect policies had significant impact on investment decisions, direct policies such as export financing could be very influential.

preferences over policy in potential host countries. It is difficult to make universalistic claims about firm preferences beyond the motive for profit. This profit-maximizing strategy, while reasonable, does not reveal the kind of policy regime desired by multinationals. It is often assumed that firms desire neoliberal-style economic policy frameworks, but this is not true in all contexts. Economists have long noted that FDI often serves as a substitute for trade in developing markets, and this ‘tariff-jumping’ FDI is often a fierce defender of subsidies and distortions (Blonigen 2005; Bennett and Sharpe 1979). Though not at today’s aggregate levels, large amounts of pre-debt crisis FDI were partly the result of firms’ desires to get around restrictive tariff policies in the era of ISI. Firms that set up operations during this wave of investment did not display uniformly neoliberal policy preferences. Moran (1974) and others have noted the desire of multinationals for continued protection in situations where liberalization would generate competition in the domestic market. Just as we should not assume developmental preferences on the part of state institutions (as opposed to rent-seeking), we should not assume uniform preferences on the part of multinational firms.

2.4.2 Credible leverage: institutions and bargaining

The previous section provided a typology for host country policy in relation to multinational firms. However, in order for policy to be influential it must be channeled through effective state bodies. These organizations are referred to in this work as institutions. It is important to highlight this distinction between policies and institutions, which can best be thought of as a distinction between state strategy and capacity. As noted in the introduction, much of the current institutionalist work in economics and political science defines institutions broadly, encompassing laws, rules, formal organizations, and informal

norms and conventions (North 1990; 1994). In chapters three through five in this work, I use a more limited definition of institutions, which involves only the formal organizations of the state and disregards informal norms. I concentrate in particular on those institutions charged with investment promotion. I also separate formal state policy (strategy) from formal institutions (capacity), in order to distinguish the effects of one from the effects of the other and emphasize their interaction. I point out, for example, policies in Brazil which, while well-designed, were undercut by institutional characteristics, such as a lack of inter-institutional coordination in the governance of the PITCE industrial policy during the Lula administration. The distinction allows me to analytically separate the impact of institutional characteristics from the design of the investment policies. As an example, I argue that more active, direct, and sectorally discriminating policies during the Lula administration were more effective when channeled through institutional ‘pockets of efficiency’ such as the BNDES. The interaction between policies and institutions is important, as the gap between policy design and implementation is often large in developing countries. In chapter six, which considers the influence of institutions on firm investment profiles in a cross-national setting, I briefly expand the definition of institutions to include policy, as part of the ‘rules of the game’ firms must face. This is helpful in the cross-national setting, for comparisons across states.

Having outlined a typology for the incentive structure confronting multinationals, it seems apparent that there are opportunities for the host country to condition multinational investment activities, under the right conditions. However, opportunity does not necessarily bring efficacy. Therefore, it is also necessary to ask what qualities in host countries enable them to effectively utilize policy to align multinational and developmental goals. Is it

possible for states to be ‘developmental’ when integrating into international production networks? This work answers in the affirmative, but only when institutions demonstrate a certain set of attributes. These attributes refer to the broad characteristics of institutions, as revealed through their composition, organizational patterns, objectives, and rules, and their behavior over time. The same state may not demonstrate these qualities at different points in time, and some bodies within the state apparatus may demonstrate these qualities more than others.

To elaborate, it is useful to return to the concept of a continuum. Recall that points represent the ideal investment profiles for states and firms. The challenge for a developmental state, then, is to move the actual contract of investment towards its ideal point as far as possible, while still convincing the multinational that the investment is worthwhile. It is not necessary for state and firm goals to be antagonistic, only different. The space between the ideal point for the firm and the point at which the firm no longer invests can be quite large, but that will depend partially on the investment incentive structure³⁵. So what are the characteristics of a state that is able to maneuver multinationals towards these points?

To answer this question it is useful to turn to Putnam’s (1988) logic of two-level games. Putnam originally promoted this theoretic construct for use in analyzing international diplomacy, but it has some applicability here as well. The purpose of two-level games was to allow researchers to distinguish between a leader’s activities on the international scene and his or her political support at home³⁶. Putnam argued that leaders or other state

³⁵For countries with as large a market as Brazil (a structural characteristic in the elaborated incentive structure), the increase in incentives connoted by the large market size often leaves the state with a great deal of room between a firm’s ideal point and the point at which it deserts the market. In other words, a firm may desperately want to sell its product to Brazil’s growing consumer class, and may therefore be willing to accept a number of host country priorities as a condition of investment.

³⁶Putnam was quite opposed to treating states as unitary actors, and so here I use leaders as opposed to states.

representatives conducting international negotiations in effect sat at two separate chessboards simultaneously. They must satisfy their partners in international negotiation while also satisfying domestic constituents. This leads to a wide variety of strategies based on this interplay between domestic and foreign, with each game affecting the outcome of the other. According to Putnam, the domestic and international are intricately interrelated and so should be analyzed jointly.

Putnam's logic is loosely applicable to the question of state bargaining with multinationals. On the first level, states must contend with the firm and its global imperatives. States must anticipate firm requirements while also remaining aware of the firm's room for maneuver. At the second level, the state must be able to provide adequate assurances to the firm about its domestic political environment. That is, the state must demonstrate *credible leverage* to the multinational. If the state cannot demonstrate this leverage or demonstrates it weakly, the firm has no incentive to take the state's requests seriously. It may invest with a contract closer to its ideal point, or it may use the occasion to consider other investment models.

There are a number of qualities which can increase a state's credible leverage when conditioning the behavior of multinationals. However, I concentrate in this work on three key elements that increase institutional efficacy and therefore state capacity. First is institutional *coordination*. This not only refers to the state's ability to convey its preferences to the multinational, but also to its ability to enforce the conditions of the bargain. There are two main kind of coordination: inter-institutional coordination and intra-institutional coordination. Inter-institutional coordination refers to coordination between state bodies, and has been particularly difficult to achieve in Brazil. Is cooperation among federal and state

bodies strong and free of redundancies or contradictions? Do different agencies and ministries within the government work well with one another, or do they work at cross-purposes? Are agencies connected to the executive and do they represent well the overall industrial policy goals of the government? These are all questions which address inter-institutional coordination. The second kind of coordination is intra-institutional coordination: is the agency or ministry in question able to deliver on the indirect and direct policy measures deployed in the investment promotion framework? Can the state guarantee a duty-free zone for exports, for example? Are the institutions designed to promote spillovers agile and responsive? Both elements of institutional coordination will help determine whether firm strategies will change to accommodate state goals.

The second element that increases state credible leverage is *consistency*. Whereas coordination is approached from synchronic analysis, consistency is diachronic. Instead of asking how institutions relate to one another or display internal organization, the element of consistency is only identifiable in a temporal context. Simply put, the lack of institutional consistency over time will undermine the state's leverage on foreign firms. If institutional frameworks do not hold up through successive administrations, firm investment profiles will naturally revert back to forms more ideal to the firms. As this study will show, this has been a particular problem in Brazil. Brazilian administrations have undermined the consistency of state institutions by constantly shifting institutional priorities, adding more institutions, and dismantling other institutions altogether. Schneider (1991) notes that bureaucratic personnel in Brazil move among different state organizations and the private sector, undermining staffing consistency. Samuels (2003) notes that new administrations make large numbers of political appointees, further undermining institutional consistency through time. The truly

powerful institutions often vary from administration to administration, making it difficult for firms to understand how to best interact with the government. Firms engaging in FDI prize stability, as the investment necessarily involves a long time horizon. Institutional inconsistency is perceived negatively by firms, and results in a reluctance to commit to more complex and potentially risky activities, such as local innovation.

The third vital institutional characteristic has to do with the closeness of connections between firms and state bodies. Evans (1995) referred to the ‘embedded autonomy’ of states pursuing developmental goals, meaning that states had to be simultaneously well connected to domestic groups (to channel societal demands and enforce policy) and able to act independently (to avoid rent-seeking). State institutions must be ‘embedded’ in a similar way with multinational firms. Institutions must have close working relationships with firms, firms and institutions must be familiar and comfortable with one another. Because Evans was primarily concerned with domestic societal interests and their ‘embeddedness’, perhaps a better term here would be whether or not institutions are *networked* with multinational firms. State institutions must be close to firms in order for spillovers to be realized.

In Brazil’s case, this element of networking has often been absent from investment-promoting institutions. Multinationals often have close connections to individual lawmakers in Brazil, but this translates into personalistic connections at the expense of broad, strategic implementation of investment promotion policy. Institutions do not typically have close relationships with firms. For an institution to be networked with a multinational firm, the state institution must have in-depth knowledge of the firm’s operations. The firm, on the other hand, must be familiar with the institution’s goals and operating procedures, its mandate and responsiveness. Both the institution and the firm must understand the potential

benefits the other party can bring to the bargaining table. In short, state institutions and firms must be familiar with one another. This has often not been the case in Brazil. The lack of connections between state-supported institutions of higher education and multinational firms (detailed in chapter four) is just one example of this lack of networking between institutions and firms.

2.4.3 Societal bases of support for investment promotion

The three elements I identify here increase institutional leverage and, when coupled with well-designed policy, can impact the investment models of multinational firms. However, we must acknowledge the societal bases of support for state policies and institutions. Any policy designed to influence the investment behavior of multinationals must of course be supported by a societal group (almost always parties) or coalition. Though all of Brazil's major political parties have supported investment promotion to some degree, I argue that Brazil's particular patterns of representation have often contributed to fleeting political support for efficient institutions.

By acknowledging and accommodating political support for policies and institutions in this analysis, I am allowing a hint of the neoclassical perspective. After all, if state leverage depends on societal coalitions are we not back to removing the state altogether from the new development framework? This is a legitimate concern, but does not constitute a real threat to the institutionalist framework I have outlined. It would be inappropriate to investigate the foundations of state investment policy without acknowledging the importance of societal forces. However, it is also important to recognize the differences between traditional neoclassical interpretations of development and interpretations of the bargaining framework between states and multinationals. While patterns of domestic political support

certainly play a role in increasing or decreasing a state's leverage on multinationals, it seems likely that these societal coalitions hold less influence on multinational firms than they have displayed with domestic firms in decades past. In other words, the element of 'multinationality' creates a level of remove between societies and firms that increases the importance of state institutions. It is easy to imagine, for example, that domestic labor groups might be less influential in negotiations with multinational firms than they would be with domestic firms, *ceteris paribus*. This does not mean societal groups are powerless. However, the level of remove from societal interests that multinational production brings does mean that scholars must pay closer attention to the character of state institutions charged with firm relations. Institutions function as intermediaries between societal interests and multinational firms.

The framework outlined in this section combines multinational incentive structures with institutional attributes to explain investment outcomes. The heavy penetration of multinational enterprises into developing countries has somewhat limited the choices available to states. However, there remain significant opportunities for states to influence the nature of investment within their borders. Variations in state strategy and capacity explain divergent outcomes in these efforts. State conditioning of multinational behavior may generate distortions and losses, but it may also generate increasing returns and a virtuous cycle of benefits for both firm and host country. This work determines where the state has demonstrated both beneficial and detrimental behavior in a specific environment. The state has the ability to act as an impetus to industrial upgrading and development, even in the context of multinational production. Whether it does so depends on the multitude of factors outlined in this chapter. When the multinational incentive structure endows firms with

substantial interest in a country, and the elements of credible leverage align to fortify the state's position, investment policy can generate benefits for both the investing firm and host country.

2.5 Case Selection

The state's capacity for both derailing and encouraging development in a world of international production networks requires analysis that is at once cognizant of investment policy history and current economic imperatives. This work therefore combines a thorough examination of the evolution of FDI policy with an elaboration of differences in capacity and efficacy across state bodies and corresponding investment profiles. It is at once a case study and a large-n empirical analysis of individual firm responses to state initiative. The picture that emerges is that of a complex set of pressures acting on bureaucrats, who themselves are dealing with a rapidly changing economic circumstances. If allowed, the study might easily have careened far beyond the boundaries of what is feasible. Therefore, it is important to acknowledge the limitations of the work and its prospects for generalizations.

2.5.1 Why Brazil?

Whenever an analyst chooses to concentrate on one country as a base for much larger arguments about the nature of development and state agency, he or she inevitably faces tough questions about the uniqueness of results derived from the study. The debate over the value of case-oriented is detailed in section 6.6. It is important to note here, however, that focusing on a single case does not preclude a researcher from engaging in important and methodologically sophisticated analysis. When the case considered is as large as a country, countless opportunities exist for theory building and empirical testing within the selected case. Moreover, as Lieberman (2005) has suggested, case studies can serve as important

complements to large-n research. In this kind of ‘nested analysis’, statistical analyses of many cases can serve to provide additional tests for hypotheses generated from small-n research, and small-n research can be used to evaluate statistical relationships. Chapter six in this study expands the analysis of institutional impacts on firm profiles beyond Brazil in this manner. In previous chapters, changes in Brazilian institutions cross-sectionally and through time provide variation within the case study, and reinforce the conclusions of chapter six in a specific context.

Brazil displays a number of attributes that make it an ideal laboratory for testing state-multinational interaction. Its size and economic importance have endowed it with an enduring attraction for foreign firms. Multinational enterprises from the developed world (principally from North America) have been operating in the country perpetually since the early 20th century and some even before that. With over 180 million inhabitants, Brazil’s importance as a destination for consumer goods makes it especially attractive for market-seeking FDI. Yet it is also a developing country with a sophisticated industrial base, part of what has been called the semi-periphery. Beginning in the 1930s under the first Vargas regime, Brazil began a series of steps that would move the country from an economic model that emphasized primary products to the diversified industrial production model in place today. Following World War II, Brazilian administrations have pursued a variety of policies towards foreign investment. The Kubitschek administration viewed foreign investment as essential to the success of the *Programa de Metas* development plan, but Goulart’s flirtations with nationalization alienated foreign investors. More recently, the Cardoso administration adopted a largely passive approach to FDI, removing barriers to investment but not actively recruiting particular types of investment. Lula, in contrast, resurrected an activist industrial

policy and established a number of target sectors for priority investments, though his efforts were somewhat undercut by the characteristics of investment promotion bodies in Brazil. These changes are detailed in the next chapter. The variation in investment policy through time in Brazil constitutes an important motivation for the study.

Another important source of variation concerns the nature of the Brazilian state itself. Throughout this chapter I have referred to ‘the state’ in the singular, as if the state displayed monolithic preferences. I hope to show that this is not the case, and that the use of this abstraction is just that, an abstraction. The state, as conceived in this way, is the revealed collective will of the government apparatus, whether determined by a combination of interests or one particular interest that is able to suppress dissenters. However, this abstraction hides a great deal of variation in state capacity and efficacy. Because the Brazilian state is so extensive, there are ample opportunities to analyze where institutions within the state display the qualities outlined above and are therefore able or unable to influence firm investment models. A number of studies have pointed to the relative weakness of state bodies, especially with concerning their interactions with domestic industry³⁷. However, as Geddes (1990) pointed out, there have also been ‘pockets of efficiency’ in the state apparatus. Evans (1995) echoed this conclusion, characterizing the Brazilian state as neither wholly ‘developmental’ nor wholly ‘predatory’, but displaying elements of each at different times and locations. The instances of well-conceived and executed policy channeled through efficient institutions provide contrast with the often ineffective, counterproductive, and/or weakly organized institutions. The breadth of the Brazilian bureaucracy allows a comparative analysis of state agency.

³⁷See Ben Ross Schneider’s (2004) work, also Kingstone (1999).

Brazil exhibits additional beneficial qualities for this analysis. The liberalization process begun in the 1980s, so rapid and dislocating in other Latin American countries, has proceeded in a more gradual fashion in Brazil. Though there have been instances of dramatic reform attempts (most notably those of Collor in the early 1990s), change in the Brazilian economic model has mostly come piecemeal. Pinheiro, Bonelli, and Schneider (2004) have termed this ‘pragmatic’ reform, characterized by tentative liberalization and gradual, cumulative movements towards loosening restrictions. This allows a more stable environment to test ideas of state agency than in other countries, such as Argentina.

2.5.2 Why exporting and innovative activity?

Chapters four and five of this work are organized thematically to address two vital and potentially developmental attributes of multinational production in the developing world. Rather than focus on more abstract ideas about investment profiles, the concentration on the export and innovative activities of multinationals gives tangible and quantifiable dimensions to ideas about positive spillovers from multinational production. Proponents of FDI cite access to cutting edge technology as one of the most positive externalities of multinational investment. They argue that domestic firms and governments who partner with multinationals will have increased access to the latest innovations, and the multinationals will embed their technological activities in the host country. This potentially creates backward and forward linkages with domestic economies, generating a virtual cycle that leads to technological upgrading and development. Innovation-intensive FDI can strengthen the competitiveness of domestic firms in developing countries through the formation of innovative clusters, and may keep highly-educated workers from emigrating. Opponents of FDI claim just the opposite: that multinationals have no incentive to transfer technology and

do only the minimal amount when required. The local innovative effort of multinationals serves as a good proxy for this hypothesized spillover effect. Moreover, the relationship between state incentives and innovative activity can be investigated empirically, through surveys of firms operating in country and through interviews with both firms and governmental representatives.

Export activity is another area where multinationals are hypothesized to have a positive effect on host countries. Exports from multinationals contribute to the balance of payments, and indicate Brazil's appeal is not solely based on the size of its market but also on a particular worker skill set or productive efficiency. Export-intensive multinationals can increase the competitiveness of partner firms in world markets, and may lead developing countries away from dependence on primary products and towards a more diversified manufacturing base. The benefits of Export Oriented Industrialization in East Asia have been well documented, though this export dynamism was not often the responsibility of multinationals. Many countries, including Brazil, have set up Export Processing Zones (EPZs) in the hopes that cheaper export platforms will lure multinationals and create jobs. Exports have been a consistent objective for successive Brazilian administrations, especially in the sectors considered in this work. In Brazil's case, the policy tools employed by the state to move multinationals to export have only periodically brought results, as the analysis will show.

2.5.3 Why information technology (IT) and automotive?

This analysis forgoes an economy-wide approach to FDI and instead concentrates on two sectors vital to the Brazilian economy and marked by a high degree of multinational penetration. The Brazilian automotive industry in 2009 brought in US\$62.2 billion in net

revenue and was responsible for 19.8 percent of the country's industrial GDP (ANFAVEA 2010, 40). This is an enormous impact on the domestic economy. Multinationals have a long history of automobile production in Brazil – the state made the decision in the 1950s not to pursue an independent automobile capability after limited and frustrating experiments with domestic firms. However, successive governments did require that foreign auto firms establish production within Brazil and imposed heavy domestic content requirements. These requirements were only relaxed in the 1990s. The 1990s also witnessed an influx of new investment in the auto sector as a variety of companies sought access to the Brazilian market. The developed domestic auto parts sector has demonstrated a rapid rate of internationalization, and the advent of Mercosul has compelled many companies to rework their production models to take advantage of regional markets. In this state of flux, the role of the state in conditioning the investment profiles of multinationals has been critical. A number of initiatives have been successful in terms of state industrial priorities, such as the automotive regime (RA) of the mid-1990s. However, there have also been instances of poorly implemented policy as well.

The Information Technology sector is an intriguing contrast in a number of ways. As Evans (1995) noted, the ability of the state to direct the development of multinational IT firms has diminished considerably since the 1980s. The technological frontier is often too far away to make state-led development of indigenous firms a viable strategy, and the internationalization of Brazil's domestic IT firms since the 1990s has put the industry almost exclusively in foreign hands. However, the IT sector, more than any other, is responsible today for generating the entrepreneurial and technological advances that are so central to development. The Brazilian state has made a number of attempts, especially in the last ten

years, to influence the behavior of firms operating in this sector. The state has had precious few successes in incentivizing domestic spillovers from foreign investment in this sector.

The two industries considered in this work are important to the Brazilian economy, by virtue of their size and potential for developmental spillovers. However, the Brazilian economy is of course much broader than this. I have deliberately avoided inclusion of primary products (mining, agriculture, etc.), which is subject to very different dynamics. While multinationals are active in these primary sectors and in many cases are highly export-intensive, the institutionalist argument I put forward would have to be heavily modified in the context of natural resources. As I argue in chapter six, it is less likely that firms in natural resource industries would be as influenced by varying institutional configurations as manufacturing and service firms. Moreover, there is a substantial literature on the relationships among natural resources, foreign firms, and politics in developing countries (Moran 1974, Kobrin 1987, Karl 1997). This literature emphasizes the ways in which natural resource investments are different from other kinds of investment, both in their political determinants and ramifications. While this does limit the generalizability of the institutionalist argument I put forward, it is more important to acknowledge the distinct characteristics of natural resource investments.

2.5.4 The importance of firm-level analysis

In order to quantitatively demonstrate the relationship between state agency and patterns of international investment, the analysis also adopts and advocates a firm-level approach. One of the most interesting features of older and more recent scholarship on multinational corporations has been the relative neglect of national policymaking as a variable that influences individual firm behavior. Researchers have lamented this lack of

firm-level analysis (Haggard 1989, Jensen 2006), albeit while acknowledging data collection problems due to confidentiality concerns of individual firms. In considering patterns of investment behavior among firms and links to investment policy in specific contexts, specific hypotheses can be drawn out that might not have been available at the level of aggregate FDI stock or flows. Moreover, the yearly measures on flows of FDI limit researchers to the study of changes in entering investment patterns, and therefore often lead scholars to neglect analysis of investment already in country. This criticism is especially important in Brazil, where many of the most important multinationals have been in the country for decades.

Concentrating on firm-level analysis allows the construction of investment profiles. In the context of this work, this refers to patterns of innovation intensity and export propensity that emerge among multinationals in the examined sectors. Theoretically, a state's investment policy, backed up by credible leverage, can induce a multinational to alter its individual investment contract. This may take the form of putting resources into local innovative activity, developing partnerships with local universities, and so on. If these incentives are offered in a consistent manner and are reinforced by other elements in firms' incentive structures, an investment profile may emerge among firms in that sector and a virtuous cycle of upgrading may take place.

It is also important to clarify the distinctions among types of FDI. The emphasis on firm-level analysis allows a distinction that studies of aggregate flows and stocks of FDI rarely acknowledge. There is a common distinction in policy circles among market-seeking, export-oriented (or efficiency-oriented), natural resource-seeking and sometimes technology-seeking investment. All types of FDI can have important direct and knock-on benefits for recipient countries under the right conditions. However, it is more common in academic

analyses and official reports to distinguish among types of FDI, if in no other way than to refer to ‘high quality’ and ‘low quality’ FDI. The Economic Commission for Latin America and the Caribbean (ECLAC/CEPAL) has long advocated this distinction among types of FDI, and privileges export-oriented (as generating current account benefits) and technology-intensive (as generating technological spillovers) over the more common (in Latin America) market-seeking or natural-resource seeking FDI. This analysis allows for these distinctions. While I do not discount the potential contributions of purely market-seeking FDI, this work explicitly endorses the idea that efficiency-oriented and technology-intensive foreign investment is better for developing countries. I make numerous distinctions, both empirical and theoretical, between high-quality and low-quality FDI. Indeed, this variation in FDI characteristics provides the analysis with its primary dependent variables.

2.6 Methodological Approach

Researchers in political science, and especially in the subfield of comparative politics, inevitably feel stuck in the tug of war between long-established qualitative and quantitative research traditions. Often this feels like a zero-sum game, whereby a researcher is forced to side with one tradition over the other and subsequently question the legitimacy of the spurned side. Of course this is not the case, and there is a long tradition of efforts to bridge the quantitative-qualitative divide. This study is primarily a case study of Brazilian policy and institutions, and how these variables condition investment models of multinational corporations. As such, much of the research contained herein should be described as qualitative. However, this dissertation is also firmly multi-method, and appropriates quantitative tools where needed. This is done not to accommodate methodological partisans, but simply because qualitative and quantitative methods have differing strengths and are

appropriate at different levels of the present analysis. As pointed out by Coppedge (1999) and Collier, Brady, and Seawright (2004), small-n quantitative analysis can help develop complex, multidimensional ‘thick’ ideas and theories, which can then be used to describe and interpret causation on a limited scale. Large-n analyses are better for forming generalizations and testing hypotheses, but are ‘thin’ in the sense that they do not often account for context or theoretical nuance.

There have been a number of forays into the methodological neutral ground between quantitative and qualitative research, suggesting that the two traditions are not as far apart as they may occasionally appear. Lijphart (1971) proposed the idea that case study-constructed theories could be evaluated with subsequent large-n econometric tests. This idea, however, was subsequently used by quantitative-inclined analysts to suggest that qualitative work often took place in an exploratory fashion before more rigorous and defensible quantitative methods were employed to ‘verify’ qualitative ideas. King, Keohane, and Verba’s (1994) seminal work *Designing Social Inquiry* furthered this impression, and more generally sought to impose quantitative standards on longstanding qualitative methods. More recently, however, a number of scholars have suggested that qualitative work can be both hypothesis-generating and hypothesis testing. Likewise, quantitative work can be used to test theories and suggest alterations to existing theories³⁸. The division of labor is not strict, and both large-n and small-n analysis can work in a symbiotic fashion, moving disciplines to more accurate models³⁹.

³⁸A good example of this approach is Lieberman’s (2005) “nested analysis”, in which small-n analyses are used to test regression findings. In this way, qualitative work focused on a small number of cases can be used to build more accurate models.

³⁹McKeown (2004, 158) refers to a “folk Bayesian” approach along these lines, whereby researchers would move back and forth between theory and data, constantly revising prior beliefs in light of theory refinements

This dissertation is methodologically diverse. Chapter 3 is primarily an historical institutional analysis of the development of investment policy in Brazil and how that policy is refracted through domestic government bodies. Chapters 4 and 5 are qualitative investigations of the determinants of specific investments outcomes in Brazil, namely innovation and export intensity among multinationals. Chapter 6 extends the analysis of state institutions and investment outcomes to a broad set of developing countries, and brings in a quantitative component. Nevertheless, this dissertation is on balance a qualitative case study of Brazil. As such, it inevitably must confront difficult questions about generalizability of findings, selection bias, etc. However, the case study tradition in general remains strong today in the face of significant criticisms⁴⁰. The case study presents several advantages in general terms, which lend themselves well to this work's central research questions. First, the first chapters of this work do not aim for theoretic breadth as much as depth and full accounting of the pressures acting on multinational firms in Brazil. Given that these pressures are diverse and variable, case-oriented research allows the elaboration of many causal pathways in a complex society. A large-n study would only allow a few tests. One of the great strengths of case-oriented research is its theory-building abilities in the face of multiple causal avenues.

The analysis of single cases can do more than generate hypotheses, however. Case studies also have the added advantage of identifying specific and often complex causal mechanisms that large-n studies might miss altogether. This is especially true if these causal

and changes in data analysis. McKeown argues that such practices are not contemplated in KKV's methodological recommendations.

⁴⁰Gerring (2004) points out that despite the suspicion attached to case studies in some corners of the discipline, the case study method is widespread. Moreover, it has led to some of the seminal works in the field of political science (Allison 1971; Lijphart 1968, to name a couple).

processes take place over a long period of time, or involve a significant number of diverse social actors. The generalizability of these causal processes may be limited, but in many ways that is beside the point. As McKeown (2004) argues, what matters is that a causal mechanism has been identified, and the researcher has an analytic framework that may then be subject to tests of validity.

There have been many recent advances in qualitative research, and a number of new ways to use case-oriented research within that context. A number of new treatises on qualitative methodology have recently appeared, all of which absorb the lessons of KKV but also avoid some of its evangelism (Brady and Collier 2004; Gerring 2007; Goertz 2006). In addition to these manuals, other ideas which are easily applied to case-oriented research have gained traction, such as analysis of critical historical junctures (Collier and Collier 1991) and path dependency (Pierson 2004). The qualitative tool most often employed by this dissertation is what Brady, Collier, and Seawright (2006, 355) refer to as ‘causal process observation’, or CPO. The authors define a CPO as “an insight or piece of data that provides information about context, process, or mechanism and that contributes distinctive leverage to causal inference.” This analytic tool couples the quantitative emphasis on observation with the idea of causal inference. In this work, interview responses and data from Brazilian government institutions allow me to make causal inferences about the impact of institutions on firm investment decisions. CPO is an intentionally broad term, and it encompasses much of existing qualitative research. Brady et al. (2006) argue that CPO can be used in combination with quantitative analysis. Large-n studies can supplement the causal processes identified through qualitative research, in order to situate the findings in a larger comparative

perspective. This is exactly the approach adopted in this study, as the insights from qualitative chapters are applied in chapter 6 in a wider context.

Before moving on, it is important to address two charges often leveled at case studies such as this. The first concerns the problem of selection bias. Many researchers suggest that small-n qualitative studies select on the dependent variable, and therefore miss variation essential for correct causal inference. In the case of this study, Brazil's receipt of massive FDI flows in the 1990s was part of the rationale for the work. However, expansion of the cases considered in this study would make explanatory variables (in this case, the unique characteristics of Brazil's institutions) no longer applicable. The complex causal inferences qualitative research often produces lose their persuasive power when other cases are added. Moreover, as George and Bennett (2005, 21) argue, key variables and interrelations can be missed:

Unless statistical researchers do their own archival work, interviews, or face-to-face surveys with open-ended questions in order to measure the values of the variables in their model, they have no unproblematic inductive means of identifying left-out variables⁴¹.

This is essentially a question of scope, but specific knowledge-intensive qualitative research is valuable for inference, even when cases are selected because of crucial levels of some phenomenon.

The second potential objection is related to the first. Many academics have qualms about using a sole case as the basis for analysis. Conventional wisdom (and intuition) holds that the study of a single case can do little more than generate hypotheses. However, single cases can also test hypotheses and explain outcomes. As Rueschemeyer (2003, 315) points out, detailed case analyses "often entail the generation, testing, revising, and retesting of

⁴¹Quoted in Mahoney (2007, 126)

explanatory provisions within the same complex material.” That is, theory and evidence work in continuous dialogue in individual cases. Moreover, both Rueschemeyer (2003) and Gerring (2004) make the crucial point that individual cases should not be confused with single observations. This is a common mistake among those opposed to individual country case studies. When the analysis does take place within a single country (or whatever the case unit is), there is often tremendous variation within that case at lower levels of analysis. In the case of this study, there are numerous sources of variation, many of which are integrated into the explanation. Variations in government effectiveness through time, institutional coherence and consistency, variations in firm profiles, variations in economic sectors: these all play roles in the many-layered theoretical arguments presented here. It is therefore quite misleading to suggest single case studies display insufficient variation. Indeed, they may have more in common with large-n studies than is commonly realized.

2.6.1 Research methods and timeline

Having identified the broader methodological context for this study, I now turn to the specific methods employed in data collection and analysis. The objective of this work is to explain the impact of Brazilian policies and institutions on the investment models pursued by multinational firms. In order to effectively analyze the complex relationships between firms and host governments, I pursued various primary and secondary sources. In the first half of 2008, I conducted field research in São Paulo, Brazil. This field research consisted of interviews with local government officials, ministry representatives, business journalists, nongovernmental organization representatives, and others. During this time, I also accessed secondary sources in Brazilian newspapers and libraries, and retrieved or downloaded data from a select few governmental agencies.

I returned to Brazil in the summer of 2009, and conducted interviews with government officials in Brasília. In all, I conducted interviews with 51 individuals outside my firm interviews. I also participated in four site visits to multinational manufacturing plants, though these were of limited value. When I was not in Brazil, in 2008 and 2009 I conducted interviews with representatives of 27 multinational corporations active in the Brazilian market, by telephone and through email exchange of questionnaires, bringing the total number of personal interviews to 78. I attempted whenever possible to speak personally to firm representatives. The questions asked of firm and government representatives varied based on what I knew about the interviewees and their positions, but there were standard elements to the firm interviews. These included requests to identify the laws most and agencies most influential in their investment decisions, and questions about the evolution of their investment models. My interview data and secondary sources were supplemented with analysis of data provided by government ministries in Brazil, newspaper accounts, and reports by non-governmental organizations and inter-governmental bodies.

Chapter 3

Investment Policy and Domestic Institutions: Historical Perspectives

3.1 Introduction

In the past twenty-five years, Brazil has moved from a model of development which imposed restrictions on multinational firms to one in which international investment is sought in a variety of sectors. Yet unlike in other countries in Latin America, this transformation did not occur rapidly. Rather, investment policy reform in Brazil has proceeded in fits and starts. Even today, the investment promotion policy framework in Brazil is complicated by legacies of past policies which emphasized exclusion of foreign capital in certain sectors. Brazil has at times exhibited isolated periods of active and discriminating investment promotion. At the same time, many administrations have conveyed a more ambivalent and even at times contradictory approach to foreign investment. In this chapter I analyze the evolution of Brazilian policy towards FDI, and the larger reform process that has gradually reshaped the country's industrial policies. I also examine how successive investment policies have been channeled through and conditioned by state institutions. Chapters four and five deal primarily with investment outcomes. While I do acknowledge the importance of societal pressures on investment policy throughout this chapter, the influence of state institutions is, in this interpretation, paramount. The size and complexity of the Brazilian state apparatus allows a cross-institutional perspective. Some institutions within the state apparatus demonstrate consistent and coordinated approaches to FDI, others do not. The perspective

adopted in this chapter also brings an important temporal dimension to the analysis. Changes in institutions and policy priorities through successive administrations illuminate specific causal pathways. The analysis, through temporal and cross-sectional variation, demonstrates the importance of state institutions for the evolution of overall investment policy efficacy.

This chapter proceeds in three stages. First, I apply the theoretical framework outlined in chapter two to the characteristics of Brazilian investment promotion policy and institutions. I argue that investment promotion policy has often been passive and/or general, while institutions have demonstrated many of the characteristics that contribute to low state leverage, such as inconsistency and a lack of coordination. In recent years, I argue that an emerging active, discriminating approach to foreign investment has been partially undercut by institutional characteristics. I also argue, however, that a select few institutional islands of efficacy have emerged, and I detail their determinants. In section 3.3, I provide an historical overview of the development of Brazilian FDI policy and investment-promoting state institutions. This section focuses on the entire period following re-democratization (1985 – present), and in particular on the Cardoso and Lula administrations (1995-2011). In this section I emphasize the institutional constraints to the effectiveness of an active, discriminating investment policy and broader industrial policies. For each time period analyzed, I first describe the evolution of investment policy. I then consider institutional attributes for each period and connect those attributes to investment outcomes. In section 3.4, I restate theoretical arguments, and also consider alternate explanations for investment outcomes and policy evolution. This section considers in more depth the role of societal forces and their contribution to the evolution of investment policy. Section 3.5 concludes.

3.2 Institutions and Brazilian Investment Promotion Policy

Successive Brazilian administrations have pursued largely general and often passive approaches to FDI since the mid-1980s. This pattern did change during the Lula administration, when the government began to more vigorously pursue innovation-intensive investments and strengthen incentives designed to increase spillovers from FDI. However, even during this more active, discriminating phase of investment promotion policy, policymakers were limited by the characteristics of Brazilian institutions. If we think of institutions as the lenses through which policy is refracted, then an analysis of their effects becomes possible. In this section, I demonstrate that institutions have consistently displayed characteristics which reduce the potential leverage of the state on multinational firms. However, I also note the few cases where institutions have been able to escape these dynamics, and why.

3.2.1 The institutionalist argument applied to Brazil

What are the most important institutional characteristics that help explain the outcomes of investment policy outlined in this chapter? Characteristics of the Brazilian state have reinforced generally passive and indiscriminate investment promotion policies. There are a number of distinct causal mechanisms that run through all the time periods considered and consistently reduce state leverage on multinationals. Table 3.1 identifies these institutional mechanisms that have consistently influenced investment.

Table 3.1 Elements of fragmentation in Brazilian investment policy

	<i>Causes</i>	<i>Impact on Investment Policy</i>
Lack of coordination	Difficulty in hiring and firing state employees, additive initiatives of past administrations, bodies not linked directly to the executive, complicated oversight structures	Interpretation of industrial policy varies by institution, different target sectors, different methods of attraction, lack of incorporation into overall industrial strategy
Inconsistency	Political appointees (lack of institutional autonomy) and high turnover in most institutions; policy implementation often occurs before regulatory framework is in place	Creates confusion and reticence among potential investors; creates obstacles to realization of developmental spillovers from investments
Lack of state-firm networks	Legacies of ISI; delayed response to internationalization of production	Separation of academic and for-profit spheres, reducing innovative spillovers; personalistic approach to investment

One of the most important barriers to the implementation of a targeted, active investment promotion policy has been the sheer number of state agencies focused on investment promotion. Table 3.2 lists the wide variety of institutions with at least some investment promotion mandate. This creates a great deal of redundancy and impairs inter-institutional coordination⁴². In January 2005, the UN conference on trade and development released the results of a review of investment policy in Brazil (UNCTAD 2005b). While the results of this survey were positive about Brazil’s investment potential, the organization identified a clear lack of coordination among investment promotion bodies in Brazil. The

⁴²Complaints about the number of institutional venues for investment promotion were extremely common during interviews conducted in São Paulo in 2008 and Brasília in 2009. Representatives of the MDIC, APEX, the MCT, the MRE and the BNDES all made variations on this same point. One respondent at the BNDES pointed out that every ministry seems to have its own investment promotion division. Each organization has its own “niche”, with just enough differentiation from the other institutions to claim legitimacy. At the same time, there is enough overlap in goals that each organization can claim to represent the government in investment negotiations (Interview, Victor Burns, BNDES, Brasília, May 2009). A representative of RENAI, within the MDIC, echoed this point. He claimed that coordination of the diverse investment promotion organs was difficult to accomplish in large countries such as Brazil, particularly ones with strong federal systems (Interview, General Coordinator of Investments, RENAI, Brasília, June 2009).

report claimed that many state agencies were not in a position to assume demanding investment promotion tasks. Moreover, the report called for a federal investment promotion agency that is capable of enforcing cooperation among other bodies:

A clear-cut division of tasks between the different actors is needed and can be developed so as to avoid duplication of efforts and maximize efficiency in investment promotion (UNCTAD 2005b, 94)

As it stands now, there are a number of organizations which seek to influence FDI, and a corresponding high level of overlap and territorial behavior. Many of these organizations are focused more generally on economic development, and only partially focus on FDI attraction. Moreover, the institutional character of these different bodies can occasionally put them at cross-purposes. Some ministries or agencies may adopt target sectors for investment promotion, while others target different sectors. In addition to agencies like the Brazilian Industrial Development Agency (ABDI) and The Association for the Promotion of Exports (APEX), there are the investment promotion efforts of Itamaraty (the Ministry of External Relations). The Ministry for Development, Industry, and Trade (MDIC) launched in 2003 its own investment information site, RENAI. This body is integrated with ABDI, and has a somewhat distinct mission focused on information and research sharing. However, its linkages with other ministries and agencies are still underdeveloped⁴³. The Casa Civil has established a Commission on Incentives for Private Productive Investments. Agencies such as APEX have the potential to serve as ‘one stop shops’ for investment promotion, but this has not been the case. In addition to the federal bodies, just over half of the states in Brazil have their own investment promotion bodies, which vary greatly in resources and linkages to federal organizations (Gregory and Arraes de

⁴³According to representatives from the organization, there was some concern within RENAI about the lack of cooperation with other bodies, such as the MRE and BNDES (Interview, General Coordinator of Investments, RENAI, Brasília, June 2009).

Oliveira 2005). Strong federalism and enduring influence for state governors make it likely that federally diffuse investment promotion policy will continue. Finally, autonomous and relatively well functioning institutions like the *Banco Nacional de Desenvolvimento* (BNDES) and the *Financiadora de Estudos e Projetos* (FINEP) often attract the attention of firms, which can undermine other bodies.

Brazilian state institutions are ‘sticky’, in the sense that they tend to hang around long past their prime period of effectiveness, which tends to occur shortly after their creation. Institutions are often dependent on the support of particular administrations, and after those administrations leave office the institution is left behind to ossify into a venue for rent seeking or become a simple make-work shop. Schneider (1991) has documented the tendency of Brazilian administrations to carry out their development agendas through the addition of institutions, rather than the reform of existing institutions. This both expands the state and creates a rococo bureaucratic structure, where effective implementation becomes quite difficult. This dynamic is clearly evident in the investment promotion policy framework. Even the more recent efforts of the Lula administration to formulate a cohesive and discriminating investment policy framework based on innovation and integrated into overall industrial policy relied on this strategy of institutional addition.

Schneider’s (1991, 2004) consideration of bureaucratic careers in Brazil demonstrates that many state functionaries change jobs frequently and move often between the private sector and government. This is a factor in another obstacle to the effective implementation of active, targeted investment policy: inconsistency. These kinds of careers not only prohibit the development of cohesive bureaucratic units with well-defined goals, they also reinforce individual connections between firms and bureaucrats. While Schneider argues that

personalism can under certain circumstances be beneficial for accomplishing the goals of organizations, it is less likely to lead to a unified policy approach across organizations. The high turnover within state institutions is particularly pronounced during periods of political transition, and this can lead to a dramatic reduction in programmatic policy. New administrations make a large number of political appointees, and this can negatively impact bureaucratic independence and continuity⁴⁴. Moreover, the autonomy of these organizations is reduced as they are more likely to see their success as linked to the success of individual administrations. This makes the realization of more long-term goals more difficult. The Brazilian state has had a number of problems with consistency, as evidenced by the histories of such organizations as *Investe Brasil* and Itamaraty's investment promotion division, detailed in this chapter.

Inconsistency is a particular problem for investment policy because foreign investors place such a premium on the predictability of the institutional environment in host countries⁴⁵. Foreign firms want to know that they will face the same requirements and enjoy the same incentives over an extended period of time. Many firm respondents in interviews conducted for this study indicated that consistency was perhaps even more important than the generosity of incentives in determining the likelihood of investment and the flexibility of their own investment models. In the cross-national regressions in chapter six, policy

⁴⁴Samuels (2003, 16) cites a 1996 study which claimed that the Brazilian president had the power to make 19,600 political appointments, whereas the US president makes less than 5,000.

⁴⁵Policy and institutional consistency often appear as some of the most important investment determinants in surveys of multinational firms, such as the World Bank's *Doing Business Abroad* series. Similarly, recent academic works argue consistency matters. Büthe and Milner (2008) argue that bilateral investment treaties serve as a signaling mechanism for foreign investors, assuring them of policy stability. Many of the debates about political regime types and foreign investment (Jensen 2003; Li and Resnick 2003; Oneal 1994) revolve around the question of whether authoritarian regimes or democracies guarantee more stable policy environments.

predictability emerges as a strong predictor of innovation and export activity among multinational firms in developing countries.

Another impediment to an active, discriminating investment policy is the lack of established state-firm networks. The Brazilian state is simply not tightly enmeshed in international production networks, and this presents problems for the implementation of investment policy⁴⁶. As one interview respondent put it, investment promotion institutions and multinational firms “do not know how to talk to one another”⁴⁷. Much of this has to do with the legacies of ISI: despite the tripé model of industrial development, the ISI model had the net effect of distancing state institutions from international production networks. The Brazilian computer industry, for example, operated in protected isolation during the ‘market reserve’ period of the 1980s, and Brazilian firms found that they could not compete on the international marketplace once liberalization was underway. While the state and domestic computer firms had a close relationship based on the cooperative effort to create a domestic IT industry (Nelson 1995), the lack of connections between the state and firms in the multinational IT firms was harmful for international competitiveness. Institutional representatives attempting to exert leverage on a foreign firm in Brazil often have difficulty understanding what the firm needs or wants, or how a particular regulation will impact their production model.

⁴⁶Goldstein and Schneider (2004) note that during the economic transformation of the 1990s, foreign ownership expanded in a variety of sectors at the expense of family and government ownership. However, family ownership remained strong among some of the largest Brazilian firms. It follows quite naturally that the state would be less embedded with these new multinational arrivals.

⁴⁷Interview, Alexandre Silva, Director of the American Chamber of Commerce in São Paulo, São Paulo, February 2008.

Table 3.2 Current federal agencies with investment promotion mandates

	<i>Brief Description</i>	<i>Ministry Affiliation</i>	<i>FDI Mandate</i>
Agência Brasileira de Promoção de Exportações e Investimentos (APEX)	Promotion of Brazilian exports, focusing on small and medium-size companies, represents Brazil at world trade forums	MDIC	Has investment promotion division, focused on encouraging Brazilian exports
Conselho Nacional de Desenvolvimento Industrial (CNDI)	Part of PDP industrial policy: council of high-level ministerial officials and private sector representatives	MDIC	Propose investment projects to President
Agencia Brasileira de Desenvolvimento Industrial (ABDI)	Flagship institution for PDP industrial policy; coordination of various development initiatives	MDIC	Attract investments from abroad and integrates them into industrial policy (PITCE/PDP)
Rede Nacional de Informações sobre Investimento (RENAI)	Created to disseminate information about potential productive investments in Brazil	MDIC	Provide information on investment regulations and opportunities to firms
Banco Nacional do Desenvolvimento (BNDES)	Main financing agent for development projects in Brazil	MDIC (nominal)	Has lent to foreign firms since 1991, has specific funding lines for innovation and export
Financiadora de Estudos e Projetos (FINEP)	Funds innovative studies, universities, and firms	MCT	Lends to multinational firms on the condition they demonstrate innovation in Brazil
Programa Nacional de Capacitação de Recursos Humanos para o Desenvolvimento Tecnológico (RHAE)	Awards financing to educated individuals who move to the private sector, particularly small and medium enterprises	MCT (through CNPq)	Encourages migration of Brazilian academics to private sector and investment from innovative multinationals
Sistema de Promoção de Investimentos (SIPRI)	Works through Setores de Promoção Comercial (SECOMs) abroad to attract FDI to Brazil	MRE	Works to establish partnerships between Brazilian and multinational firms, especially those with the potential for technology transfer

Sources: various ministries, ANPEI (2009)

Mainwaring (1997, 1999) has noted the weaknesses of Brazilian political parties and the lack of programmatic connection with constituents, stemming partly from open list proportional representation. The absence of strong parties (with the exception of the PT) is not conducive to either a sustained investment promotion strategy or strong institutions. Individual bureaucrats and high ranking officials (including presidents) within administrations often resort to personalistic execution of policy when they cannot discipline fractious parties or assemble durable coalitions. In the context of investment policy, this often means that negotiations occur between a firm and an individual, not between firms and institutions (networking). The individual, whether he or she is the Finance Minister or the head of another state agency, can bypass the larger goals of the investment or industrial policy or instead concentrate on the needs of his or her particular organization. This also reinforces rent-seeking tendencies. Even in the institutions that accompanied Lula's industrial policy initiatives, personalistic relationships between policymakers and firms remained⁴⁸.

This distance between firms and state institutions is perhaps best illustrated in state attempts to encourage innovation among multinationals during the Lula administration. While previous administrations have made some effort to encourage innovative activity among multinational firms in Brazil, innovation was the main focus of Lula's industrial policies. This corresponds with a more selective approach to FDI, as the administration prioritized (and incentivized) investments with the potential to lead to innovative spillovers. However, this focus was hampered by the lack of strong connections between academic

⁴⁸One former head of the Central Bank characterized the Lula administration's attitude toward foreign investors as the personalization of economic agents, almost at the firm level, at the expense of broad policy (Interview, Gustavo Franco, São Paulo, March 2008).

institutions and firms in Brazil (both national and foreign). Traditionally, the academic and private sector have operated in different orbits. Academic research with practical or commercial application has been rarer in Brazil than in other developing countries, as chapter four demonstrates. Researchers at state universities often operate in isolation from the private sector, and patent policy is underdeveloped. There are some signs this is changing, particularly in the context of the new industrial policies⁴⁹. However, these types of linkages between the private sector and academia have been few and far between in Brazil, with some notable exceptions⁵⁰.

The lack of contact between universities and the private sector is part of a larger dynamic whereby public-private interaction is limited to very specific circumstances. The fragmentation of the bureaucratic structure makes it difficult to mount large initiatives and policy frameworks that require coordination across institutions. Whereas individuals may be well connected with multinationals, institutions are not. Furthermore, when initiatives are well-designed the lack of firm-state connections makes it difficult to communicate them to firms that might be affected or even benefit. In a recent evaluation of new innovation incentives conducted by the National Association of Innovative Firms (ANPEI 2009), less than half of the firms surveyed used innovation incentives for which they were eligible. The study suggested a number of reasons why this was the case, including a lack of awareness of the incentives themselves, a lack of potential advantages from incentives, a lack of awareness

⁴⁹Two recent legal frameworks outlined in this chapter, the *Lei do Bem* and the *Lei de Inovação*, contain incentives for increasing academic partnership with domestic and foreign firms.

⁵⁰The University of Campinas in São Paulo state has been particularly successful at establishing R&D links with private capital. The university now operates 250 partnership agreements with companies such as Bayer, Motorola, and Compaq (UNCTAD 2005b).

of potential advantages from the incentives, and an inability to fulfill the requirements of the incentives⁵¹.

To conclude, it is important to point out that these impediments to institutional efficacy do not have isolated impacts on firm investment profiles; they complement one another and often demonstrate an additive effect. That is, the lack of state-firm networks may be compounded by institutional inconsistency. These three characteristics of Brazilian institutions decrease state leverage on firm investment models. The presence of any one of the three institutional weaknesses identified in this section can torpedo investment promotion policy, though they do tend to appear in groups.

3.2.2 Pockets of efficiency and their determinants

While the characteristics outlined above have undermined state leverage on multinational firms since the 1980s, there are a number of Brazilian institutions that have managed to escape the pull of rent-seeking and emerge as autonomous agents. These institutions also typically avoid the three characteristics outlined above. While some of these institutions have a broader mandate than foreign investment promotion, it is important to acknowledge these institutional successes and examine how they occurred. Barbara Geddes (1990; 1994) argued that beginning in the 1950s, administration officials frustrated with institutional roadblocks within the Brazilian bureaucracy made a conscious decision to establish institutions outside the traditional bureaucracy yet connected to the executive. These institutions were created by executive decree on an *ad hoc* basis, and had no linkages

⁵¹This survey was carried out for 38 firms of various size and in a number of different sectors. All firms were eligible for incentives, and were asked if they had taken advantage of any of nine specific initiatives in the past three years. The survey noted that larger multinational firms were more likely to be able to take advantage of the incentives, as many of them had the firm infrastructure to comply with governmental requirements. However, the survey also noted that many of these larger firms had many alternate incentives available outside Brazil, and that Brazilian incentives often suffered in comparison (ANPEI 2009, 79-82).

to either the legislature or traditional bureaucracy. These ‘pockets of efficiency’ eventually became meritocratically staffed. Geddes holds up the BNDES as the prime example of such an institution. Though the BNDES started out with limited resources and was dependent on the executive branch, it quickly established itself as an authority on Brazilian economic analysis. While it was not particularly influential and largely used for patronage purposes during the Vargas presidency, the BNDES became one of the driving institutions behind Kubitschek’s *Plano de Metas* industrial policy. Kubitschek was able to secure a constant source of funding for the body, not requiring yearly congressional approval⁵². The BNDES, along with the similarly insulated and now defunct *grupos executivos*, became effective agents for industrial policy, though they subsequently backslid into patronage during the Goulart administration.

Though Geddes was primarily concerned with institutions as they related to development plans, her logic can be applied to institutions charged with investment promotion as well. What then, determines whether an institution becomes a ‘pocket of efficiency’, when so many others display the characteristics outlined in the previous section? First, as Geddes points out, the institutions must have consistent political and financial support. Secondly, pockets of efficiency in Brazil tend to operate autonomously. Though they may be connected to one ministry or another, they typically have little oversight from congress or other parts of the bureaucracy. Third, pockets of efficiency only emerge with time. They develop reputations for independence and apolitical operation. They develop an *esprit de corps* based on results-based promotion and clearly defined responsibilities.

⁵²According to Geddes (1994, 63), Kubitschek accomplished this through imposing surtaxes on various industries, such as petroleum imports, railway fares, maritime freight, etc. These revenues went straight to the BNDES, and were never included in the federal budget. Therefore they did not require congressional approval. Kubitschek also persuaded congress to extend the surtaxes on individuals and corporations for an additional ten years, in order to finance his development projects.

Fourth, and this refers specifically to institutions charged with investment promotion, they are perceived to have a high degree of competence and expertise by foreign firms. If this is the case, their leverage on firm activity can be quite substantial.

In the investment promotion framework, there are a number of institutions which can be identified as pockets of efficiency. The BNDES continues to operate with great effectiveness. Since 1991, it has lent to multinational firms in Brazil in pursuit of developmental goals⁵³. In interviews conducted for this study, firms consistently identified the BNDES as a responsive institution. Moreover, the BNDES demonstrates all the characteristics outlined above. Another institution which is quite influential with foreign firms, particularly in the IT sector, is FINEP. FINEP is an institutional outgrowth of the BNDES, though now it operates within the Ministry of Science and Technology (MCT). FINEP has built up a reputation over the last decade of competence and independence from patronage politics. Though its budget is much smaller than that of the BNDES, the institution has been able to operate independently and secure continuous (and increasing) funding⁵⁴. Section 3.3.5 details the evolution of FINEP and the ingredients of its success.

Both the BNDES and FINEP, the primary examples of pockets of efficiency in investment promotion, display the characteristics outlined above. While the BNDES and FINEP operate under the nominal supervision of the MDIC and MCT, respectively, they are effectively independent. Both have substantial funding commitments, and FINEP's has grown considerably over the past ten years. Most importantly, both are regarded positively

⁵³In 2008, the BNDES disbursed US\$49.8 billion to Brazilian and multinational firms. 74 percent of these disbursements, or roughly US\$37.1 billion, went to large firms, many of which were multinationals (BNDES 2009).

⁵⁴The budget for FINEP in 2008 was R\$2.8 billion, compared to roughly R\$277 billion in assets at the BNDES (BNDES 2009).

by multinational firms. In the 27 firm interviews conducted for this study, these institutions emerged most often as the ones with positive evaluations, as chapters four and five demonstrate.

Besides BNDES and FINEP, there are few other institutions which operate as pockets of efficiency. It is too early to tell whether the ABDI, the institutional focal point for Lula's renewed industrial policy created in 2005, will emerge with a similar institutional ethos. Much will depend on the actions of the Rousseff administration. But these kinds of institutions have been the exception in the Brazilian state apparatus. They are much more likely to extract developmental benefits from multinational firms than other parts of the bureaucracy, as they operate on clearly defined principles and avoid rent-seeking.

3.3 Brazilian Investment Policy: An Historical Perspective

The recovery from the debt crisis of the 1980s, the taming of inflation, and the gradual dismantling of the Import Substitution Industrialization model in Brazil resulted in a massive inflow of foreign investment in the 1990s. However, it would be wrong to infer that FDI did not occupy a prominent place in the Brazilian economy before the 1980s. Indeed, when viewing the postwar period as a whole, the contraction of foreign investment in the 1980s is an aberration. Foreign firms have long been an important part of Brazil's economic model. In the 1950s, the relative lack of domestic capital led successive administrations to seek out foreign investment as a means to pursue ambitious development schemes. These investments were typically constrained by ISI tools such as domestic content requirements and tariffs. Brazil nevertheless realized investment in a large variety of sectors as part of successive industrial policies.

3.3.1 *The role of foreign capital in the era of import substitution*

The *política de portas abertas*, or ‘open doors policy’ that accompanied Juscelino Kubitschek’s *Programa de Metas* development plan contained a number of incentives for foreign investment. These incentives resulted in a large influx of FDI in the second half of the 1950s. Tariffs on imports of industrial goods remained in place, as they had since the *Estado Novo* of the Vargas era. However, the Kubitschek administration offered numerous subsidies and tax exemptions for foreign firms if they would set up productive capacity within Brazil. The *Superintendência da Moeda e do Crédito* (SUMOC)’s Instruction 113, which predated Kubitschek from the last year of the Café Filho presidency, implemented attractive tax exemptions on profit remission and subsidized imports of capital goods (Geddes 1994, 71-72). These incentives had a strong effect on the participation of foreign capital in the country. FDI stock, which until 1950 had totaled only US\$307.1 million, surged to \$956.3 million by 1960 (Zanatta 2006, 118). Many of these new investments were in effect ‘tariff-hopping’ investments made by manufacturers (such as foreign auto companies) hoping to access the growing Brazilian consumer market, and willing to accept partnerships with Brazilian firms. The industrial policy in place at the time called for foreign capital, but as a means to the end of increasing the efficiency and output of domestic industry. Consequently, the investments were almost always met with numerous domestic content requirements and other restrictions. FDI in the Kubitschek era was an integral part of industrial policy, but it was used most often as a source of capital goods that were not accessible elsewhere.

Foreign investment in Brazil decreased in the early 1960s, as the country grappled with political uncertainty during the Quadros and Goulart administrations. Representing

political constituencies more hostile to foreign investment, Goulart had less interest in continuing the more centrist policies of Kubitschek's Social Democratic Party (PSD). Goulart spent much of his administration preoccupied with the powerful opposition National Democratic Union (UDN), as the succession crisis prompted by Quadros's unexpected resignation had deepened political polarization. Even after the military coup of 1964, investment did not return immediately to Brazil. Firms were initially reluctant to make new investments in a country demonstrating such political instability. Inflation was not brought under control until 1968; this added to investment disincentives for most of the decade.

Goulart had initially taken numerous steps to assure foreign investors in Brazil of his benign intentions, even making a conciliatory speech in Washington in 1961. But the circumstances of his ascension to power, and the delicate constitutional maneuvering that allowed the restoration of presidential democracy in 1963 did little to assure investors. Moreover, Goulart sent conflicting signals about Brazil's investment environment during his term. Goulart's speech in March 1964, which promised eventual nationalization of oil refineries in Brazil, was met with particular opposition by international business⁵⁵.

Beyond these political developments, however, there were other causes of changing investment patterns and investment policy evolution from the 1950s to the 1960s. In particular, the differences in institutional strength and consistency between the Kubitschek era and the Goulart period provide solid explanatory leverage for patterns of policy and investment. Geddes (1994) proposes that the contrast between Kubitschek and Goulart depended also on the different approaches the two took towards developmental institutions.

⁵⁵By this time, Goulart had come under increasing pressure from the Brazilian workers party (PTB) to move decisively to the left. Despite having assembled a multiparty coalition, Goulart could not manage the diverse elements within his own party and increasingly alienated the more centrist PSD (Mainwaring 1997).

In this interpretation, Kubitschek was able to pursue developmental policies without regard to sectoral opposition (or perhaps using the power of persuasion to change that opposition) through the creation of meritocratically-staffed organizations autonomous from the state bureaucracy. Goulart, constrained by the need to maintain a fragile coalition, was more willing to use these institutions to reward cronies with positions of power and therefore reinforce patronage. Kubitschek insulated developmental agencies from clientelistic pressures, whereas Goulart reinforced patronage networks and ultimately undermined the possibility of an autonomous industrial policy⁵⁶. This logic is easily extended to the institutional determinants of investment I have outlined. The lack of party support in effect compelled Goulart to use the BNDES and other organizations as patronage networks. This also undermined institutional consistency, as previously insulated pockets of efficiency were redirected by Goulart.

To reduce the causes of the Kubitschek and Goulart administrations' policies towards foreign investment to a simple centrist versus leftist dichotomy would be a mistake. Certainly there were elements of Goulart's party that did not support the Kubitschek administration's incentives programs for FDI, or remained overtly hostile to foreign firms. Kubitschek's electoral alliance of the PSD and PTB also allowed the administration to neutralize the far left. However, the approach to institutions adopted by both administrations also had an effect, both on the nature of investment policy and resulting patterns of foreign investment. Kubitschek resurrected many of the corporatist institutions of the Vargas era and

⁵⁶Geddes acknowledges that Kubitschek's expansion of the bureaucracy allowed opportunities for later clientelistic networks to emerge, but maintains that Kubitschek was more successful in diluting patronage networks with meritocratic and independent appointments. Part of the explanation for the economic stagnation during Goulart's term, therefore, lies in "his attempt to return previously insulated sectors of the bureaucracy to the realm of clientelism and cronyism" (Geddes 1994, 74).

infused them with cash and *técnicos*⁵⁷. Institutions like the BNDES provided loans on favorable terms to foreign investors, as part of a coherent industrial policy that emphasized foreign capital. While older systems of patronage did not disappear, they were accompanied by a new set of autonomous institutions which worked in coordinated fashion and neutralized rent-seeking activity. By the time Goulart assumed the presidency, however, many of the pockets of efficiency had been moving towards patronage politics. Goulart actively encouraged this trend. Even if Goulart had maintained an emphasis on attracting foreign investment, the economic and political instability at the time made it unlikely that high investment rates would continue.

The two decades between the mid-1960s and mid-1980s represent a period of authoritarian regression and gradual democratization in Brazil. Opposition political parties were outlawed during this period, save for the military's token acknowledgment of the Brazilian Democratic Movement (MDB). This organization became much more important during the redemocratization project of the 1980s, but the absence of real political parties during this time poses some different questions regarding the role of the state in encouraging investment. Successive military administrations were sympathetic to the needs of foreign investors, and foreign capital played a large part in the Brazilian 'economic miracle' of 1968 to 1973. However, foreign investment in Brazil was tightly controlled by the military regime. Especially in the late 1970s, the military used foreign investment as a source of technology and capital goods. However, the emphasis was placed on the development of

⁵⁷Benevides (1979) argues that the successes of the Kubitschek era were largely due to development plans channeled through existing, insulated organizations such as the BNDES and SUMOC, and the sectoral and executive working groups set up by the administration. Many of these organizations were able to avoid clientelistic demands or subdue them.

domestic firms, with the state and multinationals providing the other two parts of what Evans (1979) has termed the developmental tripé.

Upon assuming power, the military regime in 1964 and 1965 modified Law 4131, originally adopted in 1962 and known as the profit remittance law. This change reduced restrictions on reinvestments of profits obtained by foreign firms in Brazil and allowed both domestic firms (and eventually domestic banks) to borrow directly from foreign banks, making foreign borrowing and investment much more accessible. The law also contained incentives for technology transfer, such as favorable tax treatment for royalties and technical assistance fees (French 1982, 149). FDI did increase dramatically following the tumult of the early 60s, moving from \$1.81 billion in stock at the end of 1965 to \$8.02 billion at the end of 1974 (Nonnenberg 2003, 7)⁵⁸.

The second half of the 1970s witnessed a dramatic shift, both in the military's approach to multinational firms and in its overall industrial policy. The second national development plan (II PND) was a hugely ambitious effort to develop strategic sectors of Brazil's economy. This was the era of the *projetos faraônicos* (projects of the pharaohs), grandiose and highly visible projects such as the Rio-Niteroi bridge and a number of hydroelectric dams. These massive public works were directed by the state, and some were undertaken in partnership with multinational firms. Despite somewhat favorable relations between the military and multinational firms, however, the Geisel administration placed more emphasis on the development of domestic industrial capacity. Brazilian firms had access to special drawing rights, such as *Fundo 157*. Foreign investment was courted in

⁵⁸However, Law 4131 made it easy for even multinationals to borrow from banks inside and outside Brazil (most commonly directly from Euromarkets), as opposed to simply increasing transfers from the parent company. Thus, it is likely that the already high FDI figures do not truly represent the enormous productive expansion of multinational firms in Brazil during the economic miracle (Frieden 1996, 113).

some sectors and avoided or outright limited in others⁵⁹. The use of FDI was to be strategic, and especially discouraged in areas of the economy where it might reduce autonomous security capabilities.

The joint venture model involving a three-way collaboration among the state, subsidized Brazilian companies, and foreign firms was widespread during this period. Typically, state bodies would coordinate the partnership and provide a focal point for negotiation with foreign firms. Multinationals could draw funds from the BNDES and its subsidiary bodies, even given that institution's then strong focus on domestic firms. The military regime focused on and tightly controlled ownership equity among the partners, rarely allowing majority control for foreign firms in priority sectors. It was assumed that majority ownership for domestic firms and/or the state would translate into more developmental benefits, such as upgrading to non-traditional products. The transfer of technology was particularly emphasized, and domestic content requirements were a common feature of investment deals struck during this period. Therefore, in considering the dramatic expansion of FDI in the 1970s it should be emphasized that the policy regime governing investment was far from permissive. The II PND emphasized foreign capital as an essential ingredient, but one that had to be managed selectively by state organs.

The failure of the ISI model in the early 1980s is a topic too large to address in this context, but it is quite evident that the industrial policies pursued by the Brazilian state in the late 1970s were unsustainable in the long run, and particularly in the face of increasing interest rates for national debt and the economic crisis of the early 1980s. This is true even in

⁵⁹Nonnenberg (2003, 8), working from the 1975 development plan, observes that investments were incentivized in minerals mining, electronics, communications, and hotels. They were discouraged or prohibited in energy, petroleum, ports, railroads, maritime navigation, and steel (among others). When multinationals were allowed to invest, they were admitted in such a fashion as to promote an "equilibrium" among private national companies, multinationals, and the state.

the narrower category of FDI, where substitution of capital goods for manufactured imports continued balance of payments problems. There were a number of institutional and political factors that exacerbated the problems of the investment policy contained in II PND. The institutions which had worked well as independent entities in the Kubitschek era, such as the BNDES, were more beholden to interest group manipulation during the military period. While opposition politicians were not an immediate threat, the military did not grant independence to institutions charged with the attraction of foreign investment. Moreover, a number of institutions such as the National Development Council (CDI) developed clientelistic tendencies and served as vehicles for personalistic connections between military administration staffers and firms, in keeping with other models of bureaucratic authoritarianism. The eventual president of Brazil, Fernando Henrique Cardoso, characterized the relationships between business leaders and members of the authoritarian government as 'bureaucratic rings', within which highly personalized and diffuse bargaining would take place between individuals⁶⁰. There were no centralized institutions dedicated to investment promotion, just as there were no economy-wide noncorporatist peak organizations for business. Suzigan and Furtado (1996, 14-15) identify two key institutional faults of the II PND, in addition to its economic shortcomings⁶¹. Regulatory intervention from state bodies was excessive, encouraging informal market reserves and eliminating competition on price. Also harmful was a lack of inter-institutional coordination and sequencing of policies, which resulted in a spread of rent-seeking activities among firms both

⁶⁰Cited in Schneider (2004, 108).

⁶¹The economic policy problems that accumulated in the late 1970s, as described by Suzigan and Furtado, were excessive protectionism with no phasing out period to encourage competition, lack of emphasis on exporting, de-emphasis on innovation in relation to production, and over-generous subsidies to firms.

national and foreign. Even the military, it appears, had difficulty enforcing coordination among institutions.

3.3.2 Crisis and attempts at reform, 1980-1990

In the 1980s, foreign investment in Brazil contracted significantly, as the debt crisis scaled back firm ambitions in the entire region. Large and heavily indebted quasi-state enterprises had become locked in a self-perpetuating cycle with domestic supplier firms, whereby increasing foreign debt financed expansion of domestic demand and production. As the supply of foreign capital threatened to dry up in 1979, the military government was forced to raise interest rates in order to attract capital and perpetuate the borrowing. Rising public sector debt set in motion a variety of policy measures that put Brazil through the worst recession in postwar history. The government cut public spending programs dramatically to free up funds to service the debt, while at the same time engineering a series of devaluations to the cruzeiro to increase the supply of foreign exchange through more competitive exports. This did little to resume lending, and by mid-1982, foreign credit was almost completely unavailable. The government was forced to raise interest rates yet again to find funds in domestic financial markets.

The recession also had immediate political impact. Though the transition to democracy had begun in earnest during the Geisel administration, the economic crisis and poor management by the military regime greatly hastened the transition and emboldened pro-democratic movements. As Frieden (1987) notes, the military regime had lost not only the support of workers, but of domestic business leaders as well⁶². The landslide victories of the

⁶²Frieden (1987, 119) points to a survey of businessmen in 1980 that asked them to rate the performance of the country's then chief economic policymaker, Antônio Delfim Netto. The responses were 69 percent "excellent" or "good", and 5 percent "bad" or "awful" (the rest were "OK"). By 1983, those same percentages had changed to 12 percent positive and 60 percent negative.

democratic opposition in the 1982 legislative elections pointed to a broad coalition in favor of democratization, which came two years and four months later in March 1985.

The economic crisis had a profound impact on policy towards foreign investment as well, though the political transition made a unified approach to FDI more difficult. The debt crisis and its aftermath set in motion a chain of events that would gradually lead to the dismantling of the ISI model in Brazil. Partly because the military regime had become associated with an unsustainable economic model, an interventionist industrial policy known as such would not reappear until the Lula administration. In the immediate aftermath of the crisis and political transition, the democratically elected Sarney administration was much more concerned with stabilizing the economy and ending inflation than putting in place a sustainable investment promotion policy framework, and little consensus existed on what role foreign investment should play in the new economic model⁶³. The 1988 constitution, a detailed document with respect to business regulation, did little to allay fears of expropriation. The constitution contained provisions which barred foreign firms from investing in many of the potentially most lucrative sectors of the economy.

The military government had entered into an agreement with the International Monetary Fund in 1982, and the IMF leaned on the Sarney administration to reduce restrictions on foreign investment. However, the administration elected to pursue a heterodox economic policy that froze prices, moved public funds away from the large industrial projects favored by the military regime, and prioritized fighting inflation. The short-lived cruzado currency plan was initially successful, but the administration's reluctance to make timely adjustments and excessive demand renewed inflation by 1986. The renewal of democracy in Brazil did not, therefore, induce a new confidence among international

⁶³Sarney was the vice presidential candidate for Tancredo Neves, who died before he could assume office.

investors. Instead, firms remained reluctant to invest in a country where inflation remained a stubborn problem. Indeed, it would take another decade after the democratic transition for FDI to rebound in earnest.

With regard to domestic institutions, the 1980s presented several problems for attracting FDI. Of course, the economic crisis presented a severe disincentive for investment, and the political transition created a great deal of uncertainty for prospective investors. The flow of FDI to Brazil slowed to a trickle during the 1980s, as one would expect. In terms of the institutional characteristics outlined in table 3.1, we can identify a lack of institutional consistency as a prominent feature of the decade, for obvious reasons. The crumbling political support for the military regime in the first half of the decade also certainly played a role in low investment rates. If institutions had displayed consistent, coordinated, and networked characteristics during the 1980s, it is highly unlikely that these institutional characteristics would have overcome the economic climate to attract new investments. However, the absence of these qualities certainly did not help.

3.3.3 Reform and stagnation, 1990-1994

The long duration of the economic crisis and ineffective government attempts to control inflation provided the perfect political environment for Fernando Collor de Mello. Hailing from the remote northeastern state of Alagoas, and with little support in established political parties, Collor mounted an overwhelming television-based campaign for the presidency in 1989. His campaign was directed against the record of Sarney, the corporatist state apparatus, and indeed the Brazilian party system. The party he formed in 1989, the National Reconstruction Party (PRN), was a glorified electoral vehicle. Once in power in 1990, Collor governed through a rough mix of authoritative decrees and patronage.

Members of the established party groups initially worked with Collor, especially the Democratic Social Party (PDS) and the Liberal Front Party (PFL). However, the coalition was unstable and the PFL eventually broke with Collor in the hopes of restraining his initiatives. This and pervasive corruption led to Collor's eventual impeachment in December 1992⁶⁴.

Despite the short duration of the Collor presidency and its inability to stop inflation long-term, the period was a consequential one for investment policy and economic reform in general. Collor pursued an unusual mix of populist rhetoric and neoliberal reform, with some important heterodox exceptions⁶⁵. In direct confrontation with previous development models, he pursued trade and investment liberalization in a number of sectors. The administration also encouraged the emergence of new business associations such as the National Thinking of Entrepreneurial Bases (PNBE) and the more developmentalist Institute of Studies for Industrial Development (IEDI), which challenged the dominance of long-standing corporatist institutions such as the Foundation of Industry for the State of São Paulo (FIESP)⁶⁶. The overall thrust of policy change was to modernize the economy, privatize state-owned enterprises, and expose domestic firms to international competition. Unsurprisingly, this generated a great deal of resistance among import-competing manufacturers and state-supported industry.

Though there was little new FDI during this time, the Collor years did establish a foundation for later privatization and liberalization efforts during the Cardoso administration. The Collor administration (and the Franco placeholder administration after Collor's

⁶⁴See Weyland (1993) for an in-depth investigation of the political determinants of Collor's rise and fall.

⁶⁵Collor's wage freeze in 1991 was naturally unpopular and contradicted campaign pledges.

⁶⁶Interview, Emerson Kapaz (former head of PNBE), São Paulo March 2008

impeachment) attempted to negotiate agreements for the mutual protection and promotion of investments (APPRIIs). These agreements were not ratified by the legislature, but they signified an attempt to break with previous restrictions on foreign capital. More significant still was the agreement in March 1991 that created Mercosul. The agreement moved a number of multinational firms operating in Brazil to begin rationalizing their production models to best take advantage of the larger market. Although the inflationary environment meant that this agreement was followed by only a modest increase in FDI, the eventual currency stabilization in 1994 would complement Mercosul and both would provide powerful indirect incentives toward investment.

The Collor period also witnessed an assault on some longstanding ISI institutions. The administration successfully ended the market reserve policy in the informatics sector, which is discussed more extensively in chapter four. This policy had kept many multinational IT companies from investing in Brazil, and had supported a number of indigenous hardware and software firms. The administration also put in place a number of general policies more favorable to international firms, some of which are outlined in Canuto (1993):

- Authorization in 1991 that multinationals could send more royalties to their central offices, and that taxes on these remittances would be lowered
- Central bank registration for capital dividends resulting from FDI remittances
- BNDES funding for foreign firms after 1991
- Reduction in the power of the national industrial property institute (INPI), which had been responsible for authorizing technology transfers and generally took a long time to do so

In terms of direct investment promotion, the Collor administration increased the resources of Itamaraty (the Ministry of External Relations or MRE) to recruit new investors. Itamaraty, also operating with funding from the Inter-American Development Bank, began fortifying trade promotion bureaus (SECOMs) at Brazilian embassies worldwide, which would function as ‘antennae’ for possible foreign investments. The model operated under the assumption that interested firms would first establish contact with these organizations in their home countries, at which point Itamaraty could become involved and direct the investment⁶⁷. This conception of investment promotion bodies as ‘marriage agencies’ would be duplicated in subsequent administrations, with varying results. The SECOMs remain operational today, though they vary greatly in terms of resources. Itamaraty eventually complemented the SECOM structure with the Investment Promotion and Technology Transfer System for Companies (SIPRI) within the trade promotion department. This body serves as an information point for foreign companies, and now operates a web portal at BrazilTradeNet. However, it has limited funding and a small staff. Moreover, the technology transfer system has not been explicitly linked to a set of policies to realize that goal among multinational firms. This is an excellent example of an investment promotion body that was set up within an institution and once its political sponsor had disappeared, evolved into an ineffective body. This demonstrates the principle of inconsistency and adds to the problem of coordination, as these SECOMs are an additional location for idiosyncratic investment promotion policy.

Collor’s tenure marked a clear attempted departure from the industrial policy of the military regime. Intent on circumventing old corporatist institutions and establishing a new

⁶⁷Interview, Claudio Ferreira da Silva, trade promotion division, Ministry of External Relations, Brasília, June 2009.

economic model based on the (selective) use of neoliberal principles, Collor attempted dramatic reform and accomplished some of his objectives. Collor worked closely with the BNDES to begin the national program of “destatization”, known as the PND, in 1990. This was the first sustained, organized attempt to privatize state owned and quasi-state enterprises since the debt crisis. The program bore some fruit, particularly in the steel sector (Montero 1998). Collor was able to convince a number of business leaders and even some labor groups that privatization would improve the industrial competitiveness of Brazilian steel, and set strict parameters for the privatization process so as to avoid injuring these groups’ interests. The BNDES became a particularly influential institutional architect of the PND, a role that it continued during the much larger privatization episodes of the Cardoso administration. The PND outlasted the Collor government and continued into the Franco administration.

Collor succeeded in challenging stagnant developmental models. However, there were numerous institutional factors that limited the transformation. Given the lack of a party support base or coalition, Collor ran into strong political headwinds upon assuming office. Even supposed political allies, such as the PFL, eventually abandoned him (Weyland 1993). He had made little effort to create a center-right party or coalition while in office. This lack of party support aided an already authoritarian style and necessarily encouraged the liberal use of patronage. This in turn reinforced personalistic connections between business leaders and state bodies, which hampered the emergence of a coherent investment policy framework. It also made corruption more likely, which ultimately proved to be the administration’s undoing. The lack of political support, in other words, severely undercut institutional coherence in investment promotion. It is true that Collor’s efforts to introduce a new

economic model and encourage investment were handicapped by persistent inflation, which did not respond in the long-term to the administration's wage freezes or other austerity measures. However, macroeconomic patterns were not the only things holding back investment in Brazil. Institutional characteristics were also important during this period.

3.3.4 The return of FDI, 1994-2002

Itamar Franco, Collor's vice president, formally assumed office at the end of 1992 after Collor's impeachment. Franco did not share Collor's enthusiasm for neoliberal reform. However, Franco spent much of his brief term in office contending with hyperinflation that reached 2,400 percent in 1993. Franco's finance minister, Fernando Henrique Cardoso, assembled an economic team which finally succeeded in stopping inflation in 1994 through the introduction of a new currency, the Real⁶⁸. The importance of a stable currency from 1994 on in Brazil is difficult to over-estimate, both in terms of its political impact and its effect on FDI. Table 3.3 demonstrates the marked increase in FDI flows after 1994 compared to the previous period. It dramatically changed the political fortunes of Cardoso, who was widely predicted to lose the 1994 presidential election to Lula before the Real plan succeeded.

⁶⁸For an overview of the *Plano Real*, see Franco (1995), particularly chapter 2, and Sachs and Zini Jr. (1996).

Table 3.3 Brazilian inward FDI flows, 1985-2009 (millions US\$)

Year	FDI (credit)	FDI (debit)	FDI (net)	Of which:		FDI/GDP (%)
				equity capital including reinvestment - total (net)	intercompany debt transactions - total (net)	
1985	1909.5	-491.1	1418.4	1357.1	61.3	0.67
1986	1284.2	-967	317.2	343.7	-26.5	0.12
1987	1673.8	-504.7	1169.1	1225.1	-56	0.41
1988	3344	-539	2805.0	2969.8	-164.8	0.92
1989	1896.7	-766.8	1129.9	1266.4	-136.5	0.27
1990	1388.3	-399.5	988.8	901	87.8	0.21
1991	1402.4	-300.2	1102.2	971.8	130.4	0.27
1992	2619.9	-558.9	2061.0	1579.8	481.2	0.53
1993	2357.3	-1066.4	1290.9	713.3	577.6	0.3
1994	3221.7	-1071.8	2149.9	1971.6	178.3	0.4
1995	6369.8	-1964.7	4405.1	4238.8	166.3	0.57
1996	12033.7	-1242	10791.7	9893.2	898.5	1.28
1997	22081.1	-3088.2	18992.9	16817	2175.9	2.18
1998	34982.2	-6126.6	28855.6	25478.8	3376.9	3.42
1999	36254.5	-7676.1	28578.4	29983	-1404.6	4.87
2000	40290.5	-7511.3	32779.2	30016.3	2762.9	5.08
2001	30016.8	-7559.5	22457.4	18765	3692.3	4.06
2002	26460	-9869.8	16590.2	17118.1	-527.8	3.29
2003	19237.9	-9094.4	10143.5	9320.2	823.3	1.83
2004	25800.6	-7654.7	18145.9	18570.3	-424.4	2.73
2005	30061.9	-14995.6	15066.3	15044.9	21.4	1.71
2006	32399.5	-13577.3	18822.2	15372.6	3449.6	1.76
2007	50232.7	-15647.8	34584.9	26074.4	8510.5	2.59
2008	71835.7	-26777.5	45058.2	30064	14994.1	2.75
2009	53506.8	-27558.2	25948.6	19906.4	6042.2	1.65

Source: Central bank of Brazil (www.bancocentral.gov.br)

Both of Cardoso's terms in office were extremely consequential in terms of economic reform⁶⁹. Cardoso continued many of the neoliberal reforms begun by Collor, and it is not an exaggeration to characterize these reforms as a redirection of the Brazilian economic model. While the process was gradual and done in a largely pragmatic fashion, it resulted in a substantial dilution of state involvement in economic activity. The role of foreign investment increased dramatically, especially as a result of the privatization program pursued in the late 1990s. Indeed, many of the reforms pursued by Cardoso were regarded favorably by foreign

⁶⁹Cardoso was permitted to run again after a constitutional amendment was passed in his first term allowing reelection.

firms, and the administration in turn viewed increased investment as a positive development⁷⁰. However, I shall argue in this section that the investment policy framework in Brazil during this period was not active or discriminating, but rather passive and unincorporated into a coherent vision for the role of FDI in economic development. The investment environment in Brazil became much more favorable in the 1990s, but FDI was not pursued in a way that prioritized spillovers or moved production toward higher value-added activity. Partly as a result, foreign investments in Brazil during this period generally adopted a largely market-oriented posture. The explanations for this lack of coordinated and consistent investment policy lie primarily in the Brazilian institutional framework, though other factors played a role as well.

Cardoso was more successful in his economic reform efforts than Collor had been for a number of different reasons. Cardoso's party, the Brazilian Social Democratic Party (PSDB) had evolved from the PMDB in the years after democratization, and had developed a large electoral base concurrent with Cardoso's ascension. Cardoso enjoyed a dominant party coalition in congress. During most of his first term, his coalition controlled 70 percent of the seats in the Chamber of Deputies and 80 percent of the Senate. In his second term, his coalition controlled between 63 and 74 percent in the Chamber and a similar proportion in the Senate (Samuels and Mainwaring 2004, 110). Cardoso proved to be a skilled negotiator, and was able to hold the coalition together despite endemic problems with party discipline in Brazil. The Real's success generated a great deal of political capital, and strong economic performance even in the face of the Mexican peso crisis added momentum to the administration's reforming zeal.

⁷⁰Kingstone (1999) notes that multinational support for Cardoso's reforms does vary by sector, but on the whole foreign firms were more supportive of liberalizing reforms than domestic firms.

Early in his first term, Cardoso prioritized the continuing privatization of state owned enterprises. A number of the largest state-owned or quasi-state enterprises had become liabilities, and there was significant pressure from the business community to allow foreign investors access to these corporations. The detailed 1988 constitution distinguished among Brazilian companies funded by national capital and those which were foreign owned. This distinction also set up a discriminatory regime whereby foreign investment was severely restricted, if not prohibited, in sectors such as mining and telecommunications. The Cardoso administration pushed through constitutional amendments doing away with this distinction over a few months in 1995. The debate over these amendments was an absolute “war”, according to a high representative of the Ministry of Science and Technology involved in the negotiations⁷¹. Many of the old hard-line nationalist guard, including those firms which had benefited from state largesse, lobbied for opposition to the amendment in congress. Cardoso did have to offer compromises to parties within the governing coalition and without⁷². The PT and PDT were firmly opposed to privatization, particularly of the state-owned oil company Petrobrás (Kingstone 1999). The administration reached a compromise whereby the oil and gas sectors would be “flexibilized”, meaning the companies would be kept in state hands but would also be open to joint ventures with multinationals⁷³.

⁷¹Interview, Brasília, June 2009.

⁷²Power (1998) attributes Cardoso’s success in these constitutional amendments to the coalition management style of the president and also to changing attitudes about liberalization, particularly in parties such as the PSDB.

⁷³Petrobrás, for example, retained a 51 percent ‘golden share’ state ownership rule.

Table 3.4 FDI flows and stocks, by sector of activity (percentages)

	<i>Stock</i> 1995	<i>Stock</i> 2000	<i>Flows</i> (<i>annual</i> <i>average</i>) 1996-2000	<i>Flows</i> (<i>annual</i> <i>average</i>) 2001-2004
Agriculture, livestock, and mining	2.2	2.3	1.8	6.8
Petroleum	0.2	1.0	0.7	3.4
Metallic minerals	1.4	0.6	0.7	2.5
Others	0.6	0.7	0.4	0.9
Manufacturing	66.9	33.7	18.0	40.3
Food and beverages	6.8	4.5	2.6	10.6
Chemicals	12.8	5.9	3.0	7.4
Non-metallic mineral products	2.1	1.1	1.1	0.7
Office machinery and computer hardware	1.1	0.3	0.6	0.2
Electrical machines, apparatus and materials	2.6	1.0	0.7	1.7
Pulp, paper and paper products	3.9	1.5	0.1	1.2
Basic metallurgy	7.2	2.4	0.4	2.4
Machinery and equipment	5.6	3.2	1.3	1.8
Electronics and communications equipment	1.9	2.1	1.5	3.1
Motor vehicles, tow-trucks, and chassis	11.6	6.2	3.9	7.1
Other	11.3	5.5	2.8	4.1
Services	30.9	64.0	80.2	52.9
Electricity, gas, and hot water	0.0	6.9	14.9	6.7
Commerce	6.9	9.9	9.9	7.2
Business services	11.9	10.7	20.3	4.6
Private pensions and insurance	0.4	0.5	0.7	1.4
Information technology and related activities	0.3	2.5	1.3	1.6
Transport and related activities	0.5	0.5	0.7	1.1
Postal and telecommunications services	1.0	18.2	18.1	19.6
Financial intermediation	3.9	10.4	13.6	5.8
Other	6.0	4.4	0.7	4.9
Total	100.0	100.0	100.0	100.0

Source: Economic Commission for Latin America and the Caribbean (ECLAC 2004), on the basis of information provided by the Central Bank of Brazil (1995 and 2000 census). Flows are estimated by ECLAC.

Soon after the amendments passed, the privatizations of the telecommunications and energy sectors resulted in massive inflows of FDI into the service sector of the Brazilian economy. The auction of Telebrás in 1998 was the largest in the world up to that point, and netted the government roughly US\$ 22 billion (Kingstone 2003). Though the amendments did not totally remove restrictions on foreign capital, they did allow a significant influx of FDI in the latter half of the 1990s, mostly directed towards services⁷⁴. Table 3.4 illustrates the effects of these privatizations based on two censuses of foreign capital in Brazil taken

⁷⁴The privatizations of the state-owned enterprises enabled by these investments were quite varied in terms of success. Analysts have contrasted the relatively painless privatization of the telecommunications sector (Kingstone 2003) with the ad hoc privatization of the electricity sector (Gall 2002).

before and after the privatization period. The percentage of FDI stock accounted for by the service sector increased from 31 percent in 1995 to 60 percent in 2000. This reflects the privatization of a number of large state owned service companies. Many of these privatizations were done by companies in countries outside the traditional sources of FDI for Brazil. Spanish and Dutch consortia were particularly active in the service sector, and carried out a number of the larger privatizations. This is reflected in table 3.5, which compares the stock of FDI by country of origin both before and after the wave of privatizations. The 1995 distribution of capital stock largely conforms to the postwar pattern, but by 2000 new sources of FDI were more apparent. The constitutional amendments did nothing to directly or selectively incentivize FDI, opting instead to specify the sectors of the economy where restrictions would remain.

The Cardoso administration also brought about a significant redistribution of investment away from the traditional industrial centers in the southeast of the country, through policies both purposeful and inadvertent. The program on new export poles attempted to encourage exports in 14 less developed states, but was quickly supplanted in terms of importance to investors by the budgetary conflict between the federal government and the states, and the resulting 'fiscal war'. As part of the lead up to the Plano Real, Cardoso as finance minister had established the Social Emergency Fund, which transferred revenues guaranteed to states by the 1988 constitution back to the federal government. The Constitution had transferred about a quarter of the federal government's revenues to the states without any corresponding spending limits, which had greatly contributed to long running fiscal deficits (Samuels and Mainwaring 2004). Because governors enjoyed political advantage through increased spending and a great deal of influence in the executive, Sarney

and Collor had been unwilling to challenge this arrangement. The Social Emergency Fund effectively reversed this funding arrangement, and thought it was unpopular in congress Cardoso successfully argued that it was essential to the Plano Real and restoring fiscal responsibility. Once these funds were back in the federal government's hands, the administration forced through a package of spending cuts amounting to US\$6 billion. Cardoso also placed a great deal of emphasis on reforming the federal tax system, and increasing the capability of the government to crack down on tax dodgers. This initiative returned mixed results, but it did increase the federal tax burden and tax compliance in unison.

The states, meanwhile, had to contend with greatly reduced spending capabilities. The currency stability and accompanying high interest rates compounded the problem for states as they could no longer disguise ballooning deficits in an inflationary environment. Faced with an increasing federal tax burden and desperate for additional funds, states engaged in intense competition for FDI in the 1990s, especially in the automotive sector⁷⁵. There is a substantial literature both on the Brazilian experience of state competition for investment and larger debates about how competition may generate local gains versus country-wide losses⁷⁶. These debates are beyond the scope of this work, but serve as an important reminder of the positive and negative externalities involved in investment bargaining in a strong federal system. The Cardoso administration initially encouraged this kind of interstate competition, viewing it as a corollary of economic liberalization. However,

⁷⁵As a representative and well-known anecdote, Ford relocated a plant from Rio Grande do Sul to Bahia after a new PT government in Rio Grande do Sul attempted to renegotiate the terms of investment. Bahia offered Ford a package of incentives which reinstated some of the elements of the national automotive regime and credits from the BNDES. The package was certainly more generous than the initial deal offered by Rio Grande do Sul, and was accepted by Ford (Zanatta et al. 2006).

⁷⁶For a consideration of the specific fiscal war in Brazil and its impact on investment, see Christiansen, Oman, and Charlton (2003), and Rodríguez-Pose and Arbix (2001).

it became apparent in the late 1990s that many of these firms were attaining incentive packages that could not be sustained and were often unnecessary, and the administration did eventually put in place safeguards against a recurrence of inter-state competition.

There are a number of ways in which political institutions contributed to and/or failed to stop these kinds of bidding wars. The power of individual governors in Brazil has long been noted, and even with the fiscal centralization undertaken by Cardoso there were important limits to the federal government's ability to constrain individual states. Rodríguez-Pose and Arbix (2001) note that the National Fiscal Policy Council (Confaz), the organization most likely to constrain these sub-national bidding wars, was hampered by a weak mandate and unanimity requirement. To this we can add the lack of a federal investment coordination body.

The Cardoso administration also took steps to remove bureaucratic obstacles to foreign investment. In 2000, the central bank began to record foreign capital flows electronically, and dropped the requirement that all foreign exchange transactions receive prior authorization from the government. However, the electronic registration of all foreign currency operations remained mandatory. Brazil is still the only Latin American country where such detailed information on capital flows is sent to the central bank⁷⁷. The administration also shifted the priorities of the BNDES, moving it away from its focus on indigenous capital and incorporating the needs of foreign investors as a natural correlate to the constitutional amendments. The BNDES continued the role it had pursued during the Collor administration, when it functioned as the coordinator of privatization efforts. The Cardoso administration also made attempts to transform the BNDES into a kind of

⁷⁷Interview, Central Bank Department of Financial System Surveillance and Information Management (DESIG), Brasília, June 2009

investment policy bank, though this effort was not carried through by the Lula administration⁷⁸. The BNDES was used as an essential venue for the privatization program and as a funding source for potential foreign investors. Its reputation for professionalism and resistance to clientelistic pressures made it an attractive location for general investment promotion and funding.

Table 3.5 FDI stocks by geographic origin, 1995 and 2000

<i>Country</i>	<i>1995 Stock (US\$ million)</i>	<i>Percent of total</i>	<i>2000 Stock (US\$ million)</i>	<i>Percent of total</i>
United States	10852.2	25.52	24500.1	23.78
Germany	5828.0	13.70	5110.2	4.96
Switzerland	2815.3	6.62	2252.0	2.18
Japan	2658.5	6.25	2468.1	2.39
France	2031.5	4.78	6930.8	6.72
Canada	1819.0	4.28	2028.2	1.96
United Kingdom	1792.6	4.21	1487.9	1.44
British Virgin Islands	1735.6	4.08	3196.5	3.10
Netherlands	1534.5	3.61	11055.3	10.73
Italy	1258.6	2.96	2507.1	2.43
Cayman Islands	891.7	2.10	6224.8	6.04
Uruguay	874.1	2.06	2106.6	2.04
Bermuda	853.1	2.01	1940.0	1.88
Panama	677.4	1.59	1580.4	1.53
Sweden	567.2	1.33	1578.4	1.53
Belgium	558.2	1.31	656.6	0.63
Bahamas	509.7	1.20	944.0	0.91
Luxembourg	408.0	0.96	1034.1	1.00
Argentina	393.6	0.93	757.7	0.73
Spain	251.0	0.59	12253.0	11.89
Portugal	106.6	0.25	4512.1	4.38
South Korea	3.8	0.01	179.6	0.17
Other countries	4109.7	9.66	7711	7.48
Total	42530.0	100.00	103014.5	100.00

Source: Central bank of Brazil, data from the census of foreign capital, 1995 and 2000. Tax havens such as the Cayman Islands may be overrepresented in central bank data, as FDI from these locations does not represent the ultimate beneficiary owner. See Annex 2 in Bonelli (1999) for a discussion of this data collection problem.

⁷⁸Interview, Antonio Prado, Department Chief, Department of Governmental Relations, BNDES, Brasília, June 2009

Taken together, the various initiatives of the Cardoso government provided a hospitable environment for FDI. Certainly in contrast with the previous decade, foreign firms dramatically increased their presence in various sectors of the Brazilian economy. Table 3.6 demonstrates that foreign firms assumed larger roles in a number of different sectors over the course of the 1990s, especially in contrast with the pre-Real period. Yet even considering the dramatic increase in FDI, it is difficult to find signs of direct, targeted investment promotion during the Cardoso years. FDI attraction, while viewed as desirable by the administration, was not integrated into a coherent industrial policy designed to take advantage of the resources of foreign firms. Instead, FDI was allowed into Brazil through the gradual passive dismantling of the ISI policy framework. Discriminatory treatment of foreign investment was barred, but the government did not develop a set of policies designed to maximize the developmental benefits of the FDI boom. This is due to a number of factors. In the early years of the Cardoso administration, the government's priorities lay firmly in the establishment of macroeconomic stability and consequently the defense of the new currency. Personal interviews corroborated the notion that the administration was most interested in privatization and shoring up the domestic currency. As one respondent put it:

There was no coordinated policy with respect to how to use FDI. Policies towards firms evolved gradually. The government was much more focused on the competitive auction of state firms⁷⁹.

Policies that emerged related to foreign investment largely focused on dismantling old barriers to the participation of foreign capital and selling state assets to international investors. The privatizations that occurred were most often in service sectors of the economy, and these did little to increase exports or promote spillovers with local firms.

⁷⁹Phone interview, Dr. Eduardo Costa, FINEP Director of Innovation, Rio de Janeiro, May 2008

The lack of government support for direct, targeted measures is apparent in the brief history of the investment promotion agency *Investe Brasil*. This institution was operational from 2002 to 2004, but its roots extend to the late 1990s. Conceived as a ‘one stop shop’ for foreign investors seeking information on Brazil, the body functioned with a small staff for its brief tenure. The dissolution of *Investe Brasil* runs counter to worldwide trends in investment promotion. The World Association of Investment Promotion Agencies (WAIPA), established in 1995, now counts over 100 members. Cross-national studies have indicated that independent and well-supported investment promotion agencies are associated with higher inflows of investment (Morriset 2003). *Investe Brasil* included in its mandate the specific targeting of investments which would be most beneficial to technological upgrading and promotion of exports, and its closure sent signals of discontinuity and reinforced negative perceptions of the regulatory environment in Brazil (Gregory and Arraes de Oliveira 2005). The most proximate cause for its closure was a conflict over the funding arrangement, though the larger issue of transition between administrations certainly played a part. During its tenure, the agency attracted an estimated \$1.4 billion in investment projects. However, *Investe Brasil* represented an attempt at unified, targeted investment promotion policy of quite short duration.

The Cardoso government founded *Investe Brasil* as a partnership between the public and private sectors, based on the notion that an investment promotion agency had to be agile and integrate the views of the private sector. As such, the agency received funding from the budgets of three different governmental ministries and 31 private groups. This funding arrangement, while innovative, quickly ran into coordination problems. Other ministries and many of the leftist parties were uncomfortable with the idea of public monies being directed

toward an agency with private backing and whose actions would benefit foreign investors. The staff at *Investe Brasil*, never numbering more than 30, was predominantly from the private sector and did not have established personal connections with the ministries. The TCU, an organization within the government charged with oversight of spending, mounted an investigation of the funding arrangement in 2002 and 2003, and the Cardoso and Lula governments followed the lead of the TCU. Eventually funding for the project dried up altogether, and *Investe Brasil* was disbanded⁸⁰.

Table 3.6 Estimates of participation of foreign firms in total sales, in select sectors (percentages)

	<i>1993</i>	<i>1997</i>	<i>2000</i>
Food	31.94	56.66	57.70
Beverages	9.06	14.54	15.34
Clothes and textiles	2.83	15.05	23.25
Construction	1.26	3.02	4.69
Petroleum distribution	65.97	73.96	69.66
Electronics	32.48	48.02	77.36
Pharmaceuticals	77.62	84.06	85.43
Tobacco	100	100	100
Health	94.07	88.48	86.12
Construction material	30.77	33.67	35.35
Transport material	87.67	92.93	88.64
Machinery	61.77	41.03	75.33
Minerals	20.66	14.27	7.77
Paper and cellulose	18.05	17.55	14.75
Plastics	69.15	82.03	69.21
Chemicals, petrochemicals	42.81	49.74	53.31
Transport services		2.84	6.52
Public services		41.33	64.62
Steel and other metals	18.24	23.71	32.71
Computing	92.09	91.39	90.96
Telecommunications			63.05

Source: Nonnenberg (2003) from *Revista Exame*, various years.

The reasons for the failure of *Investe Brasil* reveal a great deal about the way in which political institutions can affect the emergence of a coherent investment promotion policy framework. The directorate of IB spent much of its first year of existence attempting to manage the various state-level investment promotion agencies which had developed in the wake of the federal fiscal crisis and subsequent rush for FDI. These state investment

⁸⁰Phone Interview, former institutional director of *Investe Brasil*, Brasília, February 2008.

promotion agencies differed greatly in their resources and connections with the federal government. But coordination problems also existed at the federal level, considering the large number of agencies in different ministries with some investment promotion mandate. The institutional proliferation was difficult for IB, and resulted in less attention devoted to actual investment promotion.

The turnover within these various organizations was another complicating factor for the IB mandate. Schneider (1991) has noted the peripatetic nature of Brazilian bureaucrats' careers, with individuals constantly moving among different posts at the federal and state level. Long term posts are rare, which makes the development of long term objectives and an organizational ethos more difficult. Although this itinerancy has some benefits, it also creates complications for agencies trying to establish consistency. The agencies that IB attempted to coordinate were afflicted with this dynamic, and former directors of IB expressed frustrations in interviews that they were not able to establish long term relationships with representatives of the other investment promotion bodies within the bureaucracy. This was especially the case during the transition from the Cardoso administration to the Lula administration. A former director of *Investe Brasil* revealed that of 95 people within the loosely-organized investment promotion network of the federal government, 93 changed with the arrival of the Lula administration. She charged that the organization's closure was partly a result of this "discontinuity"⁸¹.

Investe Brasil also encountered difficulties in attempting to establish a comprehensive approach to investment policy. The agency functioned as another information portal, and was not able to bring legislators or ministry officials to prioritize broad investment targeting

⁸¹Interview, São Paulo, March 2008.

policy. That is, most investments were negotiated through personalistic connections between individual legislators or bureaucrats and firms. In the context of FDI, this often meant that firm investment decisions would be negotiated with bureaucrats based on personal relationships and/or positions of power, and not necessarily on familiarity with governmental objectives or even the most appropriate concessions⁸². However, the established connections between individuals and firms made it difficult for IB to coordinate a larger investment promotion strategy, let alone one that would prioritize those sectors or activities most likely to lead to developmental spillovers.

Finally, the funding arrangement for IB was a point of particular contention among other bodies, with many of the other organizations becoming suspicious of the private sector's participation. Other investment promotion agencies in Latin America rely heavily on private funding and have demonstrated a high level of support and continuity⁸³. However, the participation of the private sector and the ambiguity surrounding the funding for IB prompted conflict within the Brazilian bureaucracy⁸⁴. Whether IB would have continued if it had been wholly state supported is difficult to know, but it is certain that the public-private partnership embodied in the institution could not be maintained without conflict. This theme resurfaced in the Lula administration's aborted attempts at public private partnerships in infrastructure projects after 2002.

⁸²When negotiations took place with the largest multinational firms, bureaucratic agencies would often be ignored altogether. Instead, the negotiations would take place between firm representatives and top level administration officials, such as the Minister of the Ministry of Development, Industry, and Trade (MDIC) or the Finance Minister (Interview, Central Bank Department of Financial System Surveillance and Information Management, Brasília, June 2009).

⁸³See Chapter 6, particularly the discussion of CORFO in Chile and CINDE in Costa Rica.

⁸⁴The MDIC believed that the mandate of *Investe Brasil* should best be transferred to the export promotion agency (APEX). This happened during the Lula administration.

Investe Brasil represented an attempt at direct, active, and mildly discriminating investment promotion. Its elimination was lamented at the time in the Brazilian press, and runs counter to worldwide trends⁸⁵. The character of Brazilian state institutions provides an accurate explanation for its demise. The uncoordinated and often personalistic connections among foreign firms and state representatives are resistant to the imposition of an overarching strategy for FDI promotion, and to any institution which embodies this strategy.

Through the stabilization and privatization programs of the late 1990s, the Cardoso administration adopted a largely passive approach to foreign investment. Sector-specific incentive programs were associated with the old industrial programs that Collor and eventually Cardoso sought to transcend. Indeed, industrial policy as a whole (and selective investment promotion as a subset of industrial policy) was frowned upon during this period. As one Central Bank interviewee put it, “industrial policy” in the late 1990s was inappropriate language, subject to scolding⁸⁶. The economic model in place at the time discouraged targeting of specific sectors or industries, viewing such intervention as counterproductive to stabilization and growth.

There were a few exceptions to this general pattern. Perhaps the most consequential, in terms of its impact on the investment behavior of multinationals and the performance of the Brazilian economy, was the package of regulatory reforms since 1995 that came to be known as the Brazilian automotive regime. These reforms generated a number of special

⁸⁵A prominent Brazilian economist, Roberto Teixeira da Costa, expressed dismay at the abandonment of *Investe Brasil* in an economic opinion column in the *Folha de São Paulo* (Teixeira da Costa 2004). In another newspaper account, a number of administrators complained that none of the investment projects underway when *Investe Brasil* was closed were pursued, and that the efforts of the organization were basically “thrown in the trash” (Mello 2005).

⁸⁶Interview, Central Bank Department of Financial System Surveillance and Information Management, Brasília, June 2009.

incentives for automobile manufacturers, were profoundly illiberal in nature, and played a role in the dramatic increases in investment in both auto assembly and the internationalization of the Brazilian auto parts sector⁸⁷. Between 1994 and 2003, 23 new automotive assembly plants opened in Brazil. Automotive investment accounted for roughly twenty percent of all incoming FDI for the same period (ECLAC 2004, 94). As a result of these new automotive investments, the automotive sector increased from 7.8 percent of industrial GDP in 1990 to 12.1 percent by 1997 (Rodriguez-Pose and Arbix 2001, 140). After a period of import dominance in the early 1990s, by 1994 manufacturers began to increase automobile exports, mostly in the context of Mercosul. In 1995, the implementation of the automotive regime brought a combination of tariff barriers and subsidies to automobile manufacturers, in order to encourage domestic production. The plan also exempted exports from paying social contributions taxes, such as the PIS and Cofins taxes (Doctor 2007)⁸⁸. However, the plan contained no incentives for domestic innovation among multinational firms.

The automotive regime of the Cardoso administration does bear the signs of a targeted investment promotion policy. As such, it may seem at first glance that this episode contradicts earlier statements about the passive nature of investment policies during this period. Indeed, the administration wished to force multinationals to invest directly by increasing import tariffs (Arbix and Martin 2010, 16). However, it would be a mistake to characterize this particular initiative as a coordinated attempt to derive developmental benefits from FDI. There were many other factors at play in this particular instance. Indeed,

⁸⁷The special incentives generated some conflict with the World Trade Organization and with Argentina, Brazil's automotive partner in Mercosul. See De Negri (1999) for a discussion of these controversies and their resolution.

⁸⁸These taxes have a statutory rate of 9.3 percent of value added (www.doingbusiness.org).

there is much about this period that suggests the automotive regime was not a result of autonomous investment promotion, but rather complicated bargaining within the bureaucracy, the immediate concerns of rising trade deficits, and perhaps rent-seeking behavior among firms.

The automotive regime did not materialize spontaneously from within the Cardoso administration. Collor in 1990 proposed a gradual reduction of tariffs on imported automobiles, which had greatly benefited manufacturers in the 1980s, in order to stimulate competition and modernize the industry. Tariffs would be reduced from 85 percent to 30 percent by 1994 (Laplane and Sarti 2002). This generated a significant backlash from domestic auto producers, who feared the dramatic liberalization and elimination of state support would mean the end of the industry. Collor in response helped organize a number of sectoral chambers in 1991 and 1992, which were not limited to autos but functioned as a rough approximation of a tripartite bargaining system (Doctor 2009). Even the PT, quite hostile to Collor's liberalization program, agreed to participate along with the largest autoworker unions. The sectoral chambers resulted in significantly reduced tax rates, which in turn lowered the price for vehicles sold domestically and stimulated demand. In effect, the sectoral chambers allowed the automotive firms to campaign for state support to adapt to the pressures of liberalization, and therefore lend their support. This pressure continued during the Franco administration, when automakers already in country successfully lobbied for a reduction in tax rates as part of the *carro popular* program (discussed more extensively in chapter five).

A similar dynamic occurred during the negotiations for the automotive regime. Reductions in tariffs in 1994 (some went as low as 20 percent) were met with hostility by the

automobile industry, which successfully pressured the government to restore them to 70 percent in 1995 (Tavares de Araújo 1998, 17). This was one of the factors which persuaded a number of new multinational manufacturers to establish direct productive capacity in Brazil in lieu of importing. Yet it seems unlikely that this result was the government's only goal⁸⁹. It is also certain that the drastic trade imbalances provoked by liberalization of the sector, along with the instability brought by the Mexican peso crisis, contributed to support for the RA.

There were also powerful indirect incentives at work in this instance. The growth of FDI-linked exports in the automotive sector perhaps owes less to direct subsidy of export than it does to the powerful regional incentive of Mercosul membership. The automotive industries of Argentina and Brazil tightly integrated over the course of the 1990s, despite the occasional flare-ups over subsidies and other trade distortions. Argentina is the main destination of car exports from Brazil, attracting 33 percent of all units exported in 2006 (ANFAVEA 2007). The export performance has been impressive since 1995, but the sporadic outward orientation of multinational automotive manufacturers has largely been a result of regional trade integration. As such, Mercosul represents a powerful but indirect investment promotion tool.

The Cardoso administration's automotive regime was an exception to the generally neoliberal-oriented reform program put in place in the latter half of the 1990s. It did incentivize FDI, and generated strong pressures for outward orientation among multinational

⁸⁹Gómez Mera (2007) attributes the emergence of the automotive regime to intra-bureaucratic bargaining. Specifically, she argues that the more developmentalist bodies within the bureaucracy, represented by the ministry of planning and the ministry of trade, industry, and tourism, were able to extract concessions from the administration. The finance ministry and central bank, more neoliberal in orientation, were willing to accept some of the more interventionist policies as long as they did not threaten the stability of the real, which was their ultimate priority. In this interpretation, the interventionist automotive regime does not appear as an attempt to increase FDI and move it toward export activities, but rather as an attempt to shield developed industries from some of the more painful aspects of economic adjustment.

automakers. However, the initiative does not constitute an example of coordinated investment promotion designed to generate FDI spillovers. It did not directly incentivize innovation among multinationals. The policy initiative can be better interpreted as a compromise measure designed to protect industries which otherwise might have suffered under the stabilization and structural reform measures.

The lack of discriminating, active FDI strategy can be better illustrated in the fate of domestic auto parts producers in Brazil in the 1990s, discussed extensively in chapter five. The 1990s witnessed a dramatic denationalization of the auto parts industry in Brazil. Domestic auto parts makers had enjoyed productive relationships with multinational assemblers since the 1950s, and government protection stemming from strict domestic content laws. When these laws were dropped as part of the larger liberalization process, domestic companies were bought by larger multinational parts manufacturers such as Dana and Visteon beginning in 1990. The phenomenon of *follow-sourcing*, whereby new manufacturers bring parts suppliers with them as they make new investments, meant that Brazilian suppliers would either be incorporated into existing companies or go out of business. The move toward modular production also reinforced the bargaining strength of the multinational supplier firms, which had more experience with these models of production. Not surprisingly, many supplier firms resisted the liberalization program, and resented the protection extended to multinational assemblers⁹⁰. The automotive regime did little to protect national supplier firms, and most of the upper-tier suppliers were bought out by multinational parts suppliers.

This denationalization had important ramifications for the auto parts industry in Brazil. The innovative activities of supplier firms were downgraded, or relocated to the

⁹⁰Interview, directorate of *Sindipeças* (Brazilian auto parts association), São Paulo, February 2008.

home country of the parent firm (Zilbovicius et al. 2002; Salerno et al. 1998). The number of suppliers was reduced as smaller suppliers were consolidated in the new multinational modular plants. Nationally-owned suppliers that managed to survive the consolidation were moved to lower levels of the supply chain. Local innovation and linkages with domestic producers, which had been cornerstones of the automotive industry since the 1950s, diminished significantly.

It might be tempting to infer from the massive influx of FDI during the second half of the 1990s that the Cardoso administration had put in place an effective investment promotion policy framework. However, as the preceding section has demonstrated, this would be inaccurate. Foreign investors poured into Brazil for many reasons: a stable domestic currency, the domestic market of Brazil and the regional market of Mercosul, the relaxation of domestic content requirements and restrictions on foreign capital, the political stability after the Collor debacle, etc. But the reform effort led by the Cardoso administration was largely passive towards FDI. That is, where the government did develop policy toward FDI, it consisted mainly of tearing down barriers to investment. This passive investment promotion generated a great deal of inward investment, but the administration did not devote significant energies toward maximizing the benefits of that investment. Indeed, there were significant elements of the industrial policy (or more accurately, the lack thereof) which failed to deal with the unanticipated negative consequences of foreign penetration.

From a more charitable perspective, the priorities of the administration certainly were elsewhere. In the early years of the Cardoso administration, officials were focused like lasers on the stability of the domestic currency. Given the repeated failed attempts at curbing hyperinflation, this is understandable. To the degree that FDI was considered, the massive

inflows were seen as a vote of confidence in the administration and in the Real. The fiscal imbalances resulting from the strong federalism of the Brazilian system were unsustainable, and the administration devoted significant energies to the resolution of that conflict as well. It is fair to say that economic reform priorities lay elsewhere.

Cardoso was able to push through some potentially controversial elements of reform, such as the privatization of Telebrás, with relative ease through careful negotiation and coalition politics (Kingstone 2003). The constitutional amendments of 1995, which allowed FDI in diverse sectors, are also testament to the success of Cardoso's negotiating strategy. However, there were a number of institutional impediments to the implementation of an effective investment promotion policy framework, and these worked against the limited active, discriminating policies promoted by the Cardoso administration. The story of *Investe Brasil*, which spans the Cardoso and Lula administrations, demonstrates well the problems of institutional consistency. There were also inter- and intra-institutional coordination problems, particularly the organization's unwieldy oversight structure and the difficulties encountered in managing the investment promotion efforts of Brazilian states. *Investe Brasil*, despite its proclaimed objective to serve as a 'one stop shop', had to compete with various other organs for the attention of multinationals. Coordination problems are also evident in the sub-optimal outcomes realized during the state-level bidding wars for multinational automotive investments in the 1990s. The Cardoso administration was at first unable and unwilling to manage investment incentives of individual states. Finally, there were instances of networking problems resulting from the disconnect between multinational representatives and state bodies. *Investe Brasil*, staffed as it was by representatives of the private sector, was viewed with suspicion by the TCU and other state bodies. The strong ties between

multinational automakers and the state, nurtured over decades, contributed to the temporary export success of the automotive regime. However, this was the exception. In most sectors, networks between state representatives and multinational firms were quite weak.

3.3.5 Investment policy under Lula: the return of industrial policy

While the transformation of Brazil's economic model under Cardoso was indeed substantial, it is important not to overstate the degree to which political actors desired an outright removal of the state from economic governance. The groups within the administration that managed to push through modest neoliberal reforms did so against strong headwinds created by long historical legacies. The economic crises of the 1980s and early 1990s certainly created windows of opportunity, but a wholesale rejection of what had been a highly interventionist state ever since Vargas's *Estado Novo* was never really in the cards. The neoliberal reform period of the 1990s represents a significant rejection of state-led industrialization. However, the resurgence of industrial policy in the Lula administration demonstrates that the state retains its long-standing role as a source of influence on private enterprise in Brazil, both domestic and foreign owned.

Lula reinvigorated industrial policy and integrated FDI into a more explicit focus on innovation. Active, discriminating policies towards investment were more common than they had been in the 1990s. A handful of new laws directly incentivized the innovative efforts of multinationals, and provided support to exports as well. On the institutional side, Lula expanded support for pockets of efficiency such as the BNDES and FINEP, while also adding new institutions that have the potential to serve as focal points for coordinated, consistent state-firm bargaining. However, some institutional characteristics hampered the implementation of reinvigorated industrial policies, and Lula administration's approach to

FDI was very much a process of trial and error. Nevertheless, active, sectorally-discriminating investment policies, channeled through pockets of efficiency, have begun to support greater innovative activity and export activity in limited sectors. It is unclear whether these patterns will continue, and the institutional context still poses many obstacles for new investment policies.

The general contours of Lula's industrial policy were outlined in two overarching policy packages, announced in 2003 and 2008 respectively: the *Política Industrial, Tecnológica e de Comércio Exterior*/Policy for Industry, Technology and Foreign Trade (PITCE) and the *Plano de Desenvolvimento da Produção*/Production Development Plan (PDP). These development plans contain some elements similar to the industrial plans of the 1950s and 1960s, including emphasis on the competitiveness of Brazilian industry. However, in many ways these plans break with past models of industrial policy, particularly in their focus on innovation. They represent a return to state interventionism while at the same time acknowledging the impact of a changed economic environment and the parameters set by neoliberal reforms. Though they are not perfect exemplars of what Schrank and Kurtz (2005) have called "open economy industrial policy", they do contain enough elements to qualify.

As another distinguishing characteristic from some of Brazil's previous industrial policies, the PITCE and PDP did not display an antagonistic orientation toward FDI. As part of the emphasis on export competitiveness and innovation, the Lula administration adopted a policy stance that, for the most part, encouraged FDI. The industrial policies adopted by the administration were primarily directed toward increasing the international competitiveness of Brazilian firms. However, FDI was treated as an important ingredient in successful industrial

development. The PITCE and PDP placed much more emphasis on innovation, and some measures were put in place that encouraged the transfer of technology from multinationals to domestic partner firms. On the whole, however, the incorporation of FDI into the economic model pursued by the Lula administration was incomplete. I argue that this has less to do with the nature of investment promotion policy, which was more active and discriminating than Cardoso's, and more to do with the conditioning influence of institutions. Despite the pronounced focus on targeting potential spillovers contained in Lula's industrial policies, those same policies were often undercut by institutional problems. At the same time, the presence of an activist industrial policy has allowed FDI to be better integrated into overall development strategy than during the Cardoso years.

The resurgence of industrial policy in Brazil and the administration's accompanying attitudes towards foreign investment had roots in the popular and governmental reactions to the neoliberal models of the 1990s. The new approach attempted to incorporate the successes of neoliberal stabilization in Brazil, including more fiscal discipline, currency stability, privatization, commercial opening and viability, while at the same time attempting to correct some of the severe imbalances generated by neoliberal reform. Principle among these were the increases in poverty, inequality, and the processes of deindustrialization that had accompanied neoliberal models of capitalism and generated strong resentments among populations in Latin America⁹¹. The Lula administration pursued this agenda by enacting a number of social programs designed to make growth more inclusive, including the popular *Bolsa Família* targeted conditional cash transfer program, while at the same time not threatening the economic openness and stability enjoyed by the country since the mid-1990s.

⁹¹For summaries of different models of capitalism pursued in various Latin American countries and their evolution, see Huber (2002), also Garreton et al. (2003).

This has required a governmental strategy predicated on the idea of a middle way between the old developmentalist models of the 1970s and the neoliberal minimal state of the 1990s, or what Arbix and Martin (2010) call an *inclusionary state activism without statism*.

Table 3.7 Net inflows of FDI, by destination sector, 2003-2008

	2003	2004	2005	2006	2007	2008	<i>Annual Average 2003-2008</i>
Natural Resources (Millions US\$)	1487	1073	2194	1 542	4751	12995	4007
<i>Percent of Total Net FDI</i>	<i>11.52</i>	<i>5.29</i>	<i>10.14</i>	<i>6.79</i>	<i>13.84</i>	<i>29.23</i>	<i>12.80</i>
Manufacturing (Millions US\$)	4506	10708	6527	8462	13481	14013	9616
<i>Percent of Total Net FDI</i>	<i>34.92</i>	<i>52.83</i>	<i>30.16</i>	<i>37.26</i>	<i>39.29</i>	<i>31.52</i>	<i>37.66</i>
Services (Millions US\$)	6909	8485	12915	12702	16073	17449	12422
<i>Percent of Total Net FDI</i>	<i>53.54</i>	<i>41.86</i>	<i>59.69</i>	<i>55.94</i>	<i>46.85</i>	<i>39.24</i>	<i>49.52</i>

Source: Economic Commission for Latin America and the Caribbean (ECLAC 2009, 50), on the basis of information provided by the Central Bank of Brazil. Author elaboration.

The character of the administration's development program depended on the more mundane considerations of political support in congress. While Cardoso assembled a diverse coalition to support his reform agenda and relied on decree powers occasionally, Lula had to contend with elements within his own party that favored a return to economic nationalism and protectionism. The PT had demonstrated hostility toward the privatization programs of the Collor and Cardoso years, and was ambivalent at best about the benefits of neoliberal

reform in general⁹². Lula was able to mount a relatively effective and moderate industrial policy in part because of its appeal to those elements of the left concerned with the competitiveness of Brazilian firms⁹³. However, Lula's strong personal popularity in Brazil also added authority to his industrial policies and other initiatives⁹⁴. To the degree that these new industrial policies represented breaks from both neoliberal and developmentalist templates, they testify to the ability of the administration to appeal to a more centrist coalition in congress and to the broad authority conferred on Lula by his popularity.

While the industrial policies of the Lula administration present a ramping up of state activism, it is perhaps somewhat unfair to draw a distinct dividing line between Cardoso and Lula. As Doctor (2009) notes, by the end of the 1990s the Cardoso administration had begun to turn its attention to support of innovation in Brazil. While never embodied in an industrial policy per se, the Cardoso administration did begin laying the groundwork for an eventual industrial policy. The Ministry of Development, Industry, and Trade (MDIC) was created in 1999, and eventually became a focal point for Lula's industrial policies and investment promotion framework. Additionally, the sectoral funds, located within the structure of the Ministry for Science and Technology (MCT), were also initiated during the last months of Cardoso's second term and expanded during the Lula administration. These funds directly supported innovative activity and public-private research collaboration, and are discussed more extensively in chapter four.

⁹²During the Lula administration, the PT periodically rebelled against certain reforms that were judged to be a step too far. For example, in 2006 the PT greeted coolly a proposal to increase the operational autonomy of the central bank, fearing it would dilute job creation ("Crescimento bem contido" 2006).

⁹³Interview, PT Deputy, Brasília, June 2009.

⁹⁴This was true even after the elections of 2006 in which the incumbent PT failed to gain seats in congress, as it had in every previous election since democratization (Hunter and Power 2007).

The Policy for Industry, Technology, and Foreign Trade (PITCE) represented a break with industrial policies of the past. As Doctor (2009) notes, the PITCE avoided targeting specific firms for state support, or ‘picking winners’. However, at the same time the PITCE did specifically target four industries as priorities: the software, semiconductors, capital goods, and pharmaceutical industries. These were industries where the administration believed Brazil had a chance to develop non-traditional exports and increase the innovative capabilities of Brazilian firms. The PITCE focused heavily on innovation among small and medium enterprises, mostly Brazilian-owned. Indeed, the policy itself referenced Brazilian firms as its priority targets (Koeller and Gordon 2010, 30). However, as part of its focus on innovation, the policy provided incentives for multinational firms operating in Brazil to invest in R&D, and set target sectors⁹⁵. The policy also encouraged partnerships between federal universities and domestic and foreign owned firms, in the hopes that this would lead to the spread of innovative activity.

During the Lula administration the Brazilian government also expanded the role of FINEP, an organization which had once been under the aegis of the BNDES but had been moved to work within the framework of the Ministry of Science and Technology (MCT). FINEP provides grants and loans to both Brazilian universities and private corporations, without distinction based on country of origin. FINEP had existed since 1967, but its resources were greatly expanded under the Lula administration⁹⁶. The mechanisms through which FINEP incentivizes innovation are detailed in chapter four. FINEP enjoys a reputation

⁹⁵In addition to the four sectors mentioned above, there were three other sectoral options for future development: biotechnology, nanotechnology, and biomass/renewable energies.

⁹⁶While Cardoso sought funding for FINEP, it did not arrive until after 2002. Funding for FINEP increased tenfold between the Cardoso and Lula administrations (Phone interview, Dr. Eduardo Costa, FINEP Director of Innovation, Rio de Janeiro, May 2008)

similar to that of the BNDES, in that it is considered one of the few organizations in the Brazilian bureaucracy that ‘does development lending right’. It has an extensive set of requirements for pre-loan approval and after-loan follow up, reducing the potential for rent seeking and fortifying results-based evaluation. While its resources are much smaller than the BNDES, it has established itself as another ‘pocket of efficiency’ in the institutional framework. Moreover, because of its emphasis on innovation, it can be labeled as one of the few institutions that have adopted and carried out an active, discriminating investment promotion approach.

In addition to strengthening FINEP, the PITCE was accompanied by two important legislative initiatives: the *Lei de Inovação* (or ‘Innovation Law’ 10,973/2004) and the *Lei do Bem* (or ‘Law of the Public Good’ 11,196/2005). The first of these two laws expanded federal support for innovative activities among both Brazilian and foreign firms through targeting a number of goals through subsidies and other incentives, as outlined in Zanatta (2006, 125-126):

- Strategic alliances between science and technology institutions and the private sector
- Connecting federal research bodies with the private sector, especially in the development of infrastructure
- Generating interaction between the private sector and public research bodies in a way that facilitates the transfer of technology in both directions
- Stimulus to a ‘culture of innovation’ by way of a new intellectual property regime in public research institutions
- Authorization for mutual funds within companies whose principal activities would be in support of innovation

The innovation law was particularly important in that it encouraged public research institutions to cooperate with private companies, and allowed the sharing of lab space and the possibility of remuneration for public research institutions engaged in these cooperative relationships. The law also guaranteed industrial property rights to innovations that proved to have commercial viability, even if researchers did not originally register their innovative activities as patents per se.

The *Lei do Bem* added a number of concrete tax and other incentives to the general parameters of the innovation law, focusing in particular on the IT sector. Some of the more consequential components of this law for multinational companies are as follows (Zanatta 2006, 130):

- Reduction in the tax on industrialized products (IPI) for the purchase of machines and equipment used in research and development⁹⁷
- Accelerated depreciation and amortization of these capital goods
- Reduction or elimination of income taxes for firms engaged in activities that result in contractual technology transfers or the registry of patents
- Other tax reductions for contracting domestic research personnel with masters or doctoral degrees

These laws reinforced the innovation focus of the PITCE framework, which had been missing from earlier industrial policies. The laws allow for the benefits from the commercialization of intellectual property to be shared among researchers, public scientific and technological institutions and private firms. These legal changes were accompanied by a new set of institutions that would carry out the mandate of the PITCE. At the end of 2004, the federal government created two organs, the the *Conselho Nacional de Desenvolvimento*

⁹⁷The IPI is similar to VAT, and has a statutory tax rate of 20% on value added (www.doingbusiness.org)

Industrial / National Industrial Development Council (CNDI) and the ABDI. CNDI functioned as a council of high representatives from governmental bodies and civil society, recommending initiatives to the president and responsible for the overall direction of industrial policy. The CNDI was directly linked to the executive, a move that was intended to bring policy coherence and efficacy. Thirteen ministerial representatives and a representative of the BNDES formed the governmental contingent, and another fourteen representatives of business and labor unions provide the other half of the institutional structure.

The ABDI functioned as the body charged with the day-to-day articulation of industrial policy and as the institutional focal point for the Lula administration's implementation of the PITCE. The institution is funded through an arrangement known as *Sistema S*, which allows public funds from industry to be directed to what is legally a private entity. ABDI is supported by ten ministries and governed by their representatives, though it is most closely connected to the Ministry of Development, Industry, and Trade (MDIC). The agency has served as a focal point for the Lula administration's emphasis on cooperation through Mercosul and the expansion of south-south investment⁹⁸. While the CNDI is officially charged with the formulation of industrial policy, the subordinate ABDI remains the most important body for its articulation.

The final cog on the institutional wheel created by the Lula administration has the most direct mandate for investment promotion. APEX has existed since 1998, as part of the Brazilian support system for micro and small enterprises (SEBRAE). In 2003, APEX left SEBRAE and came under the umbrella of MDIC. The mission of APEX was fundamentally

⁹⁸Interview, Eduardo Valle, Department of International Relations, ABDI, Brasília, June 2009.

transformed in that year, as the agency was folded into the larger industrial policy framework. As such, APEX was reorganized and developed an investment promotion division. This division serves as the most direct successor to *Investe Brasil*, as it is charged with the active attraction of foreign investment to Brazil. It is unclear, however, how much support the investment promotion body has within the industrial policy framework. APEX is not as powerful or autonomous an institution as the BNDES or FINEP, and though it displays signs of sectoral targeting and active promotion of investment, as a body it is much more heavily focused on Brazilian export promotion than attraction of FDI⁹⁹. Interviews at APEX revealed a similar institutional emphasis on ‘match-making’ encountered at other investment promotion agencies within the bureaucracy, suggesting redundancy¹⁰⁰. Finally, it seems clear that within APEX, the international competitiveness of Brazilian firms receives more attention than does the policy regime for incoming foreign investment. APEX, while the focal point for FDI promotion in the current institutional alignment, does not have the singular focus or support within the overall industrial policy framework often found in investment promotion agencies in other countries.

Perhaps because the PITCE represented the first comprehensive attempt at industrial policy since the 1970s, it suffered from numerous initial setbacks. Principal among these were the lack of full policy articulation on the part of the government, and an institutional complexity which severely hampered its initial coherence. The initial period of PITCE exhibited a good deal of intra-bureaucratic competition for influence over the direction of the new program. Arbix and Martin (2010) have characterized the early stages of the new

⁹⁹One indication of this is that five years after the establishment of the investment promotion division within APEX, the agency’s role as an investment promotion body was “less well known” (“Brasil entra no radar dos investimentos tecnológicos” 2010).

¹⁰⁰Interviews, APEX Directorate, Brasília, June 2009.

industrial policy as a process of trial and error for the administration. The existing institutional complexity and patterns of redundancy contributed to this dynamic. Although the MDIC was the primary locus of influence for the implementation of the PITCE, and ABDI its new institutional executor, there were a number of other ministries and organizations that were formally included in its directorate. Some of these organizations were at the same level or above as that of ABDI within the state hierarchy. The Council of Economic and Social Development, the Chamber of Political Economy (under the influence of the Finance Ministry), the Chamber of the Politics of Economic Development (within the Casa Civil, one of the most powerful bodies in the executive), and the Council Manager of the PPP programs all had leadership positions within the framework of the PITCE. Moreover, ABDI must work closely with relatively autonomous funding organizations such as the BNDES and FINEP, which have substantial resources and an independent, largely efficient, agenda (Suzigan and Furtado 2006). The Lula administration had difficulty elaborating the concrete proposals contained within the larger PITCE framework, as the goals (often based on narrow interests) of each organization had to be accommodated. Some organizations struck out on their own. The Casa Civil created the commission of incentives for productive private investments in the country, which attempted to bring together fourteen ministries and other organizations (with Casa Civil at the helm) and met exactly once¹⁰¹. While the new policy was ambitious in scope, and demonstrated a selective approach to foreign investment founded on the idea of innovation, it did not initially enjoy institutional coherence. As Koeller and Gordon (2010, 32) explain:

In spite of the establishment of action lines and of the choice of strategic sectors and activities bearing future perspectives, which could contribute to the restructuring of

¹⁰¹Phone Interview, former institutional director of *Investe Brasil*, Brasília, February 2008.

the Brazilian production sector, PITCE did not set a governance structure or specific mechanisms for its own operation...The overlapping of policies and the fact that these mechanisms were under the coordination of other institutions, not the MDIC, and thus answered also to other political priorities, hindered the implementation, the analysis and the monitoring of PITCE.

Besides the difficulties inherent in moving the entire state apparatus towards a new industrial policy, other challenges threatened to derail the PITCE during Lula's first term. The administration saw a role for foreign investment in the development of Brazil's infrastructure, and launched a program within the PITCE framework known as the Public Private Partnerships (PPPs). These PPPs were modeled on similar initiatives in other countries, but most specifically the programs of the same name in the United Kingdom during the 1990s (Brito and Silveira 2005). Eventually 23 projects were proposed around Brazil. The projects were designed to correct long-standing deficiencies in infrastructure by asking multinational firms to participate in those projects more traditionally reserved for state bodies (such as toll roads). These initiatives were presented as a kind of 'salvation' for Brazil's enduring infrastructure problems. The PPPs in Brazil represented a real attempt on the part of the government to target specific locations in dire need of investment, but the initiatives have been unsuccessful at attracting investment. There were two important reasons for this. The lack of experience with this type of targeted policy led the government to neglect aspects of the sometimes quite complex contracts involved in a public-private partnership. Specifically, there was no framework immediately put in place to guarantee government funding to interested foreign firms over the long term¹⁰². Moreover, there was no way to prevent the legal system from challenging the financial arrangements for these

¹⁰²Interview, Alexandre Silva, Director of the American Chamber of Commerce in São Paulo, São Paulo, February 2008.

projects, and there were a number of court challenges to initial PPPs¹⁰³. This lack of inter-institutional coordination made potential investors quite nervous about the PPPs.

Secondly, the lack of networks between the state and multinationals, especially on infrastructure projects, contributed to the slow start for the PPP program. As one respondent put it:

The Lula government at first did not know how to enter into a dialogue with the foreign private sector. There was a tradition within the party and state of autarky, of state involvement¹⁰⁴.

The administration did not enjoy ready contacts with international capital, as many of its most senior members had been relatively antagonistic to foreign firms in the past. When policy coherence was stymied by the institutional complexities, the administration sometimes turned to personalistic ties between administration officials and corporations. However, these kinds of ties took time to develop, especially as the PT had not controlled the executive before.

The PITCE represents an attempt at open economy industrial policy which was initially undermined by characteristics of Brazilian institutions. However, the administration continued to support the broad goals of the PITCE (especially the focus on innovation) even as its realization proved elusive. In May 2008, the government effectively replaced the PITCE with the Production Development Plan, or PDP. This more expansive and simultaneously more focused industrial policy was largely developed within the Casa Civil. The PDP was intended to correct some of the coordination problems that had plagued the

¹⁰³According to a 2007 article in *Folha de São Paulo*, the PPPs were gradually being cancelled by the government or turned over to complete private financing. According to this article, a number of the projects were waiting to be cleared by the TCU court, which was investigating the legality of private participation (Medina 2007).

¹⁰⁴Interview, Glauco Arbix, São Paulo March 2008.

PITCE, especially interministerial conflict between the MCT and the MDIC. It included a focus on defined goals in terms of innovation, investment, and export expansion, which had also been missing from the more general PITCE (see table 3.8). It retained the emphasis on priority sectors, but also began to address some of the larger manufacturing bases of the Brazilian economy¹⁰⁵. The PDP was much more expansive, and incorporated such industrial behemoths as the automobile sector¹⁰⁶. The PDP continued the tools used by the PITCE to incentivize innovation, including accelerated depreciation of innovation-intensive capital goods and subsidies for hiring qualified personnel. The main funding lines for these programs, totaling more than R\$6 billion, were often channeled through the BNDES and FINEP, as these institutions had demonstrated clear competence in their relationships with multinationals.

While it is still too early to judge the long-term success of the PDP in attracting non-traditional forms of investment and reinvigorating innovation in Brazil, the reincarnation of the PITCE has generated a good deal of hope that this industrial policy will serve as a catalyst for new investment. The Lula administration continually adapted its industrial policies, and the role for foreign investment within these policies, after 2002. Coordination increased somewhat after the initial stages the PITCE. The more recent policies were more goal-oriented and broad in their approach to FDI and the broader themes of innovation and export. The reinvigoration of industrial policy under the Lula administration brought with it

¹⁰⁵This was perhaps in response to the criticism that the PITCE had targeted industries, such as semiconductors, which were too underdeveloped in the Brazilian economy to affect its overall growth in any meaningful way, even if they were to expand (Suzigan and Furtado 2006).

¹⁰⁶The strategic emphasis areas of the PDP also included: information and communication technologies, nanotechnologies, biotechnology, the defense industry, nuclear energy and the health industry. Interview, Eduardo Valle, Department of International Relations, ABDI, Brasília, June 2009.

a more selective, active, and possibly developmentally beneficial approach to FDI. The emergence of sectoral targeting in the current decade is certainly a sign of this evolution.

Table 3.8 Macro goals of the Production Development Plan, 2008

	<i>Goal for 2010</i>	<i>Position in 2007</i>	<i>Anticipated Annual Growth 2007-2010</i>	<i>Most Recent Results</i>
Expansion of Fixed Investment (Investment/GDP)	21 percent or R\$720 billion	17.6 percent or R\$450 billion	11.3 percent	18.6 percent or R\$499 billion (3 rd quarter 2010)
Elevation in private expenditures in R&D (Private R&D/GDP)	0.65 percent or R\$18.2 billion	0.51 percent or R\$11.2 billion*	9.8 percent	0.54 percent or R\$16.2 billion (2008)
Growth in participation of Brazilian exports (Brazilian exports/worldwide exports)	1.25 percent or US\$208.8 billion	1.18 percent or US\$160.6 billion	9.1 percent	1.26 percent or US\$153 billion (2009)
Increase in dynamization of Micro and Small Enterprises (number of exporting SMEs in Brazil)	12,971 exporting MSEs	11,792 exporting MSEs	10 percent**	9,871 exporting MSEs (2009)

* 2005 position

** Growth between 2007 and 2010, not annual

Sources: Koeller and Gordon (2010), ABDI (2009)

Despite these changes, Brazilian institutions constrained the administration's ability to effectively implement an active, discriminating industrial policy for international investment. This section has illuminated the ways in which this process took place. The PITCE is an excellent example. Problems with inter-ministerial coordination threatened to derail the project from the beginning. The two flagship institutions for implementation of the PDP, the ABDI and CNDI, are both responsible to a large set of ministries, with the CNDI perhaps less so. They are not autonomous organizations in the tradition of the BNDES. Therefore there are reasons to be cautious about their possibilities for success. The

institutions created during the Lula administration may follow the precedent established by previous executives: new institutions are established to house specific initiatives, and then lose influence once their political sponsors are out of office. The ABDI may become simply another bureaucratic appendage. Other parts of the institutional web are already demonstrating these characteristics. APEX has not been particularly effective at stimulating investment, despite its redesign.

Coordination problems are not the only institutional characteristics that threaten the PDP. The problems with the PPPs outlined above are indicative of networking problems between state bodies and multinational firms. Institutional representatives were unable to convince multinational firms to participate in infrastructure projects. Part of this was due to a general lack of dialogue experience on the part of the government. Established network connections between state bureaucrats and multinational firms are essential. These connections need not lead to rent-seeking behavior; they can greatly facilitate investment promotion and subsequent spillovers.

3.4 Institutions and Brazilian Investment Policy

One of the fundamental contradictions of the Brazilian state is that it is simultaneously powerful and weak. Brazil has one of the most expansive bureaucracies in the developing world. Foreign firms operating in Brazil often complain about extensive regulation, endless forms, and requirements for the approval of this ministry or that agency. This is the well-known *Custo Brasil*, or Brazil Cost, which increases the complexity of doing business and is said to provide a disincentive for investment. The requirements of compliance with an almost byzantine network of institutions do indeed make life difficult for firms. The state superstructure also allows more opportunities for rent-seeking by particular

groups and even corruption. However, the image of the all-powerful Brazilian state is misleading. Despite its size, individual state institutions tend to exert relatively little power. Many of them are used as vehicles for political patronage. As administrations come and go, they tend to create new institutions whose efficacy depends crucially on the support of the administration. After the administration leaves office, however, the institution remains behind and often ossifies into little more than a make-work shop. This is what Evans (1995) and Schneider (1991) refer to as bureaucratic modernization by ‘addition’ rather than ‘transformation’. What results is an expansive array of institutions, only a few of which have real power. These bodies can confuse potential investors and investment promotion initiatives, or even work at cross-purposes to other institutions.

The analysis of the development and characteristics of both investment promotion policy and institutions presented in this chapter provides a powerful explanation for the investment profiles of firms, examined in more detail in chapters four and five. This work promotes the advantages of institutionalist perspectives. Brazilian institutions vary over time and in cross-section, and this variation has implications for state leverage on firms. However, there are alternate explanations for the development of investment policy over time. The next subsection considers two alternate explanations for the evolution of investment policy, and their weaknesses.

3.4.1 Alternate perspectives and institutionalist critiques

In addition to the literature on the institutional constraints to effective investment policy (and industrial policy more broadly) in Latin America, an alternate interpretation has emphasized the role of ideology and policy diffusion based on ideological similarities¹⁰⁷.

¹⁰⁷ Among the works emphasizing ideological diffusion in economic policy reform in a wider Latin American context are Weyland (2004) and Adler (1987).

Successive Brazilian administrations did not display the ideological cohesiveness in favor of neoliberal reform found elsewhere in Latin America. This has moved Brazil towards pragmatic reform (Pinheiro et al. 2004), characterized by piecemeal liberalization and gradual, cumulative movements towards loosening restrictions on multinational firms. Brazil did not experience a sharp break with import substitution, and some analysts have pointed to the ambivalence of politicians from all parties as the main determinant¹⁰⁸. As applied to investment promotion, the ideological argument would suggest that the ambivalence of major parties to FDI has led to indirect and unfocused international investment policy.

There is certainly something to this argument. Ideological consensus on the merits of foreign investment is difficult to achieve within Brazil's parties, let alone among them. The PT has long displayed a deeply ambivalent attitude towards international capital, notwithstanding the recent conversion of some of its leaders¹⁰⁹. Even the more centrist PSDB of Cardoso did not display a cohesive approach to international investment. The only major party that could reasonably be called a party of business is the Liberal Front, now known as the *Democratas*. However, this party has not enjoyed the success of the PSDB or PT. It also suffered from association with the party of the military regime (from which it evolved) during the 1980s and 1990s. The Liberal Front also often failed to present an ideologically cohesive platform, and often functioned as a pure clientelist party, especially in its stronghold in the northeast of the country. The PFL sometimes defended economic nationalism in the name of patronage, even when it contradicted neoliberal reform programs.

¹⁰⁸There have been instances of rapid neoliberal legislation, most notable during the Collor administration (1990-1992). However, these flurries of activity have not been common and have generally not been sustainable.

¹⁰⁹An interviewee suggested that the failure of the PPPs was due in part to the reluctance of PT leadership at the federal and state level to actively recruit foreign companies for infrastructure improvements (Phone interview, Carlos Pio, University of Brasília economist, Brasília, March 2008).

The lack of a unified ideological approach to international investment within parties has perhaps made a consistent policy platform more difficult.

While this work does not argue in favor of an ideological approach to examining investment policy, it should be noted that the ideological ambivalence to international investment within and among Brazilian political parties and the institutional weakness of the Brazilian state structure for purposes of investment promotion are likely mutually reinforcing. Encarnation and Wells Jr. (1985) argue that the more ambivalent a particular government's attitude is towards FDI, the more likely the negotiating pattern will be diffuse and uncoordinated. Similarly, Nelson (2005) identifies an ideological consensus among parties as one of the three factors that endow governments with the ability to attract non-traditional FDI. However, ideological ambivalence on its own is not satisfactory as an explanation for the lack of coordinated investment policy in Brazil. Attempts at creating such a policy framework have failed during governments that favored neoliberal reform and they have failed during governments that advocated a return to a strong interventionist industrial policy. While ideological cohesiveness can reinforce a strong institutional environment, it will not overcome a fragmented one such as found in Brazil.

As another alternative to the institutional perspective advanced in this work, we could interpret the investment policy framework developed in Brazil solely as the result of societal interests. The neoclassical approach adopts this framework, and at its extreme disregards the form and function, not to mention the historical development, of the state. I have attempted in this chapter to emphasize points where interest group lobbying has an impact on investment policy. For example, the automotive sectoral chambers of the mid-1990s won concessions from the state in the form of illiberal policy and protection. This initiative also

had an impact on patterns of investment. The high tariffs implemented prompted a number of multinational auto firms to set up shop in Brazil, proving that discriminating investment policy and rent-seeking can cohabitate. Yet there are a number of reasons why an interest-based approach cannot fully account for the evolution of investment policy in Brazil.

Contemporary scholarship on the linkages between businesses groups and the state in Brazil emphasizes the role of domestic business organizations in forming policy. Much of this work has pointed to the lack of effective business organization in Brazil, especially in comparison to other Latin American countries. Ben Ross Schneider's (1997, 2004) work has highlighted the diffuse and non-institutionalized relations between business and government in Brazil. Schneider has emphasized the lack of an economy-wide peak organization for business, brought on by the lack of a sustained threat from the left and from the mismanagement of corporatist institutions created under the Vargas regime¹¹⁰. In contrast with other Latin American countries, Brazil never developed institutionalized collective channels for business politics in the post-corporatist era. Thus, even if business preferences regarding FDI policy were homogenous (doubtful), the lack of effective channels for business representation makes their policy expression less likely.

Kingstone (1999) has characterized businesses in Brazil largely as 'takers' of government policy, and emphasized personalistic and narrow connections between bureaucrats and businesses, which in turn contributes to non-programmatic lobbying by businesses. This perspective has been reinforced by revelations about the extreme

¹¹⁰The most likely source of business influence, the *Fundação das Indústrias do Estado de São Paulo* (FIESP) has been characterized as a venue for pragmatic problem solving rather than an ideologically coherent lobby for business interests. FIESP has not emerged as a national mouthpiece for business in the era of democratization, and has been consistently undermined by other institutions seeking to promote a policy platform for business. None of these other institutions were successful in the long run (see Schneider 2004, ch. 4). Interviews conducted during 2008 and 2009 revealed consistent firm complaints about the number of small institutions available for representation, the lack of connections among the institutions, and the lack of effectiveness of each individually.

concentration of campaign finance in Brazil (Samuels 2001). Diniz and Boschi (1993) have characterized the relationship between politics and business as *jogos dos interesses*, or lobbying for personal gain, rather than a system for collective lobbying efforts dedicated towards policy goals. This further discounts the idea that investment policy could be wholly the result of interest group lobbying.

Of course, business associations are not the only groups capable of mobilizing for specific policies. Could the evolution of Brazilian policy toward FDI be a result of lobbying by other interest groups? Labor movements in Brazil have become quite powerful, especially since the late 1970s. The alliance between the *Central Única dos Trabalhadores* (CUT) and the PT has been particularly strong, despite some recent splits. The *Confederação Geral dos Trabalhadores* (CGT) has also been particularly influential in Brazilian politics. These modern labor movements have often been categorized as a ‘new unionism’, in the sense that these groups have succeeded in challenging the corporatist organizations for worker representation set up during the Vargas era. These modern workers organizations have instead wielded significant power in a comparatively autonomous context, and have sometimes used corporatist frameworks to their organizational advantage¹¹¹.

The impact of these important interest groups on industrial policy is impossible to deny. Yet when we extend the interest group approach to the question of investment policy, the picture becomes more complicated. There are certainly instances where labor groups have been particularly influential in determining the presence or absence of a targeted investment policy. The CUT was an important actor in the negotiations that led up to the sectoral chambers in 1991 and 1992, and during the implementation of the automotive

¹¹¹For different interpretations on the evolution of corporatist labor representation and the subsequent formation of new unionization patterns during the democratization process, see French (1992) and Seidman (1994).

regime in 1995. In both cases, the CUT pressed for interventionist policies which in the latter case resulted in an influx of FDI. However, while acknowledging the strength of Brazilian labor groups in policy formation, it is difficult to apply this societal perspective to investment policy. This is partly because the interests of these groups are often quite heterogeneous, and dependent on sector. The autoworkers unions in Brazil have often pursued policies that prioritize foreign investment, as the choice of investment over imports will be more beneficial for Brazilian workers. However, other organizations such as *Sindipeças* (a corporatist holdover) were opposed to FDI in the 1990s and unable to prevent the influx of FDI in the auto parts sector from hollowing out indigenous production and innovation. It is difficult to generalize, therefore, that investment policy is largely a result of labor group bargaining. The interests of organized labor in Brazil in this regard can be quite diverse, and cross-cutting.

The interest-based approach to explaining the evolution of investment policy has some merit. It is acknowledged periodically in this narrative. However, the institutional perspective attributes influence to the form and function of the state, and I have argued that this perspective generates more explanatory power for the analysis of investment policy in Brazil. FDI can be a source of contention among societal groups, and as it is now occupying a large portion of the Brazilian economy, this will probably continue. However, FDI by its very nature is often removed from many domestic societal groups. The state serves as an intermediary between societal groups and foreign investors. As such, the characteristics of state institutions assume greater importance than may be the case with domestic firms.

3.5 Conclusion

In this chapter I have examined the evolution of FDI policy in Brazil in the postwar period, concentrating on the Cardoso and Lula administrations. I have emphasized the institutional barriers to the implementation of an active, discriminating approach to FDI, which in turn can impact the investment models of foreign firms. While other possible explanations exist, I find the institutional perspective most convincing in explaining the evolution of Brazilian investment policy. My investigation takes into account temporal and institutional variation, and reinforces the idea that consistency within institutions and coordination across institutions can have a strong impact on investment policy and patterns of FDI. Original interview data and consideration of investment data provided by state agencies within Brazil further corroborate the importance of the institutional perspective.

While there have been some important instances of active, sectorally discriminating investment promotion policy, particularly during the Lula administration and within pockets of efficiency, the dominant trend has been one of passive and general investment policy, channeled through weak institutions. The attributes of these institutions which impact investment are the multiplicity of bureaucratic organs and resulting coordination problems, inconsistency, and a lack of public-private networks. These characteristics had repercussions on the investment profiles of firms operating in Brazil. In the next two chapters, I argue that firms have adopted largely market-oriented approaches to investment in Brazil. These investments, while valuable, offer fewer of the developmental spillovers so often sought by developing country governments. In particular, the exporting and innovative activities of foreign firms operating in Brazil have generally been weak.

Chapter 4

The Institutional Basis for Innovative FDI

I believe Mexico should dedicate 100% of its oil revenues to developing human capital and technological development. None of us politicians should be able to touch that money.

Vicente Fox

4.1 Introduction

In the 1960s and 1970s, and especially during the period of the economic miracle from 1968 to 1973, Brazil attracted numerous foreign firms to capital-intensive industries. These firms came to Brazil partly because of its enormous growth potential (corroborated by then-high growth rates), but they were also persuaded to establish local production because of Brazil's high tariffs, which had been installed as part of the ISI strategy. And while multinationals did enjoy initial commercial success in Brazil, their local innovative efforts were limited. Local innovations of multinational firms mostly adapted existing foreign technologies to local conditions. The increased presence of multinational firms in Brazil did not, therefore, contribute to technological spillovers and development in the way proponents of FDI had hoped. This lack of innovative spillovers was added to the list of criticisms of the ISI strategy.

In Latin America, development models predicated on government support for rapid development based on ISI were replaced in the 1980s by a new orthodoxy emphasizing outward orientation and minimal governmental involvement, though the pace in implementation of this orthodoxy varied. Among the central conceits of this new model

were elimination of price distortions, liberalization of imports, international export competitiveness, privatization of state owned enterprises, and the encouragement of FDI in diverse sectors¹¹². However, the new orthodoxy as applied in Latin America also neglected a number of important dimensions of successful development, some of which had been integral to the East Asian cases of rapid development. This is particularly true in the case of innovation, and the role of state institutions and foreign capital in facilitating learning. The new orthodoxy, put simply, overestimated the ability of market mechanisms to facilitate industrial upgrading in developing countries. The new model also neglected the developmental role of political institutions in developing countries. As Bruton (1998, 926) explained at the time: “Recognition of the deep-seated difficulties of the international transfer of technical and other knowledge, of the role of...history and institutions, and of the fact that effective implementation of policies is as important as the choice of policies – these are all missing (from the new orthodoxy).”

This chapter continues the central argument of this dissertation that the characteristics of domestic political institutions are an important determinant of the investment profiles of multinational firms. This chapter considers the innovative activities of multinationals in Brazil, the development of policies targeting innovation, and the institutions which represent the primary sources of state leverage on firm activities. The subsequent chapter considers the ways in which multinationals integrate into international markets through imports and exports. As both innovation and exporting offer potential benefits to countries that host foreign investors, these activities have often been targeted by host country governments. However, these benefits do not automatically arrive with investment. They are more likely with specific characteristics of state policy and institutions.

¹¹²These reforms and others were often referred to as ‘Washington consensus’ reforms (Williamson 1990).

In the case of Brazil, the varying innovative patterns of foreign investment can be partly explained by policy. Between 1990 and 2004, Brazilian administrations pursued largely passive, general policy approaches to FDI. Governments did not directly incentivize innovation among multinationals in the automotive industry until very recently. In the IT sector, the informatics law, originally designed to preserve design competencies among national firms, was increasingly utilized by foreign firms in the 1990s and especially the last decade. After 2004, this law was accompanied by other legal frameworks that directly incentivized innovation. These new policies have proven decisive for the innovation activities of a growing number of firms. Large multinational IT firms, such as Dell, Ericsson, Motorola, and SAP, have established R&D centers in Brazil in recent years, partly in response to innovation incentives under the new industrial policies. These policies are beginning to bear fruit and generate innovative activity, especially given recent revisions to existing industrial policy. Even with these successes, however, the Lula administration often encountered some obstacles in the implementation of new industrial policies.

For most of the period under consideration, Brazilian investment promotion institutions displayed one or more of the characteristics outlined in chapter two which undermine effective investment promotion. Namely, they were uncoordinated, inconsistent, and disconnected from firm networks. Since 2004, some of these characteristics have been diluted, leading to more effective state leverage. Moreover, a select few institutions have demonstrated a consistent ability (even before 2004) to incentivize innovation, and the resources of these pockets of efficiency have been expanded by new industrial policy frameworks. The most prominent institution to demonstrate these characteristics, the *Financiadora de Estudos e Projetos* (FINEP), has succeeded in both attracting innovative

firms to Brazil and in incentivizing innovation among multinationals already in country. The BNDES has also recently expanded its funding lines for innovation, and enjoys high levels of intra-institutional coordination, consistency, and strong connections with firms. While innovation is still rare among multinationals in Brazil, the interactive effect of more active, discriminating policies and pockets of institutional efficiency should continue. As the surveys, data, and reports in this chapter demonstrate, firms are increasingly likely to commit resources to innovation in Brazil *and* cite these institutions and policies as motivating factors.

The chapter proceeds as follows. In the introduction, I first offer a working definition of innovative activity, and consider how innovative activities among multinational firms can spill over to benefit the process of development in the host country. I then integrate existing theories of technology transfer from international investment and the roles of institutions, paying special attention to the growing global value chain literature. In section 4.3, I trace the development of innovation policies in Brazil and their application to FDI, the contemporary institutions charged with implementing these policies, and the broad empirical patterns which result. Section 4.4 introduces the firm-level analysis of innovation activities in the automotive and information technology (IT) sectors, and section 4.5 concludes with a restatement of the links among policies, institutions, and firm innovation patterns. For each industry considered, I describe the innovative efforts of multinationals since 1990 and contemporary innovation patterns. I link these patterns to institutional characteristics, using insights gleaned from firm interview responses and various Brazilian governmental data sources.

4.1.1 Potential spillovers from innovative FDI

Among the various forms FDI can take in developing countries, technology-intensive FDI or innovative FDI is generally considered to be the most advantageous for development. In some sectors, most notably the IT sector, the technological frontier is so distant that foreign firms represent one of the only sources of innovation spillovers available to developing countries. Yet the exact mechanisms of this spillover process remain unclear, sometimes even for governments seeking to attract technology-intensive investment. It is worthwhile, therefore, to define what is meant by innovation as well as the possible benefits of these kinds of investments.

Fagerberg (2004) and Hall (2005) divide innovation into three sub-components: invention (the idea for a new product or production process), innovation (the first attempt to carry out this idea), and diffusion (transferring the idea or process to a different context). This definition is useful because it moves the concept of overall innovation beyond a strict focus on a technological advancement to include new ways of producing goods, or perhaps even new managerial techniques. Innovations need not be limited to a new computer part or gear assembly. As Fagerberg (2004) points out, this broader concept of innovation is also more useful in Latin America and other developing regions, where innovation often involves the diffusion of ideas developed elsewhere in a process of catch-up. The diffusion of new models of production can be considered innovative in the sense that it means introducing production processes that had not been available before. This study, therefore, adopts this larger definition of innovation.

There are a number of potential positive spillovers from innovative activities carried out by multinational firms in developing countries, as well as a few potential negative

externalities. The transfer of innovative products or practices to domestic partner firms, or to other local agents, is a potential benefit. Often this does not require the assent of the multinational – the transfer can be unintentional. Zanatta (2006) identifies other potential benefits from innovative investment. Innovative firms may further integration with the international marketplace and strengthen competitiveness. Multinationals may aid in the development of domestic clusters focused on innovation, and may reverse ‘brain drain’ pressures in developing countries. Multinationals may bring additional supporting FDI.

There are also some potential negative externalities, even from highly innovative FDI. The crowding out phenomenon, by which multinationals reduce or eliminate the potential of domestic firms to develop, is a possibility. Innovative domestic firms may face greater competition for limited resources, such as highly skilled workers. Innovative multinationals may function as ‘islands’, demonstrating little contact with domestic firms and resisting technology transfer for various reasons. Finally, a reverse technology transfer process is possible, with local innovations being absorbed and perhaps patented by multinational firms, who may or may not have incentives to share this innovation. While these negative consequences of innovative FDI are possible, the actions of developing country governments in past decades suggest that they have determined that the benefits offset the possible costs of innovation-intensive investments.

4.2 Determinants of Global Innovation Networks

As FDI has increased in the developing world in the past three decades, the innovative activities of multinational firms have spread to these locations as well. The extent and geographic dispersion of this innovation diffusion is debated, but it seems clear that multinational firms are seeking new locations for innovation as they pursue more integrated

and coordinated production models. Developing countries can offer attractive advantages for local innovative activities, such as a low cost and/or well-qualified labor force. According to a recent report by the United Nations Conference on Trade and Development, approximately two-thirds of global R&D spending is accounted for by business enterprises. The lion's share of this spending is done in developed countries. However, the developing world is increasing its share of global business R&D spending. Developing countries accounted for \$20 billion in business R&D spending in 1996, or 5.4 percent of global business R&D spending. By 2002 that figure had reached \$32 billion or 7.1 percent. Most R&D spending in the developing world is concentrated in Asia. In 2005, six of the top ten developing countries in terms of aggregate business R&D spending were located in South, Southeast, and East Asia (UNCTAD 2005a, 106). Much of this enterprise R&D spending is done by large multinational enterprises. The internationalization of R&D is especially pronounced in Asia, as global companies apply polycentric innovation models and market their products to growing consumer classes. Companies in the *Fortune 500* list now have 98 R&D facilities in China and 63 in India (Economist 2010). Many firms in knowledge-intensive industries, such as IT, have increased the number of people they employ in developing countries. This spread of global innovation contradicts preconceived notions about how firms internationalize. According to the more or less traditional view, multinational firms from developed countries retain their R&D in the home country, and take advantage of lower labor costs in developing countries by locating manufacturing in these countries. Such production patterns, while still important, are only one possibility for firm organization.

Given these patterns, we can ask why companies choose to internationalize innovation. Innovation often requires protection of tangible and intangible assets in order for

firms to maintain competitive edges. Firms may therefore demonstrate a reluctance to spread these activities to other countries, even if innovation takes place within a strictly controlled firm hierarchy. However, there are a variety of motivations for firms to innovate abroad. Multinationals may establish innovation abroad in order to absorb new products and practices generated in other countries. Economies of scale may be attainable abroad, assuming a suitable number of trained personnel can be found. Local centers of excellence in developing countries, most often centered on universities, may offer opportunities for firms to establish research partnerships. Innovation abroad may be necessary for parent companies to adapt products to local conditions. This may be especially true for durable goods, which often necessitate more R&D in order to adapt to local conditions and therefore generate incentives for decentralized innovation (Zanatta 2006). Decentralized innovation may also reduce the need for royalty payments¹¹³.

4.2.1 The global value chain approach to innovation and upgrading

The growing complexity of international production networks has generated a relatively new theoretical approach to the study of firm organization and motivation. Known as the Global Value Chain (GVC) framework, it attempts to develop typologies for the ways in which economic agents participate in the global economy. Multinational investment models in the developing and developed worlds are difficult to penetrate theoretically, but GVC analysis has reinvigorated old debates with new approaches to analyzing global

¹¹³One of the first studies to systematically investigate the incentives for multinational innovation was done by Pearce (1989), who outlined many of the incentives described above. Pearce categorized incentives as either “centripetal” or “centrifugal”. Centripetal motivations for innovation, such as the need to safeguard intangible assets, brought innovation closer to the head office of the firm. Centrifugal forces, such as the need to adapt products to local conditions, made innovation abroad more likely.

production¹¹⁴. At its core, the GVC approach refers to the sequence of activities undertaken by firms as they produce goods or deliver services. In today's highly integrated global economy, this sequence rarely happens within a single firm in a single geographic location. With regard to innovation, the GVC approach seeks to identify how firms participate in innovative processes, and how much additional value firm units may add to the final product. The decentralization of innovation within larger multinational firms provides opportunities for firm subsidiaries and partners within developing countries to develop innovative activities. GVC analysis is useful when considering these opportunities because it forces analysts to ask *how* a firm is participating in a sector with high technological dynamism. In other words, the participation of a developing country firm (or subsidiary of a multinational) in an innovative sector is not a guarantee that the firm will realize spillovers. This instead depends on the location of innovative activities within the larger multinational.

At this point it is useful to address the concept of industrial upgrading. In a value chain perspective, upgrading should be seen as distinct from innovation. Here I use the simple definition of upgrading outlined in Kaplinsky and Morris (2001, 37-38). Upgrading refers to the development of “dynamic capabilities” within a firm, arising from its internal processes which facilitate learning, its access to regional or national systems of innovation, and/or its path or trajectory. Upgrading possibilities depend crucially on the ability of firms to move away from activities where value added is low¹¹⁵. If and when firms are able to engage in a sustainable pattern of upgrading through innovation, and if these firms enjoy

¹¹⁴For literature on GVC analysis, including broad overviews of the field, see Gereffi and Kaplinsky (2001), Sturgeon (2001), and Gereffi, Humphrey, and Sturgeon (2005).

¹¹⁵Giuliani, Pietrobelli and Rabellotti (2005) and Kosacoff et al. (2008) point out that little possibility for upgrading exists in industries where competition is based on cost and barriers to entry are low.

substantial linkages to the host country's economy, the likelihood of developmental spillovers improves greatly.

There are many factors which determine whether firms display innovative characteristics in developing countries. According to the GVC framework, industries display variety along three different dimensions: "1) the geography or character of linkages between tasks, or stages, in the chain... 2) how power is distributed and exerted among firms and other actors in the chain, and 3) the role that institutions play in structuring business relationships and industrial location" (Sturgeon et al. 2008, 2). While the focus of this work is on the role of institutions in conditioning the investment behavior of firms (the third GVC dimension), the concept of 'value chain governance', which relates to the second point, must be acknowledged. Multinational firms make decisions about locations of various chain activities based not only on the institutional environment, but also on power relations among different parts of the chain. To illustrate this point, it is useful to consider how multinational firms may coordinate production. In a simple dichotomy, value chain researchers have proposed that most multinational production networks are either 'buyer driven' or 'producer driven'. Buyer driven value chains, prominent in such industries as garment manufacturing, food and retail, allow large global buyers, which may have not manufacturing facilities themselves, to coordinate global production and distribution. Producer driven chains, in contrast, are coordinated by large multinational corporations that retain more direct control over the production system. Producer-driven chains are more common in technology and capital-intensive industries such as the automotive industry and computer/IT production. More recent GVC research has expanded and complicated this dichotomy to account for more complex firm governance structures. Gereffi, Humphrey, and Sturgeon (2005) propose

five typologies of value chain governance, ranging from market transactions characterized by arms' length relationships between assemblers and suppliers to hierarchies, where different stages in the production chain are absorbed within and controlled by a single corporate structure.

Taking into account the different possibilities for value chain governance, it seems likely that how a company organizes and governs its global value chain will have an impact on the potential for upgrading in developing countries. Kosacoff et al. (2008) have suggested that it is difficult for firms in developing countries to develop more complex activities within the value chain when these firms are located in hierarchical structures. This is because firms in these structures often issue specific requests to their suppliers, without exchanging intangible and other assets which might facilitate a learning process. In less rigid value chain structures, suppliers are often given more freedom to participate in product development, and the parent company may develop a cooperative relationship with suppliers based on the exchange of new information about innovations.

Thus it seems likely that the form GVC governance takes should impact the possibility of innovation and upgrading. This underscores the point that political institutions in developing countries are not deterministic. That is, encouraging innovation among multinational firms is not simply a matter of 'getting the institutions right' or putting in place the right policies. Much will also depend on how a global value chain is organized and governed. Firms translate comparative advantages into profit possibilities through their internal decision-making. Host countries can have an important impact on this process, but the dominant models of organization in different sectors will impose limits on what institutional and policy fixes can accomplish in terms of incentivizing innovation and

spillovers. Even with that caveat, however, the role institutions play in structuring innovative possibilities is an important one. It is to this role that I now turn.

4.2.2 Institutions and innovation-intensive development

The economic orthodoxy common in Latin America in the 1980s and 1990s held that technological change would develop endogenously as countries of the region liberalized their economies and allowed foreign investment to penetrate sectors which had previously been off limits. However, missing from this approach was the recognition of the serious obstacles facing the international transfer of technical knowledge. Technological assets enjoyed by firms are subject to high uncertainty and intangible characteristics, and their diffusion through liberalization is not as automatic as other firm assets. Challenges to the economic orthodoxy have often focused on this lack of attention to the mechanisms of technological change. ‘Evolutionist’ approaches, drawing on neo-Schumpeterian ideas about the importance of continual ‘creative destruction’, have argued that countries cannot rely on the market mechanism alone but must be able to absorb and perpetuate new technologies¹¹⁶. According to this line of logic, the contribution of an open economy to technological change depends not only on a country’s comparative advantages but also on such diverse factors as the organizational quality of its bureaucracy to the intellectual property regime in place. Technological advancement and upgrading takes place only when the conditions for innovation are in place, and these conditions go far beyond the tariff rate. As Cassiolato and Lastres (1999) point out, the conditions necessary for successful technology transfer are path-dependent and deep-seated, therefore they take time to change and require active commitment of governments.

¹¹⁶For neo-Schumpeterian approaches to political economy and innovation policy in Brazil specifically, see Gadelha (2001) and Suzigan and Furtado (2006).

The record of FDI in Latin America in the 1980s and 1990s suggests that this interpretation has some weight. The dramatic increase in FDI in the region since the early 1980s contributed much to domestic economies, but in many cases the contribution of these flows to processes of technological change were less than expected (Mortimore 2000). The failure of the orthodox model to deliver a sustainable process of technological upgrading has reinvigorated the debate over industrial policy. Notwithstanding the somewhat reduced 'policy space' brought on by processes of globalization and WTO rules, many scholars have come to the conclusion that industrial policy can be effectively employed to generate inertial processes of technological change and development. Adopting the evolutionary approach to technological change, Lall (2004) argued that industrial policy could build competitiveness in instances where market failures exist, and that this policy could be especially beneficial if applied selectively. Schrank and Kurtz (2005) identify a form of industrial policy emerging in select Latin American countries, distinct from the kinds of industrial policy pursued during the ISI period, which combines support for select industries with outward orientation. This *open economy* industrial policy challenges the traditional dichotomy between inward-orientation/statism and outward-orientation/laissez-faire, arguing that industrial policies increasingly in vogue in Latin America combine support for select industries with an emphasis on external competitiveness. The authors argue that this kind of industrial policy has the potential to move countries toward self-perpetuating cycles of innovation and development, while avoiding the rent-seeking tendencies of earlier ISI models.

Implicit in these approaches is the recognition that state policies and institutions matter for paths of technological upgrading. There is ample reason to apply these arguments

to the patterns of bargaining between states and multinational firms¹¹⁷. As the GVC approach has shown, global patterns of production have become more complex and firms have adopted a variety of governance structures. Firms have incentives to develop innovative networks abroad. However, they may also have incentives to centralize these activities. Whether firms do innovate in developing countries depends not only on the internal characteristics of the firm, but also on conditions in the host country. Domestic institutions are among these factors, and can impact the R&D profiles of firms, both at the time of entry and in subsequent periods.

When choosing among locations in which to initially locate R&D activities, the institutional environment in potential host countries is important. Meyer (2001) notes that intellectual property rights may be weakened in countries with underdeveloped institutions, and this is a disincentive for R&D-intensive investments. Innovation-intensive investment is risky, especially if the firm has proprietary rights over intangible assets. Well-functioning institutions should help to reduce the risk for these kinds of investment. Beyond the initial form of investment, well-functioning institutions may help attract R&D centers of already-established companies. I note in this chapter where large, established multinationals in the auto and IT industries have committed new resources to domestic R&D in Brazil, partly in response to changing institutional dynamics. Innovation, and the possibility of upgrading it brings with it, is a product of firm priorities interacting with and being changed by host country priorities.

¹¹⁷There are few studies which have examined the impact of national policies and institutions on the R&D efforts of multinational firms. One such study, conducted in the United Kingdom (Pearce & Papanastassiou 1999), asked multinationals from a variety of geographic locations to identify the most important factors leading to establishment of R&D centers abroad in open-ended questionnaires. Financial support from the government and government policies were mentioned by 34.8 percent and 15.2 percent of responding firms, respectively. In contrast, 26.1 percent of firms cited the motivation to support the growing independent R&D competency of a local subsidiary.

4.3 The National System of Innovation in Brazil

From a neo-Schumpeterian perspective, technology transfer is as much a function of policy and institutional settings in developing countries as it is a result of internal firm characteristics. That is, analysts must pay attention to a diverse set of preconditions ranging from educational systems to intellectual property regimes. Policies that impact innovation, and the institutions which create and promote them, form the basis for a *national system of innovation* (Nelson 1993). Multinational firms can figure prominently in a national system of innovation, if institutions and policies exist that simultaneously draw attention to the country's potential for innovation-intensive investment and increase the likelihood of technological spillovers from that investment. Yet the institutional foundations for innovation in Latin America are weak. In a 2008 ECLAC report entitled *Trade, investment and fragmentation of the global market: Is Latin America lagging behind?*, the authors point out that the "institutional fragility" of many countries in the region makes innovative spillovers from investment difficult (Kosacoff et al. 2008, 44).

In Brazil's case, the market opening and economic stabilization of the early to mid-1990s was, in general, not accompanied by an emphasis on innovation. Though isolated elements of policy support for innovation existed in the early 1990s, such as the informatics law, the almost singular focus on macroeconomic stabilization crowded out any meaningful development of the country's NSI in relation to multinational firms. During this period, successive administrations focused on reducing barriers to investment. In the absence of incentives for innovation and without strong institutions to channel those policies, firms reverted to market-seeking forms of investment. The following two subsections illustrate these deficiencies, while also acknowledging isolated instances of policy efficacy. I first

outline in broad terms the development of innovation policy since the Collor administration. In the following section I outline the primary institutions charged with encouraging innovation among firms operating in Brazil. Although the state hesitated in the 1990s to implement an industrial policy that might have strengthened innovation, the Lula administration took steps to revive the focus on innovation and strengthen the NSI. Nevertheless, the lack of focus on innovation in the 1990s has created a strong competitive disadvantage for Brazil vis-à-vis its competitors, as section 4.3.3 demonstrates.

4.3.1 Policies to encourage innovation, 1990-2010

Following Collor's election in 1989, the Brazilian government embarked on a sustained liberal reform program that lasted through the end of the 1990s. While the pace of the reforms varied from year to year, the overall direction stayed constant: privatization, eliminating protection for local industry (with some important exceptions), and increasing openness to international capital. During this decade of liberalization, active policies to promote innovation were neglected, both for multinationals and domestic firms. It was not until the second half of Cardoso's second presidential term that a substantial focus on innovation appeared again in Brazilian industrial policy. The 1991 Informatics Law (8248/91) established some incentives to preserve local R&D efforts among IT firms, which were largely taken over by multinationals following the end of the market reserve policy of the 1980s. The influx of multinational IT companies in the 1990s dramatically reduced the number of Brazilian software and hardware firms, and those that were absorbed by multinationals had many of their local design components downgraded or replaced by imports (Tigre and Botelho 2001). The informatics law did target IT firms specifically, but was initially designed not to encourage innovation among multinational firms but to preserve

local design competencies of Brazilian IT firms. It was also designed with the Free Zone of Manaus (ZFM) firmly in mind, where firms enjoyed a different tax regime altogether (the Manaus zone is detailed in chapter five). In 2001, 2004, and 2009 the law was amended and expanded, with more multinationals taking advantage of its incentives¹¹⁸. The law allows a firm to reduce the tax on industrial products (IPI) by up to 70 percent initially, as long as the firm adheres to the principles established by the basic productive processes (PPB)¹¹⁹. Firms used to enjoy a deduction of up to 50 percent on sales tax for items used in R&D, though this was revoked in 1997. In order to access these incentives, firms must also spend a minimum of 5 percent of sales on R&D activities (Stal and Campanário 2005), though this has been reduced to 4 percent for some firms. As Koeller and Gordon (2010, 14) note, the levels of tax exemption within this law fluctuate from year to year, and this “produces great instability regarding the implementation of the law.”

There is some substantial anecdotal evidence that the informatics law has generated innovative activity among multinational IT firms operating in Brazil. Queiroz and Zanatta (2007) note that the informatics law has attracted a number of multinational IT companies to Brazil and influenced the investment models of firms already in country. HP in 2006 transferred its software assembly operation in Rio Grande do Sul to the Technological Park of the PUC-RS, known as the *TecnoPuc*. Dell utilized the incentives of the informatics law to construct its Software Development Center (GDC) in Brazil, one of only four in the world. In 2002, this unit was also transferred to the *TecnoPuc* (Queiroz and Zanatta 2007). Others

¹¹⁸Queiroz et al. (2003) note that a number of multinational IT firms have taken advantage of the incentives offered by the informatics law. However, the authors also note that some of these companies have not increased their R&D activities in Brazil as they have in other countries. Some of the Brazilian affiliates of these multinationals are spending only the 5% of total net sales on R&D activity, as required by the law.

¹¹⁹The PPB are complex sourcing requirements which favor domestic procurement of inputs.

benefitted by the incentives include Motorola, Siemens, Lucent, and Nortel. Motorola established the *Instituto de Pesquisas Eldorado*, which offered course on informatics and telecommunications, while using the incentives and subsidies of the informatics law.

At the end of the second Cardoso administration, a number of ‘sectoral funds’ were established within the Ministry of Science and Technology. These funds were instruments designed to finance research, development, and innovation projects in Brazil, channeled through FINEP and the *Conselho Nacional de Desenvolvimento Científico e Tecnológico*, or CNPq (Pacheco 2003). While these funds were not specifically designed to benefit multinational corporations, multinationals could access the funds if they were willing to partner with local universities or research centers. There were 13 funds originally, though this was later expanded to 16 (14 focused on specific sectors and 2 cross-cutting or horizontal funds). These funds transformed the way in which the federal government incentivized innovation, and did represent a move toward sectoral targeting and discriminating industrial policy¹²⁰. In a more general sense, the sectoral funds and the informatics law represent the only substantial policy initiatives with a direct effect on the innovative activities of multinational firms in Brazil during the mid and late 1990s. These effects were not necessarily indented, as both the informatics law and the sectoral funds were implemented in order to preserve innovation among domestic firms. Most of the major sectoral policies of the 1990s, such as the automotive regime, ignored innovation altogether.

During the Lula administration, the Brazilian government became much more active in promoting an innovation-centered industrial policy, though it was hampered at times by

¹²⁰The sectoral funds came to represent a substantial portion of the budget for the Ministry of Science and Technology (MCT). Between 1998 and 2004, the budget for the ministry grew by R\$1.6 billion, of which roughly R\$1.2 billion was from the sectoral funds. By 2004, the sectoral funds represented about 40 percent of the MCT’s budget (Pacheco 2007, 17).

the legacies of both ISI and the more orthodox reform period of the 1990s. In 2003, the government announced the Policy for Industry, Technology and Foreign Trade (PITCE) as the central industrial policy for the new administration. The PITCE created the short-lived *Sala do Investidor*, or ‘investment room’ designed to attract investment. However, the focus of the PITCE was directed toward the trade balance, and the effort to increase value-added exports. Microelectronics was a focus sector for the PITCE, partly because the trade deficit in this sector had reached \$US 7.4 billion in 2004 (Stal and Campanário 2005). However, the PITCE suffered from a number of problems initially, including problems of inter-institutional coordination and a lack of articulation of policies designed to boost target sectors¹²¹. A newspaper report at the time of its inception cited a number of common complaints about the PITCE among firms and economists, including its “vague” nature and lack of specific instruments for implementation¹²². The various bodies responsible for implementing this industrial policy were not able to work in concert, and at times differed on even fundamental components of the policy, such as how measures to increase investment in target sectors were to be implemented.

For these reasons and others, the PITCE was subsumed within the Production Development Plan (PDP) in 2008¹²³. The PDP expanded the scope of the PITCE in terms of sectors of the economy targeted, while simultaneously streamlining the administration of the

¹²¹For some of the problems in the implementation of the PITCE industrial policy, see Arbix and Martin (2010), Koeller and Gordon (2010), and Suzigan and Furtado (2006). Also see chapter three in this volume.

¹²²There were also complaints about the lack of a body to coordinate the implementation of the industrial policy (“Política industrial ainda vai a debate” 2003).

¹²³At the end of 2009, the PDP had become the only industrial policy. This was part of an attempt to join many preexisting policies into a unified industrial framework. The PDP designates target sectors for federal research funding, and moves sectors which had not been covered by previous innovation policy, such as the automotive sector, within the larger industrial policy framework (Interview, Marcos Valle, ABDI, Brasília June 2009).

policy. The PDP also set concrete targets for the expansion of fixed investment, the rate of private R&D expenditures, growth in Brazilian exports, and dynamization of micro and small enterprises. Both of these policy initiatives were broad attempts at establishing a unified, innovation-centered program for Brazilian industrial development. As Doctor (2009) notes, these initiatives were primarily designed to encourage continuous innovation in nationally-owned enterprises. However, the policy packages also attempted to incentivize innovative linkages between multinational corporations and domestic firms, the PDP more so than the PITCE.

Although the PITCE did not endure as an industrial policy, it was influential because during the PITCE framework two laws were passed with important implications for the innovative activities of foreign firms in Brazil. The first was the Innovation Law (10,973/2004). This law was organized around three axes: “the constitution of a favorable environment for strategic partnership between universities, technological institutes and companies; incentives for the participation of science and technology institutes in the innovation process; and incentives for innovation in companies”¹²⁴. The effort to increase connections between universities and firms was especially important, as these kinds of connections have been lacking in Brazil¹²⁵. The innovation law was primarily oriented to micro and small companies, but it did help the Lula administration move the focus of industrial policy away from strict manufacturing and more toward innovation. Importantly, the law guaranteed intellectual property rights to innovations that had commercial viability,

¹²⁴Ministry of Science and Technology (www.mct.gov.br)

¹²⁵Pacheco (2007, 30) points out that the gap between public and private research activities was one of the primary bottlenecks identified at the national conference of science, technology, and innovation in September of 2001. This conference helped put in motion legislation which appeared as a preliminary version of the Innovation Law in September 2002 in the national congress.

even if researchers did not register their innovative activities as patents immediately. The innovation law did not offer fiscal incentives, only subsidies. As such, it has not compared in size with the *Lei do Bem* and the informatics law in terms of outlays¹²⁶. However, it is an important law in that it seeks to establish firm-university networks.

The second important piece of legislation was the *Lei do Bem*, or Law of the Public Good (11,196/2005), which established fiscal incentives to encourage innovation in firms. Of particular note are the incentives contained within the *Lei do Bem* which offered tax deductions on industrial products used for R&D, the accelerated depreciation of capital goods used for innovative purposes, the accelerated amortization of intangible goods used in innovation, and partial state remuneration of researchers with appropriate qualifications employed by firms. The fiscal incentives provided by the *Lei do Bem* are increasingly utilized by firms¹²⁷. In 2006, the first year the incentives were available to firms, 130 firms took advantage of the incentives. The incentives granted this year totaled approximately R\$230 million. In 2007, the number of benefitted enterprises increased to 321, and the incentives totaled R\$ 884 million. Moreover, the medium package of fiscal incentives per firm increased from R\$1.77 million to around R\$3 million, a more than 60% increase (ANPEI 2009, 32-36). The incentives offered by the *Lei do Bem* appear to be more and more attractive, as awareness increases among firms.

The PDP corrected some faults of the PITCE by establishing more direct connections to the executive branch, but many of the Lula administration's policy initiatives towards

¹²⁶A recent study by the think tank *Instituto de Estudos para o Desenvolvimento Industrial* (IEDI) found that the *Lei de Inovação* had disbursed R\$319 million in subsidies in 2008, which represented only 6 percent of total governmental fiscal incentives and subsidies for R&D in Brazil. The *Lei do Bem* represented 30 percent and the informatics law represented 61 percent in that year (IEDI 2010, 10).

¹²⁷There was some initial confusion about the incentives offered by the *Lei do Bem* and the Innovation Law reported in the Brazilian press, and firms have petitioned the government for more specificity (Salgado 2007). However, firms increasingly recognize the potential benefits of incentives in these laws.

innovation ran up against an institutional framework that was often too fragmented to properly implement ambitious industrial policy. The Lula administration moved towards a focus on developing innovation through active industrial policies. In contrast to earlier periods of reform, the Lula administration also joined the focus on macroeconomic stabilization with a renewed emphasis on sectoral targeting. The state has refocused its efforts on creating favorable conditions for innovation, competition, and development. Table 4.1 relays information about the increases in industrial policy funding since 2006, when the first disbursements from the innovation law and the *Lei do Bem* took place. The industrial policy framework was strengthened under Lula, and the emphasis on innovation is apparent. Yet despite the best intentions of this new industrial framework, there are numerous institutional deficiencies which have made its implementation problematic.

Table 4.1 Fiscal incentives and subsidies of R&D spending, 2006 to 2008, millions R\$

	2006	2007	2008
Fiscal Incentives			
Lei do Bem (Law 11,196/05)	229	883.9	1544.5
Lei de Informática (Law 8248/91)	1990.1	2759	3183.6
Economic Subsidies			
Lei de Inovação (Law 10,973/04)	40	344.8	319
Interest Equalization (Law 10,332/02)	66.3	78.7	89.6
Other Subsidies	32.6	32.4	49.5
Total (Incentives and Subsidies)	2358	4098.8	5186.3
Private Expenditure in R&D	11738.2	13422.8	15160.7
Total Support/Private Expenditure in R&D (%)	20.1	30.5	34.2
Fiscal Incentives/GDP (%)	.09	.14	.16
Subsidies/GDP (%)	.01	.02	.02
Total Support/GDP (%)	.10	.16	.18

Source: IEDI (2010, 10-11)

4.3.2 *The institutional framework for innovation*

Brazil has had a strong developmental state at least since the *Estado Novo* of Vargas in the 1930s. It makes theoretical sense, therefore, that state institutions would respond enthusiastically to the return to an activist industrial policy under the Lula administration,

after the decade-long flirtation with neoliberal orthodoxy. Even as the macroeconomic stabilization program was put in place in the mid-1990s, many organizations within the Brazilian state apparatus remained committed to an activist role in development strategy. However, there are a number of reasons why Brazilian institutions have not fulfilled the requirements of innovation-based growth. As outlined in chapter two, state institutions should display a number of characteristics in their interactions with multinational firms. First, to be effective the state must display a high degree of institutional coordination. Second, institutions must be consistent. Third, institutions must have a close relationship with private actors, while simultaneously resisting rent-seeking behavior. In many of these dimensions, Brazilian institutions have come up short. Brazil has not yet been able to translate its broad constellation of state institutions into an effective conduit for a national system of innovation.

While Brazilian institutions have in general not facilitated the transition to a knowledge-based economy based on innovation, there have been a few success stories. Here it is useful to remember Evans' (1995) characterization of the Brazilian state apparatus as neither wholly 'developmental' nor entirely 'predatory'. That is, pockets of efficiency coexist with institutions dominated by clientelism and even corruption. Effective institutions emerge through a distinct process. In addition to satisfying the three conditions outlined above, these institutions also display some unique characteristics in the Brazilian context. Pockets of efficiency in Brazil tend to operate autonomously. They take time to develop reputations for independence and apolitical operation. They exhibit meritocratic hiring and promotion, and develop a strong sense of institutional identity and mission. They are close to multinational firms and develop patterns of productive interaction with the private sector.

One of the silver linings for executive power in the Brazilian presidential system has been the ability of politically strong presidents to create powerful institutions that can be developmentally catalytic. Presidents can also independently channel resources to institutions with proven track records. While the BNDES in suffered through periods of political manipulation before the 1980s, it has since then largely been able to maintain its autonomy and effectiveness as a source of funding for development projects. The BNDES enjoys a reputation for meritocratic staffing and independence from political pressures, and it offers low interest loans to a variety of firms, most of which are apportioned regardless of the firm's country of origin¹²⁸. The BNDES has recently designated innovation funding lines specifically to target large businesses and encourage local innovative activity. A new line, created in 2008, is known as the Technological Innovation fund, which is designed to support innovation projects of over R\$1 million. The interest rate on this line of funding is 4.5 percent annually. A second funding line, known as *Capital Inovador*, was created in 2006 and has a maximum support amount of R\$200 million, renewable up to 12 years (ANPEI 2009, 45-46). The BNDES has another funding line, known as FUNTEC, which does not target firms directly but instead funds research centers that may or may not partner with multinational firms. Nevertheless, this funding line has the potential to benefit innovative multinationals. Finally, the program PROSOFT supports the development of the national software and IT industry, but is exclusively focused on Brazilian firms. While the increased emphasis on innovation is relatively new dimension of BNDES funding, it is important.

Also influential in terms of innovation is another institution that began within the BNDES and has subsequently been successful in incentivizing innovative activity among

¹²⁸This is true since the 1988 amendment to the Brazilian Constitution, which did away with distinctions on capital origin, save for a few select sectors (Interview, Victor Burns, BNDES, Brasília, May 2009).

multinationals in Brazil. FINEP was founded in 1967 as a funding agency for scientific and technological research. It now operates within the structure of the Ministry of Science and Technology (MCT), and provides grants to universities and research centers. The agency also loans money to companies that participate in innovative activities. FINEP has largely followed the example set by the BNDES and has retained an emphasis on meritocratic staffing, independent financing, and independence from political pressures. Its resources have expanded dramatically in the past decade. In 1999, FINEP received support from the Sectoral Funds, and its financial resources multiplied by a factor of ten by the end of 2009¹²⁹. It now commands approximately R\$2.8 billion in resources, roughly evenly divided between universities and firms (BNDES 2009). Within FINEP, the *Pró-Inovação* program was an important source of finance for firms with sales of more than R\$10.5 million. This program allowed innovative firms to access FINEP funds at long term interest rates below the current 6.25% rate. This program expanded from 41 firms in 2005 to 47 in 2007, with an estimated value of R\$558 million (ANPEI 2009, 37-38). In 2008, this program was reformulated in accordance with the guidelines established by the PDP industrial policy, and renamed *InovaBrasil*. The interest rate on projects funded by this program is set at a low 4.25% per year. This program combines credit lines with other instruments such as vouchers, which can be used by firms to contract domestic research partners. At the end of 2008, this program had signed contracts with 16 operations. 36 additional operations, worth approximately R\$560 million, were approved and in the process of drawing up contracts. The median value of support per firm was R\$31 million, whereas in 2005 the *Pró-Inovação* program had a median value of only R\$12.8 million (ANPEI 2009). The innovation programs of FINEP are

¹²⁹Phone interview, Dr. Eduardo Costa, FINEP Director of Innovation, Rio de Janeiro, May 2008.

growing in scope. FINEP also offers competitions for subsidy programs directly to firms since the innovation law was implemented, though these funds are increasingly directed to micro and small enterprises. Finally, FINEP is now sponsoring incentives for the nascent Brazilian venture capital market, holding competitions for VC funds and establishing fiscal incentives¹³⁰. FINEP has been able to establish itself as an independent development organization focused on innovation. Though its budget is much smaller than that of the BNDES, the organization has a growing track record for incentivizing innovation among cooperating firms. This is true for large multinationals and small and medium enterprises.

Beyond BNDES and FINEP, effective and autonomous institutions within the Brazilian bureaucracy are few. While these organizations have managed to develop an institutional culture which marries an emphasis on institutional objectives over personal advancement with meritocratic staffing and independent financing, the rest of the institutional landscape does not display similar characteristics. There are a number of other institutions which prioritize and support innovation among multinational firms, but none have the resources or independence of these two organizations. The Ministry of Education operates the CNPq, which has among its aims the insertion of highly qualified workers into research positions in firms. The *Programa Nacional de Capacitação de Recursos Humanos para o Desenvolvimento Tecnológico* (RHAE) sub-organization within CNPq is specifically designed to award financing to individuals with masters or doctorates, when they move to the private sector. This program is designed to close the wide gap between the private sector in Brazil and academic institutions. However, the RHAE funds are largely aimed at micro and small enterprises, and as such do not have a great impact on multinationals. Moreover, the

¹³⁰Phone interview, Dr. Eduardo Costa, FINEP Director of Innovation, Rio de Janeiro, May 2008.

budget for this organization is not great, the individual awards are not considered large, and its mission has changed often in the past twenty years¹³¹. A recent evaluation of this organization found that both multinational and domestic firms were largely unfamiliar with the RHAE program, and those that were did not demonstrate enthusiasm¹³². CNPq maintains a larger emphasis on encouraging research and funding research in academia. Its other grants to doctoral students in Brazil are plentiful. However, it has not emphasized the potential linkages between firms and researchers until recently, and focused less on multinationals in Brazil than on small (mostly Brazilian) enterprises. There are signs this is changing with the innovation law and the *Lei do Bem*. However, the gap between support for innovation in education and applied commercial innovation remains large.

For multinational firms, there are few institutions that can serve as reliable partners for innovation, whether through incentives or requirements. Those institutions that do exist to support firms do not typically induce innovation among firms, but rather serve as support networks for already-established innovative patterns. For example, an institution known as SENAI has long existed within the framework of the *Confederação Nacional da Indústria*, a body which dates to the 1930s and has a long history of corporatism. SENAI, created in 1942, provides training for 2.3 million Brazilian workers, following the model of vocational training established in Germany. The budget for SENAI is funded by a one percent payroll tax from the industrial sector of Brazil. By all measures it is extremely effective in providing trained graduates for Brazilian and foreign companies. Yet on the innovation frontier it is still largely responsive to company needs. It often receives contracts from multinational

¹³¹Interview, Nizardi Michelini Queiroz, CNPq, Brasília, June 2009.

¹³²According to the study (ANPEI 2009, 89), firms were concerned about the fragility of the RHAE awards, and did not see how they could integrate awardees into their enterprises. Firms regarded the scholarships offered by RHAE as relatively small, and not conducive to professional integration.

corporations, such as Microsoft and Volkswagen, to provide those companies with graduates trained in a number of in-demand skills. Some of these skills may even be firm-specific. However, these contracts are done in response to firm requests. As a representative of the organization indicated, SENAI in general “follows the industrial trends”¹³³. As a vocational education system, SENAI succeeds in providing low-cost courses to Brazilians, in many cases endowing workers with skills that they would not have had access to otherwise. However, SENAI has not functioned as an institution through which the government establishes a national innovation system, despite its potential to serve that role.

It is perhaps too soon to tell whether the new institutions established or renovated during the Lula administration, most prominently the ABDI, APEX, and CNDI, will serve as enduring catalysts for innovation among multinationals in Brazil. As detailed in chapter three, these institutions are the cornerstones of Lula’s reinvigorated industrial policy, which aimed to increase the competitiveness of Brazilian products and develop key industries. Foreign capital played a prominent role in this policy, and the investment promotion efforts of APEX in particular emphasized the potential complementarities between firms’ goals and the strategic goals of the government¹³⁴. These institutions, drawing on the incentives established by the *Lei do Bem* and the *Lei do Inovação*, made attraction of high technology investment a priority. However, there are a number of potential stumbling blocks. Most notably, the unwieldy governing structure of these institutions, in which no fewer than ten governmental ministries are taking part, means that rapid response and adaptability are more

¹³³Interview, Frederico Lamego, SENAI, Brasília, June 2009.

¹³⁴APEX seemed like the logical successor to *Investe Brasil*, and some considered it the closest thing to a centralized investment promotion agency in Brazil. However, the potential of this agency has been undermined by the inconsistent approach of the government leading up to its establishment as an FDI ‘champion’ (ECLAC 2004, 108).

difficult. Moreover, successive administrations have established institutions only to see them subsequently morph into venues for rent-seeking. APEX has not been especially effective as an investment promotion body, notwithstanding its recent makeover. Four interviewees (two peak organization representatives, one firm representative, and one governmental agency representative) were pessimistic about the organization's ability to attract investment due to its unwieldy structure and lack of autonomy from the rest of the bureaucracy. Moreover, there are fears that the newly created CNDI, which serves as a council of high representatives advising the president on investment policy, may morph into a rent-seeking body (Suzigan and Furtado 2006).

The institutional configuration in Brazil thus demonstrates some divergent tendencies with regard to support for innovation. Institutions like the BNDES and FINEP manage to function relatively well in encouraging innovative practices and selectively incentivizing innovative activity. They enjoy political support, yet are separate enough from congressional oversight to not be dependent on it. They also operate with relative autonomy from the rest of the institutional *mélange*, while simultaneously accomplishing meritocratic staffing practices and consistent, effective conditionality for those companies which enjoy their support. Based on interviews conducted for this study and other sources, both institutions are well-regarded and connected with multinational firms. Yet these institutions are sometimes undermined by other characteristics of the Brazilian state. In a seminar on Brazilian innovation policy at the University of São Paulo in November of 2007, the executive director of Votorantim Ventures, one of the largest private economic conglomerates in Brazil, argued that even though incentives of bodies like the BNDES and FINEP were generous, the “inconsistencies” and “contradictions” of the government dissuaded firms from asking for

these incentives. For example, if an enterprise develops a new product it is often treated by some regulatory agencies as a “monopolist” (Sennes 2009, 28).

Besides the examples of BNDES and FINEP, there are relatively few effective venues for state support of commercial innovation. There is a severe disconnect between academic innovation and innovation in the private sector in Brazil. Moreover, most of the institutional framework in places does not prioritize innovation in a consistent fashion, relying instead on market-following programs and sporadic, *ad hoc* attempts at institutional innovations which may not outlast their political sponsors. Coordination problems, which helped derail the PITCE and *Investe Brasil*, remain important barriers to effective investment promotion. While APEX and ABDI enjoyed political support during the Lula administration, it remains to be seen whether the Rousseff administration will continue this trend.

4.3.3 Empirical patterns of innovation in a comparative perspective

In the next section (4.4), I put forward empirical investment patterns to argue that innovation among multinationals in Brazil is not substantial, and connect these patterns to the institutional framework through firm interview responses, data, and reports. Before doing so, however, it is useful to examine broad innovation indices in comparative perspective. Table 4.2 conveys Brazil’s (and Latin America’s) relative deficiencies on these innovation measures. Other authors have pointed out the poor performance of the region on a number of innovation measures, including patents, low R&D expenditure, and so on (Katz 2006; Nelson 1993). These outcomes are partly an outgrowth of a developmental model that for too long focused on ‘economy as production’ rather than ‘economy as innovation’. That is, Brazil and other countries in the region failed to prioritize innovation as a base for industrial growth, especially compared with states in East Asia.

Table 4.2 Innovation propensities in various countries (most recent year available)

	Brazil	Chile	Costa Rica	Mexico	China	Hong Kong	India	Korea, Republic of	Russia	Singapore
Nonresident patent applications as a percentage of total	84.31			96.31	46.16			24.60	26.12	93.33
Total patent applications	24297			15541	173640			166416	37742	9385
Researchers in R&D, per million population	629	832	121	459	1071	2650	137	4627	3305	6089
Technicians in R&D, per million population		301		257		459	86	720	516	528
R&D expenditure as a percentage of GDP	1.02	.67	.37	.50	1.48	.81	.80	3.47	1.12	2.61
Enrollment in science programs at tertiary level, as percentage of population	.24	.32	.22	.27		.30	.16	.59		.62
R&D performed by business enterprise (%)	40	46	33	47	72	53	30	77	62	66
R&D performed by government (%)	21	10	16	25	19	2	66	12	30	10
R&D performed by higher education (%)	38	32	45	26	8	45	4	10	7	24
R&D financed from abroad (%)		9		1	1	4		0	6	4
R&D financed by business enterprise (%)	44	46		45	70	53	30	75	29	58
R&D financed by government (%)	53	44		50	25	43	66	23	65	36
R&D financed by higher education (%)	2	1		3		0	4	1	0	1

Sources: World Development Indicators, World Bank; UNESCO Institute for Statistics

Compared to other countries in Latin America, Brazil scores relatively well on measures of domestic patents, R&D expenditure, and science enrollments. However, the ‘tigers’ of East Asia demonstrate significantly higher innovation propensities on these points. The lack of private R&D effort is especially evident in Brazil compared to other countries. Roughly the same proportion of R&D is performed by businesses (40%) and higher education (38%). In countries such as Korea and Singapore, as well as other more developed countries, the distribution is much more heavily weighted to business¹³⁵. This is perhaps indicative of the lack of practical application of university-sponsored research in Brazil, or more probably the lack of substantial university-firm connections. Another contrast is evident in the financing of R&D. Most R&D effort in Brazil is financed by government, whereas a prominent financing role for business is evident in some of the East Asian countries. While Brazil scores better than some of its Latin American peers on some of these indices, strong contrasts with some East Asian success stories are evident. The primary sources of research and development spending in Brazil continue to be the state and universities, with comparatively low levels of firm innovation.

Kosacoff et al. (2008, 45) have characterized the innovation systems in Brazil, and Latin America as a whole, as “weak and disarticulated”, and in particular point to the lack of interaction between the productive sector and universities. Zanatta and Queiroz (2007) and Suzigan and Furtado (2006) echo this point, arguing that there is comparatively little interaction in Brazil between academic laboratories, public universities, and research institutions and the private sector, despite ample production of highly trained individuals with substantial skill sets. The data outlined above support this assessment, and demonstrate

¹³⁵Kosacoff et al. (2008) note, based on UNESCO data, that the distance between Sweden or Israel and Colombia in terms of private R&D spending as a percentage of GDP is 30 to 1. Between Korea and Brazil the ratio is 5 to 1. Yet Korea only spends 25% more than Brazil in R&D in the public sector.

a national system of innovation which is still heavily dependent on state support. In short, private industry does not participate in innovation at the same rate in Brazil as in countries like Korea, Singapore, and even China. This is partly due to policy legacies and institutional environments that have not emphasized or incentivized private innovation.

4.4 Innovation among Multinationals in Brazil

Thus far I have considered only the broad contours of innovation in Brazil. However, the primary goal of this chapter is to consider the innovative effort of multinational firms in Brazil, and how that effort is impacted by domestic institutions. In the following section, I consider the innovative activities of multinational firms specifically. Toward this end, I employ data from a number of different governmental bodies, both in the United States and Brazil, which reveal the innovative effort of multinational firms. I also utilize firm interviews in the automotive and information technology sectors to establish connections between innovation practices (or lack thereof) and the characteristics of Brazilian institutions. The firm interviews are particularly useful because they allow open-ended responses from firm directors and governmental liaisons within firms. These individuals were asked a variety of questions about the institutional environment in Brazil, and their perceptions of institutional efficacy. The responses of firms in both sectors were then aggregated, in order to identify patterns among a variety of firms.

In total, 27 firms were interviewed over two years. These 27 can further be subdivided into four categories. Four were flagship automotive manufacturers, and all of these have a substantial manufacturing presence in Brazil. Nine were large multinational auto parts manufacturers. Most of these companies entered Brazil during the liberalization and consolidation of the auto parts sector in the mid-1990s. Nine others were flagship

multinational IT firms, sometimes referred to as original equipment manufacturers (OEMs). Some of these firms offer software exclusively, but most because of their size offer a variety of IT services, ranging from system integration to business process outsourcing. The remaining five are contract manufacturing firms in the IT sector. These are firms which provide mostly hardware for larger IT firms. The CMs, as they are known, are not suppliers in the traditional sense, as they may have the capacity to develop complex production tasks on a global scale and often have independent design capabilities. CMs in the IT industry in Brazil have often been drawn to the Free Economic Zone of Manaus, because of that area's generous tax incentive structure.

The firm interviews serve to establish connections between the innovative activity of firms and their perceptions about the institutional environment in Brazil. The operating hypothesis is that the Brazilian state displays institutional characteristics which make innovation among multinationals less likely. In section 4.4.1, I first provide an examination of empirical patterns of innovative effort among multinational firms, drawing on datasets from the US and Brazil. I then examine the automotive and IT sector in turn, integrating interview responses into a discussion of the participation of multinational firms in the sector, overall innovation patterns, and existing incentives for innovation. Section 4.5 synthesizes and contrasts both sectors.

4.4.1 Patterns of multinational innovation: economy-wide patterns

There is some disagreement among analysts about the degree to which multinational firms engage in innovative activities in Brazil. A number of recent studies have come to divergent conclusions about whether foreign firms engage in innovation. Arbix (2005) found that national firms were more innovative than multinational firms, with national firms

investing 80 percent more in R&D than transnational affiliates with similar size and characteristics¹³⁶. De Negri and Turchi (2007) echo these findings, arguing that transnational corporation subsidiaries in Brazil spend 62 percent less R&D related to turnover than national firms. However, a number of other studies find the reverse relationship. Braga and Willmore (1991), in their logit analysis of 4,342 firms in Brazil, find that foreign ownership increases the likelihood that a firm will engage in research and development. A more recent study conducted by the ANPEI organization in Brazil on the basis of survey data collected by the Pintec 2005 study argues that the rate of innovation among multinational firms in the country is essentially double that of domestic firms (ANPEI 2009)¹³⁷.

The authors mentioned above make use of different micro-level surveys carried out by different governmental organizations, which may contribute to the divergent findings. For this chapter, I begin with the same survey data employed by Nonnenberg (2003), in his study of foreign investment in Brazil in the 1970s and 1990s. These data are accessible at the *Fundação Seade* in São Paulo. I employ data from firm surveys carried out by this organization's extensive survey of economic activity in the state of São Paulo in 2001. While this survey is limited to one state in Brazil, it is a comprehensive survey of more than 40,000 firms in the largest industrial state. Most of the country's productive capacity is located within São Paulo, and despite more recent movement away from the industrial heartland the plurality of FDI still comes to São Paulo. Table 4.3 relays information about the innovative activities of multinational and national firms in the state of São Paulo.

¹³⁶Arbix argues that multinationals in Brazil are much more likely to use technology developed in the firm's home country, most often for market-oriented investments.

¹³⁷The authors of this study are quick to point out, however, that when the sample is limited to those firms with 500 or more employees, the gap in R&D activity between multinational firms (88.6%) and nationally owned firms (75.9%) is smaller than in the overall sample. Moreover, innovative efforts of multinational firms were concentrated in the more 'traditional' sectors of basic metallurgy and food and beverage investments.

The survey separates firms according to their capital of origin, and it also separates firms according to whether or not they participate in innovation. Unfortunately, the survey does not match the two, to indicate whether foreign firms are also innovative. As may be expected, the IT sector demonstrates the highest percentage of innovative firms among those surveyed. Among the total sample of innovative firms, the dominant source of innovation among firms is Brazilian in origin (1,245 of the 1,656 firms). These 1,656 firms may be foreign or totally Brazilian owned. In other words, Brazilian-owned firms probably dominate this sample of innovative firms, and therefore dominate the innovation source data. However, there are only 25 instances of primarily foreign-sponsored innovation (1.5% of all 1,656 innovative firms), whereas firms with foreign investment represent 2.7% of the 41,206 firms surveyed. Admittedly, these are very rough tools to determine innovation origins. However, it does seem that foreign participation in innovation is lower than the population of foreign firms in the Brazilian economy might suggest.

Figures 4.1 and 4.2 represent data from the US Bureau of Economic Analysis, investment division, which chart the financial and operating activities of US investment abroad. Again, this limits the scope of the analysis (in this case to American firms rather than the state of São Paulo). These data, while incomplete, allow a temporal perspective on the innovative activities of American multinational firms in Brazil. Figure 4.1 contains information on the R&D efforts of firms in the wholesale trade, information, professional, and manufacturing sectors, while Figure 4.2 only considers the sub-components of the manufacturing sector¹³⁸.

¹³⁸R&D expenditures as a percentage of value-added are used. Value-added is used as opposed to sales, because it reveals “the portion of the goods and services sold or added to inventory or fixed investment by a firm that reflects the production of the firm *itself*”. Compared to sales, value-added is a preferable measure of production when available because it “indicates the extent to which a firm’s sales result from its own production

Table 4.3 Innovation activities of industrial enterprises in the state of São Paulo, 1999-2001

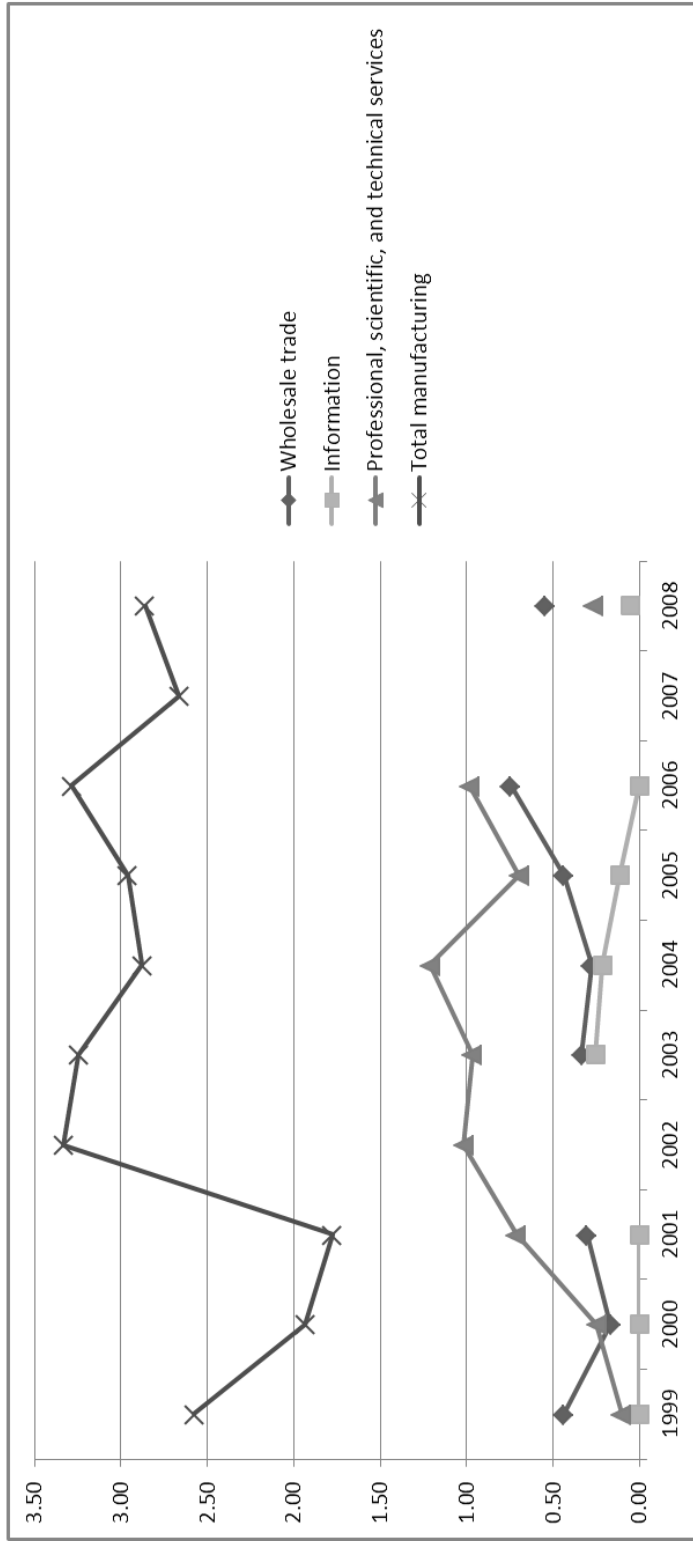
	Total firms surveyed	Number of firms surveyed with foreign participation	Innovative firms	Source of Innovation		
				Principally Brazilian Enterprise	Other	Principally Foreign Parent Co.
TOTAL	41,206	1,092 (2.65%)	1,656 (4.02%)	1245	377	25
Office Machines and IT	128		41 (32.03)	39	2	
Precision Instruments, Industrial Automation	563	21 (3.73)	111 (19.72)	77	31	1
Electronics and Telecommunications	413	30 (7.26)	81 (19.61)	71	6	4
Chemical Products	1,891	224 (11.84)	261 (13.8)	218	33	9
Machinery and Equipment	2,995	241 (8.04)	327 (10.92)	240	84	4
Electrical Equipment	1,196	63 (5.26)	103 (8.61)	91	11	
Other Transport Equipment	216	12 (5.55)	15 (6.94)	12	2	1
Basic Metallurgy	1,207	24 (1.98)	52 (4.31)	40	12	
Textiles	1,804	25 (1.38)	76 (4.21)	60	15	
Automotive Parts and Assembly	1,145	92 (8.03)	48 (4.19)	36	12	1
Rubber, Plastics	2,920	96 (3.28)	117 (4.01)	69	47	1
Oil Refining, Alcohol	75		2 (2.67)		2	
Leather, Footwear	1,335		33 (2.47)	28	4	
Cellulose and Paper	883	20 (2.26)	21 (2.38)	11	9	
Metal Products	4,951	69 (1.39)	109 (2.2)	74	34	1
Food and Beverage	4,064	67 (1.64)	79 (1.94)	58	18	1
Printing	2,673	25 (0.93)	48 (1.8)	20	26	1
Other Industries	4,612	65 (1.4)	80 (1.73)	64	16	
Mineral Products, Non-Metals	2,866	18 (0.62)	39 (1.36)	26	11	1
Extractive Industry	574		4 (0.7)	4		
Clothing and Accessories	4,697		10 (0.21)	7	2	

Notes: Survey asked whether firm had introduced a product integrating new or significantly improved technologies in the period under consideration.

Source: *Fundação Seade. Pesquisa da Atividade Econômica Paulista.*

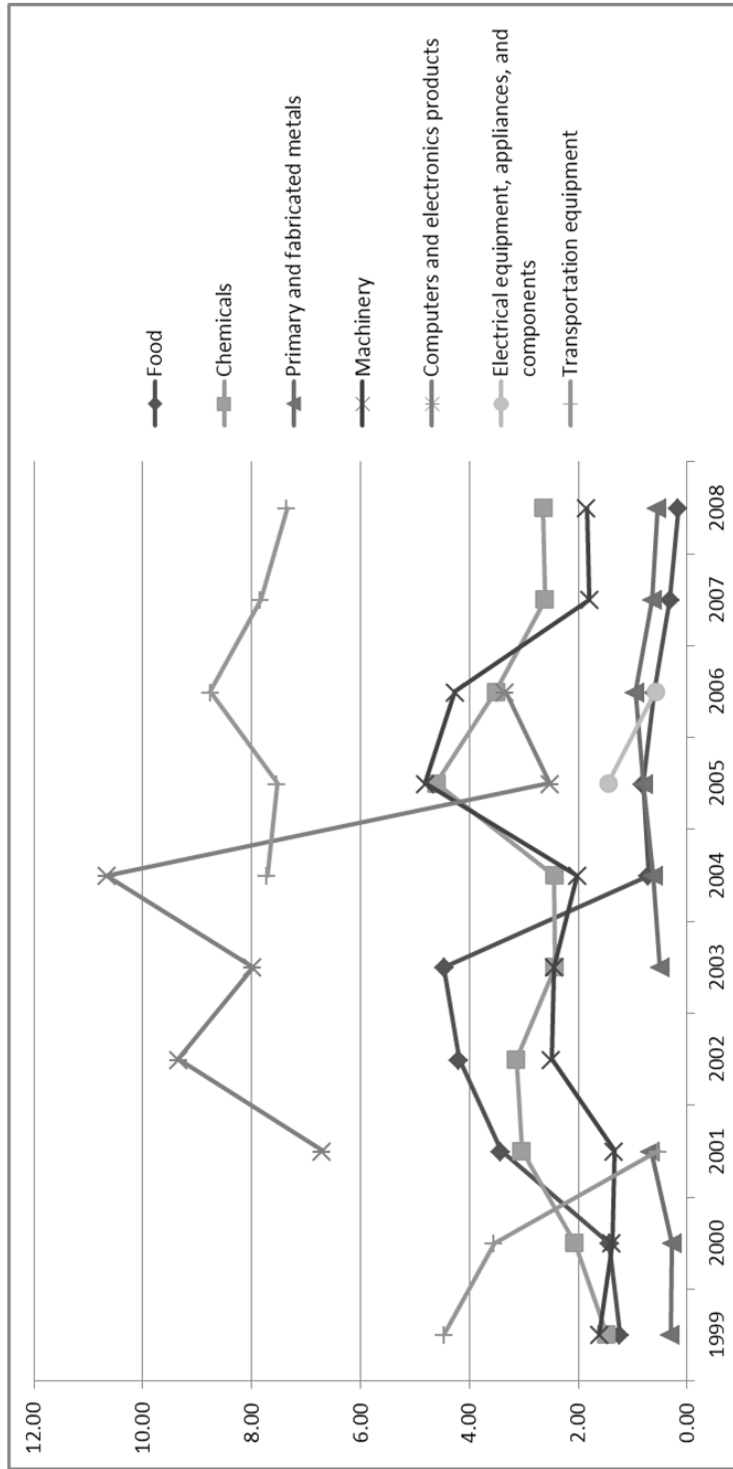
rather than from production that originates elsewhere, whereas sales data do not distinguish between these two sources of production” (BEA financial and operating database).

Figure 4.1 R&D expenditures of majority-owned affiliates of US multinationals in Brazil, by economic activity (R&D expenditures as a percentage of value-added, by category)



Source: Bureau of Economic Analysis, financial and operating database for US multinational investment. <http://www.bea.gov/international/di1usdop.htm>

Figure 4.2 R&D expenditures of majority-owned affiliates of US multinationals in Brazil, by manufacturing category (R&D expenditures as a percentage of value-added, by category)



Source: Bureau of Economic Analysis, financial and operating database for US multinational investment. <http://www.bea.gov/international/di1.usdop.htm>

There appears to be no broad evidence of a significant increase in the R&D activities of US multinational firms since 1999, with the possible exception of professional, scientific, and technical services. In the category of computers and electronics products, the amount of innovative effort has decreased markedly in the past three years. However, these data are not available after 2006 for this sector, which is when many of the new innovation incentives (through the *Lei do Bem*, for example) became available. The lack of innovative effort among American firms in Brazil is also apparent when the BEA data are examined in comparative perspective, as in table 4.4. Here, the R&D expenditures of majority-owned American firms in 2007 are contrasted with similar efforts of majority-owned American firms around the world. In this table I adopt the approach used by Hiratuka (2009), in which the share of American R&D activity displayed by a given country is contrasted with that country's share of overall value added (in ratio form)¹³⁹. The last column in table 4.4 displays these data. A higher ratio value demonstrates that a country exhibits more local R&D by American firms than its share of global American value-added would suggest. Brazil scores better than other Latin American countries on this measure, but lags behind countries such as China, India, and Korea. Moreover, American firms in Brazil do not exhibit large R&D expenditures (as a percentage of value added) compared to American firms in these other countries, as indicated by the first column.

Both the data from the São Paulo survey and the data from the US BEA suggest that the innovative efforts of multinational firms in Brazil are not substantial, in a temporal or comparative perspective. These datasets reveal important dynamics of investment, both from Brazil's largest investor and to its most important industrial state. Having briefly examined the general contours of innovation among multinationals using existing governmental

¹³⁹Hiratuka used sales data, but I employ value-added for the reasons elaborated in footnote 138.

datasets, I now turn to sector-specific elaborations on the relationship between Brazilian institutions and firm innovation patterns in the automotive and IT sectors.

Table 4.4 R&D expenditures of majority-owned foreign affiliates of US multinationals, selected countries - 2007

	R&D expenditures as a percent of value-added	Share in total R&D expenditures of US multinationals	Share in total value-added of US multinationals	Share in R&D/Share in value-added
Latin America and the Caribbean	0.90	3.39	11.54	0.29
Brazil	1.91	1.76	2.83	0.62
Chile	0.39	0.14	1.11	0.13
Costa Rica	0.54	0.02	0.12	0.18
Mexico	0.99	0.88	2.74	0.32
China	5.47	3.41	1.91	1.78
Hong Kong	0.73	0.27	1.13	0.24
India	5.18	1.11	0.66	1.68
Korea, Republic of	7.64	2.69	1.09	2.48
Russia	1.43	0.29	0.62	0.46
Singapore	2.82	1.59	1.74	0.92
Taiwan	1.48	0.28	0.59	0.48
Total of all US affiliates	3.08	100	100	1

Sources: Bureau of Economic Analysis, financial and operating database for US multinational investment. Adapted from Hiratuka (2009), author elaboration of BEA data.

4.4.2 Innovation in the Brazilian automotive sector

Multinational automotive assemblers have been active in Brazil since the 1950s, when the Kubitschek administration put in place a number of domestic content requirements and limited imports as part of a concerted effort to develop a Brazilian automotive industry. Between 1959 and 1974, annual output of automobiles in Brazil multiplied by a factor of ten, accounting for over 50 percent of all Latin American automotive production (ECLAC 2004,

118). This production was almost entirely driven by multinational firms. Ford, VW, Fiat, and GM, collectively known as the ‘big four’, continue to have multiple production facilities in the country, many of them located within the ‘ABC’ industrial region south of São Paulo. Since the macroeconomic stabilization of the 1990s, these firms have been joined by other assemblers, including Honda, Mercedes, Peugeot, and Renault. Many of these more recent arrivals were induced to establish productive capacity in Brazil by the automotive regime put in place in 1995, which expired in 2000.

The automotive regime, or RA, was decidedly illiberal in nature, in fact it represents the most prominent exception to the liberal stabilization reform measures so common in Brazil during this time. It was not the first attempt at industrial policy in the automotive sector in the 1990s, but it was the most influential. Growing domestic demand in Brazil for automobiles was driving up imports in the early 1990s and threatening a serious trade imbalance. Argentina already enjoyed protective measures designed to increase domestic manufacturing, and the Brazilian administration feared losing investment opportunities within the context of Mercosul. The RA was successful in attracting new investments, even among those companies which already had established presence in Brazil¹⁴⁰. Table 4.5 lists some of the most prominent investments undertaken by flagship automotive assemblers in the late 1990s. Many of these investments were made in direct response to the incentives offered by the RA. By 2000, the incentives of the automotive regime had been increasingly challenged by the WTO as they violated some key tenets of the developing Trade-Related

¹⁴⁰However, these successes have been qualified in a number of studies, which note the often excessive tax credits offered to companies and the crowding out of local parts manufacturers brought on by the RA. Laplane and Sarti (2002) note that the automotive policies of the 1990s involved substantial transfers of social costs among consumers, government, and firms, not always with beneficial results. De Negri (1999) estimated that the automotive regime, with its significant import duties and tax manipulation, cost Brazilian consumers approximately \$33.9 billion in its period of operation, with a deadweight loss of \$7 billion.

Investment Measures (TRIMs) legal framework (Quadros and Queiroz 2001). However, by that time the regime had already succeeded in many of its goals.

Table 4.5 Notable automotive assembler investments in Brazil, 1995-2005 (not including heavy trucks)

Firm	Date	Plant Location	Investment (millions US)	Initial Capacity
Fiat	1998/1999	Betim, MG/ Belo Horizonte, MG	500/200	500,000 ^a /100,000
Ford	2001	Camaçari, BA ^b	500	60,000
General Motors	1999	Gravatá, RS	600	120,000
Honda	1997	Sumaré, SP	100	30,000
Mercedes-Benz	1998-1999	Juiz da Fora, MG	820	70,000
Mitsubishi	1998	Catalão, GO	35	8,000
Peugeot-Citroën	2000	Porto Real, RJ	600	100,000
Renault - Nissan	1999	São José dos Pinhais, PR	750	120,000
Toyota	1999	Indaiatuba, SP	150	15,000
Volkswagen/Audi	1999	São José dos Pinhais, PR ^c	600	120,000

^a Expansion of existing plant in Betim, engine production

^b Plant was initially to be built in Rio Grande do Sul, but political disagreement led to relocation. Data refer to initial projections for plant.

^c VW also expanded its engine production in São Carlos, SP in 1998

Sources: Rodríguez-Pose and Arbix (2001), ANFAVEA (2010), ECLAC (2004)

At roughly the same time as flagship assemblers were establishing new plants in Brazil, the network of suppliers that had provided parts to these assemblers since the 1960s was undergoing a dramatic transformation. New production methods in the global auto industry brought substantial reorganization to the auto parts sector. The most prominent result of liberalization and macroeconomic stabilization in the 1990s was the thorough denationalization of the auto parts industry. Companies such as Visteon, Dana, and Johnson Controls established or expanded their Brazilian operations in the 1990s, often through purchasing existing Brazilian parts companies. Humphrey (2003) notes that in 1995, the 25 largest auto component companies were split roughly evenly between Brazilian-owned and multinational companies. By 2001, 8 of the 12 Brazilian-owned companies had been sold to multinationals and one had become a joint venture. This process of denationalization was related to larger trends in the automotive industry, particularly the advent of follow sourcing.

Also important is the increase in modular production within global automotive value chains. Since the 1980s, supplier-driven value chains in the automotive industry have moved away from strict hierarchical relationships among suppliers and assemblers. Increasingly, the largest suppliers (almost always multinational) are given greater responsibilities to develop entire vehicle subsystems, whether those are seats, A/C systems, or wire harnesses. The flagship assemblers, in turn, delegate many of the design elements of these subsystems to the suppliers (Humphrey 2003; Humphrey and Memedovic 2003). The largest assemblers have by now established worldwide production networks, and often work in close partnership with the flagship assemblers such as Ford and GM. In Brazil, the arrival of large multinational auto suppliers has resulted in experimentation with other logistical models, most notably the industrial ‘condominiums’ wherein multinational suppliers have distinct facilities *within*

flagship assembly plants. These new kinds of production practices are exemplified in Brazil by Ford's new plant in Camaçari, Bahia and VW's plant in Resende, Rio de Janeiro. In these plants, large automotive suppliers seek to simultaneously minimize inventory and transaction costs in their relationships with the final assembler. Though these new plants have returned mixed results, they represent dramatic departures from older, hierarchical relationships within the automotive value chain¹⁴¹. While the new firm structures are innovative in the sense that they integrate new production processes, the parts producers in these plants mostly use designs developed elsewhere. In previous decades, automotive assemblers and Brazilian-owned parts producers would operate in separate plants and sign long-term contracts. These trends therefore represent a fundamental shift in models of production in the automotive sector in Brazil, and while they are new they do not necessarily generate much value-added.

The broad contours of innovation in the automotive industry since the 1990s can be summarized as follows: while there have been instances of innovation among multinational auto firms in Brazil, these innovations have not often been prompted by Brazilian policy or institutions designed to encourage innovation. From the early 1990s to approximately the mid-2000s, industrial policy in Brazil all but ignored innovation incentives in the automotive sector. Moreover, there is reason to suspect that the innovative activities of parts suppliers in Brazil have been downgraded since the denationalization process of the 1990s. Innovation is concentrated in the largest multinational suppliers (often referred to as tier 1), but that innovation is often not carried out locally and instead done abroad. Brazilian suppliers, where they still exist, are concentrated at lower tiers, where firms compete on price and little

¹⁴¹There have been some concerns about the lack of value-added activities in these new plants, with many of the inputs being imported or added as complete packages (ECLAC 2003, 125). Moreover, in some of these industrial condominiums the suppliers are only paid when parts are needed, diminishing the ability to sign long-term contracts.

innovation takes place. This bifurcation, between multinational assemblers and suppliers with relatively high innovative activity (often done abroad) on the one hand and Brazilian-owned firms with relatively low innovative activity on the other hand, remains a dominant feature of the Brazilian automotive industry today¹⁴².

In general, multinationals in the automotive sector in Brazil engage in comparatively little innovation or upgrading. This is true of both assemblers and suppliers. However, there are a few examples of innovation in the recent past. This innovation has taken place not as a result of effectively-communicated governmental incentives, but rather because of changing production models in developing countries. The sectoral chambers in the early 1990s prodded the government to reduce taxes for cars with smaller engines, in an attempt to meet growing domestic demand. These cars (which have engines up to 1,000 cc) have subsequently expanded dramatically as a proportion of total vehicle sales¹⁴³. These cars required some technological adaptation for driving conditions in Brazil and other developing countries, and as a result some multinational assemblers and parts suppliers established or strengthened the innovative efforts of their subsidiaries in Brazil. This innovation would eventually become the basis for independent design capabilities for a select few Brazilian subsidiaries of multinational assemblers.

Quadros and Queiroz (2001) make an important distinction between automakers following a strategy of trans-regional or 'world car' production, exemplified in Brazil by Ford and to a lesser extent Renault, and those automakers sticking to a multi-regional

¹⁴²One interviewee maintained that the Brazilian auto component industry was divided into two levels itself, with the multinationals dominating higher value-added goods and the Brazilian firms becoming smaller, family-owned and spread out (Phone interview, Tom Rideg, Latin Business Chronicle & Tendencias Magazine, São Paulo, February 2008).

¹⁴³Salerno et al. (1998) note that the sales of small-engine cars in Brazil increased from 4.3 percent of all cars sold in 1990 to 64 percent in 1997.

strategy. The implication for innovation of the world car model, in which a few core car models are produced by the parent company that can function in a variety of developing countries, is that R&D functions will be centralized as the automaker attempts to consolidate and streamline production for the core models. The multi-regional production model, by contrast, continues the tradition of manufacturing slightly modified models in individual countries, making adaptations where necessary and maintaining independent design centers to cope with specific conditions in different developing country markets. GM and Fiat, and until recently VW, have shown signs of maintaining this model in Brazil. Both production models have profound implications for local design capabilities. Ford after 1995 chose a strict policy of design centralization in an attempt to mount a world car production line. Accordingly, in the late 1990s Ford dismantled its Brazilian engineering team, reducing its engineering staff from more than 400 to a little more than 100 (Zanatta 2006). GM, in contrast, has maintained a substantial R&D commitment in Brazil. By the 1990s, GM do Brasil had developed the capability to substantially modify models developed abroad. This led to the initiation of the Blue Macaw project, which used the existing Corsa platforms to develop the Celta model. This was an important development because the Brazilian subsidiary of GM directed the design of the Celta model for the Brazilian market. GM do Brasil was also able to play a key role in the development of the Meriva minivan, which was sold in Brazil and then in Europe.

Fiat, which like GM and Ford has a substantial (if slightly shorter) history in Brazil, has also demonstrated some independent design capabilities in its Brazilian subsidiary. Its Palio model, developed in the mid-1990s for emerging markets, was designed through close cooperation of the Italian and Brazilian engineering teams. As Queiroz et al. (2003) point

out, Fiat recently installed a new design center in Betim to continue developing new models for emerging markets. Volkswagen shows signs of moving towards a consolidated world car production model, despite its history of independent design in Brazil. The Gol model, which has sold millions of units in Brazil for decades, was partially designed and developed in Brazil. However, VW shifted strategy in the 1990s and began to centralize its R&D activities. The more recent Polo model was mostly developed in Germany, and the Brazilian R&D unit has recently been through a status downgrade.

Clearly there is a mixed picture in terms of the local innovative efforts of flagship automotive assemblers in Brazil. The consolidation of innovative activities at the head offices of these companies is a real trend in the automotive industry. Many manufacturers are seeking world car or trans-regional capabilities, and changes in global supply networks such as follow sourcing make it possible to produce similar models in a wide variety of developing countries. However, as Quadros and Queiroz (2001) point out, it would be a mistake to assume that convergence around this production model is inevitable or universal. There are strong reasons for firms to continue adapting models to conditions in Brazil. As the relatively small-scale Meriva example demonstrates, there is even some precedent for exporting locally-designed models from Brazil.

The incidence of local innovative effort among flagship automotive assemblers, while not pervasive, is still more than token. This was corroborated by a number of interviews with high-ranking officials from four of the Brazilian subsidiaries of these firms. In these interviews, executives emphasized some areas of R&D expansion while simultaneously pointing out the difficulties in further expansion of innovative effort in Brazil. In one case, a divisional manager pointed out a substantial R&D commitment in Brazil, involving the

construction of a new research center currently underway. This executive also pointed out the development of flex-fuel vehicles in cooperation with parts suppliers as an example of local innovation efforts¹⁴⁴. However, this same executive noted that there were a number of barriers to further R&D investment, including the lack of English-speaking engineers and a pronounced lack of cooperation with local universities. Another executive from a major assembler noted that their R&D facilities in Brazil were not operating at the cutting edge, and attributed this partly to the lack of sufficient credit lines for innovation. Still another interviewee noted that the firm had entered into partnership with local universities, but that this partnership had so far only consisted of competitions for students to win internships at the company. There were no joint development projects, which had already been put in place in other countries.

Based on these interviews and the histories of the major automakers active in Brazil, it becomes clear that while there are instances of innovation in Brazil, there are relatively few examples of innovation that are not geared toward adapting existing models to local conditions. Both GM and Fiat have committed some resources to local innovation. The Blue Macaw project has been successful, and Fiat's Betim plant is demonstrating substantial design autonomy. However, many of the new (since the 1990s) arrivals exhibit no local R&D effort at all. More important for this analysis is the recognition that where firms have made substantial commitments to local innovation, they do so because of internal firm strategies (such as the choice between a world car and multi-regional strategy) and market conditions. In other words, firms made decisions about where to locate R&D in their value chains based on firm strategy, not R&D incentives in the auto industry, which were

¹⁴⁴It should be noted, however, that flex-fuel was largely developed in partnership with a multinational components firm (Bosch), though some of the design process did take place in Brazil (Interview, ANFAVEA, São Paulo, February 2008).

practically nonexistent in Brazil until the past five years. Brazilian policy has largely neglected innovation incentives since the early 1990s, again with some exceptions since 2004. Both Quadros (2002) and Queiroz et al. (2003) fault the otherwise interventionist automotive regime for disregarding innovation incentives altogether. Quadros (2002, 27) points out that multinational assemblers and parts producers were incentivized to export, but not to conduct local R&D or product design:

Upgrading...is left to the market. It does not receive proper federal or state level attention. Unfortunately, the market does not seem to fill the gap either.

While the RA did succeed in attracting new investments to Brazil and helped restore the current account balance by dramatically expanding local production, it omitted any reward or other incentive for firms conducting local R&D.

In the case of auto parts, there is further evidence of scaling back of innovative activities. As mentioned above, the Brazilian auto parts sector has undergone a dramatic transformation since the market liberalization period of the early 1990s. Unlike assemblers, parts companies did not enjoy a protective regime during this period. As a result, many of the Brazilian auto suppliers which had been in place since the 1950s were purchased by large multinational parts manufacturers or driven out of business entirely. The only part of the value chain where Brazilian firms maintain a significant presence today is in the lower tier manufacturers, where price competition is common and long-term contracts with assemblers or even other parts companies are rare. In a study of more than 120 auto parts supplier firms in Brazil in 2001, Salerno et al. (2003) found that design activities were not distributed uniformly along the supply chain. These kind of activities are concentrated in the first tier suppliers, which by now are almost entirely multinational. Among these companies, the authors found that most of the significant phases of the design process are carried out abroad.

Fewer than one third of the transnational companies in their sample reported carrying out design activities in Brazil¹⁴⁵. In another study, Quadros (2002) found that even though Brazilian parts suppliers had significantly increased their quality certification rates, this had not led to increased design responsibilities in contracts with multinational firms higher up the production chain¹⁴⁶. Instead, specifications for already designed parts are handed down from multinational parts producers. There is little opportunity for co-design. Quadros points out that this is in marked contrast to the situation in Germany, where small and medium suppliers are often involved in co-design. Most Brazilian auto parts firms are now confined to arms-length market relationships with multinationals higher up the production chain. As for the multinational suppliers themselves, while they do participate in some innovative activities much of this is done outside Brazil in partnership with the flagship assemblers.

These findings were corroborated by interviews with representatives of nine multinational parts producers with substantial Brazilian operations. Most of these sampled firms had recently established operations in Brazil, as part of the wave of new investment in the 1990s. Some of the larger firms interviewed did have local R&D units, and some had even established research relationships with local universities. However, almost all of them claimed that their innovative effort could be more developed, and some respondents cited examples of other countries where R&D units of the same company had been more productive. Three of the nine representatives interviewed were knowledgeable and enthusiastic about the innovation incentives offered by the recent *Lei do Bem*. However, five of the representatives expressed subtle variations of the idea that representatives of state

¹⁴⁵The authors also note that long term contracts with assemblers are much more common among suppliers that are closer to the flagships in the production chain.

¹⁴⁶Suppliers in developing countries face increasing pressure to conform to internationally-recognized quality standards. In the automotive industry, the ISO 9000 certification process is most common.

institutions did not recognize the importance of innovation or did not even know how to incentivize innovation among multinational firms. One respondent summarized this problem succinctly: “the BNDES loans are more for industrial buying; it (the BNDES) is still learning how to deal with intangible things, innovation projects.”

These opinions point to a connection between the characteristics of state institutions and investment promotion policies and patterns of innovation among multinational firms. Particularly in the auto components sector, the internationalization of production in Brazil following liberalization has been accompanied by a downgrading of local innovative activity¹⁴⁷. This is partly due to market forces, the consolidation of production chains, and other factors. However, the link between low local innovative content and the characteristics of Brazilian industrial policy and state institutions is present. Table 4.6 aggregates interview responses from the automotive and IT sectors. On the automotive side, respondents often pointed out the lack of connections between Brazilian universities and firms as an impediment to local innovation. Many respondents indicated that firms and universities operated in isolation from one another, with one even going so far as to say that involvement with the private sector was not considered “prestigious” at many Brazilian universities. Another commonly mentioned difficulty was the lack of coordination between governmental institutions designed to facilitate innovation. Firm representatives complained of conflicting signals from different bodies, and incentives which varied depending on the institution offering them.

¹⁴⁷In a 2002 study of 31 auto parts firms, Quadros found that multinational firms did not regularly assist lower-tier Brazilian-owned suppliers in attaining ISO 9000 quality certification, and that this certification was not particularly useful for attracting business. Quadros (2002, 21) also noted that even in the larger multinational companies, the share of design engineers in total employment was only approximately 3 percent, reflecting “their very limited design activity”.

Some institutions, in particular the BNDES and FINEP, were often singled out by firms as being particularly responsive and agile. Moreover, there was an increasing recognition of the incentives for innovation offered by legislation such as the *Lei do Bem* and the Innovation Law, both of which are increasingly prominent as vehicles of Brazilian industrial policy. One representative of a large multinational auto parts firm suggested that in the past two years he had heard increasing mention of the *Lei do Bem*, and that the management of the Brazilian subsidiary was spending a great deal of time investigating how the firm could qualify for more incentives such as the reduction of the CSLL (social contribution) tax, currently at 9% of taxable profits, for R&D expenditures. Indeed, for this representative the “Bem” had become a kind of buzzword among the management, and had many people discussing its incentives. The BNDES was praised by a number of firm representatives because it offered guaranteed funding lines and its follow-up procedures were thorough without being onerous. The BNDES funding lines for innovation have been expanded in recent years, and based on these interviews it seems likely that large multinational firms are aware of the incentives and eager to take advantage of these credit lines¹⁴⁸. The increasing recognition of these state incentives in the past five years indicates that the more selective industrial policies of the Lula administration are beginning to produce results. However, this should not obscure the fact that for most of the 1990s, Brazil lacked a coherent industrial policy for the automotive industry with a focus on innovation. Incentives for innovation, where they existed, were applied in a relatively ad hoc fashion by various

¹⁴⁸The recent internationalization of the auto parts sector has made BNDES funding especially controversial, as most of the largest parts firms are now multinational and BNDES resources are in part collected from payroll taxes. Salerno et al. (2003) point out that 74% of the automotive components companies financed by the BNDES are first tier companies (almost exclusively foreign owned).

institutions. One representative of a large auto parts producer blamed this on a “lack of habit with innovation” and a continued focus on more tangible goals, such as the trade balance.

At first glance, the wave of new investments in the automotive sector in Brazil in the 1990s would seem to point to a successful investment promotion strategy, based on developmental goals. However, upon closer inspection the strategy pursued by the state suffered from some serious drawbacks. In the automotive sector, the arrival of substantial FDI was not accompanied by significant technological upgrading processes. During the Lula administration, the reinvigoration of industrial policy resulted in a number of laws (specifically the *Lei de Inovação* and the *Lei do Bem*), policy packages (the PITCE in 2004 and PDP in 2008), and institutions (ABDI, CNDI) designed to promote innovation among national and foreign-owned firms. These policies have begun to demonstrate significant results.

Table 4.6 Aggregated interview responses, multinational firms active in the Brazilian IT and automotive sectors

	Most Commonly Mentioned Barriers to Innovation	Most Commonly Mentioned Governmental Barriers to Innovation	Most Commonly Used Governmental Incentives for Innovation Activities	Most Helpful Governmental Institutions for Innovation Activities
Automotive: Flagship Assemblers (4)	<ul style="list-style-type: none"> Limited relationship between private sector and academia (3/4) Lack of English-speaking engineers (2/4) 	<ul style="list-style-type: none"> Lack of coordination among governmental institutions (2/4) Lack of specific area of focus for innovation policies (2/4) 	<ul style="list-style-type: none"> Innovation Law 10.973/2004 (4/4) Limited BNDES credit lines for innovation (2/4) 	<ul style="list-style-type: none"> BNDES (4/4) FINEP (3/4) MDIC (2/4)
Automotive: Parts Manufacturers (9)	<ul style="list-style-type: none"> Limited relationship between private sector and academia (6/9) Qualified labor force (7/9) 	<ul style="list-style-type: none"> Lack of attention to intellectual property (3/9) Lack of coordination among governmental institutions (4/9) Lack of consistent application of regulations (5/9) 	<ul style="list-style-type: none"> BNDES credit lines for innovation (5/9) Lei do Bem 11.196/2005 (4/9) 	<ul style="list-style-type: none"> FAPESP (state of São Paulo) (3/9) BNDES (7/9) FINEP (6/9) Banco do Brasil (3/9)
IT: Flagship IT Firms (9)	<ul style="list-style-type: none"> Innovation incentives focused on tangible products, manufactures (7/9) Lack of infrastructure support (3/9) Difficult to bring in expertise from abroad (4/9) 	<ul style="list-style-type: none"> Complicated nature of tax code, benefits (3/9) Lack of attention to intellectual property (6/9) Lack of incentives for IT services (4/9) Lack of consistent application of regulations (7/9) 	<ul style="list-style-type: none"> Informatics Law 11.077/2004 <i>most recent</i> (8/9) Innovation Law 10.973/2004 (5/9) 	<ul style="list-style-type: none"> FINEP (7/9) BNDES (3/9) MCT (4/9) MDIC (3/9)
IT: Contract Manufacturers (5)	<ul style="list-style-type: none"> Innovation incentives focused on tangible products, manufactures (3/5) Limited relationship between private sector and academia (4/5) 	<ul style="list-style-type: none"> Lack of coordination among governmental institutions (2/5) Lack of consistent application of regulations (3/5) 	<ul style="list-style-type: none"> Informatics Law 11.077/2004 <i>most recent</i> (5/5) Innovation Law 10.973/2004 (2/5) 	<ul style="list-style-type: none"> MDIC (2/5) MCT (4/5) FINEP (3/5)

Source: Author Interviews, 2008-2010.

4.4.3 Innovation in the Brazilian information technology sector

In the search for beneficial spillovers from FDI, developing countries have long looked to the global Information Technology industry as a likely source of developmental benefits. This is quite natural. The IT industry is, by its very nature, innovation-intensive. Multinational IT corporations are at the forefront of technological innovation, both in the developing world and in advanced industrialized countries. Moreover, global IT companies have made significant contributions to the process of industrial change in countries such as Singapore and Ireland. The global IT industry has at least the potential to provide developing countries with sources of high-skilled employment, high-tech skills, foreign exchange, and industry modernization.

At the same time as developing country governments have been pursuing investment from global IT firms, the industry itself has been changing so dramatically and thoroughly that governments have a difficult time keeping up with new developments. IT has expanded into almost every manufacturing subsector – it is now difficult to find even moderately complicated manufactured goods without substantial IT content, from microcomputers in cars to the ever-increasing and complex data interlinkages of the telecommunications industry. As IT becomes more and more interwoven with other sectors, it sometimes seems impossible to distinguish a distinct IT ‘sector’ at all. It is also evident that multinational IT flagship companies have dramatically expanded their operations into more and more competencies. Whereas in the 1980s it was still relatively common to divide ‘IT’ firms into those developing hardware and those developing software, or some combination of the two, nowadays it is often difficult to categorize firms according to old manufacturing categories. IT firms today may be significantly invested in service rather than pure manufacturing,

recruiting clients (often other companies) for activities such as offshore business process outsourcing (BPO), knowledge process outsourcing (KPO), or contact (call) centers for interaction with customers. The lines between IT firms and consultancies begin to blur as global IT flagships expand their range of activities.

Given all of these changes in the IT industry, the role of developing country governments in generating innovation in their IT sector is often quite opaque. Leaders and bureaucrats in developing countries desire cutting-edge IT investments. But it is often difficult to determine where investment can best be exploited. Pessimists assert that the technological frontier is moving further and further away from the reach of developing countries, and that even advanced industrialized countries have difficulties formulating coherent industrial policy for such a rapidly changing sector. For these analysts, innovative IT investment is often seen as an impossibility for developing countries. However, others point out the growing internationalization of R&D in the global IT industry as proof that countries do attract innovative IT investment. While it is true that most R&D activities still take place in developed countries, there is an emerging trend whereby these activities are moved to subsidiaries in the developing world (UNCTAD 2005a)¹⁴⁹. Firms are constantly seeking ways to exploit locational advantages in developing countries, whether these advantages are in cost or in the skill level of workers. We should not expect that IT is immune from these pressures.

As multinational IT firms conduct more of their R&D abroad, integrating more tightly with a whole host of manufacturing and service sectors, developing countries have an

¹⁴⁹Though R&D activities are concentrated in developed countries, the share of global R&D occurring in developing countries is rising (UNCTAD 2005a, 106). However, Latin America's share in global R&D actually shrunk from 1996 to 2002, as countries of East Asia were responsible for most of the increase. Brazil's R&D expenditures actually declined in absolute dollar terms during this interval, the only country to exhibit an absolute decline in UNCTAD's study.

opportunity to recruit highly innovative businesses and perhaps generate an inertial process of industrial upgrading. Here the concept of a global value chain is once again useful. As outlined earlier in this chapter, global value chain analysis conveys information about where firms locate a wide range of activities that go into a product, from initial design to production to after-sales follow up. Links in the value chain are assigned geographically based on a whole host of factors, from host country labor characteristics to firm competitive strategy. The global IT industry is increasingly characterized by fragmentation and de-verticalization. Product design and development is often separate from physical production, which is separate from service. Global IT flagships will often subcontract with smaller firms for each of these activities. A recent study (ECLAC 2007) has noted the increased use of contract manufacturers (CMs) by global flagship IT companies. The largest internationally active companies, such as Dell, HP and IBM, now distribute value chain tasks to CMs such as Foxconn, Jabil, and Elcoteq. These tasks need not be labor-intensive or low value-added. As is the case with auto parts suppliers, CMs may be responsible for developing complex production or service processes. They frequently have R&D units, and the largest are quite active internationally. The global IT industry, therefore, has become quite diversified, not only in the products offered by the flagship IT companies, but also in the productive processes of IT value chains and the division of labor among firms.

In Brazil, policy towards the IT industry changed dramatically in the early 1990s. In the 1970s and 1980s, successive Brazilian administrations protected and financially supported domestic IT producers, allowing them to grow through what Evans (1995) has termed a 'greenhouse' strategy. Linkages between local and foreign firms were not common, and high import tariffs and other quantitative restrictions were favorable to Brazilian

computer companies. In 1991, before liberalization, tariffs on imported computer components were as high as 35% (Botelho et al. 1999, 15). This was the era of the so-called 'market reserve', a set of policies designed to protect and bolster the nascent Brazilian IT sector. A body known as the Special Secretariat for Informatics (SEI) regulated joint ventures with multinational corporations and supervised the transfer of technology between national and foreign firms. Brazil also employed a number of traditional ISI measures to limit foreign penetration, including required government purchasing and import restrictions. The supporters of this policy, a group of technocrats collectively referred to as the *corpo técnico*, were especially effective at using SEI to maintain privileges for domestic producers and resist reform plans, even into the 1990s (Nelson 1995).

As Dedrick et al. (2001) and Tigre and Botelho (2001) note, the market reserve policy had a number of positive and negative effects on Brazil's IT industry. On the positive side, Brazil did develop a significant IT industry by 1990, along with a substantial supply of well-trained computer engineers and technicians. The internationalization that happened after 1990 did place most of the developed segments of the Brazilian IT industry under foreign control. However, as Evans (1995) notes, without the market reserve there would have been no IT sector to take over, nor would there have been the educated workforce or growing IT market to tempt foreign firms to invest. Notwithstanding these qualifications, the market reserve policy also led to significant negative outcomes. The reserve effectively isolated the Brazilian computer industry from the rapidly changing international IT market, and IT products from Brazil were not competitive internationally¹⁵⁰. The reserve raised the costs of computers domestically, prompting a significant gray market, and did not generate

¹⁵⁰Fritsch (1992) notes that restrictions on imports meant that domestic firms had almost no contact with or competition from international IT innovators.

substantial R&D effort among domestic IT firms¹⁵¹. There was an additional problem with smuggling, particularly in the Free Zone of Manaus. The US government threatened Super 301 trade sanctions against Brazil because of this smuggling, and also because of the perception that it was being kept out of a lucrative IT market (Dedrick et al. 2001, 1205). For these and other reasons, the market reserve was abandoned in 1992.

While the elimination of the market reserve did mean greater internationalization for the Brazilian IT industry, it would be a mistake to characterize the post-1992 period as one of full liberalization. As in the case of the auto assemblers, the Brazilian government did institute some selective industrial policies during the period of liberal reform in the 1990s. However, unlike the auto industry the industrial policies adopted during the mid-1990s for the IT industry directly incentivized innovation. The legislation that replaced the market reserve eliminated restrictions on the participation of foreign capital in the IT industry. However, it also established a number of policies designed to encourage local manufacturing and R&D. These incentives included waivers on taxes if firms invested in R&D in Brazil and favorable government procurement policies¹⁵². Many of these policies were developed and expanded by the revisions of the informatics law. After 2004, the *Lei de Inovação* and the *Lei do Bem* expanded support for innovative activities among multinational IT firms operating in Brazil. These incentives included: reduction in the IPI tax (which could amount to 20 percent of value-added), accelerated depreciation and amortization of capital goods,

¹⁵¹Botelho et al. (1999) estimated that in 1997 the gray market was responsible for approximately half of Brazil's 1.2 million unit PC market.

¹⁵²The initial incentives are detailed in Botelho et al. (1999, 10), and included a waiver on the IPI tax, a 50% income tax discount on all R&D expenditures, and procurement policies favoring domestic production. In order to obtain these benefits, firms were obliged to invest at least 5% of a company's revenues from IT products in R&D activities. Firms were also required to have ISO 9000 certification, and invest in joint projects with Brazilian universities or research institutes. Some of these incentives were only available until 1997, but others were strengthened in subsequent legislation.

and a reduction or elimination of income taxes for firms engaged in activities that result in contractual technology transfers or the registry of patents (Zanatta 2006, 130). The Softex program also targeted the IT industry, though its focus was directed more towards expanding the international participation of Brazilian software firms. Softex, active from 1992 on, is detailed in the following chapter as it relates most directly to the trade balance of the IT industry. However, the program did also contain provisions that encouraged interaction between firms and universities in Brazil. Some have faulted the program for a lack of focus on the innovative activities of IT firms (Prochnik 1997), and it was certainly not successful in its export goals.

The process of IT internationalization was thorough in the 1990s. Market liberalization, combined with monetary stability and democratic consolidation, prompted a large influx of multinational IT firms, both global flagships and higher-tier suppliers. Table 4.7 shows some of the largest global IT companies active in Brazil, and their principal activities. While some of these companies have long-standing operations in Brazil, many arrived after the 1992 liberalization. Most of the Brazilian computer companies which had been supported by the market reserve were either absorbed by these multinationals or scaled back their operations to lower tiers of the IT supply chain. As foreign firms entered the market, there is evidence that R&D activities decreased. Evans (1995) chronicles the lack of widespread R&D effort among IT multinationals in Brazil after the liberalization of the early 1990s. Similarly, Tigre and Botelho (2001) argue that global IT flagships substituted imports for local design activities as soon as the internationalization process was underway. Cassiolato and Baptista (1996) argue that R&D teams within local companies were

disbanded after this process of internationalization, as Brazil's specialization in the international division of labor was downgraded.

For the purposes of this study, interviews were conducted with high representatives of fourteen multinational IT firms. While these firms were quite heterogeneous in terms of activities conducted in Brazil, a division can be drawn between nine global flagship IT company interviews and five contract manufacturers. That is, nine of the firms interviewed were large, globally active companies with all the characteristics of flagship firms, also sometimes referred to as original equipment manufacturers (OEMs). Five firms were contract manufacturers for the IT industry, though these firms were also internationally active and were at the higher tiers of the supply chain. Based on these interviews, the general assertion that multinational IT companies do not engage in substantial local innovation is supported. While firms did not divulge exact R&D spending levels, many respondents revealed little R&D effort was taking place in Brazil. This is true for many of the largest multinational IT firms. One large firm representative said that there had been R&D done in Brazil before 2000, but that this effort had been centralized since then. Another respondent noted a token R&D effort had been in place since 1997, but that this unit did little more than offer suggestions for slight modifications of software service packages for Brazilian customers. However, it is important to underscore that many firms did say they were planning to develop local innovation units or had put these in place recently. A number of firms mentioned the changes in the *Lei de Inovação* and *Lei do Bem* initiatives and added incentives for local innovation. In five of nine global flagships, expansion of local IT effort was planned or was underway. In every one of these cases, this expansion happened during or after 2004.

Table 4.7 Notable IT flagship investments in Brazil as of 2005 (not including contract manufacturers)

Firm	Country of Origin	Principal Activities	Service Sales	Software Sales
Accenture	USA	Outsourcing, System Integration	227,619	
Computer Associates	USA	Infrastructure Software		98,368
Diebold Procomp	USA	Outsourcing, BPO	173,998	
EDS	USA	Outsourcing, BPO	500,602	
HP	USA	Infrastructure Software		42,898
IBM Brasil	USA	Infrastructure Software	799,101	273,830
Microsoft	USA	Operating Systems and Applications		519,582
Oracle	USA	Data Management, Back Office		221,048
SAP	Germany	Back Office		122,746
Siemens	Germany	Outsourcing	101,485	
Symantec	USA	Security Software		56,079
Unisys	USA	Outsourcing	248,765	
Xerox	USA	Outsourcing, System Integration	174,185	

Source: Tigre and Marques (2006)

The picture thus painted is not entirely bleak in terms of innovation among IT firms. It is important to recognize that there have been instances of success for Brazilian industrial policy in the IT sector. A study conducted by Fundação Dom Cabral in 1997 demonstrated that innovation incentives did have a marked impact on the investment models of firms. Though this study included domestic and foreign IT firms, it reported that cooperation with university and research centers increased when incentives became available. The study also reported that 95 percent of interviewed firms would consider reducing local R&D activities in the absence of incentives (Botelho et al. 1999). While firms undoubtedly have incentives to answer this question positively, it nonetheless points to a role for innovation incentives. Similarly, De Negri et al. (2006) in a more recent study found that FINEP's relatively small-scale ADTEN program had a positive effect on R&D expenditures of industrial firms, though again this study mixed foreign and domestic companies. An internal study undertaken by the BNDES (Gutierrez 2010) found that the informatics law in 2008 had supported the R&D activities of 23 IT multinationals, according to data provided by the Ministry of Science and Technology (MCT). The period since 2004 has witnessed a slight increase in local innovation. After a period of substantial liberalization and innovation retrenchment in the 1990s, multinational IT firms are committing new resources to R&D in Brazil, as in the rest of the developing world.

To what degree, then, are these innovation patterns related to the policy and institutional framework in Brazil? Here again, interview responses are useful in untangling the effects of industrial policy and the institutions through which these policies are channeled. Table 4.6 aggregates interview responses from nine global IT flagships and five multinational CMs. There were a number of policies institutions commonly mentioned by

firms as being particularly helpful for their innovative efforts. Many respondents mentioned the new innovation law and the recent revisions of the informatics law, and indicated that these policies had had an impact on local innovative activities, or at least made firms consider more local innovation.

The most commonly mentioned governmental institution associated with innovation was FINEP. It is important to underscore the near universal acclaim FINEP enjoyed among IT firms at all levels of the value chain. Firm representatives would often rattle off a list of complaints about the investment environment in Brazil, from comparatively high labor costs to infrastructure bottlenecks, but would reserve praise for FINEP's responsiveness. FINEP primarily works with small to medium enterprises, but also incentivizes innovation among larger multinational firms. There are a number of tools at FINEP's disposal, but two of the most important are: first, a relatively recent program known as *Inova Brasil* which offers a full credit line plus a 10 percent R&D voucher, effectively offering companies the opportunity to repay 90 percent of the credit line if they invest in local R&D and partner with local companies or universities (ANPEI 2009). Secondly, firms may be reimbursed for up to half the salary of an individual hired as a result of a university or research institute partnership¹⁵³. Some of the firms interviewed were aware of these new incentive lines. Many firms singled out FINEP as an institution which managed to convey incentives for innovation in a clear fashion.

Despite these endorsements, both flagship multinationals and first tier suppliers complained about many policy and institutional barriers to innovation in Brazil. A number of the flagship IT firms complained that many of the incentives available were not applicable to their operations. Some representatives said that they would like to take advantage and

¹⁵³Phone interview, Dr. Eduardo Costa, FINEP Director of Innovation, Rio de Janeiro, April 2009

perhaps conduct more local R&D, but that incentives were designed to reward manufacturing. For IT firms that offer IT services such as business process outsourcing or knowledge process outsourcing and not manufactured items like hardware, this can be problematic. Indeed, one firm representative claimed that one branch of the firm had no physical sales, but that the incentives offered incentives based on reported sales. One firm that conducted all of its R&D outside Brazil responded specifically that the incentives offered did not apply to services. Another firm representative had a similar complaint, arguing that the government had not figured out how to incentivize IT services:

This reflects an old mentality of government bureaucracy and political parties where economic results in a society would all come from industry or agriculture. The mentality is slowly changing towards activities like IT.

This focus on manufacturing and sales is somewhat understandable in a rapidly changing global industry like IT. However, there were other complaints. A number of firms responded that the patent protection legal framework was underdeveloped in Brazil. One global flagship responded that it was much more cost-effective to apply for patent protection abroad and then have that patent recognized in Brazil than to go through the Brazilian patent process. Four firms mentioned difficulties in bringing in foreign workers as an impediment to conducting local R&D. When asked whether the firms participated in substantial innovation in cooperation with Brazilian firms or universities, many firms complained about the divide between the private sector and academia¹⁵⁴.

¹⁵⁴This is a barrier to innovative investment which has surfaced in other reports, and affects not only multinationals but Brazilian firms as well. In a study undertaken in July 2008 by the McLaughlin-Rotman Center for Global Health, 16 Brazilian biotech and pharmaceutical firms identified the most important barriers to innovation. According to this study, many firms complained that the interaction between firms and universities is weak, and that universities “only train professors, not researchers for business” (Sennes 2009, 28).

It is certainly possible that some of these firm responses are justifications for a low R&D presence, and some may be without merit. However, it also seems clear that a part of a firm's decision about whether or not to commit resources to innovation in Brazil is driven by the policy and institutional environment. Moreover, while IT firms largely shy away from innovative activity in Brazil, there are isolated examples of local R&D and these efforts are increasing in number and intensity. Where interviewed firms did commit resources to R&D, some noted that incentives were influential in their decisions. A representative of a large multinational contract manufacturer active in Manaus stated that the local R&D activities present there would not have taken place without the incentives of the informatics law. Similarly, a large global IT flagship stated that federal incentives since 2004 jump-started a project which resulted in significant local R&D spending. In recent years, there are a number of examples of large IT firms, such as HP, Dell, Siemens, and Ericsson, which have established research centers in Brazil. Queiroz et al. (2003, 15) point out that Ericsson's R&D lab in Indaiatuba, the only one of its kind in Latin America, is now being used to create globally applicable software programs. This lab directly benefits from the fiscal incentives of the informatics law. SAP has recently constructed one of its SAP labs in Brazil, a state of the art facility that offers a whole range of innovation-intensive business services to domestic and international clients. Motorola in 2004 invested US\$20 million in a cellular software development facility in Jaguariúna, and this investment benefited directly from the incentives of the informatics law¹⁵⁵. Therefore, while the general picture is one of limited innovation there are isolated instances of new R&D investments.

¹⁵⁵ According to Brazilian media at the time of investment, Motorola reduced its IPI (value-added on industrial products) tax from 15% to 3% through the informatics law, which required at least 4% of revenues be spent on domestic R&D (Moreira 2004).

In sum, the IT industry in Brazil, while a priority industry for extracting innovative spillovers, demonstrates low but rising levels of innovation. While it is certainly true that powerful industry and market forces have played a role in redefining global IT value chains, there has been a role for policy as well. In Brazil, the end of the market reserve in the early 1990s allowed a significant influx of foreign capital. Most Brazilian IT firms were bought by multinational firms, and innovative activities were downgraded. However, in contrast to the automotive sector there were some incentives for innovation retained even during the liberal reform period of the mid-1990s. These incentives were strengthened during the first Lula administration, and others were added. This has influenced a revival in local innovation, especially in the last five years. Whether this pattern is maintained remains to be seen, but new industrial policies such as the PDP have made IT investment a priority.

Nevertheless, significant policy and institutional challenges remain. As revealed in interviews with firms, many of the existing innovation incentives for the IT industry are based on antiquated notions of physical manufacturing or sales, which may not be applicable in an industry increasingly based on services¹⁵⁶. The increasing competition for R&D among developing countries means that Brazilian institutions must put forth a coordinated effort if they hope to influence value chain decisions of firms. A number of firms noted the stark contrast in institutional readiness between Brazil and other BRIC countries like China. In China, as one recent multinational IT entrant put it, government institutions “parted the Red Sea” to make the initial investment easier. In Brazil, this same firm was met with a “raging river to swim across” before its investment process was complete.

¹⁵⁶Evans (1995) notes that the excessive focus on computer hardware after the end of the market reserve made software development less of a priority, suggesting that this problem dates at least to the early 1990s.

Dedrick et al. (2001, 1206), in their analysis of the liberalization of the IT sector in Brazil and Mexico, suggest that Brazil retained a few industrial policies to promote the IT industry not out of a specific plan to develop this sector, but rather in an *ad hoc* fashion “with no guiding long term goals or coordination mechanisms to link production, use and creation of national capabilities”. Based on the general patterns of FDI policy since 1990, this is not difficult to believe. IT policy in Brazil has managed to coax some local innovation out of multinational IT firms since 1990, and especially in the last five years with the advent of the PITCE, PDP and attendant laws. However, Brazil has not consistently engaged in an active, discriminating approach to the IT investment since the dismantling of the market reserve. While multinationals in the Brazilian IT sector display some innovative characteristics, the opening of the sector in the 1990s may be largely interpreted as a missed opportunity for innovative spillovers.

4.5 Innovation, Policies, and Institutions in Brazil

Having considered the development of the automotive industry and the IT industry in Brazil since 1990, it is easy to identify some common experiences and trends. In both sectors of the Brazilian economy, the economic liberalization of the 1990s brought about substantial internationalization of existing companies and a great deal of new FDI. Successive Brazilian administrations dismantled many of the old ISI tools, and the macroeconomic and democratic stability no doubt enhanced the attractiveness of Brazil for foreign investors. In both sectors, Brazilian-owned companies were either bought or transformed into lower-tier suppliers. This is especially true in the auto parts industry and in the experience of Brazilian computer manufacturers since the end of the market reserve. Changes brought about by domestic political developments were augmented by the rapidly changing nature of the industries

themselves. The advent of modular production and follow sourcing in the auto industry is a continuing trend, as is the growing diversification and complexity of the global IT industry.

This chapter makes the claim that in addition to these other factors, policies and institutions matter for the models of investment pursued by multinational enterprises. The links between state action and the innovative activities of firms are not deterministic, but they are nonetheless influential. While acknowledging the broad forces acting on firms in both sectors and the dominant trends of the past two decades, this chapter has also identified subtle differences between the automotive and IT sectors. In the automotive sector, policies designed to promote innovation were largely absent from investment-generating initiatives such as the automotive regime. The RA was illiberal, yet it ignored innovation as an industrial policy priority. While a select number of global flagship manufacturers have established R&D centers in Brazil, they have done so largely due to global competitive pressures and internal firm strategy, not in response to incentives or institutional efficacy. In the auto parts industry, the internationalization of the 1990s was met with a significant downgrading of local innovation, as multinationals replaced Brazilian firms and often centralized their innovative activities. Efforts to incentivize innovation among multinationals reappeared after 2004 in new laws and new industrial policies, and these have had some positive effects. Interview responses indicated a growing awareness among firms of the possibilities offered by these laws.

In the IT sector, the opening of the Brazilian market in the 1990s offered substantial opportunities for foreign firms. Yet the policies implemented by the Brazilian government were somewhat more targeted and discriminating than in the automotive sector. The informatics law did incentivize innovation, and remained in place through the more or less

orthodox reform period of the mid-1990s. These incentives were recognized by IT firms with established presence in Brazil, and by new arrivals. Despite this approach, the innovative efforts of multinational IT firms in Brazil were not impressive and remained low in comparison to other developing countries. This is the case despite a large supply of highly-skilled and educated IT workers, another legacy of the market reserve. In recent years, there are examples of flagship IT companies with new research parks and growing innovation networks in Brazil. Almost all of these firms take advantage of new innovation incentives offered by the *Lei do Bem*, and some have long used the incentives of the informatics law. However, the sector has not been the source of technological upgrading hoped for in the early 1990s. While the last five years have witnessed substantial innovation activities, the overall record since liberalization is disappointing.

As new developments in global value chain analysis have shown, multinational firms are adopting ever more complex production networks, with a wide variety of governance models. The location of specific activities like R&D within these production networks depends on many factors, but developing countries all over the world are increasingly recognized as potential locations for innovation. As innovation clusters pop up in places like Bangalore and San Jose, it is important to consider how countries can best leverage their comparative advantages into inertial processes of technological upgrading and local spillovers. In Brazil's case, the experience of the IT and automotive sectors, as well as economy-wide patterns, suggest that there is much unrealized potential.

As noted in other chapters, Brazilian administrations in the 1990s adopted a largely passive and indirect approach to FDI since democratization. The somewhat isolated attempts to incentivize innovation, even when strongly supported as in the case of the informatics law,

were undercut by the characteristics of Brazilian institutions. To some degree, this is still the case today. A newspaper article in the *Folha de São Paulo* in 2007 lamented the continued lack of a central investment promotion organ, integrated with the newly ambitious industrial policies and able to coordinate various agencies¹⁵⁷. The ambitious industrial policy initiatives since 2004 have run into a number of institutional roadblocks. The PITCE and PDP have been more specific about innovation incentives, and the Innovation Law and *Lei do Bem* have been popular and are praised for turning the focus toward innovation and demonstrating results. However, these policy changes take place in an institutional environment which presents numerous challenges to effective implementation. Chief among these are: the lack of consistency among various investment promotion bodies, a lack of inter-institutional coordination, the lack of state-firm networks, and perhaps we can add in the specific context of innovation a demonstrated focus on manufactures as opposed to intangible goods. To be sure, there are isolated examples of institutional efficiency, and the increasing successes of bodies like BNDES and FINEP are well known. These ‘pockets of efficiency’ have managed to incentivize innovation in select sectors in a consistent fashion. The remainder of the institutional framework makes it difficult to implement an ambitious innovation agenda like that contained in the PDP. In Brazil’s case, a recent policy focus on innovation and a new set of industrial policies have generated some significant achievements. These successes demonstrate that state policies and institutions do matter for paths of technological upgrading, and that market mechanisms may be insufficient to generate the kind of technological spillovers prioritized by developing countries. Innovation, and the possibility of upgrading it brings with it, is partly a product of firm priorities interacting with and being changed by host country priorities.

¹⁵⁷The article also pointed out the lack of “active” strategy to attract investment (Barros 2007).

Chapter 5

Export-Oriented Investment: Global Integration and Domestic Institutions

5.1 Introduction

Multinational production is transforming global trade patterns. Multinational firms increasingly turn to developing countries as sources of productive efficiencies, and integrate these countries into their global production networks. According to the UN Conference on Trade and Development, developing countries absorbed half of all FDI flows in 2009. Much of this FDI is efficiency-oriented. The exports of foreign affiliates of multinational firms grew 14.8 percent from 2001 to 2005 (UNCTAD 2010). In Latin America, FDI has in the past been predominantly natural resource-seeking and market-seeking as opposed to efficiency-seeking. However, in countries like Costa Rica and Mexico firms have developed extensive export operations in the last twenty years. These countries have often employed strategies to attract multinational firms interested in exporting to third markets, and have reduced barriers to intrafirm trade. For its part, Brazil has also realized some efficiency-seeking investment. The establishment of Mercosul generated strong incentives for multinational firms to integrate production networks in the context of that common market. Moreover, the increasingly complex production processes of global value chains have contributed to growing trade from multinationals operating in Brazil. Fritsch and Franco (1991) estimated that multinationals were responsible for 38 percent of Brazil's manufactured exports in 1980; by 1990 that figure had increased to 44 percent. According to

the two censuses conducted by the Brazilian central bank in 1995 and 2000, exports from firms with foreign participation were 46.8 and 60.4 percent of Brazil's total exports, respectively. Intrafirm exports grew as well, responsible for 19.5 percent of Brazil's exports in 1995 and 38.2 percent in 2000 (Corrêa de Lacerda 2003, 190). Intrafirm trade accounts for an increasing share of multinational firms' exports¹⁵⁸.

Despite these increases, however, most FDI in Brazil (both incoming and already established) continues to be oriented toward the domestic market. This is understandable given the country's size and growing consumer class. However, unlike other large emerging countries such as China and India, Brazil has not exhibited extensive exports from multinational firms in manufacturing and services. There are some exceptions to this pattern. In the automotive industry, Mercosul has prompted both assemblers and multinational auto parts firms to develop extensive linkages among their Brazilian and Argentinian subsidiaries, prompting a large increase in intrafirm trade. However, the automotive industry is one of a handful where exports can be consistently linked to the operations of multinational firms. IT exports from multinationals in Brazil are low, notwithstanding the efforts of various administrations to establish a software export base in Brazil. Overall efforts to diversify Brazil's export base beyond primary products and a select few manufacturing sectors have achieved mixed results. The dominant rationale for multinationals to establish Brazilian operations continues to be to sell to the Brazilian population.

There is nothing intrinsically wrong with market-seeking FDI. However, it usually ranks below efficiency-seeking and especially innovative FDI as a form of investment likely to lead to developmental spillovers in the host economy. Bodies such as ECLAC have long

¹⁵⁸Intrafirm exports as a percentage of all imports and exports of multinational firms in Brazil grew from 41.7 percent in 1995 to 58.8 percent in 2000 (Corrêa de Lacerda 2003).

championed innovation- and export-intensive FDI as more desirable forms of investment. Some developing country governments and their investment promotion agencies have adopted this perspective, and increasingly target these other forms of investment. Why then, given these FDI hierarchies, has Brazil failed to insert itself more forcefully into international production networks? This chapter contends that the policy and institutional environment in Brazil bears part of the responsibility. While there are numerous influences on firms' global trade patterns, I contend in this chapter that host country institutions and policies have a not-insignificant impact. The institutional and policy environment in Brazil has not been conducive to widespread insertion in global value chains.

As noted in previous chapters, the passive, non-discriminating approach to FDI is changing. During the Lula administration, Brazil adopted increasingly specific industrial policies designed to increase innovation and global insertion. Multinational firms in Brazil have responded to these incentives, though they remain a work in progress. There are now isolated examples of relatively innovation-intensive export growth linked to FDI. In the cell phone industry in Brazil, the innovation and export-incentivizing industrial policies, channeled through institutions like the BNDES, have begun to bear fruit. However, broader insertion into global markets is not yet evident beyond these few examples. Brazil's recent export booms have largely been driven by primary products. Importantly, domestic political institutions have diluted the effectiveness of some of the more ambitious industrial policies of the Lula administration. The change in approach to FDI since 2004 may move Brazil towards spillover-rich investment profiles. However, this process is slow.

This chapter proceeds as follows. I first outline the potential benefits of hosting multinational firms engaged in export activities, while acknowledging the ways in which

these kinds of benefits can be diluted by other attributes of efficiency-seeking FDI. I then briefly outline the types of policies employed by developing countries seeking to attract efficiency-oriented FDI. Section 5.2 examines the established determinants of multinational exports, and proposes theoretic linkages between institutional settings in developing countries and the international activities of multinational firms. The next section briefly examines the history of export-promotion policies in Brazil, focusing on the period after 1990 and in particular on how export promotion policies have applied to multinationals. Section 5.4 considers the commercial balance in the IT and automotive industries. I pay special attention to the role of Mercosul as an example of indirect investment promotion policy in the automotive industry. I also examine the role of the Manaus Free Zone in the Brazilian IT industry, and the Softex software export promotion program of the 1990s. Finally, section 5.5 concludes with a synthesis of the two sectors and a brief examination of the innovative intensity of multinational exports from Brazil.

5.1.1 Benefits and drawbacks of efficiency-oriented FDI

Export-oriented FDI is viewed as advantageous for developing countries for a variety of reasons. First and perhaps foremost, this kind of investment is supposed to increase the competitiveness of a country's exports in world markets. When a multinational firm and its domestic partners are exposed to international competition, the discipline of the international market should force firms to develop new skills and products in order to survive. Increased competitiveness generates more foreign exchange for the host country, which can then be transformed into needed imports. Export-oriented multinationals may lead developing countries away from dependence on primary products and toward a diversified manufacturing base. Large export-capable multinational enterprises may enjoy economies of

scale, leading to more efficient use of resources. Export-oriented multinationals may engage in a consistent process of technological upgrading as they move from lower value-added activities to more complex and potentially innovative activities in order to compete. For all these reasons, developing country governments have often established special incentives to encourage multinationals to use their countries' sources of efficiency to enter and compete in international markets. This is especially important for developing countries where a lack of resources prevent indigenous development of export-oriented industries. In industries where startup costs are high or the technological frontier is distant, FDI may represent the only means through which developing countries can enter competitive international markets.

These incentives partly explain why competition for efficiency-seeking FDI is so fierce. However, there are many ways in which this kind of FDI may fail to generate the hoped-for developmental benefits. First, export-oriented FDI does not necessarily carry with it a high value-added component. Many export operations of multinationals in developing countries amount to little more than 'screwdriver' operations, where firms take advantage of low wage environments to assemble and export products. In this case, the potential for extensive developmental spillovers from the investment is low. Some analyses have characterized this situation as generating a "low-value-added trap", where emphasis is placed on wage rates and other static advantages (ECLAC 2004, 102). Many argue that multinational investments in Latin America have generated exactly this type of dynamic, despite the hopes of host governments¹⁵⁹.

¹⁵⁹Sklair (1993) applies this argument to the *maquilas* in Mexico, claiming that because the majority of inputs are imported, these factories do not stimulate development. However, subsequent analyses have argued that *maquilas* display greater diversity, and some have moved on to more complex production models with more value-added (Gereffi 1996).

Secondly, export-oriented multinationals may not establish backward linkages with domestic firms. They may instead function as isolated entities, enjoying the export incentives and labor efficiencies of the host country without contributing much to competitiveness. While isolated multinationals who export extensively may generate a great deal of foreign exchange, they do not present as many developmental spillovers as those firms which are tightly integrated into both international markets and domestic supplier networks.

Finally, the benefits of multinational exports can be offset by the imports of those same multinational firms. Imported inputs often increase substantially as a multinational expands its operations and develops its global value chain. Therefore, net foreign exchange earnings can drop even if the firm is export-intensive. I examine the commercial balance of foreign firms in Brazil in this chapter, while acknowledging the limitations of the data in this regard. The results indicate that many multinational firms in Brazil are import-intensive, despite the recent growth in exports. In many cases in Brazil, the substantial growth of imports in multinational-dominated industries stands in sharp contrast to the investment models pursued by multinationals in countries like China.

5.1.2 Policies used to promote efficiency-oriented FDI

The potential benefits of export-oriented FDI are often sufficient to risk the costs outlined here. Developing countries have therefore adopted a series of policy mechanisms to attract these kinds of investments, and encourage exports among firms already in country. Though these instruments have often been unsuccessful, they represent a set of tools commonly employed by governments. I outline a typology of possible policy categories here, all of which have been utilized by Brazilian administrations at one point or another.

After a general categorization of policy options, I describe the particular strategies pursued by Brazil in section 5.3.

Policy measures to promote exports from multinational firms can generally be divided into four categories. First, there are trade agreements concluded by the host countries. These agreements, such as Mercosul, allow multinationals to access third countries or regional blocs which would be inaccessible on the same terms from the multinational's home country. These agreements can be quite influential for firms' decision-making processes. Much of the current export-oriented FDI in Brazil is directed towards the Mercosul market. Firms take advantage of the lack of internal tariffs to make regional production more efficient or simply sell their products in other regional markets. The second category of policy is general (not region-specific) trade liberalization and facilitation. Intrafirm trade, and the costs thereof, is an important consideration for large multinational firms. Developing countries often grant special exemptions on tariffs for multinationals with the aim of increasing exports. Duty drawback schemes, which refund part or all of the duties on imported inputs upon proof of re-export, are often used by governments to reduce the costs of multinational production. Similarly, tariff exemptions for specific firms may be put in place. Countries may also attempt to eliminate onerous documentation requirements for international trade, or delays in customs. The third category of policy is export financing. Instead of facilitating trade by drawing down tariffs, a country may choose to provide grants or loans to exporting firms. These incentives can be targeted at specific industries or can be general in nature. While WTO rulings have limited the scope of export financing and since 2003 prohibited the use of export requirements, other kinds of incentives are still popular among developed and developing countries.

The final category of policy available to a developing country government is the export processing zone (EPZ). These zones are a popular option among governments specifically seeking to attract already export-oriented FDI. These zones come in a variety of forms, but share an emphasis on manufacturing exports under liberal trading conditions and often decreased regulation (UNCTAD 2002, 214). EPZs are typically created by developing countries in the hopes that they will attract a great deal of foreign-exchange generating investment, and perhaps some industrial upgrading. It is difficult to generalize about the success of this policy instrument. Some countries, such as China, have created special economic zones that have exhibited near continuous industrial upgrading and export growth. Other countries' EPZs have devolved into assembly operations with very few linkages to the domestic economy or firms of the host country. Nevertheless, EPZs continue to be one of the most commonly employed policy tools to attract export-oriented multinationals. In Brazil's case, the free zone of Manaus has returned a mixed bag of results from resident multinational firms.

5.2 The Determinants of Export Orientation among Multinational Firms

While this study argues that host country policies and institutions can and do have an effect on the export behavior of multinational firms, it is important to emphasize the wide variety of factors that can substantially alter export patterns of multinationals in developing countries. Even more so than local innovative activities, multinational export patterns can be decisively influenced by such diverse factors such as exchange rate movements or international economic crises. The level of the exchange rate, in particular, can be a decisive influence on multinational exports. An overvalued currency, for example, may be a counterweight to any policy or institutional factors favorable to exports. Therefore, while the

impact of host country policies and institutions can be substantial, their influence may be greatly compounded or overcome by these other determinants.

Bearing this qualification in mind, researchers have nonetheless attempted to establish connections between economic and political variables in host countries and export patterns of multinational firms. Economists have sought to integrate explanations of export patterns among multinationals into existing theories of foreign direct investment. John Dunning's (1980) influential 'eclectic' framework outlining the incentives for overseas production claimed that firms were motivated to establish international production because of differences in organizational patterns, and because of location and internalization advantages. Organizational advantages refer to firms' control over products or processes that other firms do not have access to, such as patents or trademarks. Analysts of FDI in the developing world have often gravitated to questions surrounding locational advantages, as these are easily evaluated in cross-national studies. There have been some attempts to pair specific locational advantages with exports of multinational firms. Earlier large-n studies of (usually US) multinationals in the developing world claimed that export-oriented investments are heavily influenced by labor costs (Nakani 1979; Reuber et al. 1973)¹⁶⁰. Wage costs are more influential for export-intensive investments than for those prioritizing domestic sales or natural resources. Kumar (1994), in an analysis of US benchmark surveys of foreign investment, affirms the advantages enjoyed by countries with a pool of low-cost labor. However, he adds that countries with already established infrastructure and 'domestic capability' enjoy added advantages in attracting export-oriented US FDI. There is a significant body of literature on other factors which may attract efficiency-oriented FDI.

¹⁶⁰For a good overview of the economic literature on the determinants of FDI in the developing world (both exporting and non-exporting), see Caves (1996), chapter nine.

Some studies have examined the role of tax competition in attracting different kinds of FDI (Mutti 2003). In other studies, knowledge-intensity measures have been significant predictors of intrafirm trade within US multinationals (Cho 1990)¹⁶¹.

5.2.1 Global value chains and firm exports

Beyond the locational advantages outlined by Dunning, firms are also induced to establish production abroad by organizational and internalization advantages. These advantages have less to do with the characteristics of the host country and more to do with the characteristics of the firm itself. For example, if a firm has concerns about the protection of intangible assets, it may opt for a tightly controlled and directly owned production network, which would presumably increase intrafirm trade as inputs are shipped from the multinational's home country. Another firm with fewer concerns over intangible assets may opt for a contract with a local supplier in a developing country, which may in turn decrease inputs from abroad. The model of production a firm chooses is influenced by a variety of factors internal to the firm, but can have profound implications for its commercial balance.

As the complexity of international production networks has increased, so too have the analytic typologies for interpreting these networks. A simple distinction is between horizontal and vertical models of investment. At first glance, the vertical model of production would seem to offer the greatest chances of increasing exports and global competitiveness. However, the relationship is not so straightforward. Though horizontal investments are often designed to produce goods and services for sale on the local market, they can also produce goods that are then exported to third markets, as is often the case in regional trade blocs. Moreover, vertical models of investment are not guarantees of a

¹⁶¹See Navaretti and Venables (2004, ch.2) for a recent discussion of theory and empirical findings on international production within the field of economics, including perspectives on vertical vs. horizontal production.

positive trade balance. A vertically-integrated plant location in a developing country may serve as little more than an assembly operation, with a great deal of imported inputs and little value-added. In order to accommodate the diverse models of production pursued by firms and to understand how trade has evolved alongside these new forms of production, the global value chain perspective is once again useful. According to Gereffi et al. (2005), there are five ideal types of value chain governance, ranging from market transactions characterized by arms' length relationships between assemblers and suppliers to hierarchies, where different stages in the production chain are absorbed within and controlled by a single corporate structure. Extensive trade networks are possible in all of these governance structures. In market-driven value chains, coordination by the multinational is less evident and suppliers compete on price, but large amounts of trade can persist. However, the products traded tend to be less complex. In modular and relational value chains, highly competent suppliers provide often complex production processes to flagship firms. In hierarchical models of value chain governance, trade between units of the value chain happens as intrafirm trade, as the units are part of the same corporate structure. The rise in intrafirm trade as a proportion of total trade in many developing countries may indicate a greater reliance on hierarchical models among multinationals. However, other forms of trade, particularly trade from multinational, modular suppliers to flagship companies, are on the rise as well.

The different models of value chain organization do have important implications for the nature of trade from multinational corporations. While all forms are possibly trade-intensive, it is less likely that market-based transactions between multinational firms and suppliers will result in trade that involves increasing backward linkages for supplier firms.

Because price competition is paramount, exports produced by market-based value chains tend to offer few possibilities for upgrading. Hierarchically-organized chains may offer possibilities for export competitiveness. However, their hierarchical nature may allow for fewer spillovers or even connections with local firms, as subsidiaries are tightly controlled. Perhaps the best hope for a combination of high export intensity and the benefits thereof comes from modular patterns of firm organization, where suppliers operate independently and engage in more complex transactions with other multinationals. Humphrey and Schmitz (2000) have suggested that export-based upgrading is less likely in hierarchically-organized multinationals, and more so in horizontally organized value chains.

To sum up, the benefits of export-intensive investment will depend on the model of value chain governance in addition to other factors outlined in this chapter. In general, firms have been hypothesized to desire greater control over globally integrated production models, particularly if those products have a high technological content or intangible qualities (Gatignon and Anderson 1988). However, the increase in FDI-linked trade in Latin America does not necessarily indicate an efficient trade promotion policy or increased spillovers. The purpose of this section has been to demonstrate that microeconomic factors, including firm production models, have important effects on multinational trade patterns.

5.2.2 The impact of policies and institutions on FDI-linked exports

The preceding section argues that participation in a global value chain is not, in and of itself, enough to derive export benefits from FDI. So what does increase the likelihood of spillovers from efficiency-oriented FDI? Among the various determinants of the export behavior of firms, both those already in country and those considering investment, the policy and institutional environment in host countries should also be influential. This goes beyond

policies designed to ensure macroeconomic stability, and includes targeted export promotion policies. While policies and institutions are not always sufficient to generate spillovers from efficiency-oriented FDI, they can have a substantial impact.

Much inward FDI in Latin America during the ISI period was tariff-hopping FDI. That is, companies responded to trade-prohibiting tariffs and other non-tariff barriers by setting up productive facilities in Latin American countries¹⁶². This satisfied the industrial diversification goals of ISI-promoting governments in the region while also making firms happy, as they often had privileged access to growing markets. In Latin America's largest economies, FDI remained largely-market seeking throughout the ISI period. Latin American governments, with a few exceptions, did not encourage multinationals to use their territories as export platforms until later in the ISI period¹⁶³. This added to stresses on the balance of payments, as firms imported capital goods and other inputs while ignoring exports. The liberalization process of the 1980s and 1990s did lead to increases in efficiency-seeking FDI, especially in the countries of the Caribbean Basin and Mexico. However, in other countries such the movement away from market-seeking FDI did not occur as hoped. In Brazil, most of the investments after 1994 were market-oriented. Mercosul generated some export-oriented FDI as multinationals sought export platforms for the regional market. However, the levels of efficiency-seeking FDI were below what was expected. Even the largest privatizations of the 1990s, such as that of the telecommunications firm Telebrás, were largely in services for the domestic market.

¹⁶²Biglaiser and DeRouen (2006) point out that in larger countries such as Brazil, firms invested directly in order to avoid high tariffs, encouraged as well by the potential to reap benefits in a protected market. However, the authors find that on balance lower tariffs are associated with greater FDI inflows, particularly for export-oriented investors.

¹⁶³As Gereffi and Wyman (1990) note, Latin America did not adopt diversified export promotion until the 1970s, whereas countries in East Asia had prioritized exports in the 1960s.

Why then did liberalization fail to generate large amounts of export-oriented FDI? A possible explanation lies in trade theories based on factor endowments. Factor-based theories on the effects of openness divide societies among land, labor, and capital. The Stolper-Samuelson theorem argues that freer trade will lead to increasing incomes for locally abundant factors, while the Heckscher-Ohlin theorem holds that this will lead to specialization and export in goods that use those factors intensively. These models are most commonly used to explain international trade patterns, but they have some applicability for FDI as well. Indeed, efficiency-seeking investment is predicated on the notion that cost efficiencies can be had where specific inputs (labor, for example) are abundant and perhaps inexpensive. The FDI pattern that resulted in Brazil, however, combined some labor intensity with little export production among multinationals. Indeed, the main effect of liberalization of FDI flows has been an entrenchment of market-seeking models with moderately higher local labor intensity compared to what might have been possible with trade.

There are various explanations as to why this is the case. First, Dunning's OLI framework outlines the ways in which multinational firms have different motivating factors than firms engaged in simple trade. Multinationals often have incentives to keep innovations or intangible assets under company control. Market access, or selling a proprietary good in an emerging market, may be more important than export possibilities. Along these lines, I have already mentioned the wide variety of multinational production motivations and sectoral distinctions. Multinational flagship IT firms, for example, are capital rather than labor intensive, and therefore the Heckscher-Ohlin logic would not predict export from relatively capital-poor developing countries.

Another possible explanation for the lack of efficiency-oriented investment concerns international wage competition. According to this explanation, where labor costs are the primary consideration for export-oriented firms a 'race to the bottom' develops. Countries engage in a competition to attract export-oriented FDI by maintaining low wages or perhaps cutting back on unionization or other labor rights, which tend to increase wage levels (Flanagan 2006). By this interpretation, Latin America's lack of export-oriented FDI is a result of its losing investment to lower-cost locations in East Asia. This is a somewhat plausible explanation, though again the tremendous heterogeneity of FDI must be emphasized. It is not the case that all efficiency-oriented FDI targets low-wage environments. In many sectors, the availability of well-educated and well-compensated workers may be a source of efficiency. While it is certainly true that countries like Brazil display comparatively high wage rates among middle income countries, there are other sources of potential efficiencies, such as the abundant supply of engineers and other high-skill workers. Moreover, Brazil enjoys additional cost advantages, such as proximity to North American and European markets that East Asian countries do not. While relative labor costs are important, it seems unlikely that the lack of export-oriented FDI in Brazil is solely due to wage competition.

I argue here that a third explanation is more convincing. As elsewhere in Latin America, the attributes of domestic institutions in Brazil have made it very difficult for the state to efficiently exert leverage on already present multinationals and press for integration into global value chains. By the same token, the same institutional characteristics make the attraction of new export-oriented FDI unlikely. The instability of the 'rules of the game' in Latin America makes it less likely that multinational firms will pursue tight integration into

complex global production networks. Multinational firms considering countries as export platforms must consider institutional characteristics to a greater degree than those firms considering pure market-seeking strategies. Increases in intrafirm trade signal the growing integration of global value chains, and that FDI is an essential part of efficiency-seeking strategies for firms. Disruptions to complex value chains can cause serious problems. Efficiency-oriented investments must also deal with institutions when paying duties or engaging with regional trade blocs. Efficiency-oriented investments, by virtue of their complexity, are more seriously impacted by host country institutions than other forms of investment. Consistent implementation of policies by well-functioning institutions should mitigate these risks for firms.

Despite its size and pervasiveness, the Brazilian state displayed signs of institutional fragility since the 1990s. This lack of effective capacity was exacerbated by the debt crises of the 1980s and subsequent neoliberal reform period. There are institutional exceptions to this pattern. The BNDES has been especially effective at incentivizing exports from multinational firms, and has been instrumental in the export success stories since 2004. However, in Brazil's case we must acknowledge the role of domestic institutions in the largely market-oriented investment profiles of multinational firms. Coupled with institutional weaknesses, the characteristics of investment promotion policy since the 1980s have reinforced the market-seeking model of FDI in Brazil.

The significant investments achieved since 1990 have not generated substantial positive trade balances among multinational firms in Brazil. According to a 2004 study of 218 large multinational and Brazilian-owned firms undertaken by the *Instituto de Estudos para o Desenvolvimento Industrial* (IEDI), multinational firms displayed a lower propensity

to export (17.4% in 2003) than large national firms (24%), though exports were growing in both categories. Moreover, while multinationals' exports were concentrated in medium to high technology-intensive sectors, these exports were more than offset by imported inputs, creating large trade deficits. Nationally-owned firms, dominant in commodities and low technology-intensive sectors, demonstrated consistent positive trade balances from 2000 to 2003 (IEDI 2004).

It might be tempting to draw the conclusion that efficiency-oriented firms are simply not interested in using Brazil as an export platform, and that the country simply 'took what it could get'. However, there are examples of other countries which have successfully employed discriminating policy, channeled through sound institutions, to discriminate among interested firms. As a representative case drawn from the East Asian success stories, consider the situation of Taiwan in the 1970s. While Taiwan is small and now quite open, in the 1970s it displayed characteristics not unlike other developing countries. As Wade (1990, 149) points out, foreign investment as a source of capital accounted for only 3 to 10 percent of domestic capital formation in the 1970s, which was in line with Brazil and Mexico. Only 20 to 25 percent of manufacturing exports came from foreign firms in the 1970s. Taiwan developed a number of investment incentives during that decade, including tax holidays, accelerated depreciation for capital goods, and guarantees against expropriation. More importantly, Taiwan became increasingly discriminating about what kind of foreign investment was allowed in over the course of the 1970s. While it is true that Taiwan's limited domestic market prompted many proposals for export-oriented FDI, almost all investments were met with strict export requirements and/or local content requirements. The export requirements were consistent, and as Wade (1990, 152) points out, remained in place

even during the 1980s, when foreign exchange surpluses were quite large. The 1960 “Statute for the Encouragement of Investment” provided, along with other incentives, income tax exemption on two percent of export profits and business/commodity tax exemptions on exports (Riedel 1975). In 1966, the first export processing zone in Taiwan was established, which eliminated all quantitative import and export restrictions. In 1973, labor-intensive industries such as textiles were excluded from the EPZs altogether, as the government placed more emphasis on capital and skill-intensive industry (Riedel 1975). In 1983, policymakers even contemplated a blanket requirement that foreign investors should be required to export no less than 50 percent of their production. Individual firms were often confronted with these demands. While some multinationals walked away from negotiations, others decided investment in Taiwan was worth the concessions. The tough bargaining between the government and firms continued into the 1990s, as Taiwan sought to extract concessions from firms regarding local content and export operations (Amsden and Chu 2003).

While export requirements and other tools used by Taiwan in the 1970s are no longer available to developing countries because of the WTO’s Trade Related Investment Measures agreements, the priority placed on export-oriented investment presents a contrast with Brazilian policy and practices. Taiwan managed to condition its incoming FDI to suit developmental objectives, in many cases over the objections of firms. It was aided in this effort by a set of effective governmental institutions, including the Council for Economic Planning and Development (CEPD) and especially the Industrial Development Bureau (IDB). The IDB was the key agency for investment policy in Taiwan, also responsible for trade and industrial policy. Wade (1990) notes that Taiwanese institutions displayed a number of “organizational advantages” which led to efficient economic governance,

including the centralization of industrial policy within these institutions (which helps coherence and coordination), a centralized approach to FDI screening, a core of well-trained and stable bureaucrats, and hierarchical organizations with clearly defined responsibilities. The active, discriminating policies employed by the Taiwanese government, as well as the institutional framework for investment promotion, have had undeniable effects on the composition of FDI.

5.3 Brazilian Export Promotion Policies and Institutions, 1990-2010

The election of Fernando Collor in 1989 ushered in dramatic changes in export promotion policies in Brazil. In the late 1980s, much of the ISI framework remained in place. Many tariff rates remained unchanged since the 1950s, and the average tariff rate in 1990 remained a high 52% (Manzetti 1993, 113). The anti-export bias of the ISI policy framework in Brazil is well documented, though as Shapiro (1997) points out, ISI did diversify the Brazilian economy in ways that laid the foundation for future export growth in manufactured goods. Moreover, despite the high tariffs export growth was actually quite substantial in the early 1980s, and somewhat less so in the latter part of the decade. Brazilian exports rose from 0.71% of total world trade in 1979 to 1.27% in 1984, and then back down to 1.05% in 1989¹⁶⁴. The growth rate of Brazilian exports was often high in the 1980s, despite the stagnation of the domestic economy during the ‘lost decade’. Shapiro (1997) and Bonelli (2000) attribute this to firms using exports as a relief valve to compensate for weak domestic demand due to the recession. In terms of export composition, most goods during this period were from primary and semi-manufactured sectors, with some instances of capital goods.

¹⁶⁴In constant 2000 prices (Bonelli and Pinheiro 2008).

The primary institution charged with export promotion before 1990 was the *Carteira de Comercio Exterior*, or CACEX. This institution had, in previous decades, gained a reputation as an autonomous, meritocratically staffed organization. However, by the late 1980s a series of scandals had undermined the institution's credibility, and it was dismantled by Collor¹⁶⁵. The other export promotion arrangement of note during the 1980s was the program *Benefícios Fiscais as Programas Especiais de Exportação* (BEFIEEX). This program, also ended in 1990, allowed firms to exempt themselves from tariffs and taxes if they could credibly commit to long term export plans. This program was especially utilized by automotive companies and parts manufacturers in the 1980s, and was able to shield some of these firms from the effects of an appreciating currency.

In 1990, however, the Collor administration implemented a dramatic liberalization of Brazilian trade policy, and developed a new set of institutions to oversee export promotion. Collor lifted many restrictions on imports, and put in place a gradual program of tariff reductions from 1990 to 1994. By 1994, the modal import tariff had been reduced to 20%, from 40% in 1990 (Bonelli 2000). In addition to these tariff reductions, the Collor government set up two organizations which would focus on export financing: FINAMEX (a capital goods export financing plan through the BNDES) and Proex (export credit lines backed by the Banco do Brasil). Proex offered credit to companies which could demonstrate domestic content and confirmed exports, while FINAMEX targeted small exporters for support. However, both bodies suffered almost immediately from a number of problems. As Shapiro (1997) notes, Proex had inconsistent and uncertain funding levels from year to year. Firms also faced a drawn-out approval process for loans, and many potential beneficiaries

¹⁶⁵CACEX controlled the entry of foreign goods through the disbursement of import licenses. These were often subject to bribes, and the paperwork of non-payers was simply *engavetado*, or “put in a drawer” (“Malandragem no Mercosul” 2010).

were simply unaware of the program's existence. Similarly, FINAMEX during the Cardoso administration only distributed between 60 and 80 percent of its budget, due to a lack of applicants. Most of its clients were small exporters, so multinationals were not often the beneficiaries of this program. Bonelli (2000) noted that the FINAMEX program suffered from uncertainty over budget allocations, and that Proex had numerous governmental agencies overseeing its credit lines. This dispersion of authority was interpreted negatively by firms he interviewed, as were the less-than-attractive lending rates offered by these programs.

While the Collor, Franco, and Cardoso governments focused on export financing, they also made occasional attempts at export promotion with the other tools at their disposal. General trade liberalization was a natural bedfellow to the process of macroeconomic stabilization, and attempts were made to facilitate trade by reducing the so-called *Custo Brasil*, or Brazil cost. This includes a wide range of factors which increase the cost of doing business in Brazil, from delays at ports (and other infrastructure deficiencies) to high taxes and other nonwage costs which can reach 100 percent of workers' salaries. While progress in combating these entrenched obstacles was partial and slow, the campaign to lessen the regulatory and infrastructure burden on firms was ongoing during the 1990s¹⁶⁶.

Cardoso's administration in particular was interested in reducing these trade barriers in the second half of the 1990s, as it was unwilling to undermine the hard-won stability of the Real. The overvaluation of the Real had become a big problem for the current account already in 1995, and the government became increasingly concerned about growing trade deficits. In response, Cardoso adopted a series of directly illiberal support mechanisms,

¹⁶⁶Doctor (2002) suggests the slow pace of port reform in Brazil was partly due to collective action problems among businesses.

including the automotive regime, to encourage export among multinationals and domestic firms. These included, but were not limited to, duty drawback systems, increased export financing, and reduction of taxes for production of export goods. In 1996, the BNDES announced a number of new credit lines to select industries, capped at R\$10 million per company and with a base interest rate of 5.5% (Shapiro 1997, 80). These policies were designed to generate exports in important industries.

Beyond export financing and general trade liberalization measures, Brazil did of course help construct a major regional trade agreement in the early 1990s. While the goals of Mercosul were many, the trade agreement did have a substantial effect on the exports of multinational companies in Brazil, particularly in the automotive sector. The trade agreement eventually created large trade flows of auto parts and finished automobiles, particularly between Argentina and Brazil¹⁶⁷. Multinational auto companies were able to rationalize their production processes within the context of Mercosul. Some degree of specialization became evident, with Argentina producing higher priced models and Brazil concentrating on two or four door “popular” cars (Chudnovsky and Lopez 2002). However, the process of trade liberalization within Mercosul was not smooth during the 1990s. At the end of the decade, the devaluation of the Brazilian Real in 1999 and the Argentinian peso’s link to the appreciating dollar caused severe stress to the trade agreement¹⁶⁸. Even after the major economic crisis in Argentina in 2002-2003 and the resumption of growth in 2003,

¹⁶⁷Exports of cars and trucks from Brazil to Mercosul countries increased from \$76 million in 1990 to \$1,296 million in 1997. Auto parts exports increased from \$148 million to \$1,467 million during that same period (Quadros and Carvalho 1999, 70).

¹⁶⁸Cardoso (2009, 26) points out that intra-Mercosul trade grew steadily from 4 billion dollars in 1990 to 20 billion in 1998. However, in 2000 it fell to 18 billion, due to the Brazilian devaluation and Argentinean response.

there were periodic trade disputes between Argentina and Brazil over the commercial balance in specific sectors.

While there is no doubt that Mercosul's development has been influential for the investment models of multinational corporations operating in Brazil, in many respects it is an unfinished trade agreement. Cardoso (2009) notes that the common external tariff is subject to continuous revision as Brazil and Argentina seek to ensure advantages for particular sectors. Although Mercosul has prompted additional exports among sectors dominated by multinational firms, this dynamic is limited to only a few industries, including automotive. While this is an important industry for the Brazilian economy, the value chain possibilities of Mercosul are not yet realized by many multinational firms. This view was corroborated in a number of interviews with policymakers and academics. One interviewee plainly asserted that Mercosul was underutilized by foreign firms with the potential to develop trade among member countries¹⁶⁹. A study on investment policy undertaken in 2005 noted that the attraction of some efficiency-oriented FDI to Brazil was due to the deterioration of investment conditions in other Mercosul countries, and not due to Brazilian policy efforts (UNCTAD 2005b). All in all, it seems Mercosul offers an attractive regional context for export-oriented FDI, but many potential efficiency-oriented investments have not been realized. Certainly the chronic appearance of trade disputes and the lack of effective dispute resolution mechanisms do not help.

Other export promotion policies in the 1990s lacked a strategic and consistent vision, operating instead in a reactive fashion. While political support for attracting export-oriented investments was more common throughout the 1990s than support for innovation-oriented

¹⁶⁹Phone Interview, Eduardo Gomes, Universidade Federal Fluminense, Rio de Janeiro, February 2008

investments, that support often sprung from concern over trade imbalances and not from a strategic vision of the role of efficiency-oriented FDI in Brazil's economy. The overvaluation of the Real in 1995 and resulting trade imbalances generated a plethora of policy activity to incentivize exports, including the automotive regime. These incentives were temporary, partly to discourage rent-seeking. However, the lack of a systematic and enduring strategy to encourage exports among multinationals is notable, even during the more favorable post-1999 period. Corrêa de Lacerda (2003, 144) notes the passivity and reactive nature of policy towards multinational exports. It is one thing to put out balance of payments fires from time to time, it is quite another to develop a systematic strategy for promoting multinational exports in a way that will contribute to participation in global production networks.

After the devaluation of 1999, Brazilian exports resumed rapid and sustained growth. By 2005, Brazilian exports represented 1.14% of world trade, up from 0.85% in 1999 (Bonelli and Pinheiro 2008, 14). The export growth was diversified moderately, with significant portions coming from manufactured goods. The Lula administration continued to support export activity on a variety of fronts, including export financing and trade liberalization. As part of the return to a more active industrial policy, Lula did expand funding lines for exports in specific sectors of the economy. The BNDES, through its foreign trade and capital goods funding branch FINAME, increased its export financing disbursements from US\$3.9 billion in 2002 to US\$6.6 billion in 2008¹⁷⁰. Importantly, Lula emphasized south-south trade expansion much more than his predecessors. The flagship institution for the implementation of Lula's industrial policies, the ABDI, has supported the

¹⁷⁰Interview, BNDES, Brasília, June 2009

expansion of Brazilian exports into other South American markets, but also farther afield in places like South Africa and India¹⁷¹.

The dramatic expansion of exports during the first Lula administration seemed to vindicate the approach taken by the government. However, as section 5.4.1 demonstrates, the role played by multinational corporations in this export expansion was offset by the increases in multinational imports, rendering their overall impact on the balance of payments neutral or negative. Before the economic crisis of 2008, primary products and manufactured goods were the primary drivers of export expansion. In a study conducted in 2007 which separated exports into low technology intensive goods, medium-low, medium-high, and high, the *Instituto de Estudos para o Desenvolvimento Industrial* (IEDI 2007, 9) demonstrated that Brazil's trade surplus in 2006 came from low technology intensive goods (\$31.8 billion FOB) and medium-low (\$10.5 billion). Medium-high and high technology intensive goods were responsible for \$1 billion and \$11.8 billion deficits, respectively. High-tech intensive exports, while growing, did not increase at the same pace as other more traditional forms of Brazilian exports¹⁷². Multinational firms operating in high technology intensive sectors were responsible for large trade deficits (IEDI 2004).

Although the Cardoso administration had not neglected export incentives during the 1990s to the same degree that innovation incentives were neglected, the Lula administration increased export incentives further in the industrial policy frameworks of the PITCE and PDP. As has been mentioned, the PITCE displayed considerable focus on trade imbalances.

¹⁷¹The PDP made specific reference to Brazil's potential presence in Africa, noting that Brazilian investment on the continent amounted to \$535 million from 2003 to 2006, whereas the Sino-African investment surpassed \$60 billion in 2006 (PDP 2008).

¹⁷²Bonelli (2000, 93) argues that high tech exports did not grow quickly in the 1990s: "Roughly speaking, the higher the technological content, the slower the growth of exports."

Beyond the aforementioned expansion of export financing lines and the creation of ABDI, the PITCE established four specific target sectors for development: software, semiconductors, capital goods, and pharmaceuticals. In addition, the PITCE established broad ‘horizontal’ actions, including industrial modernization and expansion of trade. However, the PITCE quickly ran into oversight coordination problems, as mentioned in previous chapters. Moreover, despite the emphasis on exports and specific identification of target sectors, the mechanisms by which these targets would be achieved were left vague. An article in the Latin American business magazine *Tendencias* in 2005 lamented the then year-old industrial policy’s lack of “coordination of strategies between the involved public organs”, and pointed out that the PITCE had not generated significant activity in the target sectors (Oliveira 2005).

The legal changes which accompanied the PITCE, most importantly the Innovation Law and the *Lei do Bem*, have been influential for patterns of FDI. With regard to export profiles of multinational firms, the *Lei do Bem* is the more important change. The *Lei do Bem* expanded export financing. The legislation established a special regime for the acquisition of capital goods for exporting companies, known as RECAP. This regime allowed companies that export 70% or more of sales to purchase or import capital goods with the suspension of the PIS and COFINS taxes. Another tax regime (REPES) was made available for firms exporting technology services, which similarly suspended the PIS and COFINS taxes (RENAI 2009). Both the REPES and RECAP measures are available to multinational firms. As an indirect incentive to export, the *Lei do Bem* also implemented tax exemptions to compensate firms for the costs of registering and maintaining patents abroad.

Partly in response to the criticisms of the PITCE and the incentives contained in the new industrial policy framework, the Lula administration re-launched its industrial policy in 2008 under the *Plano de Desenvolvimento da Produção*/PDP label. The PDP promoted the expansion of Brazilian exports as one of its four main action areas, seeking to increase the share of Brazil's exports in worldwide exports from 1.18 percent in 2007 to 1.25 percent in 2010. There were a variety of mechanisms put in place to achieve this goal. The Proex program was changed to allow companies with sales of up to R\$150 million to participate. The limit had previously been R\$60 million. This benefited larger firms, and was done partially in response to criticisms that Proex only targeted small firms and therefore did not have much impact. The upward limit of individual financing packages was increased to US\$20 million from US\$10 million. Interest rates on loans from the BNDES in target sectors (capital goods, software) were also lowered and harmonized at 7 percent (PDP 2008). Finally, sales taxes were eliminated for services related to export and commercial promotion of exported goods¹⁷³.

The export promotion policies outlined here are an integral part of the 'open economy' industrial policies pursued by the Lula administration. While the Collor and Cardoso governments periodically supported exports in response to trade deficits, Lula established a more enduring, consistent policy platform for export promotion. Existing and potential FDI, while not the only focus of industrial policy, was not excluded from these incentives. As was the case with innovation, however, some of the more active and discriminating investment promotion policies of the Lula administration were undercut by governmental institutions. The PITCE struggled in part because it was governed by a wide

¹⁷³While the incentives outlined here were greeted warmly by exporting firms, some analyses have suggested that they do not go far enough in incentivizing manufacturing exports, as opposed to primary products (IEDI 2008).

range of ministries and agencies (Suzigan and Furtado 2005), and these bodies could not coordinate their efforts.

5.3.1 The institutional framework for export promotion

The export promotion policies enacted by the Brazilian government in the 1990s and 2000s were channeled through an uneven collection of export promotion bodies, widely dispersed among the various government ministries. There was no unified approach to export promotion, especially as applied to multinational firms. The newly created ABDI and its renovated export-promoting partner APEX have been attempting to unify export promotion and assume institutional primacy, but there are signs that these institutions may simply evolve into additional agencies with export promotion mandates. In their studies of export promotion in Brazil, Shapiro (1997, 82) Bonelli (2000, 108) and Corrêa de Lacerda (2003, ch. 6) all note the proliferation of export promotion bodies within the Brazilian state. Bonelli's study, which includes firm interviews, noted that firms often complained about the proliferation of government agencies among the various ministries, and argued for a more unified institutional framework. Shapiro notes that despite the BNDES's central role in export financing, there are numerous other agencies with small funds and different priorities. In an interview at the BNDES, one respondent for this study noted that every ministry even remotely connected to exports had an organization charged with export promotion, and that these bodies could become very territorial. This made the prospects of unification, while desirable, somewhat distant¹⁷⁴. These various bodies do not necessarily compete with one another for the attention of multinationals, nor do they consciously work at cross-purposes. However, the lack of a unified institutional framework for investment promotion is not

¹⁷⁴Interview, Victor Burns, BNDES, Brasília, May 2009

conducive to active, discriminating policy or a strategic vision of FDI's role in generating spillovers. Without institutional coordination, state leverage on firm investment models is diminished.

The institutional changes that took place during the Lula administration offer a fresh start, but there are worrying signals. I have already noted in chapter three the number of ministries charged with oversight of the ABDI and CNDI. This makes agility and coordination of export promotion policy especially difficult to achieve. Though APEX would seem to be the natural institutional home for export promotion (as its acronym implies), this agency has not been especially effective thus far at generating exports among multinational firms. Investment promotion was subsumed within APEX after 2003, but the agency retains a primary focus on promoting Brazilian firm exports. The investment promotion and export promotion divisions operate separately. Various interviewees in Brazil were pessimistic about the agency's ability to deliver export-oriented investments. A former director of the Central Bank claimed that APEX had thus far not been particularly effective¹⁷⁵. The director of the American Chamber of Commerce noted that while some multinationals had been induced to expand export projects, there had been very few greenfield export-oriented projects in recent years¹⁷⁶. Despite its renewed sense of purpose, APEX's dual role lends it a certain amount of ambiguity. According to a 2007 article in *Gazeta Mercantil*, the investment promotion division in APEX uses the very same system initially constructed to find partners and business for Brazilian exporters. In the same article, the then-director of APEX characterized the institution as “*one more instrument of the*

¹⁷⁵Interview, Gustavo Franco, former Central Bank director, São Paulo, March 2008

¹⁷⁶Interview, Alexandre Silva, Director of the American Chamber of Commerce in São Paulo, São Paulo, February 2008

government with the objective of attracting foreign investment” (Exman 2007, emphasis added).

In addition to APEX and the ABDI itself, there are numerous other institutional locations for export promotion. The ministry of development, industry, and trade operates the Chamber of Foreign Trade (CAMEX), which itself is comprised of various bodies responsible for export promotion in different sectors. The National Confederation of Industry (CNI) has an export support division, and another organization known as SEBRAE assists micro and small businesses in their export activities. This is in addition to the other important institutions already mentioned. The proliferation of export-promoting units makes it difficult to consistently communicate to firms the incentives available for exporting activities.

The variability in funding levels disbursed to financing organizations like the BNDES is also a problem. While both FINEP and BNDES currently enjoy large resources to encourage exports, these funding lines have fluctuated in the past. Shapiro (1997) suggests that uncertainty over funding lines such as FINAMEX and Proex contributed to their low disbursement rates in the 1990s¹⁷⁷. It is also possible that many firms were unaware of the export financing available to them. Bonelli (2000, 107) suggests that the loan rates offered were simply not attractive enough to offset the bureaucratic costs of application and therefore guarantee participation. Political changes have sometimes resulted in one agency being favored over another, and variable funding levels.

Despite periodic uncertainty about funding resources, the BNDES continues to be the most important institutional ‘pocket of efficiency’ in Brazil’s export promotion framework.

¹⁷⁷In 1995, FINAMEX had a budget of \$560 million, but disbursed only \$350 to \$400 million (Shapiro 1997, 79).

As FINEP is more focused on innovation, the BNDES assumes greater prominence in promoting exports (though there are a few export incentives offered by FINEP, as detailed in section 5.4.5). The BNDES divides its export credit lines into two categories: pre-shipment and post-shipment. Pre-shipment funds finance the production of goods for export, while post-shipment provides funds for the commercialization of goods and services in foreign countries. The funding lines for exports have been growing. The BNDES disbursed \$2.1 billion in export financing in 1999. By 2008, the bank disbursed \$6.6 billion (BNDES 2009). The BNDES maintains strict conditionality on its loans; as of 2005 over 80 percent of supported firms had met their export goals (Catermol 2005, 17). The bank also displays a discriminating approach in its lending practices; firms in high value-added sectors such as capital goods, electronics, and telecommunications are more likely to receive export financing than commodities, all else equal (Catermol 2005). As this chapter demonstrates, BNDES support was instrumental in the expansion of cell phone exports from Brazil in the last five years. Finally, the BNDES is one of very few institutions to create innovative export funding lines for intangible goods, important in the IT sector. The BNDES has begun in recent years to fund IT service exports with substantial intellectual property components, but no manufacturing. This necessitated adaptations of older loan models, which required physical collateral guarantees for banks. In 1994, these types of IT service loans amounted to just \$84 million. By 2007, the BNDES was loaning \$665 million in service sectors through its BNDES-exim program (Galvão and Catermol 2008, 95). Again, we must point to its established networks among multinational firms and consistent political support as essential ingredients for the success of the BNDES.

The institutional framework in Brazil for export promotion is disarticulated and inconsistent, despite the autonomous activities of the BNDES. Even Lula's renewed emphasis on sectorally discriminating industrial policy did not carry with it a unified institutional framework for its implementation. While there are isolated examples of successful export promotion, even among multinational firms, the general trend has not been one of institutional efficacy. Many of the reasons for this state of affairs are deep-seated. As Helen Shapiro explains in her study of export promotion policies in the 1980s and 1990s:

Targeting strategic export sectors a la South Korea would have required a capacity to plan and to discipline the private sector that was lacking in the Brazilian state (Shapiro 1997, 77).

Export promotion policy is not deterministic. Even the most carefully constructed and implemented policies can fail to generate beneficial export patterns in the face of an overvalued currency or worldwide economic crisis. However, the nature of policy and the capacity of state institutions can have a profound impact on the nature of exports. Indeed, during firm interviews conducted for this study it was remarkable how often comments on state capacity and policy would precede exchange rate considerations when the subject of exports came up. Multinationals do consider institutional efficacy in host countries when making decisions about their participation in global production networks.

5.4 The Commercial Balance of Multinationals in Brazil

In order to connect policy initiatives and institutional settings with the export activity of multinational firms, I employ a number of databases from numerous Brazilian governmental agencies. I supplement these data with responses of firms in the automotive and IT sectors, as in chapter four. Firm representatives were asked about the most important factors affecting their export and import decisions, as well as questions about their

relationships with state institutions and incentives they may or may not have used in their international activities. Firms were also asked about institutional efficacy and their reactions to policy initiatives designed to increase exports. All told, 27 firms from the automotive and IT sectors were interviewed. Four were flagship automotive manufacturers; nine were large multinational auto parts manufacturers. Nine others were flagship multinational IT firms, and the remaining five are contract manufacturing firms in the IT sector. The operating hypothesis is that Brazil's export promotion institutions and policies have contributed to negative commercial balances in sectors dominated by multinational firms. The firm interviews are especially helpful, as they allow firm representatives to distinguish among the different host country factors that increase or decrease the potential for export-oriented production.

As noted previously, both the IT sector and the automotive sector are marked by a high degree of multinational penetration. After the liberalization of investment flows in the 1990s, both sectors were inundated by multinationals. Moreover, both sectors are important for the Brazilian economy, and represent a possible source of export growth. While auto exports and auto parts exports have increased, especially within the context of Mercosul, Brazilian IT exports have not been substantial save for a few sectors (such as cell phones). This is despite substantial government effort to create IT exports. In both sectors, the periods of export expansion in the last two decades must be tempered with an acknowledgment of the simultaneous increase in imports by multinationals. In the next section, I examine commercial balance patterns among multinational firms, drawing on Brazilian central bank census data. I then examine the automotive and IT sector in turn, integrating interview

responses with further datasets on sector-specific trade patterns. Section 5.5 contrasts both sectors, and considers the technological content of multinational exports.

5.4.1 Economy-wide trade patterns

One of the earliest systematic studies of multinational investment profiles in Latin America was conducted by Newfarmer (1979), who argued that multinationals in Latin America had higher import propensities than local firms. Renato Baumann (1993) conducted an analysis of the composition of Brazilian trade, and found that intrafirm trade had increased by 16.5 percent per year, on average, from 1980 to 1990, as firms sought to establish productive capacity in order to sell to Brazil's population. Nonnenberg (2003), using data from the state of São Paulo, found that foreign firms increased their imported inputs from 1994 to 1996 at a greater rate than national firms, and that this was especially true for technology-intensive sectors. Laplane and Sarti (1999), in a sample of 74 firms, found that while exports had increased 91 percent between 1989 and 1997, imports had increased 395 percent in the same period. De Negri (2004), using firm-level data compiled from various governmental agencies in Brazil, conducted an econometric analysis of the determinants of firm exports and imports in the 1990s. While she found that foreign firms were much more likely than domestic ones to engage in global production networks, this insertion was asymmetric: foreign ownership increased the likelihood of a negative trade balance, despite the competitive international advantages enjoyed by multinational firms. Finally, Corrêa de Lacerda (2003) utilized data from the two censuses of foreign capital to argue that imports of multinationals had grown more quickly during that period than exports from the same firms. Most of the studies mentioned here contained the implicit or explicit recognition that multinationals had higher export propensities than national firms, and that much of the export

growth exhibited by multinationals had taken the form of intrafirm trade. There seems little reason to doubt that multinationals in Brazil are becoming more enmeshed in global value chains, as evidenced by the growth of imports, exports, and intrafirm trade. However, it is apparent that multinational firms do not often display positive trade balances.

Tables 5.1 and 5.2 reproduce data from the Brazilian central bank's censuses of foreign capital in 1995 and 2000, reported in Corrêa de Lacerda (2003) and rearranged for interpretation. Regrettably, the results of the 2005 census are not yet available. However, these surveys represent the most complete picture of the activities of multinational firms available to researchers. While the data are not disaggregated by specific industrial sectors, they are divided by category of ownership and into general primary, secondary, and tertiary categories. There are some important conclusions to be drawn from these data. First, it is not surprising that firms have increased both importing and exporting activities between 1995 and 2000. Intrafirm trade has also increased across the board. However, the data confirm the growth of imports in relation to exports in Brazil. While both exhibit substantial growth, imports of multinational firms increased 63 percent from 1995 to 2000 whereas exports increased by 53 percent. Also interesting is the revelation that this trend is driven mainly by firms with majority foreign participation. In the primary and secondary sectors, and for this group of firms as a whole, imports increased faster than exports during this period of FDI liberalization. In the case of minority foreign control, the pattern is reversed. This suggests that majority foreign control brings with it a propensity for a negative trade balance. Firms with minority foreign participation have much less impact on overall trade patterns in 2000 than they did in 1995, perhaps reflecting the dramatic influx of FDI in the late 1990s.

Table 5.1 Exports and imports of multinational companies in Brazil, by ownership category and sectors of economic activity, 1995 and 2000

	1995 Exports (\$US millions)	1995 Imports (\$US millions)	2000 Exports (\$US millions)	2000 Imports (\$US millions)	% Change in Exports 1995- 2000	% Change in Imports 1995- 2000
All Firms with Foreign Participation	21745	19371	33250	31553	52.9	62.9
Primary Sector	2236	89	1856	270	-17.0	204.3
Secondary Sector	18199	16636	27199	24021	49.5	44.4
Tertiary Sector	1310	2647	4196	7263	220.2	174.4
Minority Foreign Participation	7225	3662	10474	4074	45.0	11.3
Primary Sector	1050	36	1453	47	38.3	27.9
Secondary Sector	5971	3224	8682	3463	45.4	6.7
Tertiary Sector	204	381	339	564	66.4	48.2
Majority Foreign Participation	14520	15709	22776	27479	56.9	74.9
Primary Sector	1186	52	403	223	-66.0	327.8
Secondary Sector	12228	13391	18517	20558	51.4	53.5
Tertiary Sector	1106	2266	3856	6698	248.5	195.6
Intrafirm Trade	9078	8529	21055	18236	131.9	113.8
Primary Sector	422	8	980	135	132.3	1642.7
Secondary Sector	8117	7037	17561	13452	116.4	91.2
Tertiary Sector	539	1484	2513	4649	366.4	213.3
Brazil Total	46506	49972	55086	55783	18.4	11.6
% of Brazil Total						
All Firms with Foreign Participation	46.8	38.8	60.4	56.6		
Minority Foreign Participation	15.5	0.2	19.0	0.5		
Majority Foreign Participation	31.2	33.3	41.3	43.1		

Sources: Corrêa de Lacerda (2003) and the Central Bank's Census of Foreign Capital (1995 and 2000)

Firms with foreign participation are responsible for an increasing share of Brazil's exports and imports during this period, as the bottom of table 5.1 indicates. While they are responsible for a greater share of exports than imports, the gap between the two closes between 1995 and 2000. This appears to be driven by majority-controlled firms, who exhibit stronger import propensities than minority-controlled firms. Firms with majority foreign ownership are responsible for 43 percent of Brazil's imports in 2000 but only 41 percent of its exports in the same year. Finally, it is important to note the growth of Brazil's overall exports (18 percent) from 1995 to 2000 compared to its imports (12 percent). Brazil's negative trade balance in both years diminishes somewhat between 1995 and 2000. While overall these firms display a positive trade balance in both years, imports increase faster than exports. Again, this appears to be driven by firms with majority foreign ownership.

These dynamics are largely limited to manufacturing and service sectors. As table 5.1 indicates, multinational firms in primary products are export intensive. This stands to reason, as natural resource-seeking multinationals are in country for the purpose of extracting minerals or agricultural goods. Foreign investment in natural resources displays a positive trade balance, regardless of the degree of control a parent company enjoys over its subsidiary. Indeed, natural resources have been a big part of Brazil's export boom in the last decade. De Negri and Kubota (2008) find that Brazil's commodities exports to the world increased from 37% to 43% of total exports from 2000 to 2008, while those of high tech goods decreased from 18% to 11%. As noted in chapter two, this work does not address natural resource sectors, which are subject to different dynamics than manufacturing and services.

Table 5.2 indicates that within multinational trade patterns, intrafirm trade is becoming more and more important. That is, firms are increasingly integrating their production networks, and an increasing share of multinational subsidiaries' trade is destined for its parent company. By 2000, intrafirm trade represents the majority of trade for all multinational firms, regardless of sector. Intrafirm exports grew quickly between 1995 and 2000, indicating that when multinationals did export it was often within their own production network. Intrafirm exports outpaced intrafirm imports between 1995 and 2000 in all categories save primary products and capital goods. While these exports may indicate some efficiency-seeking motivations, they also represent opportunities for transfer pricing. Also, intrafirm trade may indicate hierarchical models of value chain governance, which is regarded as less conducive to value chain upgrading (Humphrey and Schmitz 2000).

Table 5.2 Intrafirm trade, as a percentage of all imports and exports of multinational firms, by sectors of economic activity, 1995 and 2000

	Intrafirm Exports 1995	Intrafirm Exports 2000	Intrafirm Imports 1995	Intrafirm Imports 2000	Change in Exports 1995-2000	Change in Imports 1995-2000
Primary Sector	18.9	52.8	8.8	50.1	33.9	41.3
Secondary Sector	44.6	64.6	42.3	56.0	20.0	13.7
Machinery and Equipment	47.5	63.6	54.0	72.5	16.1	18.5
Appliances and Electric Materials	31.0	67.4	43.3	72.7	36.4	29.4
Electronic Material	50.1	81.1	35.0	57.0	31.0	22.0
Automotive Vehicles, Trailers etc	57.7	73.8	46.0	61.8	16.1	15.8
Tertiary Sector	41.1	59.9	56.1	64.0	18.8	7.9
TOTAL	41.7	58.8	44.0	57.8	17.1	13.8

Sources: Corrêa de Lacerda (2003) and the Central Bank's Census of Foreign Capital (1995 and 2000)

5.4.2 The commercial balance of the Brazilian automotive sector

In the 1950s, the Brazilian government presented multinational automakers with a choice: either produce vehicles in Brazil with 90 to 95 percent Brazilian content, or desert the Brazilian market altogether. The restrictions on imported automobiles remained an important component of the industrial policy through most of the postwar period. The Brazilian auto

industry only developed substantial efficiency seeking characteristics in the 1980s and particularly in the 1990s with the advent of Mercosul. Even after 1990, domestic production of autos was primarily oriented toward satisfying domestic demand. When exports did take place, they mostly took place between Brazil and Argentina, as the twin poles of the Mercosul automotive production network and its largest markets¹⁷⁸. The expansion of exports, for both assemblers and auto parts companies, has been impressive. However, imports have also increased substantially in the auto industry, especially after the liberalization process of the early 1990s. Many of these imports come from Europe, Japan, and the US, as automakers import inputs and assemble in Brazil for domestic sales or export to other Mercosul countries. This has led to periodic concerns about the trade balance of the industry, and a set of policy changes through the 1990s and 2000s.

In the auto parts industry, the elimination of controls on FDI in the 1990s resulted in an almost total denationalization of domestic production. This was especially true of larger plants with high technology intensity, which were bought by multinationals or competed out of business. Brazilian auto parts companies such as Metal Leve (acquired by the German firm Mahle) and Varga (bought by American and British firms) did not survive liberalization. In 1994, the value of investments in the auto parts sector controlled by foreign capital was 48 percent. By 2009, that figure had increased to 73.2 percent (Sindipeças 2010). Foreign firms in the auto parts industry have increased their exports, again with a primary emphasis on the Mercosul regional trade network. There are numerous examples of auto parts firms restructuring their production chains within Brazil and Argentina to better realize locational advantages. However, the simultaneous rise of imports in the auto parts industry has resulted

¹⁷⁸Queiroz and Carvalho (1999, 70) show that the process of regional integration has been the “main driving force” of expansion in automotive trade from Brazil, accounting for just 8% of exports of cars and trucks in 1990 but 52% by 1997. In auto parts, the same expansion is from 6% to 32%.

in a trade deficit in the industry. As is the case with assemblers, most of these imported inputs come from outside Mercosul.

Table 5.3 Brazilian automotive industry trade balance, 1990-2008. \$US millions

Year	Value of Exports of Vehicles	Value of Engine Exports	Value of Component Parts Exports	Value of Total Exports	Value of Total Imports	Commercial Balance
1990	975	220	701	1897	733	1164
1991	1042	205	667	1915	849	1066
1992	1993	196	821	3012	1079	1933
1993	1758	196	705	2660	1809	851
1994	1758	147	778	2684	2550	134
1995	1357	97	959	2415	4795	-2380
1996	1905	175	931	3012	4882	-1870
1997	2651	137	1139	3929	5105	-1176
1998	3035	98	1129	4263	4692	-429
1999	1951	152	974	3078	3873	-795
2000	2692	57	738	3487	3764	-277
2001	2684	72	857	3613	3717	-104
2002	2649	106	622	3378	2910	468
2003	3529	226	923	4678	3246	1432
2004	5354	285	976	6615	3653	2962
2005	7862	538	989	9391	5257	4134
2006	7935	688	1643	10268	6126	4142
2007	8661	495	1726	10884	8690	2194
2008	8492	462	2008	10963	13754	-2791

Sources: ANFAVEA (2010), based on information from SECEX/MDIC

Notes: Table refers to vehicles/parts exported and imported by ANFAVEA member companies. Table reflects values, not vehicle units.

Brazilian administrations have, since the 1990s, put in place various support mechanisms for the auto industry. Indeed, in the mid-1990s the auto industry was one of the very few sectors where actively interventionist industrial policies remained in an otherwise liberalizing policy environment. The export incentives contained in the automotive regime of 1995 did generate an increase in exports beginning in 1997 (Queiroz and Carvalho 1999)¹⁷⁹. However, there are a number of ways in which the export promotion policies

¹⁷⁹Exports of cars and trucks and of auto parts took off between 1996 and 1997, increasing from \$3 billion to almost \$4 billion. However, the effect of the automotive regime on the trade balance was much more prominent

implemented since 1990 have been less effective at establishing a continuing precedent for export-led growth. First, Brazil's exports in the automotive industry have been increasingly concentrated on Mercosul. While this is a positive development in some ways, the types of cars and parts being produced have limited market appeal beyond Mercosul. Export growth outside the region has been modest. Secondly, export promotion policies have been mostly reactive. That is, they have been put in place to respond to imbalances. However, they have not in general been implemented in a way that reflects a coherent, consistent strategy for supporting export expansion. Finally, domestic institutions have limited the applicability and appeal of export promotion policies.

In 1993, the Brazilian government established a set of incentives for the production of small cars with up to 1,000 cc engines, known as the *Carro Popular* regime. These incentives, which mostly consisted of lowering the tax burden on these vehicles, aimed to generate domestic demand. The plan did succeed in generating additional production despite objections voiced by the automakers, who were not as interested in producing small cars with low profit margins¹⁸⁰. The policy did not, however, succeed in attracting much new FDI, and had only limited success in generating exports among firms already in country. The component imports needed for such an increase in production, coupled with the flood of imports induced by tariff reduction in the early 1990s, had by 1995 produced a large trade deficit in the automotive industry (see table 5.3). The *Carro Popular* policy initiative did help to expand domestic production and put vehicles into the hands of more Brazilians. The legacies of this program are still felt today, as Brazil has often specialized, within the context

in its restriction of imports. The automotive regime raised tariffs on car imports from 32 percent in February 1995 to 70 percent in March (Queiroz and Carvalho 1999, 67).

¹⁸⁰Interview, Glauco Arbix, São Paulo, March 2008.

of Mercosul, in the production of compact cars. While these low-cost cars are now exported in significant quantities, studies have pointed out the limited export potential beyond Mercosul of this type of vehicle (ECLAC 2003, 131).

The introduction of the stable and perhaps already overvalued Real in 1995 contributed to the flood of car imports that year, as did the tariff reductions and the consumption boom brought on by the end of inflation. But also important was the lack of an efficiency-oriented investment policy. At the end of 1995, the Brazilian government rectified this situation and implemented the automotive regime (RA) to combat these imbalances. The RA, greeted warmly by existing manufacturers, supported domestic auto production with heavy tariff protection, and included a number of incentives for new entrants to the domestic market¹⁸¹. The RA did succeed in attracting a great deal of new automotive FDI, as outlined in chapter four. The primary goal of the regime was to limit vehicle imports and encourage assemblers to set up factories to serve the domestic market. However, firms could also receive tariff reductions if they exported a certain amount of their product. As a representative example, in 1996 a firm exporting \$1 billion could receive tariff reductions on up to \$350 million on imported capital goods and up to \$1.27 billion on imported auto parts, as long as the firm respected the 60% national content rules (Bedê 1997, 382). While exports did not respond to these indirect incentives immediately, by 1997 they began to rebound even in the face of an overvalued Real. While many of the RA's elements violated existing WTO rules

¹⁸¹The implementation of the RA was due to many factors beyond the trade imbalance, such as the existence of a discriminatory auto regime in Argentina, the Mexican peso crisis and resulting imports, and the difficulties encountered during the liberalization process. However, the trade imbalance was an immediate pressure and in many ways forced the issue on the Cardoso government.

(Quadros 2002), and were abandoned in 2000, it nevertheless succeeded in generating investment, some of which was efficiency-oriented¹⁸².

After the devaluation of 1999, exports of both parts and finished vehicles increased, and then sped up even more after the resolution of Argentina's profound economic and political crises in 2002-2003. While the high level of the exchange rate dampened the growth of exports a bit after 2005, it did not reverse the upward trend. Imports increased apace, however, and even before the economic crisis of 2008 there was evidence of commercial deficits in both parts and finished autos.

The policies of the Lula administration, in keeping with the renewed emphasis on industrial policy, actively supported the auto industry with a variety of tax incentives. The PDP in 2008 had as one of its objectives the export of 930,000 vehicles in 2010. Though that goal was not reached, the changes in export financing did generate increases in exports. The Proex financing award limits were increased from \$10 million to \$20 million per firm, and financing for Proex was increased to R\$1.3 billion (Ferraz 2009). Also important was the changes in the drawback program, which allowed the suspension of payment for the PIS/COFINS taxes on inputs used in products that would eventually be exported. In conjunction with the PDP, the BNDES has also expanded its funding lines for the industry, designed to increase productive capacity. In 2008, BNDES provided US \$420 million to finance engineering costs for new product development (ECLAC 2009, 87). Many of the firms interviewed in this study cited the BNDES as an important source of funding for their export activities, and claimed that this funding had increased recently.

¹⁸²There were also a number of negative outcomes from the automotive regime. The opening of the Brazilian economy, coupled with the stabilization of the domestic currency, allowed states to compete for automotive investments with excessive incentive packages (Rodríguez-Pose and Arbix 2001). The federal government lacked the resources (and, initially, the will) to control this kind of perverse competition among states, and only belatedly put in place mechanisms designed to reduce its likelihood.

During the automotive regime of the mid-1990s, tariffs on imported vehicles were raised to near 70 percent (Queiroz and Carvalho 1999). However, the auto parts industry received no such protection. The internationalization of the Brazilian auto parts sector is partly due to changes in the global automotive industry, such as modular production and follow-sourcing. This had a number of important effects for the trade balance of auto parts. First, exports of the large multinational parts suppliers increased, especially to other Mercosul countries. This increased the overall level of exports of the Brazilian auto parts sector. Secondly, the level of imported inputs also increased. Multinational auto parts firms received more of their inputs from abroad than did national firms. This is demonstrated in figure 5.1. This has led to some concerns that many of the imported inputs are high value-added, given that many of these multinational auto parts producers have centralized R&D facilities. Most wholly Brazilian-owned parts producers are now located in lower tiers of the supply chain.

The second effect of denationalization concerns the production networks established by the multinational auto parts firms. Given the economies of scale enjoyed by multinationals, expansion of exports within the Mercosul framework made sense. Many of the largest parts producers have expanded exports to Mercosul countries. Much of this trade is to Argentina, where Brazilian parts imports are used in assembly plants. The same pattern happens in the opposite direction. This expansion in exports, while encouraging, does not indicate great competitiveness of the Brazilian auto parts industry outside the Mercosul framework. Queiroz and Carvalho (2003) point out that when sales to Mercosul are excluded, export performance is modest. Table 5.4 points to this dynamic, as it breaks down auto parts exports into destination categories and imports according to countries of origin.

While exports expanded between 2000 and 2009, the percentage of those exports going to other countries in South America expanded as well, going from 28 to 48 percent.

Meanwhile, the share of exports going to the North American market shrank from 44 to 22 percent. This reflects the importance of Mercosul as an export destination. By the same token, the share of imports from Asia has dramatically increased in that period.

Table 5.4 Export destinations and import origins for the Brazilian auto parts industry: 2000 and 2009

	Destination of Exports 2000 (percent)	Destination of Exports 2009 (percent)	Origin of Imports 2000 (percent)	Origin of Imports 2009 (percent)
Africa	1.6	4.3	0.1	0.8
Asia and Oceania	3.9	3.9	15.0	32.6
Central America and West Indies	1.5	1.0	0.1	0.1
Europe	20.6	20.8	47.6	39.9
North America	44.1	21.9	23.5	14.4
South America	28.3	48.1	13.7	12.2

Sources: MDIC – Secex/Depla (www.desenvolvimento.gov.br), Sindipeças (2010).

Elements of Brazil’s auto industry industrial policies have not reinforced export-led models of multinational investment. First, export promotion policies in this sector have been mostly reactive. That is, they tend to surface when trade balance problems appear. The RA is a good example of this. While this approach increases exports, its inconsistent character does not provide the foundation for firm commitment to long-term export production. Indeed, based on firm interviews many flagship auto firms in Brazil seem to export as a kind of ‘release valve’ when domestic demand slacks off, and do not regard production for export as a primary objective¹⁸³. Secondly, as Queiroz and Carvalho (2003) point out, the policies to promote compact car production may have stimulated domestic demand in Brazil but these types of cars have limited export potential outside Mercosul and a few other developing countries. If Brazil is serious about becoming a substantial automotive export platform

¹⁸³Bonelli (2000) finds that many of the periods in which overall exports grew considerably were also periods of reduced domestic demand, providing support for this argument.

beyond the Mercosul context, other strategies will be necessary. In sum, while Brazilian policy has generated export activity from automotive multinationals at specific moments, it has not incentivized a continuing positive trade balance in the sector. Brazilian administrations have not generated a great deal of export promotion policies that persevere through favorable exchange rates or unstable macroeconomic conditions.

5.4.3 Auto exports and domestic institutions

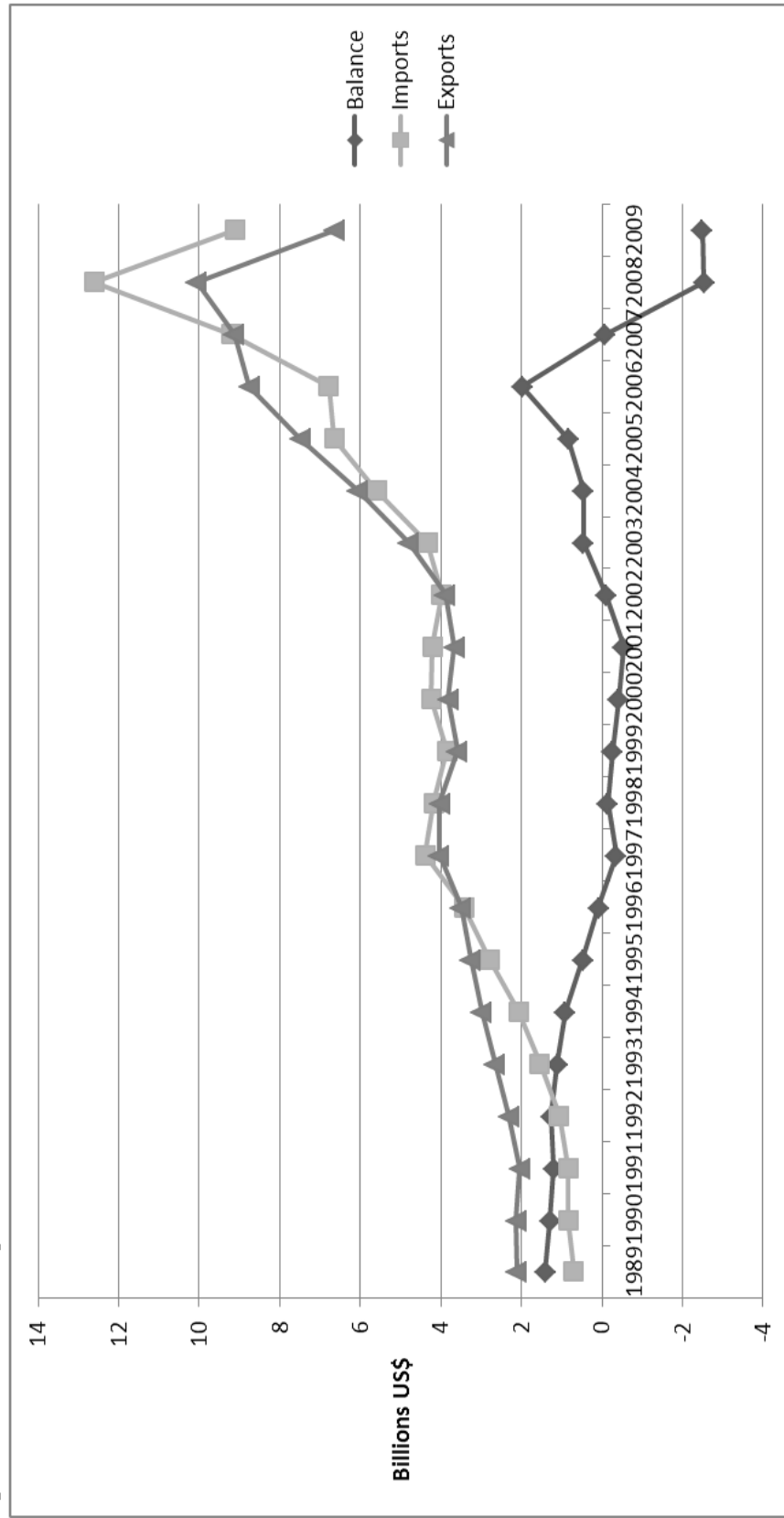
Thirteen multinational firms in the Brazilian automotive industry were interviewed for this study: nine multinational auto parts companies and four flagship assemblers. Among these established firms, representatives frequently mentioned a number of factors which increased their export propensity. Certainly, the level of the exchange rate was mentioned often as a decisive factor. However, many firms acknowledged that export promotion policies could induce them to export more even in the face of an appreciating currency. In fact, a number of firms said that export financing had been influential since 2006, even with a strong Real.

In terms of specific policies, three of the flagship manufacturers said that they had used drawback schemes to support their export activities. These policies allow firms to suspend taxes on imports when the final product is exported. The drawback regime has proven to be especially influential with multinational auto assemblers. In a study conducted in 2001, the *Ministerio da Fazenda* evaluated the use of the drawback mechanism for export promotion and found it to be the most used tax relief mechanism for imports, responsible for 29 percent of the total fiscal waivers tied to imports. Auto manufacturers were the largest sectoral users of drawback. Exports from automotive assemblers were responsible for approximately 19 percent of the total drawback regime use, larger than any other sector.

Also in this study, the specific usage of drawback in Volkswagen do Brasil (then the third largest exporter in percentage terms of the ‘big four’) was analyzed. VW exported approximately \$960 million FOB tied to the drawback regime, 96 percent of which was between affiliates (mostly in Argentina). Approximately \$137 million in parts imports were tied to the drawback regime, 66 percent of which came from VW’s head office (Receita Federal 2001). Clearly flagship auto manufacturers in Brazil have found the drawback scheme a useful way to lower the costs of inputs. The requirement that firms then export the finished product is accomplished in the context of Mercosul. It is doubtful that firms would export in the same amounts in the absence of these incentives. The PIS/COFINS has a statutory tax rate of 9.3 percent of value added, which is significant (Doing Business 2009). Suspension of this tax provides a powerful incentive for export rather than domestic sales.

Other export incentives were utilized as well, on a smaller scale. Many of the firms had used the available BNDES export financing lines in the past, such as the FINAME line for capital goods and the *pré-embarque* program. However, a representative of one flagship assembler mentioned that the interest rates on these lines were becoming uncompetitive, and that more favorable financing could be procured abroad. Moreover, some of the BNDES export financing lines had requirements that firms export 60% of their sales, which was not the case for large auto manufacturers in Brazil. Nevertheless, the existence of export incentives did seem to matter for firms. One flagship assembler even claimed that they were essential in inducing exports, that exports “wouldn’t have a chance” without them.

Figure 5.1 Brazilian auto parts trade balance, 1989-2009



Sources: MDIC – Secex/Depla (www.desenvolvimento.gov.br), Sindipeças (2010).

As would be expected, firms had complaints about the tax burden and excessive costs of complying with tax code, claiming that these costs migrate to exports. The additional taxes on labor create situations where actual wage costs are often doubled, and this generates uncompetitive conditions for exports. Many firms mentioned high relative wage costs as a powerful disincentive for exports. As efficiency-oriented investment is often built on wage advantages, this perhaps explains a great deal about the market-seeking strategies of auto multinationals.

On the institutional side, the BNDES once again surfaced as a governmental institution with a solid reputation for competence and responsiveness among firms. Many firms mentioned the BNDES immediately when queried about the most helpful and efficient government institutions. Firms again had complaints about redundancies and duplication among government agencies charged with export promotion, but these were somewhat less pronounced than with respect to innovation. Very few of the interviewed firms had heard of the new governmental institutions such as ABDI, and none accorded any influence to APEX. Most of the complaints surrounding governmental institutions centered on the lack of clarity in communicating export incentives, and the rapidly changing regulations and incentive structure. Many of the largest auto parts producers were simply unaware of newer export incentives currently available, such as the changes in the Proex eligibility requirements brought on by the PDP, which make the incentives accessible to larger firms. However, it should be pointed out that these changes happened since 2008 and are still too small in scale for some of the largest parts manufacturers

Table 5.5 Aggregated interview responses on export incentives, multinational firms active in the Brazilian IT and automotive sectors

	Flagship Automotive Assemblers and Parts Manufacturers – 13 firms	Flagship IT Firms with IT service activity (BPO, KPO, etc.) – 7 firms	IT Manufacturing (Contract Manufacturers and Flagships) – 11 firms
Primary obstacles to export activity or internationalization of client base	<ul style="list-style-type: none"> • Tax burden (specifically the lack of refunds for export credits) • Port infrastructure 	<ul style="list-style-type: none"> • Excessive focus on manufacturing exports in IT industry • Labor costs, regulation 	<ul style="list-style-type: none"> • PPB requirements often difficult to meet • Labor costs, regulation • Local content costs
Existing incentives for export activity or internationalization of client base	<ul style="list-style-type: none"> • BNDES export loans at semi-competitive rates (often to offset high Real) • Drawback & RECOF: suspend taxes applied to imported inputs when final product is exported • Other incentives when 60% of production exported (does not apply often) 	<ul style="list-style-type: none"> • Few incentives available, mostly focused on sales 	<ul style="list-style-type: none"> • Multiple export incentives offered by Manaus Free Trade Zone • PPB tax credits • BNDES and especially FINEP loans
Primary governmental institutions for export incentives and coordination	<ul style="list-style-type: none"> • MDIC • BNDES 	<ul style="list-style-type: none"> • MCT • FINEP 	<ul style="list-style-type: none"> • MCT • MDIC • FINEP
Institutional obstacles to exporting	<ul style="list-style-type: none"> • Changing incentive structure, lack of communication 	<ul style="list-style-type: none"> • Rigid focus on manufacturing exports 	<ul style="list-style-type: none"> • No clear responsibility for implementation of IT-promoting industrial policies

Source: Author Interviews, 2008-2010.

Firms did comment on the cyclical nature of export promotion policies. One auto parts representative said that the firm could count on export incentives when the Real appreciates: “Last year the Real was high. So, the government offered lines for loans, linked to exports.” However, firms did not mention sustained export promotion schemes, other than drawback. One firm representative mentioned that export promotion seemed to be inconsistent. Despite these and other complaints, firm interviews revealed that many auto

firms had taken part in incentives designed to boost exports, and these incentives had in a few cases been decisive. At times, the Brazilian state had pursued a strategy of promoting international insertion among multinational auto firms. The RA, with all of its problems, did succeed in generating export activity among assemblers at a time when industrial policy was out of vogue. Though exports of autos and auto parts are still centered on Mercosul, the Brazilian state has displayed some limited efficacy in encouraging exports and integrating its automotive industry into global supply chains. While there are numerous questions about the amount of value-added activities in the Brazilian auto industry and the overall trade balance, the international insertion is nonetheless substantial. This stands in sharp contrast to the IT industry, where limited efforts to generate IT exports have achieved very limited success.

5.4.4 The commercial balance of the Brazilian IT industry

At the beginning of the 1990s, the market reserve was still in place in the Brazilian IT sector. The market reserve policies placed large tariffs on imported IT goods and services. As pointed out in chapter four, the liberalization of IT in the 1990s generated a relatively quick process of denationalization. However, while most restrictions on foreign capital participation were lifted and import tariffs reduced, the Brazilian state did implement a number of industrial policies designed to retain some local IT competencies. Among these policies was export promotion – the state sought to boost IT exports soon after the end of the market reserve. There were a variety of mechanisms put in place to do this, the most prominent of which was the Softex-2000 program. This program had the ambitious goal of increasing Brazilian software exports to achieve a 1-2 percent worldwide market share, which would have been worth approximately US\$2 billion (Prochnik 1997). This goal was not achieved. Since 1990 there have been very few instances of IT exports from Brazil, and

it remains a sector plagued by trade balance problems. This has been compounded by the arrival of large amounts of market-oriented FDI, as multinationals in the sector have high import propensities.

While the market reserve had succeeded in generating a domestic IT industry with several large and profitable computer firms, these firms were almost entirely focused on the domestic market. Moreover, the products and services offered by these firms were overpriced and undercompetitive compared to their equivalents in the international marketplace, resulting in a large gray market and substantial smuggling activities. At the end of the market reserve, import tariffs were dramatically reduced¹⁸⁴. The Brazilian government established the Softex-2000 program in 1992 in order to assist Brazilian firms to make the transition from protection to international competition. CNPq, the organization designed to promote research within the Ministry of Education, was intricately linked with the development of Softex. The program initially had a budget of US\$38 million, partially funded by the UNDP (Correa 1996, 175). The strategy employed by this organization was to support the formation of various regional ‘nuclei’ around Brazil, to serve as focal points for cooperation among small software firms. The program also established a number of offices abroad, in places like Miami, in order to market small firms and support their export activities. Additional offices abroad were planned, but never implemented. The program only remained under governmental control until December 1996, when a private non-profit foundation took control (Prochnik 1997). In addition to export incentives, the program also provided financial incentives for the training of professionals within IT firms.

¹⁸⁴Botelho et al. (1999) note that the external tariff for IT goods and services in Mercosul was reduced substantially, as countries in the bloc agreed to converge tariffs on the 16% mark by 2006. Previously, tariffs on goods such as printers and computers had been as high as 32%.

As Veloso et al. (2003, 11) point out, the Softex program succeeded in creating software entrepreneurship in various cities in Brazil, and it also generated a sense of community in the IT industry. However, it failed to generate even modest IT exports from Brazil. There are a variety of reasons for this failure. First, the program lacked sufficient financial support. It received funds from the informatics law in 1991 and subsequent revisions, but it received only approximately US\$100 million over three years. As Prochnik (1997) points out, this is a very small amount for a program with the scale and ambitions of Softex. One of the former directors of Softex pointed out in an interview that while the program succeeded in raising the visibility of the Brazilian software industry, it never received the levels of support from the government necessary for an ambitious industrial policy¹⁸⁵. Related to the issue of underfunding, the Softex program initially did not have any provisions for the establishment of venture capital funds. Considering the high startup costs in the global IT industry, this omission was especially devastating. FINEP has since started a venture capital competition, and there are a few VC funds now operating in Brazil¹⁸⁶.

Finally, and perhaps most importantly for the Brazilian IT industry, the entire Softex effort was effectively focused on small firms, most of which were Brazilian-owned. While support for small firms is important, these firms are typically not the export powerhouses that larger multinational firms can be. By the mid-1990s, the denationalization of the Brazilian IT sector was already well underway. Given that large IT multinationals have a higher export propensity, an industrial policy designed to increase IT exports such as Softex might

¹⁸⁵Phone interview, Dr. Eduardo Costa, FINEP Director of Innovation, Rio de Janeiro, May 2008.

¹⁸⁶A representative of a VC firm interviewed for this study argued that Brazil was particularly late in establishing VC funding opportunities in the IT sector. Though now there are some funds which are supported by pension funds, they have just surfaced in the last five years.

have concentrated on incentivizing exports from these potential investors. As Prochnik (1997, 22) explained in his evaluation of the Softex program, “if the objective was to give priority to exports, industrial policy should seek to stimulate the largest companies in the sector proportionally more.”

For these reasons, Softex was unable to generate a large IT export effort. Nevertheless, since 2000 a number of governmental organizations have augmented their efforts to provide export financing and other incentives to firms. FINEP, in particular, has created new programs to incentivize IT exports, and some of these efforts have been more successful. If 80 percent of an IT firm’s sales are from export activities, the firm is eligible to deduct payroll expenses from taxes¹⁸⁷. Under the industrial policies of the Lula administration, IT exports received a number of new incentives. The PITCE industrial policy designated the software industry as one of its four target sectors. The continuing trade balance problems of the IT sector in Brazil were recognized as a problem, and the PITCE augmented BNDES and other sources of funding to generate more international insertion (Mendes and Guimarães 2006). The *Lei do Bem* in 2005 established a program called REPES, which was a special tax regime for technology service export platforms. This regime suspends the PIS/COFINS if the beneficiary company commits to exporting 60 percent of its production (RENAI 2009). An IPEA study carried out in 2006 (the first year of this incentive) noted that this incentive excluded the large majority of Brazilian software firms, which are almost all oriented toward the domestic market (Roselino 2006). However, it is also not likely to be utilized by multinationals, which are similarly oriented toward

¹⁸⁷Phone interview, Dr. Eduardo Costa, FINEP Director of Innovation, Rio de Janeiro, May 2008.

domestic sales. The requirement for export was originally 80 percent, and was lowered to 60 in 2008 by provisional remedy 428, in response to low utilization of the measure.

The PDP in 2008 expanded the fiscal incentives to export for IT firms in Brazil. Besides the expansion and modification of general export incentives such as Proex, the PDP also increased sector-specific funding for IT firms. The Prosoft program, administered by the BNDES, underwent a number of important changes after the installment of the PITCE and again during the PDP. Two changes were especially important. First, the BNDES realized that it must support IT service exports and not only physical production of IT goods for export. Secondly, the BNDES eliminated the restrictions on Prosoft, which before 2004 had been only available to small and medium firms. Multinational firms were more able to take advantage of the Prosoft incentives after this change (Gutierrez 2007). In terms of disbursements, the Prosoft program is still weighted towards small firms. However, participation in the program was growing. As of 2007, 132 agreements with firms were approved or contracted. The program disbursed approximately R\$680 million, of which R\$218 million was designated for export support (Gutierrez 2007, 55). This is a dramatic expansion since 2004, when the program had only 30 projects worth approximately R\$50 million. The new industrial policies were responsible for this increase in support to IT export finance.

IT industry exports from Brazil have been unimpressive throughout the 1990s and 2000s, though there have been a couple recent success stories. The entry of large multinational flagship IT firms and multinational contract manufacturers during those two decades was motivated by a large domestic market. Botelho et al. (1999) and Tigre and Botelho (2001) both present trade data from the IT industry in the 1990s, and find

discouraging results. Exports did not grow in appreciable amounts between 1991 and 1996, while imports increased 250 percent. Tigre and Botelho (2001) note that under the market reserve, foreign firms were required to maintain a positive trade balance. When this requirement disappeared, multinationals began using imported inputs to a greater extent. IT exports, where they do exist, are mainly directed toward the Mercosul market. Table 5.6 presents IT industry trade data from more recent years, and it is immediately apparent that the trade deficit persists despite government efforts to diminish it. Among the IT subsectors, only telecommunications is able to post a brief trade surplus in 2005.

The commercial deficit of the IT sector is well-known in Brazil. In a 2010 column in *O Estado de São Paulo*, various academics and others connected to the IT industry lamented this state of affairs. One commentator asserted that the government bore its share of blame for the imbalance, as it had ignored incentives to develop technology and instead had focused on the Manaus Free Zone, which despite its design “has always been a zone for assembling imported inputs.” Another contributor praised the establishment of an institute in Porto Alegre (CEITEC) which would develop integrated circuits. However, this contributor also noted that this kind of establishment should have begun in the 1980s, and that Brazil had “lost 30 years” (Tamer 2010).

Table 5.6 focuses on material exports and imports in the IT sector. Of course, the IT industry is much broader than this, and encompasses services as well as hardware manufacturing. Though service activities are more difficult to classify as ‘exports’ or ‘imports’, they can serve as an important link to the international IT market. Moreover, IT services such as business process outsourcing (BPO) have become more internationalized, as global flagship IT firms seek out cost efficiencies in developing countries. For this reason,

many IT firms now use their developing country subsidiaries as locations for servicing international clients with everything from financial consulting to customer service call centers¹⁸⁸. While data on international IT services in Brazil are difficult to come by, Softex (now a non-profit institution) recently conducted a study on the internationalization of the IT service industry. Table 5.7 presents the results of this survey, and Softex's attempt to subdivide IT services into activities such as software consulting, online distribution of content, and so on. This table divides foreign revenue of these activities from total net revenue and also the number of 'exporting' firms that provide these services to international clients. While this is a rudimentary tool for capturing the international dimension of IT service firms in Brazil, it does help illuminate the evolution of this growing IT subsector.

Table 5.6 Commercial balance of the Brazilian IT manufacturing sector, 2003-2009. \$US millions

	2003	2004	2005	2006	2007	2008	2009
Imports	5986.8	8486.6	10632.5	13529.1	15158.3	20124.0	14987.7
Informatics (data processing)	1250.8	1500.8	1948.8	2654.7	2886.3	3611.4	3102.0
Consumer Electronics	320.7	507.6	736.7	985.4	1137.0	1342.3	1158.1
Telecommunications	1574.2	2450.0	3055.4	4061.3	4906.9	7500.2	5040.1
Components	2841.1	4028.2	4891.6	5827.7	6228.1	7670.1	5687.5
Exports	2439.1	2472.2	4248.6	4677.9	3776.1	3962.8	2936.0
Informatics (data processing)	233.7	312.3	460.0	486.9	422.0	379.7	370.0
Consumer Electronics	258.6	264.6	199.1	197.7	231.4	240.8	194.9
Telecommunications	1553.6	1469.9	3188.4	3562.6	2739.9	2953.8	2080.8
Components	393.2	425.4	401.1	430.7	382.8	388.5	290.3
Balance	-3547.7	-6014.4	-6383.9	-8851.2	-11382.2	-16161.2	-12051.7
Informatics (data processing)	-1017.1	-1188.5	-1488.8	-2167.8	-2464.3	-3231.7	-2732.0
Consumer Electronics	-62.1	-243.0	-537.6	-787.7	-905.6	-1101.5	-963.2
Telecommunications	-20.6	-980.1	133.0	-498.7	-2167.0	-4546.4	-2959.3
Components	-2447.9	-3602.8	-4490.5	-5397.0	-5845.3	-7281.6	-5397.2

Sources: SECEX data compiled by BNDES, Gutierrez (2010)

¹⁸⁸ECLAC, in its series of reports on FDI in Latin America, recently recognized the importance of this phenomenon for both developing countries and the global IT sector and put out a special report on offshore business services in Latin America (ECLAC 2009).

These data were only collected for two years, 2004 and 2005. However, the data again point to a relatively low internationalization of IT services. Foreign revenue as a percentage of total net revenue for these activities averages to 3.4 percent. Only the suspiciously vague category “other computer-related activities” displays a substantial international client base¹⁸⁹. Very few firms even have international clients, as evidenced by the exporter rates that hover mostly below 5 percent. These figures do not change in any significant way between 2004 and 2005, though of course a longer timeframe would lead to stronger conclusions about the growth of internationalization. However, based on these preliminary results it does not appear that IT services are well integrated into global networks. More likely, the firms active in IT services (mostly multinationals) have established these Brazilian locations in order to serve the domestic market and the growing IT consumer market.

Thus far I have only discussed Brazilian policy as it relates to three of the four policy categories outlined at the beginning of the chapter: trade agreements, trade liberalization, and export incentives. The last category of incentive is export processing zones. In Brazil’s case, the export processing zone strategy merits separate consideration, given the importance of Brazil’s main EPZ to the IT industry in Brazil. The Free Zone of Manaus (ZFM) was established in 1957 to spur the development of the remote Amazon region and increase exports, through the attraction of domestic and foreign firms. Ten years later, the ZFM was greatly expanded in both physical terms and in government resources. The *Superintendência da Zona Franca de Manaus* (Suframa) was created to supervise the operations of the industrial park. Since the 1960s, numerous firms have set up factories in the ZFM, where

¹⁸⁹Note also that this category only contains 43 firms in 2004, of which only one is an exporter. This one observation is likely to have undue influence, causing the large proportion of foreign revenue.

they can enjoy numerous tax advantages and other incentives¹⁹⁰. Recently, many of these firms have been multinational IT firms, especially contract manufacturers. This occurred because of the increasing IT element in consumer electronics, which have always been a staple of the ZFM. The penetration of IT contract manufacturers in the ZFM is such that one can consider the ZFM and Campinas, in São Paulo state, to be the two poles of the IT industry in Brazil.

Contract manufacturers have become increasingly important for the Brazilian IT sector, as well as for global IT value chains. These firms provide needed components to flagship IT companies, essentially serving as the IT industry's supplier network. Many of these firms have extensive independent design capabilities and substantial design autonomy within their IT supply chains¹⁹¹. These firms (and many others) assemble motherboards, integrate memory into electronics, and perform numerous other functions in the IT value chain. Firms related to the IT industry, broadly defined, dominate the ZFM. While there are other assembly operations in the ZFM (most notably motorcycles), IT goods make up approximately 45 percent of the ZFM's output.

¹⁹⁰These incentives are too numerous to cover comprehensively here, however a few of the most important for export activity are as follows: firms enjoy an 88% reduction in the tax on imported inputs, machines, and equipment; a total exemption from the tax on industrial products (IPI); a zero rate of PIS/COFINS on selected items used for industrialization in the zone; suspension of PIS/COFINS for raw material imports; exemption of ALL taxes and fees (including those of Suframa) for inputs and products intended for export abroad (Suframa 2009).

¹⁹¹Examples of these firms with operations in the ZFM include Foxconn, Jabil, and Elcoteq

Table 5.7 Net revenue of Brazilian software and IT service enterprises resulting from foreign activities, 2004 and 2005. R\$ thousands

Category	2004			2005			2004			2005		
	Foreign Revenue	Total Net Revenue	FR as % of TNR	Foreign Revenue	Total Net Revenue	FR as % of TNR	# of Ex-porters	# of Firms with more than 20 employees	EXP as % of total	# of Ex-porters	# of Firms with more than 20 employees	EXP as % of total
Hardware Consultancy	151286	3091585	4.9	220264	3418919	6.4	8	129	6.2	12	157	7.6
Software publishing	326065	5882307	5.5	334451	7002598	4.8	6	180	3.3	6	194	3.1
Software consultancy	210344	7656279	2.7	307970	8572379	3.6	24	516	5	33	531	6.2
Data processing	8902	3871848	0.2	13672	4656328	0.3	4	435	0.9	4	523	0.7
Database activities and online distribution of electronic content	3640	143221	2.5	69	179540	~0	0	15	0	0	17	0
Maintenance and repair of office, accounting and computing machinery	18978	1732063	1.1	8398	1732729	0.5	3	239	1.2	2	240	0.8
Other computer-related activities	35919	125933	28.5	38702	235257	16.5	1	43	2.3	2	68	2.9
Total	755134	22503236	3.4	923526	25797750	3.6	46	1557	2.9	59	1730	3.4

Source: Associação para Promoção da Excelência do Software Brasileiro, SOFTEX (2009)

The ZFM has been operating for a long time, and through its unique tax status the Brazilian government has succeeded in attracting a number of contract manufacturers and even a few global IT flagships to a remote region. However, the zone was originally intended to serve as an important export base. This goal was eventually abandoned, due to uncontrolled smuggling and firms' desires to access the lucrative internal market (McIntyre et al. 1996). Since 1990, the zone has in fact demonstrated large trade deficits. During the period of liberalization in the early 1990s, the government made it easier for firms to satisfy local content requirements and lowered tariffs in the zone for firms serving the domestic market. When this resulted in trade deficits, the government in 1997 reduced incentives in an effort to promote exports from the zone. This effort failed, in part because the state of Amazonas reversed the suspension of the subsidies due to concerns about the reduction in revenue (ECLAC 1999, 189). Since that time, the trade deficit of the ZFM has worsened. Table 5.8 demonstrates the consistent growth of foreign inputs in the ZFM since 1990, along with the low proportion of foreign sales over the same time period. The ZFM has been operating for some time now as essentially an assembly platform for imported inputs. In addition, most of the high value-added components, such as semiconductors, are imported. The zone is, in effect, an EPZ without the 'E'.

Table 5.8 Import and export patterns for the consumer electronics and IT industry in the Free Zone of Manaus, 1990 to 2009

Year	Source of Inputs (percentage)			Destination of Production (percentage)		
	Regional Inputs	National Inputs	Foreign Inputs	Regional Sales	National Sales	Foreign Sales
1990	41.16	42.34	16.5	20.16	79.71	0.13
1991	38.69	36.77	24.54	22.06	77.76	0.18
1992	33.62	31.73	34.64	16.77	82.83	0.4
1993	22.82	33.08	44.1	13.72	85.94	0.34
1994	24.75	27	48.25	15.16	84.47	0.38
1995	24.69	24.03	51.28	17.88	81.85	0.26
1996	27.42	10.04	62.54	16.91	82.94	0.15
1997	21.31	20.08	58.61	13.12	86.69	0.19
1998	19.39	24.97	55.64	11.05	88.14	0.81
1999	16.1	19.87	64.03	11.31	85.41	3.28
2000	19.78	16.66	63.56	14.99	79.84	5.17
2001	21.95	15.06	62.99	15.53	74.86	9.62
2002	25.27	11.99	62.73	12.08	72.15	15.77
2003	26.13	7.02	66.85	12.62	72.41	14.97
2004	31.5	7.37	61.14	15.08	77.43	7.49
2005	31.66	7.39	60.95	16.62	69.74	13.64
2006	30.45	6.1	63.45	16.55	76.12	7.33
2007	25.15	7.62	67.23	12.47	83.84	3.69
2008	19.02	8.61	72.37	10.5	84.96	4.55
2009	19.13	6.21	74.66	8.84	87.61	3.54

Sources: Superintendência da Zona Franca de Manaus (SUFRAMA 2011). *Indicadores de Desempenho do Pólo Industrial de Manaus*.

While this section has painted a relatively bleak picture of the multinational IT trade balance, it would be a mistake not to acknowledge the few bright spots, some recent, in the industry. Bonelli and Pinheiro (2008) recently detailed the dramatic expansion of cell phone exports from Brazil. Exports in this sector increased from US\$ 0.3 billion in 1994 to US\$ 2.7 billion in 2006. These exports are not limited to the Mercosul market, with significant portion of exports destined for the United States¹⁹². Numerous multinational cell phone makers, including Nokia, Motorola, and Ericsson had established manufacturing facilities in prior years and expanded exports in response to recent policy initiatives. This expansion of

¹⁹²Exports of cell phones to the US reached 85 percent of all exports in 2002 (Bonelli and Pinheiro 2008, 62).

cell phone production is a positive development, and constitutes an important foray into ‘non-traditional’ exports for Brazil. As Gutierrez (2010) points out, no other device or piece of electronic equipment is currently produced in as large a scale in Brazil. Brazil has in effect assumed a position as a leading global manufacturing center for cell phones.

Moreover, as Bonelli and Pinheiro (2008) and Gutierrez and Crossetti (2003) detail, public policy was influential in encouraging these exports. The role of institutions such as the BNDES in supporting cell phone exports is discussed in the next section. While firm characteristics and strategies were certainly important in generating this export boom, public policies and efficient institutions played a role as well.

There are a few other examples of IT exports as well. Botelho et al. (1999) noted that in the late 1990s a few large multinationals began to expand their export operations.

Compaq, for example, became the leading exporter of PCs at the end of the decade, and used its facilities in Brazil as an export base for all of Latin America. Other firms followed the same strategy, mostly focused on Mercosul. Finally, while exports from IT firms in Brazil were modest overall, the conditions for export-oriented production do exist in Brazil.

Specifically, the abundance of well-trained computer engineers bodes well for future export initiatives. The supply of English-speaking workers in the IT industry is also substantial.

These are partly legacies of the market reserve policy of the 1980s, which though not oriented to international competitiveness did succeed in creating an IT industry in Brazil and the accompanying skill sets among IT workers.

5.4.5 IT exports and domestic institutions

The export potential of the IT industry in Brazil, coupled with poor export performance, begs explanation. Why do IT multinationals not use Brazil as a location for efficiency-seeking investment, given the country’s advantages? Those firms that do export

from Brazil primarily target the Mercosul market and other countries in Latin America. However, this exporting is not substantial given to the number and diversity of multinational firms active in Brazil. The IT industry's substantial trade deficit is a problem, and this problem derives from a failure to export in significant amounts. During interviews with 14 multinational firms in the Brazilian IT sector (9 global flagships and 5 contract manufacturers), numerous explanations for low export performance were offered¹⁹³. Many of these explanations centered on firm strategy or macroeconomic conditions in the international economy. However, the firms also pinpointed a number of problems in the policies and institutions designed to promote exports. Predictably, many firms identified high exchange rates as a significant disincentive for exports. Firms also frequently cited high labor costs in Brazil as an impediment to exports.

However, firms also revealed other more interesting insights about export promotion. A number of contract manufacturers active in the ZFM commented on the basic productive processes (PPB), which were put in place to guarantee a certain amount of local production and value-added. These requirements, according to firms, were difficult to satisfy and imposed a constraint. At the same time, the PPB requirements did not necessarily induce firms to do anything in Brazil more than assembly. In other words, they did not act as an incentive to locate high value-added activities in Brazil. Most of the CMs interviewed claimed that the inputs with the highest technological content in their production chains were imported. Firms would then assemble in Brazil and ship mostly to other multinationals in Brazil, which would then sell these components to Brazilians. A representative of one CM

¹⁹³Seven of the nine flagships had significant IT service activity, and table 5.5 reflects this smaller group. Also in table 5.5, those flagships and contract manufacturers with significant manufacturing activity were grouped together in the last column, producing 11 firms.

operating in Manaus claimed that incentives of the ZFM combined with labor law restrictions and other factors to keep exporting unappealing.

A few firms also reinforced the point that export promotion policy in Brazil was still focused on small firms, mostly Brazilian-owned. While enhancing exports among small and medium IT firms is an understandable priority for Brazilian administrations, it does little to impact the trade balance problems in the Brazilian IT sector. The IT industry is now dominated by large multinational firms, not only in the top tiers of value chains but also in supplier networks of contract manufacturers. While programs like Prosoft (before its revision) may succeed in supporting smaller firms, they are unlikely to generate significant export activity. One firm representative of an IT flagship suspected that Brazilian politicians were still attempting to create national champions in the IT industry, and that export incentives were more widely available for these firms because of this desire.

Among IT firms engaged in IT services, such as consulting and outsourcing, many identified a specific barrier to expansion of their international client base. These firms complained that Brazilian export promotion policy had been exclusively focused on hardware exports, to the exclusion of both software and services. That is, Brazilian policy had prioritized IT manufacturing (printers, PCs, etc.) and had neglected incentives for less tangible products. This is similar to the complaint raised by firms about R&D incentives linked only to manufacturing, detailed in chapter four. Firms claimed that Brazil had not yet managed to effectively incentivize the diverse ways in which the IT industry is internationally integrated today. For example, one flagship IT company representative with an established research lab in Brazil claimed that 100 percent of its ‘product’ was exported, in the sense that it provided services for international clients exclusively. This firm had no

reported sales, but the export incentives offered by the government were exclusively focused on sales of IT hardware. This sentiment was echoed by another multinational firm with extensive R&D facilities and no manufacturing output. As this firm is entirely focused on R&D in Brazil, it is unable to take advantage of export incentives. According to the firm representative:

There are few incentives to attract international customers that are not centered on local manufacture of goods or agribusiness production. As our major activity is R&D in the country, and without manufacture, we have received no local incentives and there are almost none available. Existing ones for pure play R&D are quite limited and difficult to apply for.

This manufacturing focus is perhaps understandable for export incentives, but it fails to take into account the diverse ways in which IT firms 'export' in the current economy. The lack of export promotion policy mechanisms for these intangible elements of the IT industry in Brazil constitutes a serious barrier to its further integration into global production networks.

IT firms had praise for FINEP as a responsive, agile institution. A number of firms mentioned that FINEP had been easy to work with, especially since its resources were expanded in 2005. The export-promoting activities of the BNDES did not receive as universal acclaim as its innovation-promoting activities. Interestingly, some of the contract manufacturers had praise for two government ministries: the Ministry of Science and Technology (MCT) and the Ministry of Development, Industry, and Trade (MDIC). The MDIC oversees Suframa in Manaus, which is probably why the institution was mentioned. The MCT is intricately linked to the IT industry in Brazil, and serves as an important advocate within the government. Interestingly, one firm respondent claimed that the MCT was fully aware of the problems in export promotion policy applied to IT, particularly the

disconnect between primarily manufacturing-based incentives and IT firms engaging in IT service activities. According to this respondent, other ministries and agencies in the government were not listening to the MCT. This respondent characterized this as “very odd and out of sync with a modern society, as Brazil actually is.”

IT firms identified other institutional deficiencies which prevented the emergence of a coherent, sustained export promotion policy. Despite the creation of ABDI and the change in the role of APEX, some firms claimed that it was still not clear where the responsibility lay for IT industry promotion. Given the large number of institutions and agencies, this is understandable. Lula’s two industrial policy frameworks, the PITCE and then the PDP, accomplished some inter-institutional coordination based on a strategic vision. However, firms did identify incentives which seemed to be applied on an *ad hoc* basis by different institutions. One firm representative claimed that the approach towards export promotion was uncoordinated, and demonstrated a lack of strategic thinking by the country’s leadership about Brazil’s “IT potential”.

Export promotion in IT has been largely unsuccessful in Brazil. In a recent report on the IT industry in Latin America, ECLAC (2007, 100) characterized the Brazilian IT hardware industry as follows: “an industry based on the local assembly of imported components, mainly targeting the local market, and, secondly, exports generally confined to Latin American markets.” This section has outlined the interlocking elements of industrial policy in the IT industry, almost all of which reinforce this market-based investment model. Brazil may yet become an export platform for multinational IT firms. However, current and past elements of policy and institutional characteristics make this less likely.

As a contrast to these negative examples of institutional inconsistency and uncoordinated promotion policies, we can consider the case of Brazil's cell phone exports. The success of this sector in generating a positive trade balance deserves explanation. What was different about cell phones? What role did domestic institutions play in generating this export boom? There are a number of elements which came together to generate this outcome, and they illustrate the importance of active policies and efficient institutions. First, it must be noted that the privatization of Telebrás in 1998 allowed multinational cell phone manufacturers, and their CM partners such as Flextronics and Jabil, to enter the Brazilian market. The cell phone sector in Brazil was dominated by multinational assemblers and contract manufacturers by the early 2000s. Privatization as a passive policy measure encouraged new FDI in the sector and market-seeking strategies, but it was not until the revival of industrial policies that exports really took off. The informatics law encouraged a number of cell phone manufacturers to establish local R&D centers. Among these were Motorola's *Instituto Eldorado*, the R&D centers for Motorola in Jaguariúna (a \$20 million development center was launched in 2004), Ericsson's R&D center in Indaiatuba (inaugurated in 2001), and Siemens' and Nokia's R&D centers in Manaus (Bonelli and Pinheiro 2008; Gutierrez and Crossetti 2003). All of these centers were incentivized by the informatics law. As Bonelli and Pinheiro (2008, 77-78) point out, several software programs created in these centers, developed in close connection with local universities, were subsequently exported.

State incentives for production and export were important in the case of cell phones. The incentive structure was closely coordinated by the BNDES, which worked with the firms to satisfy their export requirements while also encouraging domestic technological effort.

Among the incentives negotiated between the government and cell phone manufacturers (and CMs) were the following, as identified by Gutierrez and Crossetti (2003):

- Drawback: this exempted exporting firms from paying taxes on imported goods used to manufacture exports
- The Blue Line: this was a special duty process established which allowed goods to go through customs quickly, sometimes at the firm itself (as was the case with Motorola)
- RECOF: similar to drawback, this allowed firms to avoid the tax on imports and the tax on industrialized products, dependent on a promise to reach a predetermined export goal

The BNDES helped coordinate negotiations with federal tax authorities to ensure the cell phone manufacturers had access to these incentives and could fulfill the requirements. The BNDES also offered the firms substantial investment loans, especially after 2000¹⁹⁴.

The example of cell phones provides a useful counterpoint to broader trends in the IT sector in Brazil. Cell phone manufacturing is dominated by multinationals, yet the R&D efforts and exporting efforts of these firms have increased, especially in the last six years. Net exports of telecom equipment (mostly phones) went from negative \$1.5 billion in 1998 to positive \$1 billion in 2005 (Bonelli and Pinheiro 2008, 81). The role of the state was crucial in this transformation. The informatics law was influential in establishing local innovative effort in the late 1990s, and was reinforced by the measures contained in the PITCE and PDP industrial policies. Moreover, the export incentives coordinated by the BNDES helped move firms from market-based manufacturing (which was dominant before

¹⁹⁴Disbursements to telecommunications firms increased from \$26.1 million in 1990 to \$2.5 billion in 2000 (Gutierrez and Crossetti 2003, 47).

2005) to export orientation. We also see in the BNDES relationship two important institutional characteristics which I argue are important to increasing state leverage: coordination and close firm-state networks. The BNDES and federal tax authorities worked with the firms to create the special tax regimes for the manufacturers. Bonelli and Pinheiro (2008) also point out the close connections between these firms and local universities, encouraged by institutions like CNPq.

5.5 Institutions and the Commercial Balance of Multinational Firms: A Synthesis

Given the record levels of exports attained by Brazil in the early 2000s and the relative resilience of Brazil's economy to the global financial crisis, it may seem incongruous to focus on the failings of Brazil's export promotion policies. The purpose of this chapter is not to paint a negative picture of Brazil's prospects for trade-based growth, but rather to detail the ways in which export promotion policies and institutions impact the models of investment pursued by multinational firms active in Brazil. The conclusion reached is that on balance the institutional characteristics in Brazil have significant negative impacts on the trade balance of multinational firms. Multinationals in both the auto and IT industries have not been consistently encouraged to prioritize export-oriented production. This is less true in the auto sector, where export incentives have a longer history, than in the IT sector. In Brazil, indirect and non-discriminating investment promotion, channeled through multiple institutions, has contributed to negative trade balances.

Given these broad trends, it is important to emphasize the differences between the IT and automotive industries. In the case of automotive, the emergence of integrated value chains in Brazil and Argentina, along with Mercosul-based trade networks for finished cars, qualifies the conclusion somewhat. Auto assemblers like GM, Ford, and especially VW

export from Brazil in large amounts and have been incentivized to do so. However, these exports consist mainly of vehicles with limited export potential outside the Mercosul framework. It is also important to note that many of these export markets grew considerably after the imposition of a highly illiberal and sector-specific incentive package, the automotive regime of the mid-1990s. The declining automotive trade balance helped generate this set of interventionist policies, but the plants that established local operations in response to the RA have remained active exporters. There were a number of serious problems with the RA, including unsustainable incentives and uncontrolled interstate competition. Moreover, many of its requirements are illegal under current WTO rules. However, the RA did succeed in attracting a number of new automotive assembler plants in the 1990s. Many of these plants now export.

In the case of auto parts, the internationalization of the industry in the 1990s was thorough and rapid. Most of the higher tier suppliers in Brazil are now multinational, and Brazilian-owned firms are concentrated on the lower rungs of the supply chain. Many of the multinational parts companies followed the flagship assemblers to Brazil, where they continue to experiment with different forms of modular production. Multinational auto parts companies generated significant increases in auto parts exports, but they also relied heavily on imported inputs. While the rapidly evolving nature of the global automotive industry undoubtedly has had a large impact on trade patterns, the largely passive approach to export promotion from the 1990s forward has also played a role. The auto parts network in Brazil did not have anything resembling the RA to guarantee protection and incentivize exports. The plurality of auto parts exports are to the Mercosul market, suggesting the deepening of

value chains in that regional market. However, auto parts imports come mostly from Europe and Japan, and much of the high value-added work is done abroad.

In IT, the industry's large trade deficit is a problem. Brazil has not been able to generate a sizeable IT export market, despite some attempts since the end of the market reserve. Multinational IT hardware firms active in Brazil are import-intensive. This is true for IT services as well, where IT firms concentrate on serving domestic clients. This is especially striking given other large developing countries' successes in establishing international IT service industries. The EPZ in Manaus serves as an assembly location for many contract manufacturers, but exports from this location are not substantial in comparison. This is despite significant tax breaks inside the zone and favorable export financing.

I have argued in this chapter that it is important to account for different models of global value chain governance, fluctuating exchange rates, and differences in factor endowments when explaining export patterns. However, I also argue that the capacity of state institutions for the implementation of discriminating investment promotion policy has an impact. Based on firm interviews, in which respondents often brought up the quality of governance as often as they did the exchange rate, this conclusion is warranted. In Brazil's case, there are a number of obstacles to effective investment promotion. In a study conducted in 2008 by the World Economic Forum, elaborated in partnership with *Fundação Dom Cabral*, Brazil ranked relatively well among 134 countries on various competitiveness scores. However, on the subject of institutions Brazil ranked 91st. The report noted the "institutional fragility" present in Brazil, and highlighted a number of problems with institutional efficacy. Among these were an "excess of public regulatory agencies not

completely disassociated from political parties” and “frequent legislative changes that affect the private sector and increase the risks associated with investment” (Grabois 2009).

The proliferation of export-promotion bodies within the bureaucracy undercuts a unified strategy for export promotion. In interviews with representatives of various governmental bodies, including the MDIC, the BNDES, the Central Bank, and the MCT, the lack of coordination among investment promotion bodies was invariably mentioned as an impediment to coordinated, effective export promotion. However, many of the representatives of these bodies were pessimistic about the possibilities for change, as many institutions were “territorial” about their mandates.

While some institutions remain ‘islands of efficiency’, others work with differing priorities. Many of the export-promotion initiatives during the last two decades have been undercut by lack of financial support, as was the case with Softex. Those that do have adequate funding levels, such as the BNDES, sometimes deal with fluctuations in those resources. In the case of IT, the focus on small firms may have rescued some Brazilian-owned software companies, but it did little to address growing trade balance problems brought on by large multinationals’ investment models. Also in IT, the disconnect between the growing intangibles of the global IT industry and the manufacturing-based export incentives hurt export performance. This lack of focus on intangibles stems partly from undeveloped networks between state institutions and IT firms, and a resulting lack of understanding. Finally, the inconsistencies and reactive nature of Brazilian export promotion policy must be emphasized. Successful export promotion policies must adopt a long view, geared toward international competitiveness and continual industrial upgrading. They should

not be implemented solely to correct trade balance problems or to compensate manufacturers for a strong currency.

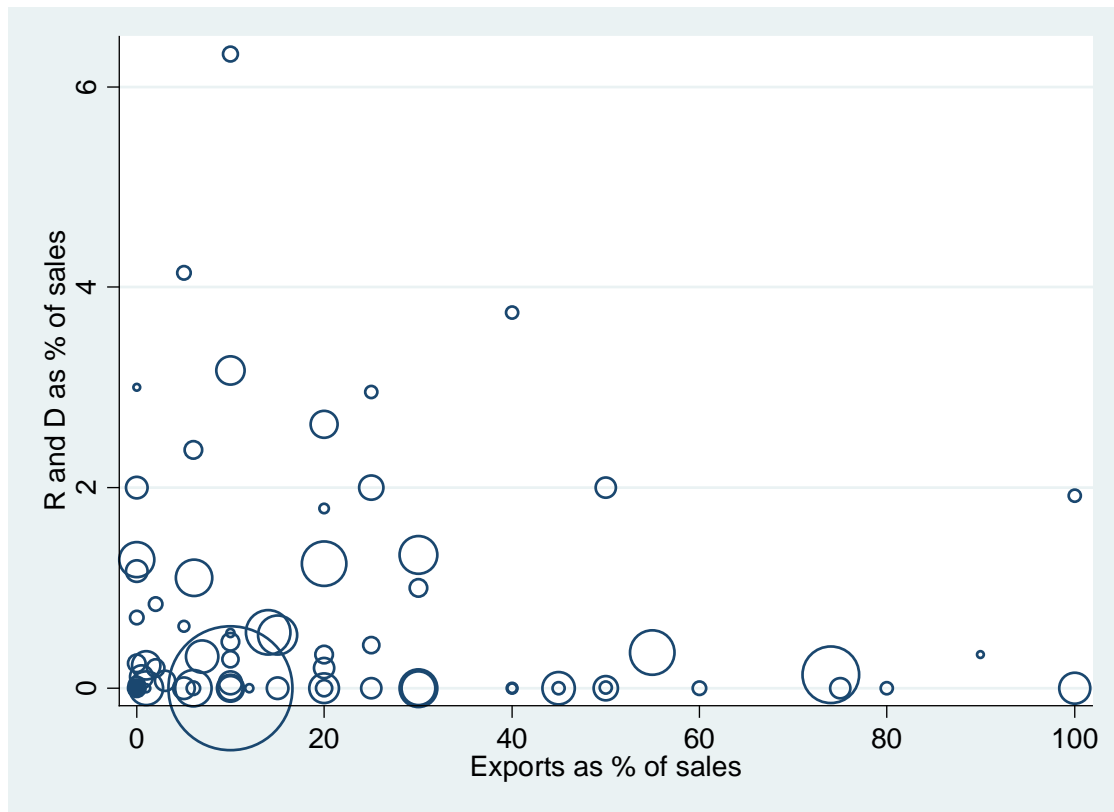
Brazilian administrations have had successes in export promotion policy since the 1990s. The establishment of Mercosul represented a momentous, if indirect, incentive for export-oriented FDI. Recent niche export markets, such as the one in cell phones, are encouraging and partly the result of focused investment promotion. However, the general trend since the 1990s has been one of passive and indiscriminate investment promotion, resulting in a primarily market-oriented model of FDI. The unique characteristics of institutions within the Brazilian state have contributed to this state of affairs.

5.5.1 Combining export orientation and innovation in Brazil

In this chapter, I have argued that the trade balance of multinational corporations operating in Brazil has been unimpressive, despite a few bright spots. This indicates primarily market-oriented investment models, which although valuable are viewed as less conducive to industrial upgrading and developmental spillovers. In the previous chapter, I analyzed the innovative contributions of multinationals in Brazil, and argued that Brazil had not yet realized a great deal of innovation-intensive FDI. By way of conclusion, I examine the two dimensions of FDI in conjunction. Is there any evidence of investment models in Brazil which are simultaneously export- and innovation-intensive? In much of the literature surrounding FDI, this type of investment is the gold standard for developing countries. I have periodically alluded to this combination throughout the chapter. While the lack of comprehensive firm-level data on both dimensions makes definitive claims difficult, a provisional examination is presented here. Figure 5.2 relays data from a small-sample survey conducted by Investe Brasil in 2003, in conjunction with the Investment Climate Survey

operated by the World Bank. Eighty five firms with foreign controlling interest from diverse sectors agreed to hand over operating data, on the condition that they remain anonymous. While this is a small sample, the extensive survey data allow a comparison of export activity, measured by exports as a percentage of sales, and innovative activity, measured by R&D spending as a percentage of sales.

Figure 5.2. R&D and export propensity among 85 multinationals operating in Brazil



Source: Investment Climate Survey, 2003 undertaken by Sebrae, CNI, and Investe Brasil, in partnership with the World Bank. Based on confidential interviews with heads of 85 corporations with foreign controlling interest.

Note: Firms weighted by number of employees. Larger circles represent larger numbers of employees.

This figure reveals some interesting possibilities. First, note the large number of firms that congregate at low levels of both measures. This is consistent with the data presented in this chapter and the previous. Second, those firms which score highly on the export measure fail to exhibit substantial R&D activity, and those that do spend on R&D are

not particularly export-intensive. This would be consistent with the following propositions: that export-oriented firms operating in Brazil are not conducting local innovation, and that firms with local innovation are primarily oriented toward the domestic market. This is also consistent with many of the conclusions about the dominant patterns of FDI in Brazil and to some extent, Latin America.

While these data are too limited to form firm conclusions, they suggest that FDI in Brazil may not be characterized by high spillover potential. In this chapter and the preceding, I have analyzed the ways in which the forms of investment since 1990 have been conditioned by Brazilian investment promotion policy and the characteristics of state institutions. I have argued that firms do not operate in a vacuum – that the conditions present in the host country have an important impact on the ultimate form of investment. Moreover, firm judgments about institutional efficacy have important implications for FDI-related benefits. In the next chapter, I apply these ideas in comparative context. I conduct an econometric analysis of firm-level data in numerous developing countries, and then compare Brazil's investment promotion efforts to a select few Latin American cases.

Chapter 6

State Institutions and Models of Investment: Beyond Brazil

6.1 Introduction

In the previous chapters, I have elaborated on the importance of state institutions in determining not only the composition of aggregate foreign investment inflows but also the investment models pursued by individual firms. Brazil's policy and institutional framework towards FDI has often been disjointed and uncoordinated, with isolated periods and institutions of efficacy. Throughout the preceding chapters, I have argued that during the periods in which the Brazilian state was able to exert its existing leverage on multinational corporations and thereby increase the chances of developmental spillovers, the institutions responsible for this leverage were well-coordinated, closely networked with firms, and consistent. In the current chapter I extend the argument on the importance of state institutions beyond Brazil. I do this along two different tracks. First, I develop an econometric test which links measures of institutional efficacy and quality with firm profiles using large-n surveys of multinational firms in the developing world. This section asks whether domestic political institutions matter to the investment profiles of firms, specifically whether well-regarded institutions increase the likelihood that countries attract R&D and export-intensive forms of investment. In another part of this chapter (section 6.5), I move beyond the firm surveys to consider the institutional context for FDI in three other Latin American countries: Chile, Costa Rica, and Mexico. These countries, like Brazil, have seen

a dramatic increase in FDI since the 1980s. However, the countries display differing investment profiles. I argue that these differences are partly the result of varying institutional settings. The case studies provide more contextual depth to already elaborated arguments about the importance of institutions. The case studies also serve as a regional contrast to the Brazilian experience with foreign investment, and illustrate in a more specific way the mechanisms through which institutional variation contributes to differing firm profiles. The results of both parts of the analysis fortify the broad conclusion that the institutional characteristics have an impact firm investment profiles.

Before proceeding, it is necessary to briefly consider the meaning of institutions in the context of the current chapter. In previous chapters, I have opted for a more restricted definition of institutions, similar to that of Williamson (2000), who concentrates on formal and organizational aspects of institutions. In previous chapters, I have used institutions to refer to organized, formal state bodies. I have separated institutions from state policies and strategies, in order to analytically separate and isolate the effects of policies from institutions. Neither Williamson nor I deal with normative or belief systems, culture, or other informal elements of institutions that vary from country to country. North (1990; 1994) adopts a more expansive definition of institutions, defining institutions as formal rules (constitutions, laws and regulations) and informal constraints (norms, conventions, and codes of conduct). While I continue to avoid the inclusion of cultural characteristics in the institutional framework, in this chapter I include rules, regulations, and policies in the context of institutions. Whereas in previous chapters I limited institutions to state bodies and agencies and developed theoretical linkages between institutional characteristics and firm investment models, in this chapter I expand the definition of institutions to accommodate rules and regulations affecting

multinational firms. I retain the emphasis on formality. North refers to formal institutions as determining the ‘rules of the game’, which of course encompasses a great deal of potential influences, including policy initiatives and changes in legal frameworks. This degree of “conceptual stretching” (Sartori 1970) is necessary in the context of cross-national comparisons of institutional efficacy and associations with firm investment models.

6.1.1 Cross-national literature on firm entry models and the determinants of FDI

This chapter poses the question: do host country institutions impact the export and innovation characteristics of FDI in developing countries? As such, it necessarily contemplates a number of diverse literatures from international business studies and international political economy. In the field of international business studies, scholars have long debated the reasons why firms adopt the investment models they do. Naturally, much of this literature concentrates on factors internal to firms which determine firm strategy. The decision to invest abroad rather than export or license is determined by a number of variables, from the size of the firm to the presence of intangible assets (Wolf 1975, Grubaugh 1987). Dunning’s (1980) influential ownership, location, and internalization (OLI) framework is an enduring taxonomy of investment motivations, and has informed much subsequent research on why firms invest abroad.

Beyond the decision to invest abroad, however, the determinants of the specific forms of direct investment have also occupied international business theorists. Much of this work considers the initial ‘mode of entry’ for foreign firms. Traditionally, international business scholars have concentrated on ownership control. That is, they have asked what determines whether multinationals engage in joint ventures or wholly-owned subsidiaries (Gatignon and Anderson 1988, Kogut and Singh 1988, Agarwal and Ramaswami 1992, Hill et al. 1990).

Others have investigated why firms choose greenfield investments or opt for mergers and acquisitions (Dikova and Witteloostuijn 2007, Meyer et al. 2009, Meyer and Nguyen 2005). Though these and other studies come to varying conclusions about what determines the mode of entry of foreign firms, the independent variables they emphasize can be divided into three rough categories. On the one hand, there are those who, absorbing the main conclusions of Hymer (1976), emphasize internal firm characteristics, not host country characteristics, as determinants of firm investment models. These analysts tend to rely on transaction cost explanations for firm investment models, which propose that firms internalize operations abroad in order to minimize transaction costs which may be too high in a market transaction context. Scholars have proposed different relationships between transaction cost strategies and resulting firm ownership patterns (Gatignon and Anderson 1988, Meyer 2001, Brouthers 2002)¹⁹⁵. The second broad category of entry mode analysis asserts that national cultural characteristics have a more important impact on firm strategies (Agarwal 1994, Hennart and Larimo 1998). Kogut and Singh (1988) argue that cultural distance and attitudes about uncertainty avoidance impact firm ownership patterns. Brouthers (2002) also considered cultural influence on entry modes, ultimately deciding that transaction cost explanations were more convincing.

The final category of explanations for firm entry modes considers the role of formal institutions in host countries. The institutional perspective establishes links between institutional characteristics in host countries and modes of entry, most often the choice between joint venture and wholly-owned subsidiary (Kogut et al. 2002, Smarzynska and Wei 2000, Meyer et al. 2009, Meyer and Nguyen 2005). These works claim that firm entry

¹⁹⁵Other firm-centric analysts have suggested it is not transaction costs in individual countries but global firm strategies that determine the entry modes of firms (Hill et al. 1990).

modes depend crucially on host country institutions such as infrastructure quality (Wheeler and Moody 1992), the rule of law and government policy (Asiedu and Esfahani 1998), and political hazards (Henisz 2000). In some ways institutional explanations for firm entry modes are not new. Kobrin (1976) asked about the political determinants of manufacturing FDI long ago. However, institutionalist explanations have enjoyed a notable resurgence in recent years in the entry mode literature. Early in this resurgence, Meyer (2001) argued that institutional reforms in developing countries made wholly-owned subsidiaries more likely. Recent studies have considered how institutional environments in host countries determine the likelihood of greenfield investments (Dikova and Witteloostuijn 2007) and foreign control (Slangen and Tulder 2009; Meyer et al. 2009). Dunning and Lundan (2008, 580) expressed enthusiasm for the revival of institutionalist arguments within the eclectic (OLI) paradigm for multinational enterprises: “We think that there is no reason why this kind of institutional reasoning should not be extended to analysing the cognition, motives and behaviour of MNEs.” Similarly, Dikova and Witteloostuijn (2007, 1014) noted that institutionalist arguments were “long-neglected” in the mode of entry literature, and that new research in this vein was welcome.

While international business scholars have (re)discovered institutions as important predictors of firm investment strategies, the application of these ideas to specific investment outcomes has been somewhat limited in scope. There are a handful of analyses which link firm diversification and product differentiation to institutional variables (Peng and Delios 2006, Peng et al. 2005). However, most studies in the entry mode literature still use the joint venture versus wholly-owned subsidiary or greenfield versus M&A as the primary dependent variables. If, as Dunning and Lundan (2008) suggest, there are numerous other potential

linkages between institutions and aspects of MNE behavior it seems logical to extend institutional analysis to other kinds of investment model variation. In this dissertation, I have focused on institutional links with innovation and efficiency-oriented investments. By extending the entry mode logic to these other kinds of investment model variation, new associations between institutional characteristics and investment models may be uncovered.

There are very few works in the extant international business literature which link institutional configurations to innovation patterns among firms, perhaps because the internationalization of R&D in the developing world is a relatively new phenomenon. In an early attempt at linking institutional attributes with R&D outcomes, Davidson and McFetridge (1985) argued that cultural and geographic proximity increases the chances of internal technology transfer to subsidiaries of multinational firms, and that policy initiatives such as equity controls decreased the probability of transfer. Oxley (1999) argued that technology-intensive firms adopted hierarchical models when intellectual property protection was weak in host countries. More recently, Álvarez and Marín (2010) argue that both institutional ‘stability’ and the consolidation of national systems of innovation are important drivers of inward FDI. However, more often than not innovation has appeared on the right hand side of works in the mode of entry literature. That is, analysts have used innovation in multinational firms (most often measured as the R&D spending to sales ratio) as an important predictor, sometimes alongside institutional variables, that may predict ownership patterns (Gatignon and Anderson 1988, Smarzynska and Wei 2000) or the decision to invest abroad itself (Kimura 1989).

Beyond the international business and mode of entry literature, which take firm-level approaches, there are some works that examine institutional effects on multinational

investment patterns in broader context. As mentioned in previous chapters, much recent work on the institutional determinants of FDI flows has examined political variables as potentially important predictors. Work on state corruption (Wei 1997, Wei 2006) demonstrates a link between corrupt political institutions and decreased foreign investment. There are numerous studies on the linkages between institutional characteristics such as regime type or number of veto points and investment patterns. Yet these studies mostly link national-level institutional variables with levels of investment, not dominant characteristics of investment models. Pauly and Reich (1997) established linkages between firm investment strategies (including R&D spending) and institutional characteristics in the home country of multinationals, but do not consider the same characteristics in the host country. In sum, both IPE literature and international business literature have not adequately addressed potential linkages between institutions and specific activities of multinational firms beyond ownership patterns and greenfield/M&A dichotomies.

6.1.2 Theoretical argument and hypotheses

Multinational firms make decisions about where to locate the specific activities of their value chains based on a wide variety of factors. Among the largest multinationals, the potential location options for where to locate an R&D center, for example, might include countries on every continent. These decisions are made based partly on internal firm characteristics. However, we should not discount the influence of host country institutional environments. Dunning and Lundan (2008) point out that institutions in host countries should be considered an important component of 'locational' incentives in the OLI framework. That is, variations in institutional structures should, alongside other traditional

locational advantages such as wage rates and worker skill levels, present both benefits and drawbacks for firm investment models.

Among the works considering the impact of domestic institutions on firm entry mode, many have pointed out that institutions can serve an important role in reducing risk and uncertainty for overseas investments. Slangen and Tulder (2009), for example, argue that low institutional quality in host countries drives firms toward joint venture models of investment, as firms in these environments are concerned about a variety of expropriation risks and policy instabilities, therefore preferring to partner with local firms. Limited legal infrastructures, corruption, and inconsistently applied policy serve to increase uncertainty, and therefore impact firm decisions. Meyer (2001, 358) argues that institutional weakness means that firms must “negotiate with agents inexperienced in business negotiations; they face unclear regulatory frameworks, inexperienced bureaucracies, underdeveloped court systems, and corruption.” These characteristics of weak institutions necessarily increase transaction costs for foreign firms, and affect not only ownership structures but other investment characteristics. Other works in the entry mode literature refer to more narrow ‘political risk’, defined as an unfavorable change in regime or policy, as affecting firm investment models (Agarwal and Ramaswami 1992, Henisz 2000). However, this kind of risk can derive from the characteristics of host country institutions, even if institutions are not explicitly acknowledged.

Beyond the firm entry mode literature, much work on the political determinants of FDI revolves around uncertainty-minimization strategies of firms. The debate about whether democracies or authoritarian regimes attract more FDI (Jensen 2003, Li and Resnick 2003, O Neal 1994, Kenyon and Naoi 2010) asks which form of government lowers uncertainty for

firms. Busse and Hefeker (2007) argue that among other factors, governmental stability and the absence of internal political conflict are associated with more investment from abroad. Brunetti, Kisunko, and Weber (1998) and Schneider and Frey (1985) echo these findings, showing that political instability can scare off investors by threatening the predictability of the business environment. According to these studies, it is the consistency and stability of governments that gives potential investors the assurance that their long term investments will not be threatened.

Taken together, these two strands of literature suggest that firms are interested in lowering uncertainty, and that strong institutions send a positive signal to firms interested in consistency and predictability. As FDI is a substantial commitment, with longer time horizons than other forms of investment, this makes intuitive sense. I contend that increases in institutional quality are perceived positively by firms, as they reduce uncertainties associated with foreign investment and associated transaction costs.

Beyond general associations, however, there are additional reasons to believe that increases in institutional quality may be associated with specific activities of firms. Both export and R&D intensity are more likely in environments of higher institutional quality. Within the field of economics, researchers have often attempted to identify the determinants of export orientation among multinational firms. Kumar (1994) finds that economic factors such as wage rates and industrial capability are important determinants of export-oriented production among multinationals in developing countries. Other economists have identified factors that lead to increased local innovative activity among multinationals¹⁹⁶. These studies all adopt a micro-level approach to innovation and exporting, using firm case studies

¹⁹⁶See Cohen (1995) for a review of the literature on multinational innovation in developing countries. Also see Kumar and Siddharthan (1994) on innovation in India and Braga and Willmore (1991) for an economic case study on innovation among multinational firms in Brazil.

and country-specific data to show the economic determinants of firm investment profiles. However, few of them consider political/institutional variables.

Multinational firms considering countries as export platforms must consider institutional characteristics to a greater degree than those firms considering pure market-seeking strategies. As noted in the introduction and the previous chapter, intrafirm trade is increasing in Brazil (Corrêa de Lacerda 2003) and other developing countries (UNCTAD 2002), both as a share of FDI-related trade and of total trade levels. This suggests that firms are integrating their global value chains to a greater degree, and relying on FDI more in the search for productive efficiencies. However, this integration can also bring risk. As value chains become more complex, disruptions to any part of the chain can cause serious repercussions for the entire chain. Efficiency-oriented investments, therefore, must ensure stability. Furthermore, efficiency-oriented investments must contend with institutions when paying duties or engaging with regional trade blocs. Even in Export Processing Zones, the stability and quality of the various 'rules of the game' must be taken into consideration. This suggests that export-oriented investments, by virtue of their complexity, are often more seriously impacted by host country institutions than other forms of investment. Consistent implementation of policies by well-functioning institutions should mitigate these risks for firms.

The same can be said for innovation-intensive investments. As I have noted previously, R&D is increasingly conducted away from the home offices of multinational enterprises, and often in the developing world (UNCTAD 2005b). When confronted with choices for where to locate R&D activities, the institutional environment in potential host countries looms especially large. Meyer (2001) notes that a poor institutional framework in

developing countries may not provide adequate protection for intellectual property rights. If a judicial system is corrupt, or property rights are not consistently enforced, a technology-intensive firm may not be able to effectively transfer intellectual property (Oxley 1999). Furthermore, as Dikova and Witteloostuijn (2007) point out, R&D-intensive firms are likely to benefit from well-administered labor markets, which strong institutions can provide. The bottom line is that innovation-intensive investment is risky, especially if the firm has proprietary rights over intangible assets. Well-functioning institutions should help to reduce the risk for these kinds of investment, and may facilitate technology transfer without the danger of unauthorized diffusion of intellectual property.

Based on these propositions, it seems likely that strong institutions in host countries serve to reduce risk and uncertainty, leading to not only higher levels of FDI but also varying forms of FDI. As multinationals consider where to locate export operations or R&D activities, they must consider a wide variety of factors both internal and external to the firm. However, the institutional setting in the host country can be an important locational determinant of investment strategy.

If we move from the perspective of the firm considering investment to the perspective of the country attempting to attract investment, there are yet more reasons to suppose that institutional quality matters. Developmentally-minded governments have long prioritized export and technology-intensive forms of investment. Exporting is beneficial for the balance of payments in developing countries; it brings in foreign exchange and can increase the international competitiveness of domestic firms that have partnered with multinationals. Export-led development, while not always successful, is a consistent priority of developing country governments, especially in the time since the collapse of import-substitution

industrialization. The same may be said for innovative activity. Changes in worldwide production networks have increased the importance of innovation as a catalyst for development. The location of innovative activities within multinational firms is subject to many of the factor-price pressures previously associated with labor. Developing countries may now compete to attract innovation centers as strongly as they competed on the basis of unskilled labor price in the past. Developing countries may realize significant benefits from local innovative activities. Multinational firms engaging in local research and development, for example, often generate spillovers in the form of new production methods, new products, and increased linkages with domestic supplier firms. Firms may move to higher value-added products, and engage in a virtuous cycle of technological upgrading.

Both exporting and research and development activities in developing countries carry some risks for firms. These activities move the firm away from what may be a basic horizontal approach to investment: reproduction of a product for sale in a domestic market. Firms that choose to export from developing countries may confront difficulties in navigating customs regulations or integrating global value chains. Similarly, firms choosing to locate innovative activity outside their headquarters must contemplate the possibility that their innovations may not be protected from theft, or that foreign regulations may reduce their capacity for commercial application of innovations. In all of these cases, the characteristics of domestic institutions will have important implications for investment models. Therefore, the two complimentary hypotheses of the cross-national analysis may be specified as follows:

H1: Export-intensive FDI is more likely when host country institutions are evaluated (either by outside observers or the firms themselves) as well functioning.

H2: R&D-intensive FDI is more likely when host country institutions are evaluated (either by outside observers or the firms themselves) as well functioning.

6.2 Testing the Argument: Country-Level Analysis

The analysis makes use of firm survey data to test the hypotheses on institutions and firm investment models. The hypotheses I propose separate perceptions of institutional coherence among outside experts and among the firms themselves. I test both in this analysis. For the first test, I conduct country-level regressions of aggregated firm investment models and governance indicators established by outside observers. In the sections that follow, I detail the data chosen for the dependent variable, independent variable of interest, and the control variables. I then elaborate the model used for the estimation, and after a short discussion of methodological concerns I relay the results of the analysis.

6.2.1 *Dependent variables*

Various analysts have pointed out that aggregate yearly FDI data used in many existing studies are often used to test what are essentially firm-level hypotheses (Haggard 1989, Jensen 2006). Yet this is far from ideal. Firms make individual decisions about, for example, whether a democratic country is more enticing as a location than an autocratic alternative. Many of the decisions about specific modes of investment, in fact, are based on firm perceptions of the investment climate in host countries. Therefore it seems appropriate to not only look at overall FDI levels in countries from year to year, but also to examine available individual firm surveys. These surveys can reveal common modes of investment in different country contexts. Although there are numerous problems with the design of many firm surveys, the problems can be circumvented with appropriate precautions¹⁹⁷. I employ

¹⁹⁷Kurtz and Schrank (2007) take issue with a number of the measurement mechanisms used in surveys of firms by international organizations such as the World Bank. They argue that the supposed ‘good governance’ indicator questions in these surveys are often biased to precondition answers from their respondents. Also see Jensen, Li, and Rahman (2010) on the problems of nonresponse and false response in cross-national firm surveys. The indicators used in this analysis are not as politically problematic as the ones considered by Jensen et al., and therefore would not exhibit dramatic nonresponse and false response rates.

two sets of these surveys to link operationalizations of institutional variables in developing countries with corresponding investment activities of individual firms.

The surveys I use here are the World Bank Group's Enterprise Surveys. These surveys provide comprehensive data on over 85,000 firms in 106 countries. The surveys measure firm perceptions of business environments, while also collecting important operating data for each firm. The surveys are not available every year for countries, but were periodically implemented in a large number of developing countries between 2002 and 2009. I first eliminated all firms in these surveys that fell below the 10% foreign controlling interest criterion established by UNCTAD, in order to only consider those firms that could be classified as multinational. I also eliminated firms operating in those countries that could not be classified as developing countries. This left 5,881 firms in 65 countries in the 2002-2005 surveys. The World Bank instituted a simpler, condensed questionnaire for its surveys after 2005, so these surveys are treated in separate models. I have noted where changes in questions and omission of other questions impact the analysis.

I use as dependent variables two indicators of firm investment models: R&D effort and export effort. To operationalize these activities, I follow the approach advocated by Volpe Martincus and Carballo (2008) in their study of export promotion policies in Peru. I include both the decision to export as a binary variable and the intensity of exporting as a percentage of sales. These results were then aggregated to indicate the percentage of exporting firms in a country sample and the average export effort of exporting firms in that sample. The same variables were constructed for Research and Development effort. The coverage on the R&D indicator is not as broad as the exporting indicator, partly because the

question was not as prominent in the lengthy questionnaire¹⁹⁸. The R&D question was included in the surveys taken from 2002 to 2005, however it was omitted from subsequent surveys.

6.2.2 Independent variables

Studies that consider the characteristics of state institutions in the developing world inevitably face tough questions about how to define ‘well-functioning institutions’. There are, however, some measures of institutional coherence and efficacy that manage to convey important information about the responsiveness and coherence of the state. This study utilizes the government effectiveness measure contained within the World Governance Indicators (WGI), published by the World Bank (Kaufmann, Kraay, and Mastruzzi 2009). These measures are formed by aggregating a large number of independent assessments of institutional quality and other aspects of governance, most of which come from expert surveys. Though there are a number of possible objections to the WGI data, they do enjoy support as one of the few reliable and transparent attempts to compare governance across countries¹⁹⁹. The WGI are based exclusively on “perceptions-based data on governance reflecting the views of a diverse range of informed stakeholders, including tens of thousands of household and firm survey respondents, as well as thousands of experts working for the private sector, NGOs, and public sector agencies” (Kaufmann, Kray, and Mastruzzi 2009, 4).

¹⁹⁸The R&D variable also had to be constructed from two survey responses: sales in the previous year (measured in thousands of local currency units) and R&D spending in the previous year (measured on the same scale). The export variable directly asked respondents to reveal exports as a percentage of sales. This, coupled with the relative lack of prominence of the R&D question in the surveys, reduced the sample size.

¹⁹⁹These measures are often used in the mode of entry literature to convey institutional quality. Both Dikova and Witteloostuijn (2007) and Slangen and Tulder (2009) have recently used these indicators to predict ownership patterns and establishment modes of multinationals.

For this portion of the analysis, the government effectiveness component of the WGI serves as the primary independent variable of interest. Kaufmann, Kray, and Mastruzzi (2009) define the government effectiveness measure as follows:

The quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.

This measure is well suited to the objectives of this chapter, and offers a satisfactory operationalization of institutional characteristics that can be applied broadly. Moreover, these elements of institutional quality have been extensively discussed in preceding chapters. The government effectiveness measure is constructed by gathering together indicators of government quality from a variety of expert surveys, which come from government, NGO, and commercial providers. These expert surveys are complemented by popular surveys, such as the Gallup world poll²⁰⁰. The indicators from each of these sources are then combined into a single variable using Unobserved Components Models. These models work through the following three step process: (1) standardizing the data into comparable units, (2) constructing an aggregate indicator as a weighted average of the underlying source variables, and (3) constructing margins of error that “reflect the unavoidable imprecision in measuring governance” (Kaufmann, Kray, and Mastruzzi 2010, 2). The scale of the indicator conforms to a standard normal distribution in each year, with higher values indicating better quality governance. The Worldwide Governance Indicators have been criticized recently on a variety of fronts, and it is important to recognize that these are imperfect measurements of

²⁰⁰For the government effectiveness measure, the specific sources used are the following: the Global Insight Global Risk Service, the Economist Intelligence Unit, the World Economic Forum Global Competitiveness Report, the Gallup World Poll, the Institutional Profiles Database, The Political Risk Services International Country Risk Guide, and the Global Insight Business Conditions and Risk Indicators. For the specific elements from each of these sources used in the construction of the variable, see www.govindicators.org

governance²⁰¹. However, the measures are useful in that they provide very broad country coverage and because they average many different information sources and thus simultaneously summarize much existing knowledge on governance and reduce the dangers of relying on any one source. Even critics of the measures have acknowledged that the WGI are “probably the most carefully constructed governance indicators” (Arndt and Oman 2006)²⁰².

I also collected the World Bank’s Country Policy and Institutional Analysis measures and Transparency International’s Corruption Perception Index as additional robustness check for the WGI indicator. The coverage of the CPIA indicator was too spotty to use this measure as an additional independent variable. In addition to having a relatively small set of countries with data, the CPIA indicator was only available after 2004, making it unusable for the 2002 base year surveys. The Corruption Perception Index was available for all country years. The correlation between this index and the WGI index for the 2002-2005 country-year surveys was .807. Table 6.1 presents the correlation matrix for the WGI and the other two governance indicators for the 2006-2009 country-year surveys. While there are other possible and imperfect proxies for institutional characteristics, the WGI indicator best captures the goals of this cross-national analysis.

²⁰¹The WGI have been criticized for not adequately comparing values over time (Langbein and Knack 2010). As this is not a dynamic analysis, this criticism matters less in the present context. The measures have been criticized also for potentially relaying expert judgments on past economic growth instead of present governance assessment (Kurtz and Schrank 2007). The architects of the measure have found little evidence of this so-called ‘halo effect’. Finally, and most importantly for this analysis, some have faulted the measure for relying too heavily on business opinions, which may introduce bias (see the exchange between Kurtz and Schrank and Kaufmann et al. in the *Journal of Politics*, 2007). Kaufmann et al. counter that the empirical sources for the indicators are much broader than the business community, integrating popular opinion polling and other sources. They also contend that there is little evidence of systematic bias among business responses or within the risk assessment community. The Kurtz and Schrank (2007) criticisms are especially relevant to this study, as they focus on the government effectiveness component of the WGI used here.

²⁰²For additional discussion on the construction of governance indicators and recent efforts in this area, see Munck (2003).

Table 6.1 Correlation matrix: indicators of governance for country-level analyses, 2006 base year

	WGI: Governmental Effectiveness	CPIA	Transparency International
WGI: Governmental Effectiveness	1		
World Bank Country Policy and Institutional Analysis (CPIA): public sector management and institutions cluster average	0.908	1	
Transparency International Corruption Perceptions Index	.652	.611	1

6.2.3 Other variables

Within the context of the country-level models, there are a number of host country characteristics that can impact investment profiles, including R&D effort and export activity. Characteristics such as level of economic development and the rate of economic growth have been found influential in previous studies of FDI inflows. It is important, therefore, to control for these characteristics. From the World Bank's World Development Indicators, I include GDP per capita, GDP growth, and population of the host country. I include GDP per capita, measured in constant 2000 US dollars, as a proxy for level of development. This indicator is logged to accommodate its large scale. The population measure, also logged, is an indicator of market size. We might expect that richer countries attract more innovation-intensive investments, and that countries with larger populations will attract less export-oriented investment (because it will primarily be market-seeking investment). The GDP growth predictor is measured as an annual percentage. The mean levels and other descriptive statistics for the independent and dependent variables can be found in the appendix to this chapter.

In addition to these baseline economic indicators, I have included a number of other variables that may function as important predictors and/or controls in the model. The first of these is a general measure of democratic longevity. Established democracies may provide foreign interests with

assurances that their investments will be subject to consistent regulations through time, perhaps incentivizing local R&D or export activity. To account for these potential effects of democratic longevity on risk assessments, I include the length of democratic governance in years, based on the dichotomous measure of democracy first introduced by Alvarez, Cheibub, Limongi, and Przewroski (1996). The *agedem* variable in their dataset, which has been subsequently modified by Cheibub, Gandhi, and Vreeland (2010), simply records the number of years democracy has been in place. The score on this variable is zero if a democracy does not exist. I expect that established democracies will exhibit more research-intensive and export-intensive FDI, though as noted in previous chapters the literature exhibits contradictory findings on the relationship between democracy and aggregate levels of FDI.

The incidence of violent conflict within the states under consideration, while rare, does need to be accounted for in the model. I therefore include a measure of conflict taken from the Armed Conflict Dataset (Gleditsch et al., 2002). This measure is coded as a dummy variable where a score of one indicates the presence of conflict within the state. I only include conflicts of type three and four in the original database (internal and internationalized internal). Extrasystemic or ‘colonial’ conflicts are not included unless they take place within the country in the database. I expect that a score of one on this variable will be associated with a decrease in export and R&D intensity.

A country’s overall openness to trade has been shown to be an important predictor of FDI. FDI and trade are often (but not always) complements, and trade liberalization often accompanies FDI liberalization in developing countries. Chakrabati (2001) and Jun and Singh (1996) both identify export orientation as a significant predictor of FDI flows. However, the relationship between trade openness and export/R&D activity of multinationals is potentially complex. It seems natural to conclude that openness to trade should be

associated with export-intensive FDI. However, trade and FDI can serve as substitutes for one another. Some extremely open economies have relatively less FDI, partly because firms find it easier to trade than to set up productive capacity. Moreover, during the period of ISI much FDI in Latin America and elsewhere took the form of tariff-hopping FDI, precisely because importing was prohibitively expensive. To determine whether a country's overall trade openness is a significant predictor of export-oriented FDI, I include imports plus exports as a percentage of GDP. I include this predictor in a separate model from the baseline model, because the data coverage of the export measure in the World Development Indicators is not as extensive as that of the other economic predictors, which reduces the sample size.

Finally, I include in another model a measure of natural resource intensity in the economies under consideration. Natural resource intensity is important control variable, because especially in developing countries natural resource industries are often highly export intensive. Moreover, natural resource intensity may have a crowding-out effect on local R&D activity, as hypothesized by Sachs and Warner (2001). Finally, it is likely that the institutional variables in this analysis will matter less for natural resource-oriented investments, which are almost always export intensive. It is therefore an important control variable. Natural resource intensity is proxied by the level of ores and metals exports and fuel exports as a percentage of overall merchandise exports (World Development Indicators), similar to the approach used by Jensen (2003) and Archer et al. (2007). While this measure does not give a full accounting of the importance of natural resources for a given economy, it does convey important information about the country's external profile. The coverage for

this particular indicator was also not extensive; therefore it is implemented in a separate model.

6.2.4 Country-level analysis: estimation methods

For the country-level analyses, the dependent variables are the percentage of exporting firms in the country sample and the percentage of firms engaging in domestic R&D. Another dependent variable was formed by taking the average export effort among exporting multinational firms in the country sample, and the average R&D effort of innovative multinational firms, both measured as a percentage of sales²⁰³. Outliers for the R&D intensity effort were identified as indicating measurement error (i.e. when the R&D intensity was above 1000 percent of sales), and these firms were eliminated from the mean construction²⁰⁴. The primary independent variable of interest is the government effectiveness indicator of the WGI. The values provided by all independent variables were matched to the year of the survey.

For the exporting measures, the data in the more recent 2006-2009 surveys demonstrated excellent coverage. On average, 97 percent of firms in a country sample group answered the export question in the survey. However, the research and development question was not included in these more recent surveys. I therefore utilize the older 2002-2005 surveys for the analysis of innovation among multinationals. The R&D question demonstrates diluted coverage, with many firms in the sample either unwilling or unable to answer this question. The average response rate to the R&D question overall was 64 percent. The response rate varies by country, such that some countries did not contain enough

²⁰³This reduced the sample further, as it eliminates multinational firms that do not export in one model, and multinational firms that do not conduct innovation in the other model.

²⁰⁴In practice, there were only two of these observations.

observations on this variable to construct country averages²⁰⁵. Therefore, the n in the R&D regression is smaller (only 66 countries). The problem of nonresponse in firm survey data is a serious one, and can lead to bias and incorrect inferences. In a recent article addressing this issue, Jensen et al. (2010) argue that firms sometimes fail to respond in systematic ways. The nonresponse rate for the R&D question in this analysis is potentially problematic. However, the problem is somewhat limited. There is some evidence that increased firm size leads to a higher response rate. Within country samples, the correlation between the percentage of respondent firms with 50 or more employees and the percentage of firms responding to the R&D question is .263. The correlation between the percentage of firms with 100 or more employees and the R&D response rate is .271. Thus it does appear that larger firms are more likely to provide responses to the R&D question. This stands to reason. Larger firms have more personnel who can answer surveys, and may have more detailed data on R&D expenditures. However, even if we assume that larger firms are disproportionately represented in the analysis, this is not necessarily problematic to the theory. Multinational firms are usually larger than their domestic counterparts. Moreover, larger multinationals do not necessarily conduct more R&D than smaller multinational firms, as the results of the analyses indicate. Therefore, it is unlikely that the potential overrepresentation of larger firms would lead to a false positive, or type 1, error. More worrisome would be an association between response rates and the quality of institutions. This would indicate a possible connection between poor institutions and nonresponse, perhaps based on a fear of government retaliation. This would result in biased inferences. However, the correlation between the WGI measure and the R&D response rate is only .069.

²⁰⁵If more than two observations were not available for any country-year survey, country averages were not constructed and the country was dropped from the analysis.

Jensen et al. (2010) suggest a number of remedies for nonresponse in firm surveys. The first of these remedies is already built into the present analysis. The authors suggest using only multinational firms, as they presumably feel freer to answer politically sensitive questions. They also suggest the use of analytic weighting schemes, which account for the number of observations through various means. This is also accomplished in the present analysis through the use of analytic weights in the OLS regressions on R&D and export intensity. Finally, the authors suggest comparing response rates on benign questions in the survey to response rates for politically sensitive questions. In the case of this analysis, the potentially sensitive questions in the survey do not appear to be significantly related to nonresponse, as detailed in section 6.3.2.

The dependent variables in all of the country-level models were bounded between 0 and 100. In theory, the R&D intensity measure could go higher than 100 if enough firms in the country were incredibly research-intensive. Individual firm responses on the R&D intensity measure did exceed 100. However, none of the country averages did so. Therefore, a tobit model is appropriate for each of these models, with limits at 0 and 100. The models which use average export and R&D intensity as their dependent variables were weighted by the number of observations used to form the country averages. As there was significant variation on this dimension, the inclusion of weights was necessary. This was done using OLS regression, with stata's `aweight` command.

6.2.5 Results and discussion

Tables 6.2 and 6.3 present the results of the various analyses. The results are consistent with the two hypotheses linking evaluations of institutional quality with firm investment models. In the more recent surveys, increases in the government effectiveness

indicator are associated with a higher propensity to export and a higher export intensity among exporting firms.

The impact of the government effectiveness variable on the average exporting level of multinational firms is substantial. A unit deviation in the WGI indicator is predicted to raise the percentage of exporting firms in the country sample by almost ten points, according to model 1. This effect is independent of the country's size or relative level of development, two factors that have been identified as consistent predictors of firm export activity (Chakrabarti 2001; Jun and Singh 1996). A higher assessment of institutional quality has a similar effect on the intensity of exporting among all exporting firms. Higher WGI scores are associated with higher export intensity (model 4).

The effects of the other predictors in table 6.2 also merit discussion. Wealthier developing countries appear to be associated with greater propensity to export among multinationals. The relationship between population and export orientation is indeterminate, though there is reason to suspect that firms in populous countries adopt export-intensive models. High rates of GDP growth appear to be negatively associated with export propensity. This is likely due to the fact that fast-growing countries represent attractive targets for market-oriented investors, rather than export-oriented FDI. The existence of a long-established democracy appears to be positively associated with export-orientation, but this relationship is not significant. The presence of conflict has no reliable impact on export-orientation, though the relatively small sample size meant that only ten of the 89 countries displayed a score of one for this indicator.

Table 6.2 Country-level analysis, 2006-2009 firm surveys

Dependent Variable:	Percentage of Exporting Firms in country sample (Model 1)	Percentage of Exporting Firms in country sample (Model 2)	Percentage of Exporting Firms in country sample (Model 3)	Average Export intensity of exporting firms in country sample, percentage of sales (Model 4)
Model Used:	Tobit	Tobit	Tobit	OLS
Government Effectiveness (WGI)	9.763** (4.711)	6.622 (5.315)	5.674 (5.480)	8.112* (4.429)
Log GDP/cap	4.924* (2.621)	6.701** (3.071)	5.615* (2.944)	-1.142 (2.364)
Log Population	.839 (1.458)	-.156 (1.767)	1.530 (1.607)	2.672* (1.341)
GDP growth	-.792* (.451)	-1.391** (.527)	-.509 (.532)	.043 (.499)
Age of democracy (years)	.265 (.211)	.085 (.223)	.119 (.209)	.135 (.145)
Conflict (dummy)	-4.094 (7.286)	1.346 (8.041)	.019 (8.086)	4.881 (6.042)
Trade [(IMP+EXP)/GDP]*100		.007 (.053)		
Natural resources (percent of merchandise exports)			.262** (.101)	.240*** (.074)
Constant	-.788 (29.272)	7.283 (36.628)	-10.719 (34.524)	5.777 (28.951)
Pseudo R-squared	0.044	0.045	0.044	.391 ^t
Observations	89	73	68	68

Notes: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1, analysis weighted by frequency of firm samples used to construct average within each country in model 4. Countries with two or fewer observations for construction of averages in model 4 were dropped. Other predictors dropped due to multicollinearity (VIF greater than 7). ^t OLS R-squared.

Models 2 and 3 introduce variables with limited coverage to the baseline model (model 1). In model 2, overall trade openness does not appear to be a significant predictor of export propensity among multinationals. Though this may appear confounding, it should be remembered that high import tariffs have in the past prompted tariff-hopping FDI in developing countries. These firms may serve regional markets through exports as well. The

introduction of the natural resource measure in model 3 reduces the sample size to 68 countries, but as expected the increase in natural resource intensity is associated with an increase in export propensity and intensity among multinational firms. It is important to point out that in models 2 and 3 the WGI variable, while still positive, loses significance. The coefficient associated with the natural resource variable is highly significant, which makes sense as the presence of raw materials should generate strong export incentives for export activity among multinational firms. However, the coefficient associated with the WGI measure is significant in, model 4, which considers average export intensity. This is true even with a reduced sample size and in the presence of the natural resource control variable. As I have noted in previous chapters, natural resource-oriented investment is different, and there are reasons to suspect the institutionalist argument may not apply in the context of extractive industry.

As indicated above, the country-level analysis for the R&D variable suffered from a low response rate among firms for whether or not domestic R&D occurred. Only 66 country averages could be constructed. This small sample size did reduce the potential for significance and introduced problems of multicollinearity. However, the tobit models did return interesting results, even with a small sample size. The WGI appears to positively impact the R&D incidence among multinational firms, as shown in table 6.3. While the effect of the government effectiveness variable does not attain significance in the model which predicts the intensity of local R&D, it remains positive. The impact of this indicator, in the context of a small sample, is noteworthy. In both models 5 and 6, a unit increase in the WGI indicator is associated with an 8.5% and 10.5% jump in the percentage of innovative

firms, respectively. This is larger than the increase associated with any of the other predictors, including the presence of conflict (in a negative direction).

The other predictors in the model behave largely as predicted. Larger countries tend to display more innovation among multinationals, perhaps because firms are seeking to adapt to the large internal market. A surprising result of this analysis is the negative effect of the income variable. According to these results, richer developing countries are no more likely to display innovative firms than poorer developing countries. This may indicate the growing pressures of comparative advantage for location of R&D in developing countries, perhaps based on labor costs. However, other investigations have returned different results. GDP growth does not appear to be reliably associated with R&D incidence.

The structure of the more detailed 2002-2005 surveys allowed the inclusion of sectoral variables based on a simple two-way division between service firms and manufacturing firms. The percentage of manufacturing firms represented in each country sample and the percentage of service firms are thus added as additional predictors in models 5 and 6. However, the addition of the natural resource variable in the context of models 7 and 8 resulted in problems of multicollinearity (variance inflation factor greater than 7), and the sectoral variables were dropped. Nevertheless, these controls are important, and sectoral distinctions are continued in the firm-level analysis in section 6.3. The length of democracy did not have a reliably positive impact on R&D incidence, and while negative the impact of conflict on R&D incidence was not statistically significant. The negative impact of natural resource intensity on R&D propensity is understandable, given that many extractive operations in the developing world are not particularly innovative. The negative relationship between trade openness and R&D propensity is not significant.

Table 6.3 Country-level analysis, 2002-2005 firm surveys

Dependent Variable:	Percentage of Firms with R&D spending in country sample (Model 5)	Percentage of Firms with R&D spending in country sample (Model 6)	Percentage of Firms with R&D spending in country sample (Model 7)	Average R&D intensity of innovative firms in country sample, percentage of sales (Model 8)
Model Used:	Tobit	Tobit	Tobit	OLS
Government Effectiveness (WGI)	8.498* (4.324)	10.544** (4.587)	6.386 (4.909)	4.217 (6.384)
Log GDP/cap	-1.109 (2.433)	-2.600 (2.634)	-1.086 (2.676)	-3.693 (3.627)
Log Population	2.935** (1.099)	1.641 (1.411)	3.480*** (1.132)	2.600** (1.129)
GDP growth	-.847 (.567)	-.670 (.599)	-1.059* (.588)	.200 (.864)
Percentage of manufacturing firms	-0.058 (0.126)	.024 (.130)		
Percentage of service firms	-.202 (0.143)	-.113 (.149)		
Age of democracy (years)	-.030 (0.150)	-.053 (.152)	-.075 (.169)	-.172 (.242)
Conflict (dummy)	-5.570 (5.609)	-5.100 (5.616)	-5.930 (5.854)	-2.518 (5.227)
Trade [(IMP+EXP)/GDP]*100		-.082 (.056)		
Natural resources (percent of merchandise exports)			-.149 (.095)	-.124 (.138)
Constant	-2.149 (26.455)	29.233 (33.626)	-16.595 (29.327)	-8.167 (34.777)
Pseudo R-squared	0.038	0.044	0.033	.309 ^t
Observations	66	61	62	52

Notes: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1, analysis weighted by frequency of firm samples used to construct average within each country in model 4. Countries with two or fewer observations for construction of averages in model 4 were dropped. Other predictors dropped due to multicollinearity (VIF greater than 7). ^t OLS R-squared.

The consistently positive impact of the government effectiveness indicator, independent of common economic and demographic explanations for R&D and export activity, is important. It suggests that firms not only take into account economic factors

when deciding the form and function of their activities in developing countries, but that these countries' governmental institutions matter as well. According to the results of this analysis, countries displaying these institutional characteristics do not attract more export and R&D-intensive investments.

6.3 Testing the Argument: Firm-Level Analysis

Matching country-level data on export and R&D activity with assessments of institutional quality allows for a broad assessment of the relationship between institutions and common investment models. However, the question of whether a firm exports or innovates in a developing country is at its heart a firm-level question. While country-level analyses allow the inclusion of control variables that have consistently proven influential in influencing exporting and other activities, these models do not completely capture the firm-level decision-making process. However, the firm surveys used here do allow this theoretically more proximate approach.

6.3.1 Firm-level variables

The WGI are inadequate for firm-level analysis. I therefore use a question in the surveys themselves as a proxy for institutional coherence, the primary independent variable for this analysis. Though the governmental relations portion of the Enterprise Surveys primarily deals with legal dimensions of investment governance, there are a small number of questions that can serve as proxies for institutional effectiveness. For the purposes of this analysis, I selected a question that best approximated ideas about the strength of state institutions, broadly defined. The wording of the question is as follows:

In general, government officials' interpretations of regulations affecting my establishment are consistent and predictable.

The six possible responses in the 2002-2005 surveys range from ‘fully disagree’ to ‘fully agree’. The four possible responses in the surveys administered after 2005 range from ‘strongly disagree’ to ‘strongly agree’. The wording of the question is identical in both surveys. A positive response to this question can be broadly interpreted as a perception of competent institutions by the firm.

The dependent variable in the firm-level analysis again comes in two forms: the intensity of exporting by an individual firm (measured as a percentage of sales) and the intensity of R&D spending (again as a percentage of sales). Only exporting and innovative firms were used in these samples²⁰⁶. The 2002-2005 surveys were used for the model with R&D intensity as the dependent variable, and the 2006-2009 surveys were used for the model with export intensity as the dependent variable.

The firm-level approach allows the inclusion of other variables which were unavailable in the country-level analysis. The industry or sector of each firm should be quite influential in determining whether that firm exports or does R&D. I therefore included industry dummy variables to isolate the effect of industry norms. The 2002-2005 surveys included a five-way sectoral division, while the 2006-2009 surveys only included four categories. The education level of the workforce in individual firms is an important control variable for the level of local innovative activity. This variable is measured as the percentage of the firm’s workforce with postsecondary education, and was available only in the 2002-2005 surveys. Much of the mode of entry literature in international business studies examines ownership patterns of multinational firms, and finds that R&D intensity can

²⁰⁶This introduces bias, in the sense that non-exporting firms and non-innovative firms are excluded. However, the binary question of whether to innovate or export is addressed in the country-level analysis and the firm-level analysis is primarily concerned with the intensity of export/R&D activity.

influence whether an investment is undertaken as a wholly-owned subsidiary or a joint venture (Gatignon and Anderson 1988, Smarzynska and Wei 2000). Other studies have considered the effects of firm size on investment patterns (Kimura 1989). Therefore, the size and degree of foreign control for each individual firm are also controlled in this regression²⁰⁷.

6.3.2 Firm-level analysis: estimation methods

As referenced in the country-level analysis, the nonresponse rates for the R&D question are potentially problematic. In the context of firm-level analysis, it is important to ensure that patterns of nonresponse are not correlated with the variables of interest, especially the politically sensitive government effectiveness question. In this case, however, there appears to be no strong association between response rates and government characteristics. Firms responded to the government effectiveness question in large numbers: the response rate in the 2002-2005 surveys was 97 percent, and the response rate in the 2006-2009 surveys was 96 percent. The correlation between the dichotomous democracy measure from Cheibub, Gandhi, and Vreeland (2010) and a country's response rate average to the government effectiveness question was .018 in the 2006-2009 surveys and .012 in the 2002-2005 surveys, suggesting that non-democracies did not have significantly different response rates than democracies. Comparing country average response rates for the government effectiveness question with the WGI indicator, we see correlations of -.082 for the 2006-2009 surveys and .068 for the 2002-2005 surveys. Thus it appears that assessments of institutional quality have little association with response rates. Finally, it seems that firm size is not strongly correlated with response to the government effectiveness question. The correlation between hundreds of employees and response to the government effectiveness question (at the firm level) is only .012 for the 2006-2009 surveys and .015 for the 2002-2005 surveys. All told,

²⁰⁷For firm size, I attempted to create a size variable based on the log of annual sales. However, this variable was difficult to construct due to the fact that sales were reported in the surveys in local currency units and therefore not comparable across countries. I constructed ratios based on average sales figures for country groups, but opted for the more easily interpretable employee figures. However, the sales indicators did not return results inconsistent with the employees measure in other regressions.

the response rates to the government effectiveness question in the survey do not present the same problems that exist for the R&D response rates. Firms almost always answered the government effectiveness question, and whether they did or not appears to have little to do with the quality of institutions, democracy, or firm size.

The use of individual firm surveys allows a much larger estimation sample than the country-level analysis. However, the observations are not completely independent. Because the responses are grouped into country surveys, OLS methods are not appropriate and may introduce bias into the estimators. Country effects, in this case, introduce idiosyncratic influences on the data within these groups. Surveys are often implemented differently from country to country, and different patterns of responses which correlate within the groups can pose a serious threat to inference. These differences can be the result of measurement error, differences in implementation, or even cultural differences in survey responses that cluster within countries. These errors will be serially correlated in the error term and may lead to false inference. This analysis therefore adopts a Least Squares Dummy Variable (LSDV) model for the firm-level analysis. This model in effect imposes country dummy variables on the model (not reported), which can in turn capture some of the distortions generated by this kind of panel data. This reduces bias in the estimators, but eliminates the possibility of including country-level variables in the model. According to the two hypotheses, I expect higher assessments of governmental effectiveness among firms to be associated with higher levels of local innovative activity and higher levels of export activity.

6.3.3 Results and discussion

The results of the firm-level analysis are presented in table 6.4. The measure of institutional consistency is positively related to both indicators of firm strategy. Firms that perceive host country institutions to be consistent and predictable are more likely to adopt

R&D and export-intensive investment models. If a firm moves one unit on the six-point question used in the 2002-2005 surveys, for example from “tend to agree” to “agree in most cases”, this should be associated with an almost 4 percent jump in R&D intensity. A unit increase in the question used in the 2006-2009 surveys is associated with an almost 2 percent jump in export intensity. This is comparable to the effect of a ten percent increase in foreign ownership. If a firm were to move from “strongly disagree” (the minimum value) to “strongly agree” (the maximum), export intensity would increase by 5.5%. Perceptions of stable, consistent institutions are associated with these two dimensions of firm investment profiles. This seems logical. Firms operate under the shadow of the future. They prize future stability, and are unlikely to establish R&D operations in countries that do not exhibit these institutional qualities. It seems entirely likely that the quality of domestic institutions is important to firms’ investment profiles.

The other predictors in the model relay some interesting and sometimes counterintuitive information. We might expect that the education level of workers in firms would be associated with an increase in R&D intensity, but this does not appear to be the case²⁰⁸. It stands to reason that larger and foreign-dominated firms would be more likely engage intensively in exporting. The relationship between size, foreign ownership, and R&D intensity is also interesting. Smaller and foreign-dominated firms seem to use R&D more intensively, though the lack of significance begs caution. Firms in the service sector display lower export intensity, as would be expected. Moving from the manufacturing sector to the agroindustry sector seems to reduce export intensity and R&D intensity, but these effects are not statistically significant and the signage is called into question by the standard errors. In

²⁰⁸However, it should be noted that the standard errors are large enough to call even the sign of the coefficient into question. Moreover, the relationship between domestic innovation among multinationals and employee education may be endogenous.

sum, the effects of sector, while important to control, are not especially pronounced in these models.

Table 6.4 Firm-level analysis, 2002-2005 firm surveys (R&D Intensity) and 2006-2009 firm surveys (Export Intensity)

Dependent Variable:	Export Intensity (Percentage of Sales)	R&D Intensity (Percentage of Sales)
Model Used:	LSDV(fixed effects)	LSDV(fixed effects)
Consistent and Predictable Interpretations of Government Regulations	1.823* (1.080)	3.744** (1.742)
Education of Workforce		-.029 (.111)
Degree of foreign ownership (%)	.152*** (.034)	.110 (.079)
Size of firm (hundreds of employees)	3.352 (2.169)	-0.263 (.274)
Service sector	-11.635*** (2.986)	-.348 (9.544)
Agroindustry sector	-.393 (3.051)	-3.432 (11.507)
Construction sector		-2.195 (17.615)
Other sector	4.710 (6.097)	-4.792 (21.050)
Constant	32.582*** (4.073)	-12.246 (9.306)
Observations	1,203	451
R-squared	0.239	0.092

Notes: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1. Country dummies not reported. Stata's areg command used for fixed effects, absorbing country as the panel identifier. Manufacturing sector is base category for sector dummy

6.4 Implications of Country-Level and Firm-Level Analysis

Academics and policymakers alike have long understood that politics does impact multinational firms' investment decisions. Firms do not consider only economic conditions in potential host countries, but also the political stability of the country and many other factors, including institutional characteristics. Recent work in international political economy and in the institutional business literature has begun to unravel the complex relationship between host country institutional characteristics and FDI. However, political scientists have not asked many questions about the types of activities pursued by multinational firms, or the ways in which the policies and institutions of the host country may affect these investment models. International business studies have preferred to concentrate on the determinants of firm ownership and greenfield/M&A entry models. Other economic studies have sought to determine the economic motivations for various models of investment, including export and innovation intensity. However, the links between institutional variables and these investment outcomes remain underspecified. This chapter seeks to fill a small part of this gap in understanding. Given the limitations of the surveys used in this analysis, the hypotheses advanced here may be investigated in the future with more detailed data.

Multinational firms attempt to minimize risk in developing countries. Though the incidence of outright expropriation has declined (Minor 1994), investing abroad is still subject to many uncertainties. Local research and development, or the construction of export networks, can increase the risk for firms. Firms using developing countries as export platforms are exposed to exchange rate uncertainty and the vagaries of host country trade policy, and local R&D activity exposes firms to potential theft of intellectual property, or domestic patent regulations that may adversely affect the firm. Based on the results of this

analysis, the host country's institutional setting is one area where this risk may be reduced. In addition to the incentives offered by a whole host of economic pressures, firm investment models should also be affected by the characteristics of state institutions in host countries.

This study is subject to a number of limitations. Much of the work in previous chapters, based on firm interviews and Brazilian data and reports, traced the development of firms' R&D and export activities through time, proposing links between institutional settings and changes and evolving firm investment models. Because the firm-level data employed in this study are cross-sectional, the dynamic interaction between firms and institutions is not measured. Ideally, to counteract this problem we would be able to access a survey that tracks individual firms both across countries and through time. Unfortunately these data are not available in a cross-national context. As a potential complicating factor, the firm entry mode literature ostensibly deals with initial models of investment, and the firm survey data used here include interviews with firms that have been active in developing countries for years. The present analysis captures both initial entrants and established firms, but the positive associations between institutional quality and specific activities of firms should be additive in both groups. In other words, the hypothesized relationship between institutional quality and export/R&D activities would not vary based on how long a firm has been in country. The lack of time-series firm-level data is a common problem for most studies, and most adopt a static specification for their models. In the firm entry literature, various studies have boosted the n of econometric analysis by considering firms that are active in countries, without dwelling on when the investment was made (Meyer 2001, Asiedu and Esfahani 1998)²⁰⁹.

²⁰⁹As another example, Meyer et al. (2009), in their ambitious entry mode study, collect ownership data on firms registered between 1990 and 2000 and acknowledge the bias that may exist based on surveying firms that entered too far in the past.

Cross-national studies of the economic determinants of export orientation and innovation among multinationals (Kumar 1994, Kumar 2001) have also adopted a static approach due to data limitations. Neither approach is entirely satisfactory, but the lack of time-series, cross-national data on firm activities necessitates tradeoffs.

Another possible objection to this study is the possibility of correlation between the country-level indicators of institutional quality and the firm-level survey responses. I have proposed in the theory section that institutional quality matters for aggregate investment patterns and for individual firm action. Within countries, there is a great deal of variation in firm perceptions of institutional effectiveness and consistency. When country averages of responses to the government effectiveness question are compared to the WGI measure, the correlation is .304²¹⁰. While this correlation is significant, it is not deterministic. That is, firm perceptions vary even in countries with well-regarded institutional frameworks. More importantly, these perceptions are related to differences in firm profiles in significant ways. The analysis presented here demonstrates that firms with a more favorable perception of state institutions are more likely to export and innovate locally. This occurs within countries that receive a high WGI score and those that do not.

6.5 State Institutions and Multinational Investment in Latin America

The statistical analysis presented above supports the idea that institutions in host countries have impacts on specific investment activities of multinational enterprises. Firms decide on particular investment models based partly on considerations of institutional quality in host countries. However, the process by which state institutions impact firm activities can only be inferred. Case studies in individual countries present opportunities for more subtle

²¹⁰This refers to the 2006-2009 surveys. The correlations of these averages with the CPIA and Transparency International Corruption Perception Index are .261 and .295, respectively.

and contextually-rich analysis of the relationships between institutions and investment profiles. This section of the chapter details the institutional context for foreign investment in three Latin American countries, in an effort to give more fine-grained analysis to the conclusions outlined above. The cases illustrate in a more specific way the mechanisms by which institutional variation contributes to differing firm profiles.

As it did in many other parts of the globe, FDI in Latin America boomed during the 1990s and 2000s. The inflow of investment was boosted by the wave of liberal reforms in Latin America, which dismantled the import-substituting models and eliminated restrictions on FDI and trade. However, governments often neglected to examine the institutional foundations that would best allow states to take advantage of FDI inflows to encourage domestic development. The analysis presented here suggests that variations in institutional structure and coherence had impacts on the activities of firms and thus the potential spillovers offered by foreign firms in transition economies.

The case studies of Chile, Costa Rica, and Mexico serve as illustrations of the relationship between varying domestic institutions and investment profiles in developing countries. I selected these three Latin American countries for a number of specific reasons. As all three countries displayed high degrees of penetration by multinational firms in the 1990s, they represent likely cases for institutional leverage (or lack thereof) on investment profiles. They are among the Latin American countries with the highest levels of FDI relative to their size. I chose to concentrate only on Latin American countries because in doing so, potentially confounding cross-regional idiosyncrasies can be avoided. In other words, while these three countries (and Brazil) are certainly different in size, wealth, and other characteristics, they share the common qualities of being Latin American countries

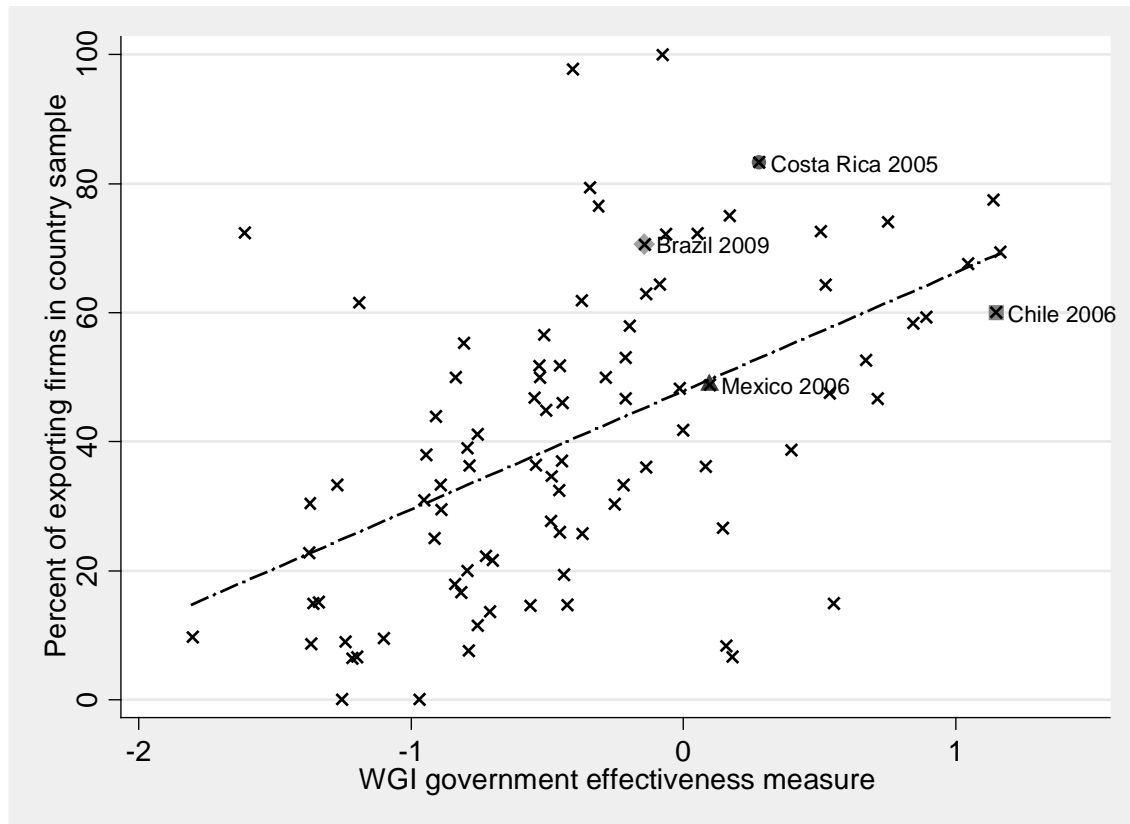
heavily influenced by foreign investment since the 1980s. They are ‘most similar’ cases in this limited sense.

The countries under consideration do differ on the dimensions outlined in the econometric analysis above. Unfortunately, Mexico did not participate in the 2002-2005 surveys, so data on the R&D efforts of multinationals in that country are not available. However, we can compare the export propensity and intensity of multinational firms in the three countries (plus Brazil), using export data from Costa Rica’s 2005 survey²¹¹. In the 2006 surveys, 125 multinational firms responded in Mexico and 75 responded in Chile. In 2009, a survey was conducted in Brazil that realized responses from 68 multinationals. Including the data from the 2005 survey in Costa Rica, which had 30 multinational respondents, we can compare scores on the WGI governance measure with export propensity and intensity of firms. Figures 6.1 and 6.2 relay this information as scatterplots. A couple of important conclusions may be drawn from these figures. First, the positive relationship between the WGI measure of government effectiveness and export propensity/intensity is clear. Second, the four Latin American cases under consideration vary in their scores. Brazil’s governance score is the lowest of the four, and while many of the 68 interviewed firms export they do not export intensively compared to the other three cases. Costa Rica is an interesting case, as its export incidence and intensity are high. Mexico hews to the bivariate regression line in both cases, and Chile demonstrates the highest scores on the WGI indicator with somewhat lower than predicted export intensity. These results are not unexpected. Costa Rica has a small, open economy and has been increasingly used as an

²¹¹Costa Rica did not participate in the 2006-2009 surveys. However, the export questions were included in the earlier surveys. Variables for average export intensity and the number of exporting firms were constructed for Costa Rica from the earlier survey and included in the data used to produce figures 6.1 and 6.2.

export base for multinational firms. Mexico and Brazil have large internal markets that tempt firms toward market-oriented strategies.

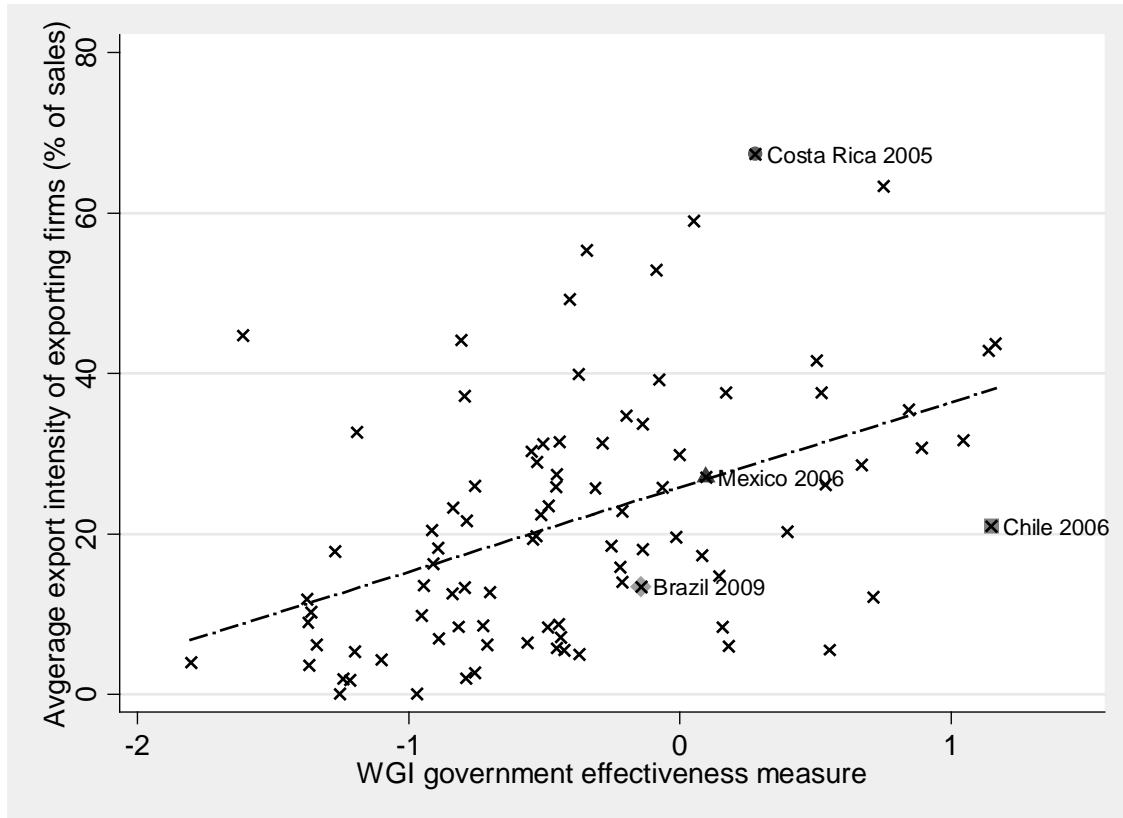
Figure 6.1: Scatterplot of export propensities of multinational firms in developing countries, World Bank enterprise surveys



Beyond these structural factors, however, can we connect the export profiles of multinational firms in these countries with institutional characteristics? I contend that institutional characteristics have impacted the export and R&D proclivities of firms in these countries in different ways. In the following section, I adopt an historical perspective to argue that institutions have had an impact on dominant firm profiles in these three countries. There are a number of advantages in comparative case studies as a method of analysis. The case studies also allow investigation of causal mechanisms and country-level characteristics that do not surface in large-n analysis. Finally, these case studies provide a point of

comparison with the Brazilian investment promotion experience, outlined in previous chapters.

Figure 6.2: Scatterplot of average export intensity of exporting multinational firms in developing countries, World Bank enterprise surveys



The countries considered differ on the R&D intensity of resident multinationals, as well as export patterns. Table 6.5 presents a comparison of the technological intensity of FDI flows in 2009 and the prominence of R&D efforts among foreign firms in each of the cases considered (plus Brazil), from 2003 to 2009. These statistics, gathered from ECLAC, measure recent FDI flows by their sectoral composition. The first indicator is formed by taking the ratio of incoming manufacturing FDI, divided into four divisions of declining technological intensity according to industry ISIC codes, to the share of a country's GDP within a group of Latin American countries. For example, Brazil in 2009 attracted 51.18 percent of manufacturing FDI in the medium high category of technological intensity, among

the Latin American countries sampled. Its GDP represented 47.20 percent of the same group. The ratio between the two is 1.084. Higher values of this ratio therefore indicate a greater inflow of FDI in that category than the country's GDP share would predict.

Table 6.5 Technological intensity of FDI in comparative perspective

FDI flows in Manufacturing by Technological Intensity, 2009	Brazil	Chile	Costa Rica	Mexico
Ratio of percentage of FDI received in each category to weight of GDP in group of countries surveyed. Higher values indicate disproportionate share of FDI in that category relative to GDP.				
High	0.532	0.207	3.652	2.472
Medium High	1.084	1.657	0.011	0.672
Medium Low	1.260	.008	6.819	0.516
Low	0.336	.016	-	2.560
Destination of FDI R&D Projects, 2003-2009	0.913	1.986	3.786	0.944
Ratio of percentage of R&D projects received in each country to weight of GDP in group of countries surveyed over a seven year period. Higher values indicate disproportionate share of R&D-intensive FDI relative to GDP.				

Notes: Classification of manufacturing industries according to technological intensity according to principles of *OECD Science, Technology and Industry Scoreboard*. For ISIC codes for each category, see OECD (2009). Raw data gathered from ECLAC (2010), based on "fDi markets", *Financial Times*. GDP data are from World Development Indicators. Author elaboration.

Costa Rica demonstrates a significant share of high technological intensity FDI, while attracting no low technological intensity FDI in 2009. Brazil's share of high technological intensity FDI is not particularly substantial. Mexico, meanwhile, has a pronounced bifurcation between high and low technological intensity in its FDI flows in 2009. It is noteworthy that Mexico attracted more in both categories than its economic size would predict.

The bottom half of table 6.5 gives perhaps a more complete picture of the technological intensity of recent FDI flows in these countries. Rather than measuring FDI in one year, this indicator aggregates FDI shares over seven years, from 2003 to 2009. The data used to construct this indicator divide FDI R&D projects by country. Rather than using industry classification, the indicator simply relays whether the multinational is conducting R&D locally. Whereas the first indicator measured the technological intensity of the

industry, the second measures announced R&D projects linked to FDI. According to this aggregate indicator, Costa Rica displays a much higher incidence of local R&D activity than its GDP would predict. Chile scores highly on this measure as well, whereas both Brazil and Mexico exhibit less local R&D than their economic size would predict (a score of 1 would be a perfect match between share of FDI R&D and share of overall GDP for the region).

The divergence in FDI profiles seems evident. The purpose of this case study comparison is to emphasize the ways in which institutional configurations have contributed to this divergence. There are of course numerous economic, geographic, and other variables that influence firm decisions and overall investment profiles. Institutional characteristics are not deterministic. However, they can and often do influence the composition of FDI and the investment strategies of individual firms. For each country, I first consider the evolution of FDI flows since the debt crisis, and in particular the dominant models of investment exhibited by firms in these countries. I connect these profiles to factors such as geography and economic openness, but also to variations in the countries' institutional structures for promoting FDI. In each case, I analyze the institutional setting for investment promotion, paying special attention to the coherence and consistency of institutions. Last, I integrate the individual cases with the institutionalist theoretic perspective.

6.5.1 Chile: an evolving program for FDI

In the mid-1980s, Chile began to loosen restrictions on foreign participation in mining operations in the country, which had been in place since the Allende period. The Pinochet regime had found it useful to maintain control over copper and other mineral production in Chile, but embarked on a privatization program partly as a way to restructure the debts incurred during the economic crisis of the early 1980s. The mining sector, which

had been the focus of so much foreign investment in the middle of the twentieth century, continued in the mid to late 1980s as the primary investment vehicle. Investment outside mining was mostly drawn to other natural resources, such as forestry.

The transition to democracy in 1990 prompted a surge in FDI. Chilean FDI stock as a percentage of GDP increased from 48.1 percent in 1990 to 59.6 percent in 2008 (UNCTAD 2009). Most FDI in the early 1990s revolved around the processing of Chile's significant natural resources for export. Mining accounted for 58 percent of total FDI flows in the period from 1990 to 1995 (ECLAC 2000, 92). The Aylwin administration (1990-1994) left many of the Pinochet privatization programs in place, as part of an effort to provide some continuity in a still fragile political environment. Restrictions diminished on foreign participation in mining ventures with the state copper company, CODELCO. The Chilean airline, LAN, was fully privatized in 1994. A number of mining mega-projects were established in the north of the country by Australian, British, and American consortia. These investments produced for export, but did little to break the tradition patterns of resource extraction that had defined Chilean FDI for a century.

However, in the latter half of the 1990s new patterns of investment emerged. As in other Latin American countries, the privatization of services such as telecommunications and energy brought a wave of new investment to Chile²¹². In the latter part of the 1990s, the Frei administration began a concerted effort to permanently move Chile beyond its traditional profile of natural resource investment. The transition to a more active, sustained, and discriminating investment promotion program gained momentum in 2000 and afterward, and has brought a number of nontraditional investments to Chile.

²¹²Unlike previous patterns of investment, which had been dominated by North America firms, the service FDI was primarily European in origin. Spain accounted for around a third of FDI inflows in the second half of the 1990s (ECLAC 2000).

Before 2000, foreign firms had established operations in salmon farming operations, wineries, and fruit for export as the result of an initial attempt to diversify Chile's export base. Though some of these sectors exhibited more value-added characteristics than mining, they still belonged to the domain of natural resources. Chilean administrations eventually realized that investment even in these industries would not necessarily move development forward, considering the limits of existing resources, already high multinational penetration, and the price volatility inherent in primary products. Therefore, they committed state resources to attracting different forms of investment and moving existing investments towards R&D activity.

The primary institutional vehicle for this effort was the *Corporación de Fomento de la Producción*, or CORFO. This government agency had been Chile's primary economic development agency since its inception in 1939, but its mission and character evolved over time. During the Alessandri administration (1958-64), fragile coalition politics encouraged the administration to use CORFO as a means for distributing political patronage through investment concessions. This continued during the Allende administration (1970-73), when CORFO was used as a state holding company for recently nationalized private firms (Nelson 2007). After the military coup, CORFO did not achieve technocratic independence until re-democratization in 1990. The military used CORFO as a venue for its own ends. Schamis (1999) details how the military regime used CORFO to grant preferential loans to foreign companies during the privatization efforts, and in a particularly dubious business practice would use the assets of the firm being purchased as collateral for the purchase itself.

After the democratic transition, CORFO's mission changed yet again. It was already apparent by 1990 that investment promotion would be a substantial part of CORFO's

mandate. But the Concertación was unable to create an efficient investment promotion agency due to the legacies of the authoritarian regime and the unfamiliarity with many investment promotion practices among the staff at CORFO. As a result, during the 1990s CORFO employed a very general and non-discriminating approach to FDI. Little effort was made to specifically target sectors, or to encourage activities among foreign firms that might assist Chile's economic environment. However, during this period CORFO reinvigorated meritocratic hiring practices and moved away from its previous role as an investment bank to more of an advisory body and important source of information for potential investors. Although service privatization brought in a good deal of new investment, there was not much in the way of technology-intensive investment during the 1990s.

This changed in 2000. The incoming Lagos administration strengthened the High Technology Investment Program within CORFO, and moved the organization to a tighter focus on technology-intensive investments. The organization also adopted a more active approach to investment promotion, and began to undertake studies designed to pinpoint Chile's comparative advantages in attracting this kind of investment. The high technology program within CORFO became well-funded venue for active FDI promotion. After 2000, a number of multinational companies in the IT sector established technical support/call centers in Chile, and a few established software development subsidiaries²¹³. Call centers and shared services were forms of investment that CORFO had specifically targeted as uniquely well-suited to Chile's economic characteristics. CORFO also established a branch office in Silicon Valley, California (Nelson 2007). The focus on high-tech investments continued into the Bachelet administration. In 2007, the council of innovation (a public-private partnership)

²¹³These companies included Banco Santander, BBva Bank, and Citigroup (Nelson 2007).

established a medium term strategy to promote innovation among foreign firms in Chile and in partnership with domestic firms. The budget for the High Technology Investment Program doubled that year, partly funded by a tax on the mining industry²¹⁴.

CORFO is now more closely networked with firms and consistent in its investment promotion activities. Whereas during the politically fragile environment of the 1960s and through the military regime the agency had been manipulated by those in power, it has since 1990 become more independent and effective. This transformation is especially evident after 2000. There is ample evidence that the strengthening of CORFO has had an impact on the quality of foreign investment. Nelson (2009, 150) notes that by 2005 CORFO had managed to attract at least twenty technology-intensive investments totaling just under US\$100 million and employing approximately 2,180 people. Though these investments do not rival the size of Intel in Costa Rica, for example, they do represent a substantial increase. By 2009, CORFO had shifted away from the call center model, especially for the Santiago region, and had begun exploring options for attracting biotech companies in the north and south²¹⁵.

Paola Perez-Aleman, in her article on state-firm relations in Chile, argues that state institutions have been important in facilitating learning and improving the performance of domestic firms (2000). CORFO was an important part of the governmental mechanism for sparking the learning process among Chilean firms, enabling them to compete in the international marketplace in the 1990s. While the international investment division of CORFO did not develop a strong institutional coherence until after 2000, it did have a similar effect on investment profiles in Chile. The High Technology Investment Program represented an evolving effort by the Chilean state to attract investment outside the normal

²¹⁴Phone interview, Mario Castillo, Head of Investment and Development Division, CORFO, February 2010.

²¹⁵Phone interview, Mario Castillo, Head of Investment and Development Division, CORFO, February 2010.

pattern of FDI in Latin America. Nelson (2007, 2009) argues that CORFO's objectives in the early stages after democratization were to recruit vague "high technology" investments. However, the agency was able to refocus and attract a number of call centers and software development plants to Chile after 2000. It is unlikely that these investments would have happened in the absence of CORFO's efforts.

Chile's experience upholds the idea that state institutions can have a substantial impact on investment profiles of firms operating in developing countries. It is especially noteworthy that Chile was able to attract the call centers and software development centers only after CORFO had strengthened the High Technology Investment Program. Chile eventually endowed a strong, well-funded, and insulated agency with the power to condition investment within the country. CORFO established a consistent set of incentives for nontraditional FDI, and provided a central venue for firm-state interaction²¹⁶. Between 1990 and 2000, the agency was constrained by many of the legacies of the authoritarian past, when it had been manipulated by the military regime. While it engaged in investment promotion, it did not display a great deal of consistency or active policy in the early years after the democratic transition. High-tech investments were targeted, but only in a vague fashion. CORFO did eventually, however, move toward greater institutional efficacy.

6.5.2 Costa Rica: agile adaptation?

Costa Rica, like most other Latin American countries, was hit hard by the debt crisis of the early 1980s. Partly in response to the crisis, and partly in response to pressure from the US Agency for International Development (USAID), Costa Rica began a process of

²¹⁶It is noteworthy that, unlike in other Latin American countries, very few of the special incentives established for FDI were tax-based. Instead, CORFO concentrated on offering training incentives for prospective employees and subsidizing property leases.

liberalization and diversification of its economy²¹⁷. Multinational corporations, particularly those from the US, played a prominent role in this transformation. Costa Rica's initial strategy was to concentrate on the textile industry, but this was deemphasized when it became apparent that the country could not keep up with low wage competitors already included within the Caribbean Basin Initiative (CBI) framework (Spar 1998)²¹⁸. The country shifted from apparel to electronics, while maintaining an emphasis on liberalization and foreign participation. A number of factors worked in Costa Rica's favor in this initiative: the country already enjoyed high literacy rates and a relatively low-wage, well educated workforce. For these and other reasons, Costa Rica began to attract the attention of a number of technology-intensive multinationals in the 1990s. From 1990 to 2000, FDI in Costa Rica represented 16.6 percent of gross fixed capital formation (yearly average), compared to 14.7 percent as a regional average for Latin America and the Caribbean. In 2006, 2007, and 2008, that figure stood at 32, 33, and 28 percent compared to 15, 15, and 17 for the region respectively (UNCTAD 2009).

As part of its effort to transform its economy, Costa Rica established a number of Export Processing Zones. These zones allowed multinational companies to import all of their inputs tax free and avoid paying income tax for eight years, with reduced tax for four years thereafter. The EPZs also enjoyed generous subsidies from the government, sometimes equal to 10 percent of exported value (Rodríguez-Clare 2001). Though this initiative was designed to help domestic companies become internationally competitive, it quickly attracted

²¹⁷See Clark (1997, 1995) for a discussion of the geopolitical and transnational alliances which led to heavy USAID involvement in Costa Rica in the 1980s, and the economy's subsequent transformation.

²¹⁸Costa Rica was subsequently disadvantaged in relation to Mexico by the terms of the NAFTA agreement. However, the passage of the Caribbean Basin Trade Partnership Act in the US in 2000 and CAFTA in 2005 moved countries in the region back into "NAFTA parity", with some exceptions (Bair and Dussel Peters 2006).

the attention of multinationals. A number of firms established assembly operations in the zones, including DSC, Motorola, Connair, and Baxter Healthcare. But the largest investment by far occurred in 1996, when Intel announced it would invest somewhere between \$300 and \$500 million in a manufacturing facility in the country. By 1999 and with the plant established, Intel represented more than 40 percent of *all* of Costa Rica's exports (Rodríguez-Clare 2001). Intel suppliers followed the company to Costa Rica, as did a number of international logistics and transportation companies. Evidence suggests that the Intel investment served as a catalyst for subsequent IT investments, serving as a 'stamp of approval' for other firms (Nelson 2009). Costa Rica has been more successful than other countries in Latin America in attracting export and technology intensive investments²¹⁹. What role, then, have domestic institutions played in this process?

Before the debt crisis, Costa Rica operated an investment and export promotion body known as CENPRO (Centro de Promoción de Exportaciones e Inversiones). However, this organization was widely viewed as a failure by 1981. CENPRO was eventually replaced by a number of more responsive organizations. Among these was the highly influential Coalición Costarricense de Iniciativas para el Desarrollo, or CINDE. Intel and a number of other firms would very likely not have considered investing in Costa Rica had it not been for the efforts of CINDE. The group was founded in 1982 by a dozen prominent businesspeople. While the organization has remained a private, non-profit organization, it has worked very

²¹⁹Some important questions have been asked about the contributions these firms are making to the country's economy. The substantial concessions within the EPZs have raised politically sensitive concerns about the firms' overall trade balances and tax contributions (or lack thereof). Cordero and Paus (2010) have claimed that the backward and forward spillovers of these large IT firms are small, and that they tend to function as islands without substantial connections to the local economy. The authors note that few of these firms use local suppliers, and that the local firms used in the value chains tend to be concentrated in packaging and shipping. Mosley (2008) notes the impact of *solidarismo* in Costa Rica, whereby traditional labor unions are supplanted by company-organized worker groups. She notes that this can make the enforcement of core labor standards problematic within the EPZs, even if these groups are regarded favorably by the multinationals.

closely with the Costa Rican government to promote development and investment. Despite its private origin, it is regarded as Costa Rica's main investment promotion agency. During the 1980s, the agency received a great deal of funding from USAID, and engaged in a number of programs designed to support Costa Rican firms and attract investment. When USAID funding was reduced in the 1990s, the agency narrowed its focus to FDI attraction²²⁰. By 2000, CINDE was almost completely focused on attracting technology-intensive FDI.

CINDE played a central role in the recruitment of Intel in the 1990s, managing to attract the enormous investment even though Costa Rica was initially not on the shortlist of countries considered²²¹. While Intel was not the only example of successful investment attraction for CINDE, the qualities displayed by CINDE during that period reveal much about the impact institutions can have on investment patterns. CINDE targeted Intel directly, and displayed a high degree of institutional coherence during the negotiating process. CINDE representatives worked in direct consultation with then-president Figueres to coordinate the negotiations, and responded quickly to Intel's requests for information. Nelson (2009) and Spar (1998) note that CINDE displayed a high degree of consistency as well. When the subject of special deals and incentives surfaced, CINDE communicated that the incentives offered to Intel must also be available to any potentially interested firm. Rather than dissuade Intel, this reluctance to offer special deals actually increased the attractiveness of the country, as it indicated adherence to the rule of law and the absence of

²²⁰Telephone interview, Angela Galva, CINDE Director of Legal Affairs, February 2010.

²²¹Details of the negotiating process between CINDE and Intel are beyond the scope of this chapter. See Spar(1998), Nelson (1999), and Rodriguez-Clare (2001).

corruption. The other countries under consideration did not display similar attention to the company's needs²²².

CINDE was not the only Costa Rican institution involved in the negotiations with Intel. Organizations such as PROCOMER (the trade promotion agency) and the foreign trade ministry were also involved in the process, and have been influential in subsequent efforts to attract FDI. However, what is significant about the Costa Rican case is the unified and streamlined approach to investment promotion. This is undoubtedly made easier in a country of Costa Rica's size, but the coordination among various bodies is notable nonetheless. As a non-governmental organization tied to private interests, CINDE was insulated from political pressures. At the same time, it was deeply integrated with the governmental effort to attract IT investment. This characteristic of being 'with' the state but not 'of' the state seems to have worked in Costa Rica's favor.

Both the center-left PLN and the center-right PUSC have, when in power, pursued largely liberal reforms since 1982²²³. Even with the general liberal reform efforts of successive governments, the Costa Rican state remains an active partner in conditioning FDI. It has devoted significant resources to investment attraction through strengthening the institutions involved in investment promotion. Governments from the right and left have continued to support a coordinated and responsive effort to attract technology-intensive investments to Costa Rica. The establishment of EPZs attracted a number of export-oriented multinationals, and these zones are generally regarded to be well-functioning (Rodríguez-

²²²Nelson (2009, 67) notes the lack of a proactive, systematic approach in the Brazilian investment promotion framework during the Intel negotiations.

²²³Wilson (1999) notes that the leftist PLN was able to implement these policies and still succeed at the ballot box by employing a number of strategies, including obfuscation, compensation, and providing attractive variations on liberal reform.

Clare 2001). Rather than adopting an indiscriminate, passive policy for FDI, Costa Rica adopted a model that involved targeted, well-funded, and consistent investment promotion. The state supported agile institutions, which not only served as important information points for foreign investors but also acted as de facto government liaisons. These organizations moved Costa Rica's entire investment profile into new sectors. State and parastate institutions were instrumental in making the shift from textile investment to IT investment in the 1990s.

In Costa Rica's case, it seems probable that the qualities of domestic institutions were favorable to exporting and innovative activity. Most of the IT sector firms investing in Costa Rica since 1995 have exhibited both exporting and local R&D. However, there are those who argue that Costa Rica has lost an opportunity to promote innovative linkages with local firms, and that many of the high tech multinationals operating in country do little besides assembly. Paus (2005) and Cordero and Paus (2010) argue that most of the high-tech FDI in Costa Rica displays this characteristic, though they acknowledge that assembly and testing of semiconductors and microchips is quite involved. The authors fault CINDE and the Costa Rican government for not developing local supplier firms that could adequately meet Intel's needs. However, the authors do note that with the establishment of institutions like Costa Rica Provee (CRP), which attempts to match multinationals with domestic suppliers, the country has the potential to create more spillovers in the local economy. Indeed, CINDE is now concentrating many of its efforts on incentivizing backward and forward linkages between multinationals and domestic firms.

When drawing lessons from Costa Rica's experience with FDI promotion, it is important to acknowledge some key differences from the other countries in the region. It is

true that Costa Rica is a small, relatively open economy, and that the country benefited from its proximity to the United States. Costa Rica's small size may have allowed a more coherent and cohesive development policy to emerge. However, there are important qualitative differences in the strategies and characteristics of Costa Rican institutions. These differences seem to have impacted the type of FDI coming into Costa Rica, even controlling for advantageous structural factors. While other countries in the region are still dominated by textile manufacturing and have fallen to different degrees into a kind of low value-added trap, Costa Rica has managed to create a different investment profile. This is partly due to institutional variation.

6.5.3 Mexico: manufacturing for export

Mexico engaged in a fast-paced process of liberalization beginning in the late 1980s, and especially under the Salinas administration from 1988 to 1994. In many respects, Mexico's experience with FDI is unique, owing to the country's proximity to the region's largest source of investment and progressively deeper economic integration with the large American market. During the 1990s, Mexico eliminated many of the restrictions on foreign capital that had been in place since 1973. As in other Latin American countries, the Mexican state sold off many of the largest state owned enterprises in the 1990s, particularly in services. There are still a number of natural resource industries under partial control of the state, but there are relatively few restrictions on the operations of multinationals in Mexico in most sectors.

During the 1990s, Mexico continuously modified its Foreign Investment Law (FIL) to reduce the barriers for FDI in the country, which had been substantial prior to the debt crisis. In 1993, changes to the law reduced the number of industries in which foreign investment

was prohibited, and established new limits for foreign participation in other sectors. In addition, the revisions in 1993 and afterward allowed the establishment of “export models”, through which individual firms could import higher levels of inputs from abroad²²⁴. In 1999, another revision of the law allowed full foreign participation in the financial sector (Pacheco-López 2005). These changes, along with the passage of NAFTA, contributed to a dramatic increase in FDI in the 1990s. Inward FDI stock accounted for 8.6 percent of GDP in 1990, but increased to 16.7 percent in 2000 and 27.1 percent in 2008²²⁵. Many of these investments were export-intensive. Exports increased 173 percent from \$60.8 billion in 1994 to \$166.5 billion in 2000 (Bair and Dussel Peters 2006), and it is certain that a large majority of the increase in exports was linked to inward FDI.

The Comisión Nacional de Inversiones Extranjeras (CNIE) was the most prominent agency and driving force behind investment incentives, which established duty exemptions for manufacturing firms that produced for export (ECLAC 1999). American firms established numerous manufacturing plants in what became known as the *maquila* program, particularly in apparel and consumer electronics²²⁶. The passage of NAFTA further increased the incentives for multinational firms to locate production sites in Mexico. These investments, which increased significantly in the latter half of the 1990s, boosted Mexico’s

²²⁴In the automotive sector, for example, export models were allowed to import up to 70 percent of their inputs, while models for the domestic market were restricted to 40 percent (Mortimore 2000).

²²⁵Based on data from UNCTAD’s 2009 FDI country profile for Mexico.

²²⁶There is of course a long standing debate about the benefits of *maquila* investment, with opponents asserting that the factories exploit low wage advantages, consist of low value-added assembly operations of imported components, and suppress worker organization. Bair and Gereffi (2001) point out the tremendous variety among *maquiladoras*, and argue that some have evolved into more tightly integrated and complex production processes with potentially larger developmental benefits.

export performance considerably. Multinationals are dominant in most of the major growth areas of the Mexican economy, and devote considerable energies to export.

There can be no doubt that FDI has improved export performance in Mexico. Moreover, domestic institutions such as CNIE have since at least the mid-1980s made attracting export-oriented investment a priority. Export performance among incoming multinationals has remained strong, even overcoming periodic overvaluations of the Mexican peso. Given the exporting successes of multinationals, it is broadly accurate to claim that state institutions have been successful in attracting higher-quality FDI. However, there are a number of dimensions to export-oriented FDI in Mexico that suggest the state has not been as successful at absorbing the benefits of the foreign investment boom as it might first appear.

First, as Paus and Gallagher (2008) and Pacheco-López (2005) have argued, many of the export-oriented multinationals in Mexico also import intensively. Second, there seems to be a pronounced disconnect between the firms operating under the *maquila* framework (mostly American in origin) and indigenous Mexican industry (Dussel Peters 2010). Spillovers from multinational firms to domestic firms have not been as extensive as originally hoped, as many of the multinationals operate in relative isolation. This has also contributed to a regional polarization in Mexico, with multinationals concentrated in the north having little connection to southern Mexico, where domestic firms are more active (Dussel Peters 2000). Third, Pacheco-López (2005) has noted the constraints NAFTA has placed on the ability of the Mexican government to implement sectorally-discriminating industrial policies. These aspects of FDI in Mexico suggest the absence of a truly comprehensive strategy by the Mexican state to influence the characteristics of FDI in Mexico.

It is of course difficult to disentangle the effects of state institutions on firm export profiles from the effects of NAFTA and the structural and geographic characteristics of the North American market. However, it seems likely that firm export intensity is based more on the latter than the former. Mexico did not display a great deal of institutional consistency with relation to FDI. While the state did incentivize export activity among multinationals, through NAFTA and other means, it did not put in place an institutional structure that integrated FDI into development policy. When we consider the patterns of innovative activity among multinationals, this pattern becomes more apparent. While tax concessions and other initiatives have attracted a great deal of export-oriented FDI, comparatively few firms have established R&D intensive operations in Mexico.

Mexico identified IT as an important part of its development strategy in the 1980s. Still operating under import substitution principles leftover from the 1970s, the country attempted to develop an indigenous computer industry with the Programa de Computadores (PC), which allowed foreign firms to own no more than 49 percent of computer producers operating in country. Nevertheless, the policy succeeded in attracting a number of market-hungry multinationals, including IBM, HP, Digital, NCR, Tandem, and others. By 1990, however, the PC program was dismantled as Mexico pushed its rapid liberalization program. The Salinas administration liberalized FDI flows in the run-up to NAFTA, and eliminated PC special incentives as part of a market-oriented approach to investment. Zedillo once attempted to selectively incentivize high tech FDI, but funds were never allocated to this initiative.

The country had initial success in attracting IT investment to the Guadalajara region, which was to become the Mexican Silicon Valley. From 1994 to 1999, exports from the

electronics sector in Mexico rose from US\$46 billion to US\$1.5 billion. Almost all of these exports by 1999 originated from multinational firms. Mexico's share of world IT exports increased from 0.8 percent in 1985 to 3 percent in 2000 (Dussel Peters 2003). Many of the multinationals that invested during this time brought suppliers with them, and most domestic IT firms were either put out of business or absorbed by these new arrivals. It seemed that Jalisco would take advantage of its geographic advantages and become a FDI-intensive, export-oriented high tech cluster for Mexico.

By 2005, however, most multinationals had left the area and Mexico had declined precipitously as a destination for high tech FDI. The reasons for this exodus are well known. The bursting of the IT bubble in 2001 certainly had an impact, as many firms scaled back both in the US and abroad. Also influential was China's accession to the WTO. Many of the IT firms that left Guadalajara relocated to China (Gallagher and Zarsky 2007). New investment dropped off, and massive layoffs throughout the industry resulted in a much reduced IT profile. Although a few large foreign firms remain in Guadalajara at present, they conduct relatively little domestic R&D²²⁷. Gallagher and Zarsky (2007, 144) characterize the industry in the region as a "foreign enclave dependent on imported inputs".

Unlike in Costa Rica, Mexico experienced few spillovers as a result of FDI flows. Rivera Vargas (2002) found that only 8 of 60 firms in the electronics industry in Guadalajara had established partnerships with local universities, and those that did were not interested in developing new products but refining assembly operations. Most of the firms still in

²²⁷Romo Murillo (2002) found little evidence of technology spillovers from FDI, and argues that while foreign FDI has generated modern capabilities and new investments, it has also displaced a large number of Mexican firms. Gallagher and Zarsky (2007) note that specific Mexican policies contribute to the lack of innovative spillovers. The PITEEX program, for example, grants duty-free status to imports if 65 percent of the final product is exported. This in effect encourages firms to use imported inputs rather than partner with domestic firms or locate innovative activity in Mexico.

Guadalajara employ workers with comparatively low education and skill levels, and concentrate on assembly operations. Most innovation is done in the US and imported as inputs. Interestingly, one of the few innovation success stories, the Centro de Tecnologia de Semiconductores (CTS) was formed as a result of bargaining between the Mexican state and IBM in the 1980s, when IBM conceded to establishing a training center in exchange for full control over its operations in country (Gallagher and Zarsky 2007).

There are a host of reasons why multinationals in the IT industry left Mexico and why the industry as a whole did not sustain the momentum of the late 1990s. Yet it is also important to point out institutional inadequacies during this period. After all, Mexico enjoyed significant geographic advantages that could conceivably have overcome China's labor price advantages. While domestic institutions may not have been deterministic, they did matter. There was no centralized investment promotion agency that might have coordinated the effort to coax innovative activity from the multinationals. The Camara Nacional de la Industria, Electronica, de Telecomunicaciones e Informatica (CANIETI), or the national chamber of commerce for the IT industry, could have filled this role. The state of Jalisco also established a body to link domestic suppliers with multinationals and encourage innovation, CADELEC (Cadena Productiva de la Electronica). However, neither of these organizations was especially effective. Both suffered from coordination problems and a lack of funding.

In more general terms, institutions did not mediate or intervene in investments, preferring instead to allow both domestic firms and multinationals alike to simply react to the pressures of NAFTA. There were precious few initiatives to support innovation, and those that did exist were channeled through weak and ineffective institutions. As in Brazil,

strategic industrial policy was ignored, especially in the late 1990s. Successive governments did not place emphasis on institutional linkages to firms, and adopted largely passive approaches to FDI²²⁸. Gallagher and Zarsky (2007) claim that this approach stems from what they call a “maquila mindset” among Mexican policymakers: that FDI should be viewed as an end rather than a means to an end. Without active and discriminating policy, FDI took on some of the more negative characteristics associated with the maquila model: low-wage, low-tax, low-innovation and low value-added products for export.

There are some signs that Mexico is changing its approach to FDI. The Fox administration shifted emphasis away from assembly operations and towards higher value-added activities. The Calderón administration has revived the prospects of a unified investment promotion framework with the establishment of ProMexico by presidential decree in 2007. This organization was conceived as a centralized body for the promotion of FDI, and its technical committee reports directly to the president²²⁹. ProMexico is part of the government’s National Development Plan for 2007-2012. While this plan continues the government’s emphasis on FDI, it contains little in the way of sector specific industrial policy. As Dussel Peters (2010, 74) notes, the NDP “views macroeconomic stabilization as the sole basis for competitiveness, while ignoring trade, industrial, regional and sectoral policies”.

Despite the economic crisis of 1994-1996, the growth in manufacturing exports has continued to serve as a validation of sorts for the FDI promotion strategies of successive Mexican administrations, both before and after democratization. However, there are reasons

²²⁸Dedrick et al. (2001) argue that the collapse of the IT sector was caused primarily by this absence of a coherent industrial policy. State institutions did not cooperate to interact with firms in ways that might bring about local innovation, and were generally perceived as weak and ineffectual.

²²⁹Telephone Interview, Maria Trespalacios, Business Representative – ProMexico, March 2010.

to doubt the upgrading potential of many of these investments. Thus Mexico presents a mixed picture for the institutional analysis presented in this chapter. While state institutions did incentivize high tech investment in Guadalajara, Mexico was not able to keep many of these investments. The integration of foreign firms into local production networks is often spotty. Mexico has thus far not been able to consistently extract benefits from its international production network other than the substantial export contributions. The lack of a coordinated institutional framework has played a part in this turn of events.

6.5.4 Synthesizing the cases

The countries presented in the three case studies varied considerably in the strategies and coherence of institutions charged with managing FDI. There are, however, some common threads that can be identified. On the heels of the debt crisis, all of the states initially pursued a largely general, indirect approach to attracting FDI (mostly through privatization programs). However, some countries also looked for ways to attract FDI beyond privatization programs. During the period of liberalization, some countries moved towards active investment promotion strategies, and began differentiating between more and less desirable and/or attainable forms of FDI. Those countries that did differentiate were also the ones who put in place stronger institutional frameworks for FDI promotion. The point at which these transformations occurred varied from state to state. In Chile and Costa Rica, investment promotion agencies have been established which demonstrate autonomy from political pressures, and consistently deliver R&D-intensive investment. This happened earliest in Costa Rica, but by 2000 Chile had adopted a similar approach. In Mexico, R&D-intensive investment was more rare. The strategies adopted by these governments and the institutions employed had direct impacts on the composition of incoming FDI.

The analysis presented in the individual case studies suggests that state institutions do have an impact on firm profiles. In some of the cases presented here, active and coherent institutions were able to impact the form of incoming investment. In Chile, the gradual transformation of CORFO from a rent-seeking venue to an independent and coherent investment promotion agency has generated substantial nontraditional investment in Chile, and bolstered the IT industry there. This transition did not really get underway until after 2000, yet it seems already to have had an impact. In Costa Rica, it is difficult to imagine the Intel investment (and others) without a unified approach to investment promotion and well-coordinated institutions. In Mexico, the export intensity of investments there may be more the result of structural factors than the efforts of state institutions, although the two were reinforcing. The lack of innovative effort on the part of foreign firms and the collapse of the IT industry may have been aided by outside factors, but there was little institutional coherence in evidence which might have slowed or reversed this process. In all three cases, the divergence in institutional configurations can be connected to the divergence in FDI profiles.

What, then, are the qualities of institutions that endow states with the leverage to condition FDI? Consistent with the econometric analysis presented in the first half of this chapter and with earlier chapters, there are some characteristics that stand out. First, institutions must be coordinated and insulated from rent-seeking behavior. This was accomplished in Costa Rica, where CINDE and other organizations were established as autonomous organizations. In Chile, CORFO gradually made the transition from a venue for rent-seeking to a meritocratically-staffed, independent organization. In Mexico, the introduction of electoral competition for the PRI may have diminished opportunities for rent-

seeking, though the lack of a central investment promotion agency or coordinated investment policy has not been helpful. Secondly, a consistent approach to FDI promotion seems to result in firm and overall investment profiles with more local innovative activity and outward orientation. Firms are interested in reducing uncertainty and risk. Risk-mitigating institutions were established early on in Costa Rica. In Chile and Mexico, political transitions have only recently introduced a greater degree of institutional stability and consistency. Third, state institutions must be networked with firms. The state must give institutions the power (through funding and other measures) to offer incentives and bargain effectively with firms. If institutions demonstrate these qualities, it is much more likely that governments will realize their goals to condition the composition of overall FDI and the behavior of individual firms.

6.6 Conclusions: FDI Profiles and Institutions

As a corollary of the neoclassical paradigm dominant during the 1980s, assessment of state institutions and FDI until recently concerned the barriers that state intervention posed to the effective operation of firms. Consistent with the prevailing wisdom that industrial policy represented a threat to the efficient allocation of resources, some countries in Latin America abandoned tentative attempts to route FDI to sectors of the economy where it might be most beneficial. Thus the reduction of barriers to FDI was often wholesale – because the state would, in this view, divert resources away from productive developmental pathways, the most appropriate action was to eliminate barriers to all types of FDI and allow multinationals to operate unimpeded. Positive spillovers for local firms would occur naturally, as firms entrenched their production networks in the host economy. Industrial upgrading would surface as states lowered barriers to investment.

The historical record in Latin America does not corroborate this prediction. States that have simply eliminated barriers to FDI have not demonstrated FDI profiles with extensive spillovers, such as exporting and innovation. Instead, state institutions have conditioned FDI flows in more complex ways. In the past quarter of a century, the impulse to trim the excesses from the Latin American public sector has in many instances been turned into an indiscriminate and unsubtle reduction in state capacity. In some contexts, this has had deleterious effects on the potential for effective economic governance. The desire to create a lean, effective state apparatus has sometimes instead resulted in an eviscerated and altogether ineffective set of institutions. As this analysis argues, some level of institutional coherence is beneficial for taking full advantage of the possibilities offered by global economic integration. Firms do not solely react to economic developments, but also consider the political context for investment projects. For multinationals, institutions are the focal points for interaction with host country governments. As such, the characteristics of these institutions can have a substantial impact on firm decision-making.

This analysis provides strong support for comparative institutionalist notions about the importance of the state in explaining investment outcomes. State institutions should not be 'black-boxed' or dismissed as unimportant. While contending societal groups are important, the form and function of the state is also consequential for investment patterns. Both the cross-national investigation of firm survey responses and the case studies of three Latin American countries corroborate this point. Firms are more likely to commit resources to innovation in host countries and engage in export activity when institutions in those countries are perceived to be well functioning, consistent, and credible, by the firms themselves or by outside observers.

6.7 Appendix: Descriptive Statistics

Descriptive Statistics, Country-level Analysis, 2002-2005 firm surveys

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
Percentage of Firms with R&D spending in country sample	66	22.654	14.190	3.703	58.823
Average R&D intensity of innovative firms in country sample (percentage of sales)	59	5.039	7.558	0.045	39.453
Government Effectiveness (WGI)	103	-0.179	0.638	-1.178	1.245
Log GDP per capita	80	7.269	1.148	4.861	9.533
Log Population	80	16.572	1.534	13.544	20.976
GDP growth	80	5.019	2.606	-.175	13.9
Percentage of manufacturing firms	104	60.628	29.373	10.909	100
Percentage of service firms	104	31.170	28.106	0	83.636
Age of democracy (years)	66	10.227	11.619	0	56
Conflict (dummy)	80	0.15	0.359	0	1
Trade [(IMP+EXP)/GDP]*100	74	85.790	36.909	26.643	196.491
Natural resources (percent of merchandise exports)	76	18.552	21.703	0.021	97.28

Descriptive Statistics, Country-level Analysis, 2006-2009 firm surveys

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
Percentage of Exporting Firms in country sample	90	40.338	23.165	0	100
Average export intensity of exporting firms in country sample (percentage of sales)	90	21.264	14.791	0	63.370
Government Effectiveness (WGI)	90	-0.391	0.669	-1.803	1.162
Log GDP per capita	89	7.031	1.242	4.508	9.438
Log Population	90	15.843	1.505	11.606	19.202
GDP growth	90	6.427	4.662	-5.762	34.5
Age of democracy (years)	90	9.733	11.054	0	49
Conflict (dummy)	90	.111	.316	0	1
Trade [(IMP+EXP)/GDP]*100	73	96.330	48.286	25.502	360.682
Natural resources (percent of merchandise exports)	68	25.419	25.846	.251	94.649

Descriptive Statistics, Firm-level Analysis, 2006-2009 firm surveys

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
Exports as a percentage of sales	2300	54.807	38.022	1	100
Consistent and Predictable Government Regulations	3076	2.362	.976	1	4
Degree of foreign ownership (%)	5368	80.756	27.494	10	100
Size of firm (hundreds of employees)	5835	2.431	9.494	0.01	378
Manufacturing Sector Dummy	2704				
Service Sector Dummy	2160				
Agroindustry Dummy	695				
Other Sector Dummy	317				

Descriptive Statistics, Firm-level Analysis, 2002-2005 firm surveys

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
R&D spending as a percentage of sales	1077	6.978	40.173	0.000000107	704.225
Consistent and Predictable Government Regulations	4844	3.347	1.376	1	6
Worker Education Level (percentage of employees with postsecondary schooling)	4305	32.553	30.378	0	100
Degree of foreign ownership (%)	5771	74.899	27.821	10	100
Size of firm (hundreds of employees)	5821	3.817	9.316	0.01	195
Manufacturing Sector Dummy	4056				
Service Sector Dummy	1473				
Agroindustry Sector Dummy	153				
Construction Sector Dummy	171				
Other Sector Dummy	55				

Chapter 7

Conclusion

Foreign investment is potentially an important contributor to development. Multinational enterprises have access to tangible and intangible resources that domestic firms in developing countries often cannot attain. Multinational firms are, by their nature, integrated into global production chains. They often possess advantages in innovation, economies of scale and experience, and other potential resources. For these reasons developing country governments have courted FDI in recent decades. Yet all FDI is not created equal. From a host country government's perspective, some forms of FDI are more advantageous than others. Firms are profit-making enterprises. They are not in the development business. Yet developmental spillovers from investment sometimes occur, and they occur more often in specific contexts. The objective of developmental states, then, is to tempt forms of FDI that exhibit these spillovers, and to increase the frequency of spillovers from firms already in country. This dissertation analyzes the characteristics of state institutions which allow governments to extract these kinds of activities from firms. I argue that the form and the function of the state matters for investment profiles.

I argue that states adopt differing policy strategies for attracting investment, and that these strategies have impacts on the nature of investment. States may adopt passive strategies, involving the removal of barriers to investment, or they may actively commit resources to attracting investment. Investment strategy may be general or discriminating. I

argue that active, discriminating investment policies have the greatest chance of attracting high quality investment. I also argue that the characteristics of domestic institutions matter, not only as venues for interaction between states and firms during the initial bargaining period, but also as bodies which refract and condition policy to produce investment outcomes through time. The elements I identify which increase institutional leverage on firm investment profiles are: consistency, coordination, and strong networking. Some of these elements may be present in specific institutions, while others are not. Their effect is additive, in that the absence of any decreases the institutional leverage a state may enjoy. In Brazil's case, I have noted where select institutions have displayed these characteristics, and where they have not. I have also noted that while Brazilian governments have moved toward active, discriminating investment policy in recent years, the institutional framework for investment promotion remains disarticulated. I argue that the relatively low innovation, low international insertion profiles of firms in Brazil are partly the result of policy and institutional characteristics.

Brazilian institutions are typically not well-integrated with international production networks. While connections between multinational firms and individual legislators may be close, official institutions do not often have close ties to multinational firms. This reinforces personalistic implementation of policy, and does not help institutions understand what firms need and are willing to accept. This is illustrated in the lack of connections between firms and universities in Brazil, and the evolving incentive structures contained in Brazilian industrial policy. The Lula administration was not able to take advantage of public-private partnerships partly because a lack of state-firm networks, and struggled to find incentives that firms consider worthwhile. Secondly, the lack of consistency undermines investment

promotion. When institutions such as *Investe Brasil* come and go, or when institutions serve as focal points during one administration and decline in influence in the subsequent administration, leverage suffers. The multiplicity of channels through which investment promotion policy passes generates opportunities for differing priorities from institution to institution. The difficulties surrounding the implementation of industrial policies after 2004 illustrate the coordination problems endemic to Brazil. Multiple interviewees corroborated the lack of institutional coordination, and the problems generated by the absence of a unified investment promotion framework integrated with a strategic vision for the role of foreign investment in development.

I have supported my arguments in a variety of ways. I have examined the dominant characteristics of investment policy in different time periods, and inferred linkages between policy and investment outcomes. I have also established characteristics of institutions which also influence investment outcomes, and separated their effects from those of other influences on investment profiles. My conclusions were drawn from 78 original interviews with policymakers, NGO representatives, academics, business reporters, and especially government agency representatives and firm representatives. I also employed large datasets from Brazilian government agencies, US agencies, and numerous nongovernmental organizations and think-tanks to convey trade balances, innovation indices, and international comparisons. I conducted an econometric examination of the links between institutional quality and firm profiles, and expanded the qualitative analysis beyond Brazil to other Latin American countries. I have also relied on secondary sources, governmental and nongovernmental reports, and third party evaluations. The cumulative weight of all of these sources informs my conclusions and arguments.

In the automotive sector, the incentives established by Mercosul ensured that multinational automakers would expand their operations in the regional market. The Cardoso government intervened to correct balance of payments problems and support assemblers, but neither Cardoso nor Lula put in place a broadly successful strategy to expand exports beyond Mercosul. The auto parts industry, which underwent dramatic internationalization in the 1990s, exhibits trade balance problems as modular parts companies use high value-added imported inputs and rely on lower tier Brazilian suppliers for basic material inputs. Local innovation is rare among multinational parts producers, and less rare among the flagship assemblers. However, innovation is done mostly because of firm production strategies, and there is some evidence that the large multinational manufacturers are moving to global car production models, with unified and centralized R&D centers in developed countries. Innovation incentives for the auto industry in Brazilian policy were almost nonexistent in the 1990s, though they reappeared during the Lula administration.

Brazil's IT industry is in transition. The attraction of a number of R&D centers, along with the expansion in cell phone exports, is cause for optimism. Brazil made some efforts to encourage software and hardware exports in the 1990s, but these efforts did not bear fruit. The local innovative efforts of IT firms in Brazil are not yet substantial. I have argued that the lack of applied research at Brazilian universities, or more generally the lack of connections between universities and firms, contributed to this. I also argue that Brazilian incentives display a focus on tangible goods, neglecting needed incentives for intangible products and IT services. Finally, IT promotion policies displayed a focus on developing indigenous software and exports, mostly among small and medium-sized firms. While this

was perhaps a useful approach during the market reserve of the 1980s, it did not generate expected results after liberalization.

I have also identified the policy and institutional determinants of the success stories in Brazilian investment promotion. Institutions such as FINEP and the BNDES have established reputations among multinational firms as effective conduits for industrial policy. These institutions manage to operate relatively autonomously from domestic political interference, and have consistently returned results. I have also noted the more focused, discriminating policies towards FDI put in place since 2004. The Innovation Law and *Lei do Bem*, along with their industrial policy frameworks the PITCE and the PDP, have succeeded in generating increasing amounts of non-traditional FDI, along with their positive effects on domestic firms. Though these policies and institutions have experienced difficulties in implementation, they represent departures from passive, indiscriminate approaches of the past.

Finally, I have extended the analysis beyond Brazil, in order to demonstrate the broad applicability of my findings. In the cross-national tests in chapter 6, I demonstrate that assessments of institutional quality do have associations with different firm profiles, independent of factors such as economy size or level of development. Firms that evaluate domestic institutions as consistent and effective appear more likely, *ceteris paribus*, to commit resources to domestic R&D and/or export platforms. This makes intuitive sense; innovation is often risky, and firms want guarantees that their investments will be treated in a predictable fashion. When comparing Brazil with countries like Costa Rica and Chile, it becomes apparent that investment promotion strategies and institutions can have impacts, even considering differences in market size, education systems, and other factors.

The choice of Brazil as a case study for this dissertation is justified by the significant penetration of its economy by multinational corporations. In both the sectors I consider, the 1990s witnessed an influx of FDI. This investment radically changed the models of production in each sector, and subjected the Brazilian economy to greater international influences. Brazilian governments must now contend with thoroughly internationalized auto and IT industries. In this context, institutions as the points of contact between the state and multinationals become even more important. Brazil, as a large and complex country, presents ample variation. The institutional analysis presented here considers institutional variation through time and in various locations within the sprawling Brazilian bureaucracy. There are pockets of efficiency, and there are institutional changes which have an impact on firm profiles. Therefore, even though Brazil is a single 'case', it presents great diversity and opportunities for comparative analysis.

I have concentrated on international insertion patterns among multinational firms and innovative activity because these are two areas where multinationals may make contributions toward development. As such, these characteristics of FDI have been pursued by developing country governments, and have been used by international financial institutions as justification for investment openness. The examination of the commercial balance and innovative activities of multinationals in Brazil relays tangible and quantifiable dimensions to ideas about positive spillovers from multinational production. Access to cutting edge technology is one of the potential positive externalities of multinational investment. Export-oriented investment may lead countries to a diversified manufacturing base, and increase competitiveness in world markets. I have argued, however, that these kinds of investment activities are not automatic.

I have advocated and adopted a firm-level approach to analysis of investment policy and state institutions. While I have considered economy-wide investment patterns periodically throughout this dissertation, I argue that aggregate statistics on FDI stocks and flows do not allow us to thoroughly understand the interaction between states and firms. For this reason, I have attempted whenever possible to examine specific firm investment profiles, while acknowledging data limitations. This is accomplished through anecdotal evidence of firm investment strategy, through interviews with firm representatives, and through the use of large-n firm level data. The resulting analysis represents improvements over existing studies of FDI, as specific connections may be made between firm investment strategies and the characteristics of state institutions and policy.

This dissertation contributes to two broad literatures. The first concerns the determinants of FDI in developing countries. Scholars of political economy have long been interested in how politics in host countries affects foreign investment patterns. Recently, cross-national and region-specific work on the determinants of FDI has proliferated as new data have become available²³⁰. Yet these works more often than not concentrate on flows and stocks of incoming FDI. This study connects institutional characteristics in developing countries not only with amounts of FDI, but with specific kinds of investment. FDI is quite diverse. I argue here that the political determinants of innovation-intensive FDI and efficiency-seeking FDI are unique and deserve further investigation.

The other important literature concerns the role of the state in development. This literature has a long history drawing from all areas of social science, but a number of comparative institutionalist works of consequence have surfaced in recent decades which

²³⁰On the political determinants of FDI, Jun and Singh (1996), Henisz (2000), Oneal (1994), Jensen (2003), and Li and Resnick (2003) are just a few examples. For region-specific examinations, there are a number of recent works, including: Asiedu (2002), Montero (2008), Biglaiser and DeRouen (2006).

have been especially influential for this field (Amsden 1989, Wade 1990, Evans 1995, Gereffi and Wyman 1990). This study shares their concern with the determinants of development and the role of state policies and institutions in this process. However, I also argue that the expansion of foreign investment in the 1990s and the last decade creates a new context for institutionalist theories of development. While not powerless, states do not have the same options for infant industry protection or promoting national champions in a post-reform era. State relationships with foreign firms and global production networks assume more importance. In many respects, this analysis resurrects themes prominent in earlier literature on firm-state bargaining (Evans 1979, Bennett and Sharpe 1979, Moran 1974). Foreign firms were important in Latin America during the ISI period, but they are even more influential now. Yet firm-state bargaining literature is relatively scarce today. Institutional arguments must adapt to the greater internationalization of production evident since the 1990s.

The conclusions of this dissertation lend support to the argument that political institutions matter not only for the models of investment pursued by foreign firms in the developing world, but also for how firms change their investment models over time. This is significant because foreign investment is a potential source of spillovers, and identifying the determinants of those spillovers is essential for academics and policymakers alike. From an academic point of view, explaining divergent investment outcomes has long been the domain of economics. However, most scholars recognize that political developments in host countries have significant impacts on firm decisions about investment. I have attempted to explain these divergent outcomes by pointing to institutional configurations in Brazil and elsewhere, arguing that institutional leverage on investment models can be increased under

specific circumstances. I combine institutional analysis with a consideration of policy changes, separating the two analytically but also arguing that they have an interactive effect on investment models.

As I have acknowledged numerous times throughout this dissertation, it is difficult to separate the effects of institutions and policies from those of other factors, such as international economic conditions or internal firm strategy. All of these factors are acting on firms at all times, and all may be powerful determinants of investment models. Moreover, they may be working in opposite directions. Strong direct export incentives, channeled through efficient institutions in a stable international economic climate may not generate significant exports in the face of an overvalued currency. Yet the recognition that institutional coordination, for example, is one of the factors that can impact firm investment models is important from a theoretical standpoint. The variation in institutional characteristics may help to explain why firms do not respond to favorable macroeconomic conditions the same way in different countries. Similarly, the recognition that institutions can be more effective when closely networked with multinational firms may help to explain why a firm chooses one countries over another for its R&D center, despite otherwise favorable conditions in both countries. Furthermore, the institutional argument should help to explain why firms begin innovation in a country at a certain point in time.

The conclusions of this study also have implications for policy, and other practical consequences. Most obviously, the implication of the study for policymakers is that they concentrate not only on reducing barriers to investment, but also recognize what kind of investment is entering and how it is being integrated into developmental processes. I argue that distinctions between high quality and low quality FDI were missing in the reform

process of the 1990s in Brazil, and in other countries in Latin America. A discriminating approach to FDI can lead to greater spillovers if implemented correctly. Firms have more flexibility in their production models than imagined. Moreover, firms are interested in investing in developing countries for important reasons. The locational advantages of developing countries, whether they take the shape of large consumer markets or high-skill, low-wage workers, endow states with bargaining leverage. And while WTO rules now prohibit various tools such as domestic content requirements, states still have plenty of 'policy space' with which to influence investment profiles. But attention to policy is not enough. The other implication of this study is that domestic institutions should receive a great deal of attention in order to increase the chances of developmental spillovers. As the example of Brazil in 2004 has shown, relatively well-conceived policy can lose some of its impact when it is channeled through uncoordinated institutions. Active, discriminating policy without strong institutions can deliver disappointing results. Therefore policymakers must examine the institutions charged with investment promotion. In Brazil and other developing countries, building up institutional coherence may be just as important as the nature of investment incentives. Pockets of efficiency, while helpful, are not enough to ensure a continuous process of FDI-based upgrading. Too often in Latin America, generous incentives for investment have been implemented in an uncoordinated fashion. This can lead to race to the bottom dynamics, and reduce the backward and forward linkages firms have with domestic economic actors. Institutional characteristics are recognized by firms alongside specific policy outcomes. Just as the stability of an exchange rate may be more important to firms than its level, the consistency of institutions may be as or even more important than the incentives they deliver.

Dunning's (1980) OLI framework elaborated on a number of locational advantages important to firms as they consider multinational investment. Yet alongside wage rates and access to markets, institutions may be considered another form of locational advantage. Who would blame a firm for choosing to locate its R&D facility in a country with a long history of intellectual property protection, or strong universities with applied research centers? It is certainly true that some of the characteristics of strong institutions take time to develop. National systems of innovation do not emerge quickly. However, there are areas where rapid progress can be made. Schrank and Kurtz (2005) have rightly challenged the traditional dichotomy between inward-orientation/statism and outward-orientation/laissez-faire, which had saddled industrial policy with the legacies of failed economic models of the past. They argue that Latin American governments in recent years have adopted more effective industrial policies designed to increase international insertion. I argue in this dissertation that industrial policy has a role to play in incentivizing specific activities of multinational firms and therefore shaping their contribution to domestic development. Industrial policy may be implemented badly, of course, generating rent-seeking behavior and sub-optimal outcomes. However, industrial policies may also play an important role in shaping investment models, leading to beneficial outcomes for both firms and developing countries. To deny its ability to do so is unwise.

This dissertation considers many of the questions surrounding the role of the state in an era of international production. However, it also leaves many questions unanswered. There are a number of ways that the findings of this work can be expanded or applied to other contexts. This is largely a case study of Brazil, and while I have at times sacrificed theoretical breadth for contextual depth, the arguments of this work can be applied to other

countries as well. While chapter six applies institutionalist arguments in a comparative context, it would be worthwhile to concentrate on other institutional questions and associated investment models. There has been much debate over whether unified investment promotion frameworks have advantages over federal arrangements, where states can engage in beggar-thy-neighbor competition for FDI. To my knowledge no cross-national study exists that links spillover-intensive investments with federal or unitary forms of government. There are other political characteristics that might be linked with different forms of FDI in a cross-national setting, such as the number of veto points.

Another potentially fruitful avenue of research concerns the disaggregation of overall FDI flows and stocks. The heterogeneity of FDI is one of the primary justifications for this work. Yet I have only considered innovation-intensive FDI and the commercial balance of multinational firms. There are other ways to subdivide foreign investment. Mosley (2010) recently unpacked FDI into directly owned foreign investment versus subcontracting, and demonstrates that these different forms of investment have different outcomes for labor rights in developing countries. Vertical vs. horizontal FDI may have important political implications and determinants. The global value chain perspective should inform more political science research, as it highlights the great diversity of global investment patterns. Yet links between this literature and political economy are underdeveloped.

As a political scientist, I have approached the question of institutional impact from the side of politics. However, different approaches are possible as well. While my focus has been on institutional arrangements in Brazil, scholars in international business studies have conducted firm case studies which address locational incentives for investment and link them to firm organizational models. However, many of these studies concentrate on economic

conditions in host countries as potential motivating factors, and do not often consider the role of political institutions. A consideration of these factors would benefit firm case studies.

I have advocated and employed an institutionalist framework for interpreting the relationships between states and firms in Brazil. However, arguments which emphasize societal forces are also possible. It may be useful to consider the role political parties or social classes play in determining investment policy. Foreign investment is controversial, and different societal groups have much to win and/or lose upon the entry of foreign investors. I have made periodic reference to instances where protectionist groups have allied with multinational firms to campaign for privileges, such as the automotive regime. However, my focus has been on the institutional configuration, as I believe the state is an important, independent intermediary between societal forces and multinational firms. However, societal interpretations can contribute to our understanding of the relationships between politics in developing countries and international investment.

Finally, this project has made almost no mention of a very important and relatively new phenomenon in Latin America – the rise of Latin American multinationals. Outward investment is booming, particularly in natural resource sectors but also in such diversified manufacturing sectors as aircraft and machinery. Outward FDI from Latin America contradicts long-held notions about the direction of capital flows in the global system, and has provided analysts with new possibilities for research. These so-called Translatin corporations²³¹ often spring from extensive state support, and research on the political determinants of outward oriented FDI is linked to very old debates about infant industry

²³¹This label, employed by organizations like ECLAC, is somewhat misleading as it carries the connotation that these multinational corporations are only involved in other Latin American countries. In fact, Brazilian-based mining companies have made investments in Canada and elsewhere in the developed world.

protection and state subsidy. Nevertheless, the political spark for outward investment from developing countries is a fascinating subject for political economy.

To conclude, this dissertation has analyzed the institutional determinants of different forms of FDI in Brazil and elsewhere. I have explained differing investment profiles as consequences of varying institutional configurations and policy prerogatives. I find that specific policy and institutional characteristics increase the leverage governments enjoy over firm investment models. More specifically, I argue that Brazil has pursued largely passive and indiscriminating approaches to foreign investment, and this partly explains the largely market-seeking profiles of multinational firms already established in Brazil as well as the market-seeking profiles of entrants in the 1990s. I also argue, however, that this approach has changed over time. Brazil has adopted a more active and discriminating approach to FDI in recent years, as part of the general reinvigoration of industrial policy. I also argue that specific institutional characteristics, such as lack of coordination and consistency, have impacted investment models. Foreign investors in Brazil do not in general display innovative profiles, and in many sectors the commercial balance of investment is decidedly negative. While many factors have influenced this state of affairs, the contribution of institutions cannot be ignored. The results of this dissertation have important implications for the fields of international political economy, where foreign investment has largely been treated as homogenous, and for development theory, which is coming to terms with the growing internationalization of production and the impact this has on state agency.

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