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PRIVATE INFRASTRUCTURE INVESTMENT
IN EMERGING ECONOMIES:
COMPARING THE LATIN AMERICAN AND ASIAN EXPERIENCE

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ABSTRACT

Foreign direct investment (FDI) in emerging markets has grown rapidly throughout the 1990s. Driven both by investment in newly privatized state-owned enterprises and new, Greenfield projects, infrastructure investment has grown even faster than overall FDI. Using a database of telecommunications projects in emerging markets, we compare key characteristics of private infrastructure projects in Latin America and Asia. We also identify economic, political, cultural, and geographic differences between these regions that may serve as possible explanations for the project differences. We develop propositions that incorporate the apparent and latent explanations for the project differences in order to provide a richer theoretical base for examination of regional differences and how such differences may affect international investment in emerging markets.

INTRODUCTION

Foreign direct investment (FDI) in emerging markets has grown rapidly throughout the 1990s.

Driven both by investment in newly privatized state-owned enterprises and new, Greenfield

projects, infrastructure investment has grown even faster than overall FDI.   The growth of this

investment has been facilitated by changes in governmental policies in the host countries and by

the activities of individual firms who are developing strategic approaches to those opportunities.

Yet, the record of market opening and investor activity varies across countries and regions. In

this study, we seek to identify differences and potential explanations for those differences in the

private infrastructure investment in two major regions of the world: Latin America and Asia. In

so doing, we seek to provide initial evidence and to develop propositions specifically addressing

the predictive importance of regional membership/location for private participation in

infrastructure projects particularly and by extension for foreign investment in general.

Research in privatization and private investment in emerging markets has examined some of the

issues surrounding regional influences on investment patterns. Much of the contemporary

literature on privatization has overlooked the possible differences between and among

geographic regions that are embedded in the approach to private investment taken by firms

investing in these countries. Most research has emanated from the economics and finance

disciplines and has focused on governmental privatization transactions and the subsequent

success or failure of these privatizations in achieving social or economic goals (e.g., Boubakri

and Cosset, 1998; Caves, 1990; Dewenter and Malatesta, 1997; Megginson, Nash, and Van

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Randenborgh, 1994; Perotti and Guney, 1993; Vickers and Yarrow, 1991; Yarrow, 1986). While useful, this research has not focused on the range of strategic decisions facing governments and companies as they consider various privatization options and the potential influence of geographic variation on these decisions.

Using a database of telecommunication projects in emerging markets around the world, we investigate how differences in the economic, political, cultural, and geographic characteristics of Latin America and Asia affect private infrastructure investment. We report differences in general project characteristics such as size and scope. We focus particularly on project characteristics that reflect the balance of ownership and control of host governments versus foreign investor, as these factors are particularly interesting and meaningful features of these projects. We also identify a range of political, economic, cultural, and geographic differences in these regions that are possible explanations for these variations. In so doing, we address whether a Latin American model exists (i.e. to what extent projects within the region display similar tendencies/lack variability) and should such a model exists, does that model differ significantly from a similarly captured Asian model.

Our goal is to develop a more sophisticated and inclusive approach to research in international investment, one that includes a range of not just economic and political factors, but also cultural and geographic differences. We also seek identify possible variation that is driven by regional differences that go beyond these factors but reflect more fundamental, embedded differences that result from historical experiences and administrative heritage.

Our focus on telecommunications reflects the fact that this industry is considered the "flagship" infrastructure industry in private participation in developing country infrastructure (Khambatto, 1998), comprising the largest single share of infrastructure investment over the last decade (World Bank, 1999). Our focal region is Latin America. We compare Latin America to Asia because these two regions share some basic similarities in terms of economic development, colonial history, competition for FDI, and recent experiences with privatization and other market-opening initiatives. Additionally, policy makers within the Latin American region often point to the economic development paths followed by Asian nations as prescriptive models. We exclude Africa because it lags these two regions in the process of privatization and market liberalization and therefore is likely to demonstrate different project characteristics and outcomes. We exclude the transitional Eastern European countries because they have been found to demonstrate different approaches and experiences due to the somewhat unique aspects of the transition from developed socialist regimes to developed capitalist ones (DeCastro & Uhlenbruck, 1997).

We begin with a brief discussion of literature that has informed privatization and foreign investment in emerging markets. We report on some specific studies that have examined foreign investment in Latin America and Asia. We then examine differences in the characteristics of private telecommunications infrastructure projects in Latin America and Asia. We analyze a range of economic, political, cultural, and geographic proximity explanations for those differences and develop propositions designed to capture some of these differences. We also suggest that these differences are not entirely explained by these the broad factors mentioned

above, but may reflect subtler but nonetheless important regional differences between these two regions. In this sense, regional membership per se may provide insight into the phenomenon on private infrastructure investment. We include qualitative investigation to reinforce some of our theoretical development. We draw some implications for government policy-makers and international infrastructure investors. We offer some concluding comments and suggestions for future empirical tests of our preliminary model.

LITERATURE REVIEW

There is increasing interest in the conditions surrounding privatization and foreign investment in emerging markets from both the governmental perspective (Zahra, Ireland, Gutierrez, and Hitt, 2000; Ramamurti, 2000) and from the perspective of corporations seeking to take advantage of opportunities emerging from governmental market liberalization (Doh, 2000; Hoskisson, Eden, Lau, & Wright, 2000). In telecommunications, electric power, water, and other sectors, developing countries are increasingly turning to private sector investors to help increase availability, improve access, and move toward market-based pricing of resources and services. In structuring the process of private ownership in previously state-owned or state-controlled infrastructure sectors, governments face a challenging range of options as they seek to balance political, social, and economic goals in determining the extent and pace of reform (Doh, 2000). International companies face challenging questions concerning the preferred entry modes and governance choices they should pursue in response to these opportunities (Doh, 2000; Hoskisson, Eden, Lau, & Wright, 2000; Hitt, Dacin, Levitas, Arregle, & Borza, 2000; Wright,

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Hoskisson, Busenitz, & Dial, 2000).

Perspectives from Privatization Research

Most contemporary literature on one important avenue for private investment in emerging

markets-- privatization -- can be sourced to the economics and finance disciplines (e.g., Boubakri

and Cosset, 1998; Caves, 1990; Dewenter and Malatesta, 1997; Megginson, Nash, and Van

Randenborgh, 1994; Perotti & Guney, 1993; Vickers & Yarrow, 1991; Yarrow, 1986). Many of

the economic studies have sought to determine the success of privatization as measured by

efficiency and to a lesser extent by social welfare (Boubakri & Cosset, 1998; Megginson, Nash,

& Van Randenborgh, 1994; Perotti & Guney, 1993).

Perotti and Guney (1993) note that countries appear to undertake privatization in strategic sectors

more slowly and tentatively than in other sectors, and that underpricing—the tendency of initial

offerings to be priced lower than the subsequent market-adjusted value—is more severe in these

industries. One of the most interesting findings of this research is that although underpricing

does not seem to be systemic, initial returns in underdeveloped capital markets appear to exceed

those of developed country markets. Put differently, "primitive capital markets and nascent

government regulations may increase uncertainty about the intrinsic value of privatization

offers" (Dewenter and Malatesta (1997: 1677). Hence, the combination of regulatory uncertainty

and capital market constraints must compensate investors with higher initial returns.

Perspectives from FDI in Emerging Markets

As states consider privatization options, including permitting Greenfield private investment in advance of, concurrent with, or post-privatization, they face a strategic choice about how and how fast to open their domestic infrastructure industries to private, often foreign participation (Doh, 2000; Ramamurti, 2000; Zahra, Ireland, Gutierrez, and Hitt, 2000). Several researchers have extended the strategic management approach to the nation-state itself. They argue that countries — like companies —develop strategic planning approaches in regard to their economic future (Lenway & Murtha, 1994; Murtha & Lenway, 1994). In the competition for limited foreign capital, states adopt strategies to maximize the favorable impact of such investment (Porter, 1990). States must therefore compete with one and other for limited investment by pursuing outward–oriented economic and trade policies to attract inward FDI, while trying to ensure that the local constituencies, including local firms, benefit from such investment. Ramamurti (1999) asks the question: why have developing countries not privatized faster and deeper? He speculates that bureaucratic interests, institutional constraints, and economic rigidities have slowed the pace of privatization. He also notes that privatization success is less common in low-income countries, and that certain sectors create regulatory complications (Ramamurti, 1999).

From the perspective of the foreign investor, a range of research has examined country effects as drivers of internationalization. Such research has generally found, *ceteris paribus*, that investors are attracted to wealthier countries with larger populations, more stable political environments, and faster economic growth (Dunning, 1981; Root & Ahmed, 1978). Privatization and private

infrastructure investments are a major vehicle through which multinational corporations enter developing country markets. The internationalization literature and its antecedents in strategic management and entrepreneurship research support international expansion through direct investment as an important element of international strategy (Buckley & Casson, 1976; Johanson & Vahlne, 1977; Knickerbocker, 1973; Porter, 1990; Rugman, 1981; Schumpeter, 1934; Vernon, 1966; Williamson, 1975). The fact that certain foreign markets may be less contested than domestic ones, due in part to differences in industrial structure (Porter, 1980), may make their attraction greater to companies looking to exploit technological or other advantages. Some internationalization research centers on the objective of internalizing advantages or responding to market imperfections (Buckley & Casson, 1976; Rugman, 1981; Williamson, 1975). Yet, international markets may also be riskier and less predictable.

Transaction costs economics suggests that there are contracting hazards inherent in business transactions (Williamson, 1975). Such hazards have been validated through empirical testing (Gatignon & Anderson, 1988; Murtha, 1991). Where assets are specific and cannot easily be redeployed to alternative uses or to alternative users without sacrifice of productive value (Williamson, 1984), the multinational faces a risk of ex-post opportunistic recontracting from its partners in the amount of the quasi-rents at stake (Henisz, 2000b). Firms also face contractual hazards due to technological appropriation (Oxley, 1997) and of free riding on brand name and reputation (Gatignon & Anderson, 1988). In the case of telecom investment, in all three of these cases the multinational parent is exposed to the hazard that a partner or governments themselves may appropriate rents due to opportunistic behavior, and that government rules or regulations will not prevent this appropriation.

As an extension of international business research in entry mode and FDI, a rich and increasingly diverse literature has examined the motivations for collective action via collaborative strategies and alliance structures among firms (Contractor & Lorange, 1988; Buckley & Casson, 1988, 1996; Gillespie & Teegen, 1995; Grosse & Trevino, 1996; Root, 1988). Cultural differences might also influence governmental tendencies to structure foreign investment along certain dimensions (Hofstede, 1980, 1983; 1991). Some studies have explicitly argued that cultural differences increase the probability that acquisitions will fail (Barkema, Bell, & Pennings, 1996; Chatterjee, Lubatkin, Schweiger, & Weber, 1992; Hofstede 1980; Jemison & Sitkin, 1986).

Because of the unique yet potentially generalizable phenomena affecting the international telecommunications industries, a number of recent research efforts regarding international business strategy and FDI have focused on this sector. Kashlak and Joshi (1994) examined a case study of product and international diversification, suggesting that these postures are linked to external contingencies in firms that face core business regulation. This paper also suggested that cultural distance and relative country-level risk limit reciprocity. Cultural distance was significantly negatively correlated to longer-term reciprocity, as economic anthropology has suggested.

Two recent studies have focused on the unique factors affecting the entrance of telecommunications firms into foreign and especially emerging markets, and the importance of entry order, government regulation, and local partner relationships to those efforts (Doh, 2000;

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Sarkar, Cavusgil, & Aulakh, 1999). These studies examined the internationalization process of

telecom carriers, arguing descriptively that substantial first-mover advantages exist due to the

limited window of market opportunity associated with privatization and the potential to influence

the regulatory process as an incumbent (Doh, 2000; Sarkar, Cavusgil, & Aulakh, 1999). Under

these circumstances, telecom firms follow a strategy of preemption of both markets and partners

(Doh, 2000; Sarkar, Cavusgil, & Aulakh, 1999). In sum, the literature on the international

strategies of telecom firms suggests that telecom firms may face unique factors affecting their

entrance into emerging markets, and that firms responding to privatization opportunities are

constrained by market lock-out and crowd-out effects, increasing the premium on being an early

entrant, and placing pressure on investors to respond to local pressure for technology transfer and

local partner participation. The result is "a handful of telcos aggressively pursuing a finite

number of international opportunities, a situation that is at variance with existing literature's

assumption of market entry being potentially unlimited and at the discretion of the firm. In

essence, transient windows of opportunity imply that spatial preemption may be a key

consideration driving telcos' internationalization strategies." (Sarkar, Cavusgil, & Aulakh, 1999,

p. 369).

STATISTICAL PROCEDURES, PRELIMINARY RESULTS, AND

DEVELOPMENTAL PROPOSITIONS

Statistical Procedures

In order to examine the differences in private telecommunications investments in these two

regions, we constructed a comprehensive dataset of international telecommunications

privatization projects. First, we acquired a data set of telecommunications projects in developing

countries drawn from the World Bank's Private Participation in Infrastructure (PPI) Database

(See Appendix). A summary of project investment by region and sector is presented in Table 1.

This table shows that private activity in infrastructure—as measured by investment flows to

projects with private participation—grew dramatically in developing countries between 1990 and

1997, from about $16 billion to $120 billion. It then declined by about a fifth to $95 billion in

1998, and fell by an additional 30 percent in 1999 to $65 billion due to the Asian financial crisis,

Latin American economic instability, and a general concern about the economic and political

environment for infrastructure investment around the world. We excluded data from 1999 from

our analysis for these reasons.

We gathered extensive data from various secondary sources to supplement the PPI data.

Archival data on a range of economic, political, cultural, and other variables were drawn from a

range of public and private sources. For reasons of parsimony, each variable is not described

here. Table 2 provides a description of each variable, the level of measurement, the scale and data source.

As stated previously, we compare Latin America and Asia because these two regions share some basic similarities in terms of economic development, colonial history, competition for FDI, and recent experiences with privatization and other market-opening initiatives. We exclude Africa because it lags these two regions in the process of privatization and market liberalization and therefore is likely to demonstrate different project characteristics and outcomes. We exclude the transitional Eastern European countries because they have been found to demonstrate different approaches and experiences due to the somewhat unique aspects of the transition from developed socialist regimes to developed capitalist ones (DeCastro & Uhlenbruck, 1997).

Our research interest in Latin America and Asia reflects the fact that these are among the two most active in the developing world for private infrastructure investment and receive the bulk of foreign investment directed at emerging economies. These two regions have also been frequently compared in terms of their economic development progress and ability to attract FDI.

We included a wide range of economic, political, geographic, and cultural variables at the country level, as well as a number of important variables at the project level that capture important dimensions of projects themselves. We pursued this approach in order to provide a comprehensive, inclusive, and multi-level theory-building exercise. This approach has been advocated for a range of management research topics (Klein, Tois, & Cannella, 1999) and

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research on international business, in particular (Kostova, 1999).

Preliminary Results

We undertook a simple statistical analysis to uncover factors that might affect the level and characteristics of telecommunications infrastructure projects with private investment in Latin America and Asia. We ran independent t-tests (Tables 3 and 4) comparing group means to identify differences in key variables between these two regions. At the project level, we were interested in tracking differences between these two regions in terms of the average size of the projects, the degree of private (versus residual state) ownership of projects, and the degree to which the principal private investor in the projects was, itself, state-owned. At the regional level, we were interested in comparing characteristics such as size of the economy, per capita income, GDP growth and political environment of the countries within the regions that successfully attracted these projects. In a number of instances, we included lagged variables in order to capture the forward planning horizons of international investors. For example, we include a number of different time periods for measuring country GDP. In addition, we were also interested in determining not only mean differences, but also variability within the region – what we term diversity – as measured by the standard deviation in the means. It should be noted that our comparison is among projects in these two regions. Tables 3 and 4 provide the detailed statistical basis for the brief results of our analysis.

Economic Variables—(GDPG1, GDPG2, GDP1, GDP2, GDP5, GDPPC, GDP97). We found

that Asian countries attracting telecommunications infrastructure projects featuring private investment are those with faster GDP growth (as measured by two annual and a five year average of GDP growth) than those Latin American countries attracting such projects. The overall differences in GDP of countries attracting such investment in each region is not significant. Latin American countries attracting private investment are more diverse in GDP size, and in some years, in GDP growth than are Asian countries attracting private participation investors.

Existing Telecom Infrastructure—(TELINES, TELINES2). Latin American countries attracting private participation investors have bigger installed telecom bases (as measured by existing telecommunications lines per 1000 population) than do Asian countries attracting private participation investors.

Political Considerations—(PC5, PC, PC2, CORR, CORR2). Asian countries attracting private infrastructure investment projects are more diverse in terms of political constraint – a measure of the degree to which governments can act arbitrarily and without political checks by other parties or levels of government (see Henisz, 2000a) -- than are Latin American countries attracting such projects. Yet, in recent years (as measured by the variables recorded for the actual year of project closure and the prior year to closure) these Asian countries' governments demonstrated higher constraints than Latin American countries attracting such investment projects. However, Latin American countries attracting private participation investors in general are less corrupt (as measured by the Transparency International Corruption Index) than are countries in Asia attracting private participation investors. In the year of project closure, Asian countries

attracting private participation investors are more diverse in terms of corruption than are Latin American countries attracting private participation investors.

Cultural Considerations—(CULPD,CULUA,CULIC,CULMF). In general, Asian countries attracting private participation telecommunications infrastructure investment are more diverse along cultural dimensions (Hofstede's four dimensions culture – power distance, uncertainty avoidance, individualism/collectivism, masculinity/femininity) than are Latin American countries attracting such investment except along the masculinity-femininity dimension where no difference exists between regions. Asian countries attracting investment are more individualistic, have higher power distance and have less uncertainty avoidance than Latin American countries attracting private participation investors.

Economic Liberalization—(WTO, REGPOL2,TARIFF_1). Latin American countries attracting private participation investors have agreed to more telecom liberalization commitments (as measured by telecommunications liberalization commitments made under the World Trade Organizational telecommunications commitment schedule), tend to allow more competition and thus less monopoly protection (as measured by a classification of countries into three categories of liberalization), and have lower tariff levels than Asian countries attracting private participation investors (as measured by average tariff levels). Asian countries attracting private participation investors are more diverse than Latin American countries in terms of tariffs (as measured by standard deviation of tariff levels).

Project Size—(PRTOT982). Latin American countries attracting private investment in telecommunications infrastructure host projects that are larger overall (in 1998 dollars) and those countries are more diverse in terms of project size than Asian countries attracting such investment.

Private Investment Proportion of Project—(PRIV). Latin American countries attracting private infrastructure investment have allowed larger proportions of the projects to be in private hands (as measured by the percent of projects controlled by private investors versus residual or subsequent control by the host government) than have Asian countries attracting such investment. Asian countries have exhibited more variability in private proportions than have Latin countries attracting private participation.

State-Owned Percentage of Principal Investor—(P1STATR). Projects in Asian countries attracting private investment in telecommunications infrastructure are characterized by principal investors who have greater state ownership (as measured by the percentage of home country state ownership of the principal, controlling investor. Examples would include France Telecom, Deustche Telecom, etc) than in Latin American projects. Asian projects are also more diverse in terms of state ownership of the principal investors than are Latin American projects.

Developmental Propositions

The record of private investment in telecommunications infrastructure in Asia and Latin America

allows for the development of preliminary propositions that capture possible explanations for the differences in project features and economic, political, and cultural conditions. Those propositions are listed below. We use Latin America as the focal region against which we compare Asia.

In general, the Latin American countries that host private telecommunications infrastructure investment have demonstrated slower GDP growth but larger project size and higher private ownership share in projects. Hence, we suggest this may because investors in Latin America may expect or demand more favorable project terms in order to compensate for the relatively less attractive economic prospects in the region.

> *Proposition 1: Because projects in Latin America are hosted by countries that feature slower GDP growth (versus Asia), projects in this region will be larger and feature higher levels of private ownership share (versus host government ownership share) as a way to attract investors for the overall less attractive nature of the markets.*

We also observe that Latin American countries that host private telecommunications infrastructure investment have demonstrated higher existing telecommunications penetration and greater market liberalization commitments than their Asian counterparts. We suggest that larger project size, and particularly, greater private ownership shares of projects in this region are tied to these factors. Economic liberalization implies an increasing role for the private sector in the economy with a concomitant decline in the direct participation of government in business. A

larger telecom base implies larger value to be transferred to private hands.

> *Proposition 2: Because projects in Latin America are hosted by countries that are more advanced in the development of telecommunications infrastructure (as measured by existing telecommunications installed base) and market liberalization (as measured by WTO commitments), Latin American projects will feature higher levels of private ownership share (versus host government ownership share) than will Asian projects.*

Seemingly contradictory information regarding the political environments of countries hosting projects in these two regions, the perceived governmental corruption in these regions, and the average size of projects and percentage of projects controlled by private (versus government) investors is seen in Latin America versus in Asia. Specifically, the Latin countries hosting projects feature lower political constraints, meaning the governments may be prone to arbitrary and un-checked policy, but are also perceived as being less corrupt than their Asian counterparts. It is possible that in Latin America, investors want to be compensated for the relative potential for arbitrary behavior by governments by taking larger stakes in these projects, in order to insulate against arbitrary governmental discretion through heightened ownership and control over the project. The lower perceived corruption levels may offset concerns about the political environment, signaling the transparency needed to justify large (in absolute terms) investments in this sector.

Proposition 3a: Because projects in Latin America are hosted by countries that are viewed as having lower political constraints, Latin American projects will be larger and feature higher levels of private investment than Asian projects in order to compensate for those concerns.

Proposition 3b (alternative): Because projects in Latin America are hosted by countries that are viewed as being less corrupt, larger projects/investments are warranted in the region as contrasted with the Asian case.

As is suggested by the literature, countries that undertake liberalization commitments as measured by their current telecommunications regulatory regime or prospective commitments under the WTO telecom commitments are likely to offer commensurately greater opportunities for private investment in infrastructure projects.

Proposition 4a: Because projects in Latin America are hosted by countries that are more advanced in market liberalization (as measured by degree of market liberalization and WTO commitments), Latin American projects will feature higher levels of private (versus residual government) ownership.

We expect that fully private firms will be more attractive to/attracted to participate in projects in countries that have more fully liberal markets, and that state-owned investors (from the home country) will be less attracted to/attractive to projects in such regions.[1]

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[1] The calculation of the percentage of the project that is "private" does not incorporate the foreign state ownership of the

Proposition 4b: Because projects in Latin America are hosted by countries that are more advanced in market liberalization (as measured by degree of market liberalization and WTO commitments), Latin American projects will feature lower levels of state (and higher private) ownership of the principal project investor than will Asian projects.

Latin American countries attracting private investment in telecom are more culturally homogeneous than are their Asian counterparts. The distinctions between the regions in terms of specific cultural dimensions, however, are counterintuitive with respect to private investment. For instance, although Latin American countries attracting investment are higher in terms of uncertainty avoidance than are their Asian counterparts, project sizes are larger (which would imply greater risk to the initial privatizing state investor), projects tend to be more diverse (which enhances uncertainty as learning from one type of project cannot readily carry over to other projects within the region), and there is greater private participation (which disallows the insurance of sovereignty and security over critical infrastructure). The one cultural distinction that appears to conform to expectation concerns greater collectivism in Latin American countries attracting investment than their Asian counterparts. These Latin projects tend to have relatively smaller shares of investments by other nations' state-owned enterprises—a nod to the sovereignty issue, which could relate to collectivism considerations. More work clearly remains in gauging the import of culture for private participation in infrastructure.

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investor, but only the residual (non-private) percentage still in the hands of the host government. Although the variable "foreign investor state ownership" may appear to overlap with the measure of non-private (government) ownership of the project, the percentage of the project that is "private" includes investors who themselves are state-owned. Hence, there is no risk of "double counting" or tautological model formulation. See Appendix, paragraph 2, "Definition of Private Participation (e.g. "A foreign state-owned company is considered a private entity.").

Further Explanations and Case Illustrations

In addition to the statistical analysis above, we undertook a qualitative evaluation of the top 50

(by value) telecommunications privatization transactions contained in the PPI database. We

reviewed the Latin American and Asian cases with the goal of extracting some generalizations

that may help to further refine the results of the preliminary results reported above. The top 5

projects (by value) in the database were all located in Latin America (Telefonos de Mexico

(Telmex) – Mexico, Telecom Argentina – Argentina, Telefonica de Argentina – Argentina,

Compania Anomima Nacional de Telefonos de Venezuela – Venezuela, Telesp Participacoes SA

– Brazil), Telefonica del Peru (TdP) – Peru). In addition, 14 of the top 20 projects were Latin

American, while only two of the top 20 were located in Asia. In the case of every one of these

Latin American projects, the private investment was structured as a privatization transaction in

which an often-large stake in a state-owned enterprise was sold to a private investors or group of

private investors. The fact that these projects were structured as privatizations (versus greenfield

investments) may constitute an alternative antecedent or intervening variable in helping to

explain variation in project size, private percent, and other measured variables at the project

level.

We also hypothesize, as Doh (2000) has suggested, that there are learning effects not just within

countries but among countries in regions so that countries may follow patterns set by others in

their regions. Doh's (2000) conclusions suggest that initial approaches and investments in a

newly open infrastructure market set a pattern not just for subsequent practices in that market, but also throughout a region, as the flagship privatization or greenfield projects provide the template for subsequent projects. An additional factor that may be either a cause or consequence of this pattern is that the same principal foreign investors tend to participate in multiple projects within a given region. For example, Southwestern Bell, Telefonica, France Telecom, and Cable and Wireless have been active investors in Latin America and have participated in multiple projects in the same countries, and throughout sub-regions. Hence, some of the regional homogeneity in project characteristics may be as much a result of (1) early investments that set a pattern or template followed by later project transactions within a specific country and throughout a region, (2) the participation of a limited number of investors in multiple projects who adopt similar practices in the range of projects in which they participate and (3) cultural homogeneity in the region would tend to increase the potential relevance of learning within one market and the region for valid transference within the region, despite evidence of greater project diversity in size/scope in Latin America.

CONCLUSIONS, LIMITATIONS AND FUTURE DIRECTIONS

The results of this research present a number of implications for future empirical research, for government policy-makers, and for private investors and project developers. In particular, these results provide some tentative directions for future research comparing private FDI in these two regions.

The powerful forces set in motion by the introduction of private participation in newly developed infrastructure industries stimulates a series of pressures on countries, industries, and investing firms regarding the ownership and governance of these projects. In this manuscript, we have presented a preliminary and exploratory comparative analysis of some of the key differences in the record of private investment in telecommunications infrastructure in two important regions of the world—Latin America and Asia.

Clearly, the value of this analysis is dependent of future empirical tests. Although some limited work has been undertaken to compare privatization from the government policy perspective among developed and developing countries (Boubakri and Cosset, 1998), no studies have included a comparison of regional characteristics of the broader phenomena of privatization in infrastructure between two regional developing country settings.

Limitations

This paper is a preliminary and exploratory effort to launch future research focusing on the antecedents and consequences in differences in the record of private infrastructure investment in two important regions of the world.

The focus on telecommunications may constitute a limitation and delimitation. This limitation is somewhat offset by the fact that there is considerable variation within the telecommunication industry. Moreover, the industry is the largest in terms of emerging markets infrastructure investment (World Bank, 1999), and is viewed as the early pioneer in the sequential liberalization of traditional infrastructure industries (Kambhatto, 1998). As noted in the introduction, privatization of telecommunications industries may have particularly powerful implications for national economic strategies, and this is likely one reason why telecom industries are the early pioneers in a process that is just beginning to affect electric power, transport, and other infrastructure industries. Nonetheless, generalizations about telecom many not be applicable to other industries such as power and water that are only now undergoing the sort of privatization that has taken place in telecommunications for decades.

Future Directions

Extension of the models and application to other industries such as power, water, and transport would also add value. Moreover, comparisons between and among sectors would be an interesting research direction. Research could evaluate the "strategic fit" between state and

investing firm to predict the anticipated benefits of merger to the strategy of the acquirer based on the congruence or complementarity of the assets and operations of the merging firms (Chatterjee, 1986; Uhlenbruck and DeCastro, 1998; 2000). These benefits are hypothesized to result from synergies between the merging firms' resources and capabilities.

Private participation in developing country infrastructure is one of the most fascinating and still relatively unexamined areas of research in strategic management and international business. In this paper, we have attempted to make a contribution to the existing research record by examining differences in the Latin American and Asian experience in this flagship infrastructure industry. Only through continued theoretical and empirical exploration can we more fully explain patterns of privatization in developing country infrastructure, and use those efforts to better inform both public and private managerial theory and practice.

APPENDIX

DESCRIPTION OF PRIVATE PARTICIPATION IN INFRASTRUCTURE DATABASE[2]

Database Coverage. The database includes projects that have reached financial closure and directly or indirectly serve the public. Projects are in the water, transport, electricity, telecommunications, and natural gas sectors. The telecommunications sector includes local, national, and international phone services and mobile phone services. Other services (Internet, paging, trunking, and value added services) and private networks are excluded. The projects are located in 96 low- and middle-income developing countries, as defined and classified by the World Bank.

Definition of Private Participation. The private company must assume operating risk during the operating period or development and operating risk during the contract period. A foreign state-owned firm is considered a private entity.

Definition of a Project Unit. A corporate entity created to operate infrastructure facilities is considered a project. When two or more physical facilities are operated by the corporate entity, all are considered as one project.

Divestiture. A private consortium buys an equity stake in a state-owned enterprise. In this sample, 91 projects from 47 developing counties are included. All projects reached closure during the period 1990-1998.

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2 From World Bank (1999).

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Table 1

Investment in Infrastructure Projects with Private Participation in Developing Countries 1990-1999 (1999 $US Billions)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Total
Sector											
Telecommunications	6.7	13.3	8.1	11.0	19.6	24.0	29.9	42.8	54.3	39.2	249.0
Energy	1.6	1.2	12.1	14.6	17.0	24.1	33.7	47.9	25.7	14.9	192.8
Transport	8.0	3.1	4.2	7.7	8.2	10.1	16.5	22.4	17.6	8.4	106.1
Water and Sanitation	—	0.1	1.9	7.5	0.7	1.7	2.2	8.9	2.6	5.9	31.4
Region											
East Asia/Pacific	2.6	4.1	8.9	16.2	17.7	23.4	33.4	38.8	9.5	14.1	168.6
Europe/Central Asia	0.1	0.3	1.3	1.5	3.9	8.6	11.6	15.1	11.5	8.7	62.5
Latin America/Caribbean	13.2	12.6	15.8	18.5	18.9	19.4	28.8	51.1	71.0	36.3	285.6
Middle East/North Africa	0.0	—	0.0	3.4	0.3	0.1	0.4	5.3	3.5	2.4	15.3
South Asia	0.3	0.8	0.1	1.3	4.0	7.6	6.1	7.1	2.3	4.0	33.5
Sub-Saharan Africa	0.1	—	0.1	0.0	0.7	0.8	2.1	4.5	2.4	2.9	13.6
Total	16.3	17.8	26.1	40.9	45.5	59.9	82.3	121.9	100.2	68.5	579.3

Source: Private Participation in Infrastructure Database, 2001

Table 2
Principal Model Constructs, Variables, Role in Model, and Measurement Description

Construct	Measured Variable Name	Level	Description/*Source*
Region	REGLAAS	Categorical	East Asia/Pacific (0), Latin America and the Caribbean (LAC) (1), all others-missing/*PPI Database 1999*
Development Level	GDPPC	Interval	GDP per capita 1998/*World Bank 2000 World Development Indicators*
	GDP	Interval	GDP in 1997/*2000 World Development Indicators*
	GDPG1	Interval	GDP growth in year of project closure/*World Bank. World Tables 1973-2000*
	GDPG2	Interval	GDP growth in year prior to project closure/*World Bank. World Tables 1973-2000*
	GDP1	Interval	GDP in year of project closure/ *World Bank. World Tables 1973-2000*
	GDP2	Interval	GDP in year prior to project closure/ *World Bank. World Tables 1973-2000*
	GDPG5	Interval	GDP average growth for the 5 years prior to project closure/*World Bank. World Tables 1973-2000.*
Telecom infrastructure	TELINES97	Interval	Telephone lines per 1000 population capita in 1997/*World Bank 1999 World Development Indicators*
	TELINES	Interval	Telephone lines per 1000 population in year of project closure/*World Bank 1999 World Development Indicators*
	TELINES2	Interval	Telephone lines per 1000 population in year prior to project/ *World Bank 1999 World Development Indicators*
Political constraint	PC5	Interval	Political constraint index average for 5 years prior to project closure, 0 (fewest constraints) –1 (greatest constraints) scale/*Henisz, 2000a*
	PC	Interval	political constraint index year of project closure 0 (fewest constraints) - 1 (greatest constraints) scale/*Henisz, 2000a*
	PC2	Interval	political constraint index year prior project closure, 0 (fewest constraints) - 1 (greatest constraints) scale/*Henisz, 2000a*
Corruption	CORR	Interval	Corruption index year of project closure 0 (most corrupt) - 10 (least corrupt) scale /*Transparency International 2001*
	CORR2	Interval	Corruption index year prior to project closure 0 (most corrupt) - 10 (least corrupt) scale /*Transparency International 2001*
Regulatory development	REGPOL2	Categorical	Regulatory status (monopoly (0) duopoly/partial competition (1), full competition (2)/*Telegeography New International Operators*, 2000
Culture	CULPD	Interval	Culture rating – power distances (0-100 scale)/*Hofstede 1980, 1991*
	CULUA	Interval	Culture rating – uncertainty avoidance (0-100 scale) *Hofstede 1980, 1991*
	CULIC	Interval	Culture rating – individualism/ collectivism (0-100scale)/ *Hofstede 1980, 1991*
	CULMF	Interval	Culture rating – masculinity/femininity (0-100)/*Hofstede 1980, 1991*
Trade Restrictions	TARIFF_1	Interval	1998 Mean tariff/*World Bank 1999 World Development Indicators*
Openness	WTO_1	Interval	1997 WTO telecom commitments/*WTO 1999*
Private Participation	PRIV	Interval	Percent private participation/*PPI Database 1999*
Investor State Ownership	P1STATR	Interval	Percent of state ownership of principal investor/*PPI Database 1999; Telegeography, 2000; WTO, 1999; various company web sites.*
Project Size	PROJTOT982	Interval	Size of project in 1998 dollars/*PPI Database 1999*

Table 3
Group Statistics

	REGLAAS	N	Mean	Std. Deviation	Std. Error Mean
GDPG1	0	108	5.8750	2.9118	.2802
	1	109	4.3936	3.6622	.3508
GDPG2	0	105	6.0638	2.7714	.2705
	1	106	3.5840	4.1448	.4026
GDP1	0	103	197.0796	174.6227	17.2061
	1	110	244.4955	301.7880	28.7744
GDP2	0	102	181.8108	164.6712	16.3049
	1	110	239.4864	306.5427	29.2277
GDPG5	0	107	5.0673	2.5486	.2464
	1	111	4.1027	2.4831	.2357
GDP97	0	107	169.9327	170.6364	16.4960
	1	120	249.2317	286.3540	26.1404
GDPPC97	0	107	1570.5981	2212.0610	213.8480
	1	121	3901.5702	1792.2528	162.9321
TELINE97	0	99	68.6869	117.2477	11.7838
	1	108	107.6019	40.9369	3.9392
TELINES	0	111	38.9820	46.2880	4.3935
	1	119	115.7731	59.1121	5.4188
TELINES2	0	43	32.1860	39.3593	6.0022
	1	54	100.2037	32.5115	4.4243
PC5	0	104	.3346	.2110	2.069E-02
	1	112	.3490	.1747	1.651E-02
PC	0	102	.4346	.3116	3.085E-02
	1	107	.3458	.2726	2.635E-02
PC2	0	103	.4380	.3051	3.007E-02
	1	107	.3237	.2516	2.432E-02
CORR	0	84	3.1405	1.0815	.1180
	1	84	4.4386	1.8404	.2008
CORR2	0	35	3.0349	1.2322	.2083
	1	43	3.6644	1.2928	.1972
REGPOL2	0	111	.46	.63	5.97E-02
	1	122	1.06	.81	7.30E-02
CULPD	0	111	77.5586	11.6749	1.1081
	1	122	68.5492	7.4668	.6760
CULUA	0	111	50.7477	16.0937	1.5276
	1	122	81.7295	3.6022	.3261
CULIC	0	111	30.8288	12.0044	1.1394
	1	122	27.1066	8.7583	.7929
CULMF	0	111	50.7297	7.1464	.6783
	1	122	52.6639	12.8286	1.1614
TARIFF_1	0	111	17.797	7.621	.723
	1	122	12.647	2.401	.217
WTO_1	0	111	9.41	4.69	.44
	1	122	12.17	4.84	.44
PRIV	0	108	83.1389	24.2728	2.3356
	1	122	91.7705	20.9280	1.8947
P1STATR	0	109	6.7615	20.3760	1.9517
	1	122	2.3934	13.1272	1.1885
PRTOT982	0	111	554.10	861.61	81.78
	1	122	933.42	2532.03	229.24

Table 4
Independent Sample T-Test

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | 95% Confidence Interval of the Difference | |
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
GDPG1	Equal variances assumed	.470	.494	3.296	215	.001	1.4814	.4494	.5956	2.3672
	Equal variances not assumed			3.300	205.386	.001	1.4814	.4489	.5963	2.3665
GDPG2	Equal variances assumed	4.961	.027	5.104	209	.000	2.4798	.4859	1.5220	3.4377
	Equal variances not assumed			5.113	183.443	.000	2.4798	.4850	1.5230	3.4367
GDP1	Equal variances assumed	28.435	.000	-1.391	211	.166	-47.4158	34.0826	-114.6018	19.7701
	Equal variances not assumed			-1.414	176.738	.159	-47.4158	33.5263	-113.5792	18.7476
GDP2	Equal variances assumed	38.170	.000	-1.688	210	.093	-57.6756	34.1760	-125.0476	9.6965
	Equal variances not assumed			-1.723	169.666	.087	-57.6756	33.4680	-123.7429	8.3918
GDPG5	Equal variances assumed	.183	.669	2.830	216	.005	.9646	.3408	.2929	1.6363
	Equal variances not assumed			2.829	215.149	.005	.9646	.3410	.2925	1.6366
GDP97	Equal variances assumed	48.221	.000	-2.496	225	.013	-79.2990	31.7682	-141.9003	-16.6977
	Equal variances not assumed			-2.565	197.490	.011	-79.2990	30.9102	-140.2554	-18.3425
GDPPC97	Equal variances assumed	.321	.572	-8.782	226	.000	-2330.9721	265.4280	-2854.00	-1807.94
	Equal variances not assumed			-8.670	204.048	.000	-2330.9721	268.8454	-2861.04	-1800.90
TELINE97	Equal variances assumed	25.164	.000	-3.241	205	.001	-38.9150	12.0069	-62.5878	-15.2422
	Equal variances not assumed			-3.132	119.756	.002	-38.9150	12.4248	-63.5157	-14.3142
TELINES	Equal variances assumed	.553	.458	-10.916	228	.000	-76.7911	7.0348	-90.6526	-62.9296
	Equal variances not assumed			-11.008	221.467	.000	-76.7911	6.9761	-90.5392	-63.0431
TELINES2	Equal variances assumed	1.548	.217	-9.321	95	.000	-68.0177	7.2969	-82.5038	-53.5315
	Equal variances not assumed			-9.122	81.072	.000	-68.0177	7.4566	-82.8537	-53.1816
PC5	Equal variances assumed	5.940	.016	-.548	214	.584	-1.440E-02	2.629E-02	-6.62E-02	3.741E-02
	Equal variances not assumed			-.544	200.517	.587	-1.440E-02	2.647E-02	-6.66E-02	3.779E-02
PC	Equal variances assumed	2.734	.100	2.196	207	.029	8.881E-02	4.044E-02	9.079E-03	.1685
	Equal variances not assumed			2.189	200.478	.030	8.881E-02	4.057E-02	8.809E-03	.1688
PC2	Equal variances assumed	5.694	.018	2.965	208	.003	.1142	3.853E-02	3.826E-02	.1902
	Equal variances not assumed			2.954	197.702	.004	.1142	3.867E-02	3.796E-02	.1905
CORR	Equal variances assumed	25.493	.000	-5.573	166	.000	-1.2981	.2329	-1.7579	-.8383
	Equal variances not assumed			-5.573	134.217	.000	-1.2981	.2329	-1.7587	-.8375
CORR2	Equal variances assumed	.139	.710	-2.184	76	.032	-.6296	.2882	-1.2036	-5.55E-02
	Equal variances not assumed			-2.195	74.081	.031	-.6296	.2868	-1.2010	-5.81E-02
REGPOL2	Equal variances assumed	4.178	.042	-6.268	231	.000	-.60	9.54E-02	-.79	-.41
	Equal variances not assumed			-6.341	225.914	.000	-.60	9.43E-02	-.78	-.41
CULPD	Equal variances assumed	8.598	.004	7.080	231	.000	9.0094	1.2725	6.5022	11.5166
	Equal variances not assumed			6.941	183.949	.000	9.0094	1.2981	6.4484	11.5704
CULUA	Equal variances assumed	116.146	.000	-20.705	231	.000	-30.9818	1.4963	-33.9300	-28.0335
	Equal variances not assumed			-19.835	120.030	.000	-30.9818	1.5620	-34.0744	-27.8892
CULIC	Equal variances assumed	24.583	.000	2.721	231	.007	3.7223	1.3682	1.0265	6.4181
	Equal variances not assumed			2.681	199.754	.008	3.7223	1.3882	.9849	6.4596
CULMF	Equal variances assumed	19.793	.000	-1.403	231	.162	-1.9342	1.3790	-4.6512	.7828
	Equal variances not assumed			-1.438	192.930	.152	-1.9342	1.3450	-4.5870	.7186
TARIFF_1	Equal variances assumed	201.811	.000	7.088	231	.000	5.150	.727	3.718	6.581
	Equal variances not assumed			6.818	129.801	.000	5.150	.755	3.655	6.644
WTO_1	Equal variances assumed	.307	.580	-4.409	231	.000	-2.76	.63	-3.99	-1.53
	Equal variances not assumed			-4.416	230.116	.000	-2.76	.62	-3.99	-1.53
PRIV	Equal variances assumed	12.298	.001	-2.896	228	.004	-8.6316	2.9806	-14.5046	-2.7586
	Equal variances not assumed			-2.870	212.708	.005	-8.6316	3.0075	-14.5600	-2.7032
P1STATR	Equal variances assumed	16.212	.000	1.957	229	.052	4.3680	2.2323	-3.04E-02	8.7664
	Equal variances not assumed			1.912	180.763	.058	4.3680	2.2851	-.1408	8.8769
PRTOT982	Equal variances assumed	8.480	.004	-1.501	231	.135	-379.32	252.71	-877.23	118.60
	Equal variances not assumed			-1.558	151.067	.121	-379.32	243.39	-860.21	101.57