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Trade Liberalization and  
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# **Trade Liberalization and Institutional Change †**

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# Trade Liberalization and Institutional Change

Minyuan Zhao, Kathy Fogel, Randall Morck, and Bernard Yeung

## ABSTRACT

Opening up to global trade and investment is often thought to trigger institutional improvement by raising the expected benefits of institutional reform and reducing incumbents' incentives and ability to preserve the *status quo*. However, recent experience is not entirely consistent with this conventional wisdom. We suggest an explanation based on variation across countries in firms' reliance on ambient institutions. Large, well established, or state controlled firms depend less on an economy's institutions than do small, incipient, or purely private sector firms. Multinational firms likewise can use their global organizations to sidestep weak local institutions. Firm heterogeneity of this sort can thus contribute to markedly different institutional responses to liberalization. Our framework also suggests that institutional development might occur in stages. In an economy whose basic institutions are sound, individuals rationally invest in entrepreneurial capability and firms rationally invest less in institution substitutes. Economies with firms that rely more on ambient institutions or with more potential entrants who would rely on those institutions are more likely to experience further institutional improvement following accession to the global economy. Economies with fewer firms or potential entrants dependent on sound institutions, in acceding to the global economy, may exhibit scant institutional improvement, and perhaps even institutional deterioration. Political rent-seeking is not necessary for the latter outcome, but expands the range of conditions under which it ensues

## I. INTRODUCTION

Much recent work highlights the importance of “sound institutions” in promoting efficient resource allocation. The term “institutions” refers to the legal, regulatory, and social constraints that lower information costs, check opportunistic or agency behavior, and thus permit long-term contracts between strangers. This reduces the general costs of doing business, enhances the efficiency of resource allocation (Beck and Levine 2004), lowers entry barriers (Desai *et al.* 2003), and strengthens an economy’s performance (Acemoglu *et al.* 2005a).

However, institutions are path-dependent and change slowly, partly because the *status quo* often suits established firms and their principals (Olson, 1965; Morck *et al.*, 2000b; Rajan and Zingales, 2003; Johnson and Subramanian, 2005; Stulz, 2005; and others). This path dependence may result in a socially undesirable, but stable, political economy equilibrium (e.g., Morck *et al.* 2005, Acemoglu *et al.* 2005a, Perotti and Volpin 2005).

Some proponents of globalization argue that liberalization disrupts such undesirable equilibriums, and so permits institutional reforms capable of supporting more socially desirable equilibriums (Rajan and Zingales 2003; Bhagwati, 2004; Morck *et al.*, 2005; Stulz, 2005 and others). Caves (1974) argues that inward foreign direct investment accelerates growth because, among other things, it reduces entrenched firms’ market power and improves resource allocation. Similarly, Sachs and Warner (1995) write: “*As Smith’s followers have stressed for generations, trade promote growth through ... heightened domestic competition as a result of international competition.*” Recently, Siegel (2004a) shows that forming cross-border alliances is associated with better corporate governance outcomes for Mexican firms. The gist of all these arguments is that globalization reduces incumbents’ abilities and incentives to preserve the *status quo*. In addition, financial market liberalization may induce capital flight; the threat of capital flights in turn limits rent seeking by political agents and insiders, and so improves institutions.

From the perspective of economic growth, liberalization broadens and raises the benefits of institutional development, and thus increases its likelihood of occurring. While engagement with the global economy clearly fuels the growth of many economies (Sachs and Warner, 1995; Ales and Glaeser, 1999), various studies have shown that the growth benefit of international trade is evident only when combined with complementary reforms in education, regulatory environment, and other institutions (Bolaky and Freund, 2004, Chang *et al.*, 2005). If this is the case, economies in the face of openness should have more incentive to undertake such reforms.

Openness, however, has been no guarantee of continued institutional improvement. From 1995 to 2003, the open economy of, e.g., Turkey, posts falling “economic freedom scores”, widely used measures of institutional development.<sup>1</sup> This case is by no means unique. Bekaert *et al.* (2005a) show that the growth response to equity market liberalization differs across countries, with the largest growth occurring in countries with the highest quality institutions to begin with. Not surprisingly, then, some researchers question a simple positive relationship between openness and institutional development. A well-known example is Rodrick (2003), who argues that the empirical relationship between openness and institutional development is uncertain.

Recent work, surveyed in Morck *et al.* (2005), sees political rent seeking (corruption) as a key barrier to institutional development. See also Morck *et al.* 2000a, Rajan and Zingales, 2003, Perotti and Volpin 2005, and Stulz 2005. However, others, notably Sachs (2005), suggest that corruption is overemphasized as a barrier to institutional development. While we regard political rent seeking as important, we concede the value of exploring other possible barriers to institutional improvement.

We therefore offer an explanation unrelated to rent seeking for the mixed relationship observed between openness and institutional development. We let the

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<sup>1</sup> Index of Economic Freedom, p.7.

level of institutional improvement be set by a benevolent, though myopic government. Myopia is plausible given the political economy literature relating government policies to short term election cycles.<sup>2</sup> Recognizing that institutional improvement raises its regulatory and enforcement costs, the government improves institutions only if the near term expected benefit outweighs the near term expected cost. The crux is that the benefits of institutional development depend on the characteristics of the corporate sector – specifically, on how important local institutional development is to how large a fraction of firms.

Institutional development reduces the cost of doing business and promotes entrepreneurial entry. However, a broad interpretation of the business group literature, e.g., Khanna and Palepu (2000), is that the corporate sector, especially established corporations, invests in relationships, business group ties, and the like to circumvent weak institutions. Once relatively independent of their countries' institutions, these firms benefit little from institutional development. Thus, the benefits of institutional development are greater in countries whose established firms have invested less in substitutes for good institutions, or in countries with a longer queue of potential entrants, who also have no such investments. The benefit of institutional improvement to institution-dependent existing firm we call the *external reliance effect*. That to potential entrants we call the *entry push effect*. We first develop a simple closed economy model to show how the equilibrium level of institutional development depends on both effects. We then show that the results are preserved or even amplified in an open economy.

Several insights emerge.

First, institutional development occurs in stages. A threshold level of institutional development – perhaps encompassing universal public education, good government, and the rule of law – is necessary to deter established firms from investing extensively in substitutes for sound institutions. These institutions also plausibly give people opportunities and incentives to invest their time and effort in

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<sup>2</sup> See e.g. Nordhaus (1975), Alesina (1989, 1997), Rogoff (1990), and others. This assumption is justified more thoroughly in section 3.4, which describes the evolution of government policies.

developing entrepreneurial skills. Once this first tier of institutions is in place for a time, trade liberalization is more likely to instill further institutional development of the sort that promotes faster corporate growth and a higher pace of entry, and hence faster overall economic growth.

Second, path dependence and divergent institutional developments across countries can occur absent rent seeking. In an economy whose initial basic institutions are weaker, firms invest more in substitutes for external institutions and latent entrepreneurs form a shorter queue. Both effects reduce the near term benefits of institutional improvement, so even a benevolent government with a short horizon sees little point in costly institutional reforms. As subsequent governments reach the same conclusions, institutional development stagnates. Thus, small differences in initial institutional conditions can lead to divergent institutional development.

Third, the response of the economy to trade liberalization depends on its initial level of institutional development. We model liberalization as a shock that can change both incumbents' preferences regarding institutions and the queue of potential entrants. Hence, liberalization induces the government to re-evaluate the costs and benefits of institutional change. Whether or not liberalization portends institutional improvement, therefore, is closely related to the actual and potential composition of the corporate sector. This, in turn, depends on extant basic institutions. A certain level of institutional development is necessary before openness generally presages further institutional development.

Extending the analysis based on a benevolent government, we show that political rent seeking shifts the balance further away from liberalization presaging institutional improvement. If established firms capture rents that dissipate slowly (Leuz and Oberholzer-Gee 2003, Siegel 2004b), they lobby politicians for weak institutions. Indeed, if these firms depend little on domestic institutions, weak institutions that deter domestic entry could even help them survive global competition.

The rest of the paper is organized as follows. Section II describes our intuition and illustrates with country examples. Section III sets up the model, and establishes decision rules in a closed economy. Section IV introduces global competition and examines its impact on the domestic equilibrium. In Section V, we extend the analysis to a rent-seeking framework and discuss policy implications. Exploratory empirical evidence is presented in Section VI. Section VII concludes.

## II. INSTITUTIONS AND OUR INTUITION

We follow North (1990) in defining *institutions* as “the rules of the game in a society or, more formally, ... the humanly devised constraints that shape human interaction.” Sound institutions are constraints that facilitate contractual exchanges of goods and services across distances and over time, usually by strengthening the contracting parties’ private property rights.<sup>3</sup> Specifically, sound institutions alleviate information asymmetries, agency problems, and opportunism that involve either the other contracting party or government officials. In that sense, institutions render contracts more certain or enforceable and so reduce the general cost of doing business.

Much recent work casts light on which institutions that are most important to sustained economic growth. Olson (1972), Barro (1991), Mankiw (1995), De Soto (1989, 2000), and others show that certain basic institutions – an efficient judiciary, a general respect for the rule of law, education, and well-protected basic private property rights – are essential precursors to development.

King and Levine (1993), Rajan and Zingales (2003) and others show that financial institutions, such as efficient banking systems and stock markets, are also important for sustained growth. But well-developed financial institutions seem contingent on efficient courts, the rule of law, and private property rights (La Porta *et al.* 1997, 1998; Morck, *et al.* 2000b, Wurgler 2000, Durnev *et al.* 2000, and Durnev *et al.*

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<sup>3</sup> Greif (1993) and others demonstrate the importance of unofficial institutions, like ambient ethical systems. However, more formal institutions, like laws, regulations, and enforcement mechanisms, are arguably more influenced by political decisions, and thus more pertinent to our analysis.

2004). Also, efficient capital allocation is known to depend on other institutional factors that keep corporate governance from becoming overly entrusted to tiny elites, and that induce broad public participation in capital markets (Haber 1999, Morck *et al.* 2000a). La Porta *et al.* and others show dispersed share ownership to be contingent on these same basic institutions - well-run courts, the rule of law, and property rights.

All this suggests a certain structure to the interdependence of institutions. Basic institutions, such as passably honest courts and government officials, and general law and order, must arguably be in place first; before advanced institutions, such as financial systems and investor rights, can accelerate growth and dissipate corporate control.

We focus on how institutional changes associated with trade liberalization depend on the prior development of a more basic tier of institutions, but recognize that this may be but one example of a more general phenomenon. For example, respect for the rule of law might require an even more basic tier of institutions such as a secure food supply, personal security, public order, general literacy, and basic public health. Our basic point is that different economies change their institutions in different sequences, and this sequencing magnifies or damps the effectiveness of any specific reform. The success of a given sequence in fostering institutional development depends on how well it accommodates this intrinsic interdependence.

Trade liberalization is an especially interesting event in this context because Rajan and Zingales (2003), Bekaert *et al.* (2005b), and others present highly coherent arguments that it raises the net benefit of financial development. Wei (2000) finds a positive correlation between more openness and better institutions, and links this to intensified competition rendering inefficient institutions unviable. However, the relationship exists only in a statistical sense, for there is huge variation around a slight commonality. In this paper, we suggest that increased openness does correlate with strengthened institutions, but only if necessary institutional precursors are already in place.

Deficiency in basic institutions induces firms to invest in substitutes for those institutions, business group affiliations, political connections, and the like. This makes them relatively *institution independent* – less affected by their economy’s poor institutions. Khanna and Palepu (2000), Khanna and Rivkin (2001), and others argue that business group ties circumvent dysfunctional institutions, especially markets. Intuitively, information asymmetries, agency problems and opportunism are reduced if a firm can do business with another firm also controlled by the same family. In a similar vein, Zhao (2004) argues that sophisticated firms with multiple units can use their internal coordination skills and organizational complexity to shield their intellectual property from leakage – even if the external environment does not respect intellectual properties rights. Morck *et al.* (2000a), Leuz and Oberholzer-Gee (2003), and others argue that firms invest in ties with financial institutions to reduce their costs of capital. Also, large firm groups invest in political connections, which Faccio (2005) shows to be more valuable investments in economies with weaker institutions. Finally, some firms invest in preferential access to foreign resources (Siegel, 2004b).

Designing and enforcing rules and regulations are costly. For example, generating accounting information, training experts to audit its accuracy and assure compliance with rules, educating legal professionals to make judgment calls on these issues and to administer due diligence processes all require resources. Therefore, strong institutions are worthwhile only if enough firms benefit from them. A preponderance of institution independent firms may actually render marginal institutional improvement welfare reducing. Rajan and Zingales (2003), Morck *et al.* (2005), and others go further, and argue that entrenched insiders, who *benefit* from weak institutions that deter entry, actively oppose strong institutions. Consistent with this, Braun and Raddatz (2004) find that established firms are more likely to oppose financial development if potential competition poses an immediate threat to their profitability. These incumbent firms appear to regard financial underdevelopment as a way to protect their rents.

Consider Spain and Mexico as examples. Both grew more open rapidly in the last two decades: Spain joined the EU in 1986 and Mexico joined the NAFTA in 1994. However, the two countries experienced vastly different paths of institutional development subsequently to these similar accessions to regional free trade areas.

Before joining the European Community (now the EU) in 1986, Spain underwent dramatic changes in its basic institutions. King Juan Carlos I and his premier, Adolfo Suárez González, ushered in political reforms and decentralization. A large-scale privatization program reduced state control over Spanish industry. Small firms thrived, while most business groups started to decline during the 1980s (Guillén 2001). Under these conditions, accession into the EU immediately sparked even more far-reaching reforms in Spain's financial services industry, with a new Stock Market Law, an Interconnected Market bridging all four exchanges, and a surge of capital from small investors. Total assets managed by the Spanish investment funds skyrocketed from \$50 billion in 1992 to \$152 billion in 2000.

Mexico, in contrast, followed a bumpier road. Before joining NAFTA, Mexico underwent periodical macroeconomic crises, suffered from grossly uneven income and wealth distributions, lacked comprehensive public education in rural areas, and entrusted the governance of its large corporate sector to a handful of extraordinarily wealthy families. Even the oil boom of the early 1980s failed to bring Mexico's growing ranks of unskilled labor substantially into modern employment. Rather, a sudden inflow of export revenues sent graft and corruption out of control. Related-party lending, prevalent in this period, was "a manifestation of looting" (La Porta *et al.*, 2003). Even in 1990, Mexico's secondary and tertiary school enrollment rates (53% and 15%, respectively, according to World Development Indicators) were only half those of Spain. The employment share of small and median enterprises was also considerably lower (Ayyagari *et al.*, 2003).

In these circumstances, NAFTA did little to improve Mexican institutions. Like Spain, Mexico attracted foreign direct investment, but its capital market development was stymied by continual disarray. Amid wild fluctuations, total

market capitalization fell from 31% of GDP in 1994 to 20% in 2003. Only years later did the Mexico government propose capital market reforms<sup>4</sup>.

This comparison suggests that furthering our understanding of the link between openness and institutional changes requires a closer look at the sorts of firms that predominate in a country's large corporate sector and at the lineup of potential entrants able to benefit from institutional improvement. In turn, these differences are intimately related to the quality of the initial institutional environment. In the next sections, we attempt to illustrate these interactions with a highly simplified general equilibrium model.

### **III. THE MODEL**

This section presents a closed economy model that captures the variation in firms' dependence on external institutions and how this alters policy choices. This simple model lays out the key parameters, and sets the stage for our discussion on the impact of increased openness (in Section IV), and also for an extension of the model to encompass rent-seeking (Section VI). The model is deliberately kept as simple as possible to focus on the essentials.

#### *3.1 Institutional Development*

We assume conventional demand  $D = D(p)$ , with  $D'(p) < 0$ , by a fixed population of consumers. Below, we let  $D(p) = a - b \cdot p$  for algebraic convenience. Firms meet demand by investing in production until their marginal cost equals the price of their output.

Firms' costs depend on an indicator of institutional deficiency,  $\theta = 1$ , with a higher  $\theta$  implying higher costs of doing arm's-length business. We assume these costs of weak institutions to be deadweight losses.

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<sup>4</sup> To the best of our knowledge, the first public announcement of plans for regulatory reforms was in March 1998.

We can think of basic institutional development, such as an efficient judiciary, the rule of law, and basic property rights safeguards, as lowering  $\theta$  from a very high to a moderately high level. Further decreases in  $\theta$  require a second tier of institutions, such as sophisticated rules and regulations to protect financial and intellectual property rights, and to facilitate long term contracts. This second tier of institutions is vital for the development of efficient factor markets, including markets for financial capital, managerial talent, technological expertise, and intellectual property, where resource allocation is best accomplished with arm's-length transactions and impersonal evaluations of merit.

### 3.2 Firm Heterogeneity

Firms can reduce their dependence on weak, or even nonexistent, institutions by investing in substitutes for them.

We gauge each firm's *institutional independence* by  $z \in [0,1]$ , where the fraction  $z$  of its operations is independent of external institutions. Thus, the firm's cost function is

$$[1] \quad c(z, I) = zc + (1-z)Ic$$

A high  $z$  firm is little affected by domestic institutions, whereas a low  $z$  firm's costs are raised substantially if domestic institutions are weak. We assume  $z$ , including those of potential entrants, to be continuously distributed on the unit interval. The mass of type  $z$  firms is  $f(z)$ .

We treat  $f$  as exogenous at any given point in time. However, it could readily be considered an equilibrium outcome of a firm's decisions to invest in substitutes for weak institutions in previous periods. For example, if firms in an adverse institutional environment find business group ties more useful, they invest in these ties and  $z$  rises. Subsequent decisions must take into account the fact that business groups are more prevalent in economies with weaker legal institutions (La Porta *et al.*, 1998).

We assume constant returns to scale, so  $f(z)$  can represent one or many firms. We therefore refer to  $f(z)$  as the *incidence* of firms with institutional independence  $z$ .

### 3.3 The Equilibrium

Aggregate supply at price  $p$  depends on the incidence of firms able to supply at cost  $= p$ . As  $p$  rises, more institution dependent firms (those with lower  $z$ ) enter. The marginal firm has  $z = z_0$  such that

$$c(z_0, \mathbf{I}) = c \cdot [z_0 + (1 - z_0)\mathbf{I}] = p$$

Given the distribution of firms' institution dependence, the aggregate supply function is  $Y = \int_{z_0}^1 f(z)dz$ , which is a function of the economy's institutional development level ?.

As institutions improve ( $\mathbf{I} \rightarrow 1$ ), costs fall for all firms with  $z < 1$  and the aggregate supply curve shifts to the right. Firms also become less heterogeneous, for  $c[z_0 + (1 - z_0)\mathbf{I}] \rightarrow c$  as  $\mathbf{I} \rightarrow 1$  for all firms regardless of their  $z$ . That is, improved institutions render institution dependent and independent firms more alike. Moreover, if the incidence of firms,  $f(z)$ , is greater over a certain range of  $z$ , the aggregate supply curve is more elastic (flatter) in that region. This is because a small increase in  $p$  induces more entry, and hence increases aggregate supply more sharply.<sup>5</sup>

At equilibrium, where supply equals demand,

$$[2] \quad p = c \cdot [z_0 + (1 - z_0)\mathbf{I}] \text{ and } D(p) = \int_{z_0}^1 f(z)dz$$

Therefore,  $D(c \cdot [z_0 + (1 - z_0)\mathbf{I}]) = \int_{z_0}^1 f(z)dz$ . Partially differentiating this with respect to ? implies

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<sup>5</sup> At equilibrium, the slope of the supply curve is  $\frac{\partial p}{\partial Y} = \frac{\partial p}{\partial z_0} / \frac{\partial Y}{\partial z_0} = -\frac{c \cdot (1 - \mathbf{I})}{f(z_0)} > 0$ .

$$[3] \quad D'(p) \cdot c \left[ (1 - z_0) + (1 - I) \frac{\partial z_0}{\partial I} \right] = -f(z_0) \frac{\partial z_0}{\partial I}.$$

That is, a marginal institutional improvement must induce a price change that alters demand by the same amount as the output change due to the entry or exit of marginal firms. The right-hand side of [3] illustrates that a worsened institutional environment,  $\partial I > 0$ , drives out more institution dependent firms and reduces output. The left-hand side indicates that a marginal deterioration in the institutional environment raises the marginal firm's production cost by  $c(1 - z_0) > 0$ , making the new marginal firm less dependent on institutions, with  $\partial z_0 / \partial I > 0$ . The net impact on price determines the adjustment in the equilibrium.

By assuming  $D(p) = a - b \cdot p$ , we can make this mechanism more concrete; for then

$$[4] \quad \frac{\partial z_0}{\partial I} = \frac{bc(1 - z_0)}{f(z_0) + bc(\theta - 1)} > 0$$

A marginal deterioration in ambient institutions reduces supply by

$$[5] \quad \frac{\partial Y}{\partial I} = \frac{\partial}{\partial I} \int_{z_0}^1 f(z) dz = -f(z_0) \frac{\partial z_0}{\partial I} = -\frac{1 - z_0}{1/bc + (I - 1)/f(z_0)} < 0$$

This, in turn, implies a new equilibrium with higher prices and lower output.

### 3.4 The Evolution of Policy

In each period, the government inherits an economy with a predetermined level of institutional development, and considers revising  $\theta$  so as to maximize social welfare, over the short term, which we assume to be equivalent to maximizing the total current output of the corporate sector,  $Y$ .

If much of the population is engaged in subsistence agriculture, linking social welfare to corporate sector output smacks of elite capture of the State. However, we can adopt a more general view of production without major modifications to our model. Redistribution policies that induce distortions are beyond the scope of this

paper. Note that we could explicitly model social welfare as the sum of producer and consumer surplus. Doing that introduces more algebraic notation but does not qualitatively affect our analytical results, as long as social welfare is monotonically increasing in total corporate sector output

Linking social welfare to *current* corporate sector output raises another set of issues. We assume that the government normally considers continuous paths of institutional improvement towards temporally local social welfare optima. That is, the government take as given the initial  $f(z)$ , which may differ across industries and which depends on the previous periods'  $z$ . The government then adjusts  $z$  to optimize the next period's social welfare. We do not let the government optimize across all levels of institutional development. In other words, we do not let Rwanda simply abandon all its own institutions and adopt Danish ones at the outset. Nor do we have the Rwandan government maximize a present discounted value of all future social welfare and choose an optimal development path through all time at the outset.

This approach seems more practical in several ways.

First, governments may not be able to pre-commit to any long-term path of institutional development. Parliament cannot pass a law limiting its power (Kydland and Prescott, 1977), and absolute monarchs and dictators have even worse time inconsistency problems of this sort. Moreover, democratic governments are constrained by election cycles, and this can give rise to myopic policies in a variety of ways. See e.g Nordhaus (1975), Alesina (1989, 1997), Rogoff (1990), and others. Modeling political decisions as temporally local is therefore sensible.

Second, Olson (1963) and others show that institutions change slowly at most; except during unexpected crises or shocks, when they can change abruptly. One such shock is an economic catastrophe, as when the Great Depression begat the New Deal in the United States and National Socialism in Germany. Another is war, as when rebellion severed the thirteen American colonies from Britain and forced them to establish institutions of their own. Sudden technological change can also

serve, as when electrification changed corporate landscapes in the early 20<sup>th</sup> century. Although a few governments, such as Meiji Japan, undertake wholesale institutional reforms, they are notable by their rarity. Since an unexpected shock is, by definition, unexpected, its occurrence requires a major modification of any previously optimal long-term plan of institutional development. We can consider periods in our model to be long enough to accommodate any reasonable government-planning horizon, and then view liberalization as a shock that necessitates a new optimal institutional development plan.

For clarity, we assume at this stage that the government does not cater to rent-seekers and that politicians do not extract private benefits. This lets us illustrate path dependence and heterogeneity in institutional development *even where* the government is benevolent and rent seeking absent. Nevertheless, we recognize the importance of rent-seeking and therefore extend our analyses to include it in Section VI.

The government's cost of implementing an institutional development level of  $\theta$  is  $g(\theta)$ , with  $g'(\theta) < 0$  and  $g''(\theta) > 0$ . This cost includes the cost of basic public goods such as schools, courts, and police, plus the costs of more refined public goods such as accounting, banking, and the enforcement of securities regulations. While the cost of providing arbitrarily poor institutions is near zero, the government's cost of supplying these public goods rises prohibitively as institutional development approaches perfection; That is,  $g(\theta) \rightarrow +\infty$  as  $\theta \rightarrow 1$ , and  $g(\theta) \rightarrow 0$  as  $\theta \rightarrow +\infty$ .

The government determines the direction of institutional change by comparing the marginal benefits of stronger institutions,  $-\partial Y/\partial \theta$ , with their marginal cost,  $-g'(\theta)$ . Given this and [5], institutional improvement ( $\theta_1 < \theta_0$ ) occurs if and only if

$$[6] \quad \frac{1 - z_0}{1/bc + (I - 1)/f(z_0)} \geq -g'(I)$$

Inspection of [6] shows it less apt to bind, and hence institutions more apt to improve, if  $\theta_0$  is lower,  $z_0$  lower, and  $f(z_0)$  larger. In particular,

1. The government sees a greater net benefit in improved institutions if incumbents have invested less in substitutes for weak institutions. This *external reliance effect* is captured in the model because a lower  $z_0$ , capturing lower past investments in such substitutes, raises the benefit of institutional improvement. A marginal improvement in institutions therefore is more effective in raising the corporate sector's output. Also, it seems reasonable to posit that  $z_0$  is lower if the initial  $\theta_0$  is smaller – that is, better past institutions are associated with lower past investment in substitutes for institutions.
  
2. The government sees a greater benefit in institutional improvement if the queue of potential entrants is longer. This *entry push effect* arises in the model because a higher  $f(z_0)$  implies that more potential entrants stand ready to go into business given marginally better institutions. Improved institutions therefore raise firm output more.

The government's decision about improving institutions depends crucially on the magnitudes of these two effects. For example, institutional improvement is less likely to be large in an economy where there are many large business groups that rely little on domestic institutions. Such a country has a high  $\theta_0$  and a high  $z_0$ ; and hence a small or even negative external reliance effect. If the queue of potential entrants,  $f(z_0)$ , is also short, the entry push effect is small or negative too, and institutional improvement is again less apposite.

### *3.5 Discussion*

This model, albeit simple, provides several key insights.

First, our model permits path dependence in institutional development, consistent with La Porta et al. (1997), Acemoglu *et al.* (2001, 2002, 2005b), Sokoloff and Engermann (2000), and others, who argue that seemingly slight differences in countries' levels of institutional development before industrialization magnified

themselves over time into the gulf that currently separates developed from developing economies.

The path dependence stems from the costs and benefits of institutional development being affected by past institutions.

Better extant institutions shift downward the marginal cost curve for further institutional improvement. Such dynamic economies of scale seem intuitively plausible. For example, better past provision of basic public goods like schools, courts, and police lowers the cost of implementing further institutional improvements, such as transparent accounting or efficient bank loan allocation. The government's monitoring and enforcement costs in implementing such reforms are also reduced.

Better extant institutions boost entry push effect. This is because better past institutions reduce entry barriers and thus encourage investment in entrepreneurial and other commercial capabilities (see Fogel *et al.*, 2005). At the same time, the better the initial level of institutions, the higher will be firms' external reliance on institution. A poor institutional environment elicits investment in capabilities to circumvent inadequate external institutions (Ghemawat and Khanna, 1998) and shift  $f(z)$  to the right. We depart from previous work in arguing that path dependence then arises because these capabilities reduce the marginal benefit of institutional development from the government's perspective. Ironically, firms' rational investment in substitutes for weak external institutions has the externality of weakening even a benevolent government's inclination to improve institutions further.

Second, our model shows that institutional differences can arise and continue without political rent-seeking.<sup>6</sup> This complements Almeida and Wolfenzon (2005), who propose that economies become mired in equilibriums with feeble property

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<sup>6</sup> Other types of path dependence are also possible. For example, political connections constitute another substitute for dysfunctional institutions and are clearly important in many economies. Morck *et al.* (2005) propose a weak institutions trap associated with political rent seeking that induces similar path dependence.

rights and financial systems. Given this, a government may have difficulty committing to an improved financial system if the economy is populated by business groups, which are relatively independent of ambient institutions. See also Kali (1999) and Khanna (2000).

Our model offers a flexible framework for future extension. Instead of a scalar measure of institutional development, future research might consider stages of institutional development that are qualitatively distinct, but interrelated. For example, we might measure deficiencies in basic education by  $\beta_1$  and deficiencies in corporate disclosure by  $\beta_2$ . An extension of our model might have  $\partial Y / \partial \beta_2 = 0$  if  $\beta_1 > \beta_1^*$  – the marginal social benefit of better corporate disclosure is negligible if no-one can read the annual reports anyway. Or, one might model improvements in second tier institutions, like corporate disclosure, are effective only via interactions with first tier institutions, like a sound public education system – that is,  $\partial Y / \partial \beta_2 \propto 1 / \beta_1$ . More empirical work is needed to guide theory as to the welfare implications of various sorts of institutions contingent on the existence or absence of other institutions

Finally, our model suggests that weak institutions become more or less self-reinforcing depending on what we term the *external reliance* and *entry push* effects. These in turn depend on characteristics of the corporate sector and the economy. Shocks that disrupt this balance could conceivably jolt an economy out of its low institutional development equilibrium and onto a path of institutional improvement. An outward shift of demand or supply would inevitably reduce the institution-circumventing capabilities required for survival – by raising the market price  $p$  or reducing the supply cost  $c$  so that the post shock marginal  $z_0$  is lower, or by creating adjustment quasirents open to capture by entrepreneurs (Gerschenkron, 1962), which raises the entry push effect.

The requisite shock might come from any source: technological change, changes in tastes, or falling trade barriers (Acemoglu *et al.*, 2005b). A full analysis of the differences between shocks of different sorts is beyond the scope of this study. We

therefore explicitly consider a shock due to collapsing trade barriers, but implicitly include shocks of more general provenance

#### **IV. OPENNESS**

We begin by considering trade liberalization, and then show that the framework we develop for this extends readily to foreign direct investment liberalization.

##### *4.1 Trade Liberalization*

Trade liberalization imposes world prices for traded goods in the domestic economy, rendering some industries more competitive and others less competitive. This changes equilibrium output prices  $p$ , making the old level of institutional development,  $\theta_0$ , suboptimal.

We abstract from many reasonable positive economic effects of trade liberalization, such as those derived from exercising comparative advantage. Rather, we focus on how liberalization affects the government's choice of the level of institutional development.

After liberalization, indigenous firms face expanded profit opportunities, but also global competition. Weak domestic institutions may constrain their ability to compete globally. This underlies the belief that openness promotes institutional improvement. However, this consideration needs some unpacking and can be a bit more complex.

To continue the discussion, we assume that the economy has an export sector ( $X$ ) and an import sector ( $M$ ). We assume that in the previous one-sector model, the outputs in both the  $X$  and the  $M$  sectors are normalized, so that the equilibrium market price for both sectors is  $p_0$  and the total output is  $Y_0$ . Upon liberalization, both sectors now assume the world price:  $p_x > p_0$  for the export sector and  $p_m < p_0$  for the import sector. To highlight the role of institutional development and keep the analysis tractable, we follow the small open economy assumption that neither domestic firms' behavior nor the domestic economy's institutions,  $\theta$ , affects the

global prices  $p_{wx}$  and  $p_{wm}$ . Relaxing these assumptions allows a richer discussion, but does not qualitatively change the predictions of the model. This assumption is appropriate for most emerging economies, particularly at the early stage of their development.

The key difference from the closed economy case is that, in an open economy, world supply and demand are perfectly elastic at world prices. In the  $X$  sector, domestic supply increases and exceeds domestic consumption to permit exports. In the  $M$  sector, domestic supply decreases and part of domestic demand is met by imports from foreign suppliers.

We continue to assume that the government maximizes welfare subject to the cost of institutions, and that the same institutional environment  $I$  applies to both the  $X$  and the  $M$  sectors.

In the  $M$  sector, where  $p_m < p_0$ , a group of domestic firms remains active in the economy after the trade liberalization and produces  $Y_{dm} < Y_0$ , with remaining demand met by imports,  $Y_{fm}$ . In such an open economy, the profit of a type- $z$  domestic firm becomes:

$$[7] \quad \mathbf{p}(z, \mathbf{I}) = p_m - c \cdot [z + (1 - z)\mathbf{I}]$$

The new marginal domestic firm has  $z = z_{dm}$  where  $c \cdot [z_{dm} + (1 - z_{dm})\mathbf{I}] = p_m$ .

The new equilibrium becomes:

$$[8] \quad \begin{cases} c \cdot [z_{dm} + (1 - z_{dm})\mathbf{I}] = p_m \\ Y_{dm} = \int_{z_{dm}}^1 f(z)dz \\ Y_{dm} + Y_{fm} = D(p_m) \end{cases}$$

From the first two equations in [8], we know that  $(1 - z_{dm}) + (1 - \mathbf{I})\partial z_{dm}/\partial \mathbf{I} = 0$ , and that  $\partial Y_{dm}/\partial \mathbf{I} = -f(z_{dm})\partial z_{dm}/\partial \mathbf{I}$ . Therefore,.

$$[9] \quad \frac{\partial Y_{dm}}{\partial I} = -\frac{1 - z_{dm}}{(I - 1)/f(z_{dm})}$$

Comparing [9] with [5], where  $\frac{\partial Y}{\partial I} = -\frac{1 - z_0}{1/bc + (I - 1)/f(z_0)}$ , we find some interesting contrasts that deserve attention.

First, the price adjustment factor,  $1/bc$ , is absent from the denominator. Instead of facing a downward-sloping demand curve in a closed economy, domestic firms in an open economy compete against goods perfectly elastically supplied by foreign firms. Consequently, institutional improvement induces a larger increase in the size of the domestic sector. The contrast is greater if the density of marginal firms around the new equilibrium, i.e.,  $f(z_{dm})$ , is greater.

Second, when a country with serious institutional deficiencies opens to the global economy, only its more privileged firms survive. The new marginal firm has  $z = z_{dm} > z_0$ . These higher  $z$  firms depend less on sound institutions; so institutional improvement does less to strengthen their competitive positions.

Finally, international trade allows imports to meet domestic needs, at a price independent of domestic institutions. This lowers the welfare cost of institutional constraints on local firms.

This description of the  $M$  sector suggests that trade liberalization need not have a uniform effect on a government's incentive to improve institutions. In particular, a government has less incentive to implement high institutional standards if its surviving domestic firms are not highly reliant on its institutional environment and if imports are desirable substitute to local production.

In the  $X$  sector where  $p_x > p_0$ , after liberalization, domestic firms expand up to a point where the new marginal firm has a lower  $z_{dx}$ , where  $c \cdot [z_{dx} + (1 - z_{dx})I] = p_x$ . Thus,  $Y_{dx} > Y_0$ . As in the  $M$  sector, domestic firms here now face perfectly elastic demand from overseas, implying a more critical role for institutional development in reducing costs.

Because  $\frac{\partial Y_{dx}}{\partial I} = -\frac{1 - z_{dx}}{(I - 1)/f(z_{dx})}$ , a lower marginal  $z$  means the average active domestic firms, as well as the marginal one, are now more reliant on ambient institutions. Institutional improvement significantly strengthens the competitive positions of the  $z_{dx}$  type firms. In addition, the marginal benefits of institutional improvement is higher if  $f(z_{dx})$  is larger; that is, if there is a longer lineup of potential entrants that were previously kept unviable by the poor institutional environment and limited domestic market.

The aggregation of the aforementioned factors determines the path of institutional change. As before, this argument distills into the intuitive *external reliance* and *entry push* effects discussed in Subsection 3.4.

Liberalization changes the *external reliance effect* in both sectors. In the  $X$  sector, liberalization raises the profits of firms already operating and makes entry viable for lower  $z$  firms. This strengthens the external reliance effect associated with further institutional improvement. In the  $M$  sector, competition from imports reduces the profits of firms already operating and drives some fraction of them out of business. Since the surviving firms, on average, have a higher  $z$ ; the external reliance effect associated with further institutional improvement weakens. The net impact of liberalization on the external reliance effect is thus indeterminate.

The *entry push effect* also changes in both sectors by moving the equilibrium so that the marginal firm has a different  $z$  and thus a different  $f(z)$ . In the  $M$  sector, how imports enter the government's utility function becomes important. If the social welfare contribution of imports is markedly less than that of domestic production, the entry push effect is correspondingly lessened.

#### 4.2 Foreign Direct Investment Liberalization

The framework developed above can be extended readily to encompass FDI liberalization as well as trade liberalization by permitting the entry of multinational firms into the  $M$  sector.

Multinational firms' global organizations make them relatively independent of their host countries' institutions. For example, multinationals facing dysfunctional local markets can turn abroad to place products, source inputs, hire skilled labor, or obtain financing. Desai *et al.* (2004) show that multinational affiliates operating in countries with weaker capital markets or creditor rights borrow more from their parent companies. In a study of US corporations' global R&D activities, Zhao (2004) find that subsidiaries in countries with weak intellectual property rights protection tend to undertake R&D whose value is highly dependent on the firms' internal resources, so that leakage of these specific technologies to competitors would not greatly damage the firm. In short, multinationals have a degree of resilience to local institutional deficiencies because their global resources can substitute for weak domestic institutions – at least to some extent.

In the  $M$  sector, competition from both imports and multinational subsidiaries then reduces the profits of domestic firms already operating, and drives some fraction of them out of business. If we take  $Y_{fm}$  to be imports plus multinational firms' local production, the algebra of the previous section is preserved with only one change. The government now draws social welfare from domestically owned domestic production, imports, and domestic production by multinationals.

Plausibly, the social welfare contribution of multinational production might be intermediate between those of domestically owned production and imports. A similar difference in social welfare must be considered for foreign owned production in the  $X$  sector.

Governments' actual social welfare preferences regarding local production by multinationals probably vary across countries (Huang and Khanna, 2003). At one extreme, a government might be indifferent between production by domestically owned firms and multinational subsidiaries, and thus perceives no welfare losses when poor institutions shift production from the former to the latter. This perhaps reflects the situation for countries with bilateral investment treaties of the sort described by Rose-Ackerman and Tobin (2003). These treaties provide foreign

owned firms with “national treatment”, letting them bypass local barriers. Rose-Ackerman and Tobin (2003) argue that such treaties often reduce the host country government’s incentives to strengthen domestic property rights protection – consistent with multinationals being relatively independent of the quality of host country institutions, *I*.

## V. EXTENSION TO RENT SEEKING

The above discussion is based on a benevolent government that chooses the level of institutional development by matching marginal social costs with marginal social benefits. This shows that rent-seeking is necessary to explain neither path dependence in institutional development, nor the mixed relationship between openness and institutional development.

It is important, however, to recognize that government officials are often interested in more than economic development and social welfare. Political rent-seeking, lobbying, bribing, or bullying politicians to distort public policy to create economic rents for narrow special interests, is a prevalent phenomenon – see e.g. Morck *et al.* (2000), Rajan and Zingales (2003), Acemoglu *et al.* (2005a), Morck *et al.* (2005), Perotti and Volpin (2005), and Stulz (2005).

To incorporate political rent-seeking, we extend the government’s objective function to include “side-payments” from political rent as follows:

$$[11] \quad G = h \cdot Y + (1-h) \cdot S - g(I)$$

where  $Y$  is the welfare function as defined in previous sections, and  $S$  is the side-payment the government officials receive from political rent seekers. The parameter  $h \in (0, 1)$  reflects government officials’ preference for social welfare relative to side-payments.

Let each firm's side payment be  $s = s(z, \theta) < p(z, \theta)$ , where  $s_z > 0$  and  $s_\theta > 0$ <sup>7</sup>. For two reasons,  $s(z, \theta)$  is plausibly increasing in  $z$  (i.e.,  $s_z > 0$ ). First, high  $z$  firms probably have easier access to government officials and better knowledge of how to work the political systems. This may be because some of their past investments in institution independence entailed cultivating political connections. Morck and Yeung (2004) also argue that business group ties, which we suggest are constructed to bridge gaps in weak institutions, also lower rent-seeking costs. Regardless, more institution independent firms are plausibly more efficient political rent seekers. Able to gain more valuable political favors for a given investment in political influence, these firms are willing to pay more. Second, profit margin increases with  $z$ , so higher  $z$  firms can afford larger side payments to politicians. This can become self-reinforcing, in that privileged firms remain privileged precisely because they make larger side payments.

Given  $z$ ,  $s(z, \theta)$  increases with institutional deficiency  $\theta$  (i.e.,  $s_\theta > 0$ ). As explained above, this is because public policies (the choice of  $I$ ) affect not only the level of economic activity but also the distribution of profits across firms. A weaker institutional environment (a larger  $I$ ) shifts profits to firms that can better conduct business via alternative mechanisms (higher  $z$  firms). In other words, building government relationships is more valuable where institutions are worse.

The sum of side payment government officials anticipate is

$$[12] \quad S(I) = \int_{z_0}^1 s(z, I) f(z) dz .$$

The derivative of [12] with respect to  $\theta$  is

$$[13] \quad \frac{\partial S}{\partial I} = \int_{z_0}^1 s_I(z, I) f(z) dz - s(z_0, I) f(z_0) \frac{\partial z_0}{\partial I}$$

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<sup>7</sup> We could make  $s(z, I)$  a fraction of  $p(z, I)$  where the fraction depends on the bargaining power between government officials and a rent-seeking firm. While this might lead to interesting results, it is not necessary in delivering our main results. We therefore opt for simplicity and relegate this to future research.

The two terms on the right hand side reflect a balance between the rent seeking side payment per firm and the total number of firms paying them. On the one hand,  $s_2 > 0$  so weaker institutions induce surviving firms to make more side payments. On the other hand, weaker institutions reduce the pool of surviving firms (a higher  $z_0$ ), which means fewer contributors to politicians' secret retirement funds.

The net effect of institutional constraints on political rent seeking, again, depends on the distribution of firm types.

First, a poor institutional environment keeps the output price high and transfers profits to institution-independent firms, who can return the favor to government officials in the form of higher side payments. Hence, something akin to the external reliance effect arises: the incentive for the government to improve institutions diminishes as major rent seekers are more independent of ambient institutions (i.e., a high  $z_0$ ). As the first term on the right hand side of [13] indicates, a high  $z_0$  means institutional improvement considerably erodes government officials' side-payment receipts.

Second, something similar to the entry push effect also arises. Limited entrepreneurial activity, a low  $f(z_0)$ , causes government officials to expect few new contributors absent dramatic changes. This is captured in the second term on the right hand side of [13]. Therefore, where a few privileged firms or business groups dominate the economy – as is common in developing countries – the government can extract higher rent with weaker institutions and  $\Delta S / \Delta z_0 > 0$ .

In our model, side payments could be reinterpreted as taxes. In an economy where firms rely heavily on institutions, government officials dependent on formal tax revenues appreciate the importance of sound institutions. In our terminology, both the external reliance and the entry push effects are strong. Specifically, the first term on the right of [13] is small and the second term is large, so that the net effect is negative. The result is that a government that valued tax revenues would opt for a low  $I$ . This is consistent with Dyck *et al.* (2004), who observe that the advent of

formal corporate tax collection raises government's effort to uphold good corporate governance.

The government, with [11] as its objective function, equates the marginal cost of institutional improvement,  $-g'(\theta)$ , with its marginal gain:

$$[14] \quad -\frac{\partial G}{\partial I} = -h \cdot \frac{\partial Y}{\partial I} - (1-h) \cdot \frac{\partial S}{\partial I}$$

Where  $\partial S / \partial I > 0$ , government officials interested in rent-seeking ( $\theta < 1$ ) allow weaker institutions (a higher  $\theta$ ) than purely benevolent government officials do. The opposite follows if  $\partial S / \partial I < 0$ . Where institutional infirmity drive out so many firms that government officials' total side-payment income is adversely affected, they prefer a higher level of institutional development than do purely benevolent government officials.

The former case is more likely given a lower entry push effect (i.e., a lower  $f(z_0)$ ) and a lower external reliance effect (i.e., a higher the  $z_0$ ). Thus rent-seeking aggravates the negative impact of low entry push and external reliance effects on institutional development. The more important rent-seeking is to the government (i.e. the smaller is  $h$ ), the further the rent-seeking equilibrium  $I$  deviates from that obtained under a benevolent government.

Liberalization interacts with rent seeking in interesting ways. The key feature of liberalization is that prices are set abroad (at  $p_m$  and  $p_x$ ) and do not depend on domestic institutional development. Liberalization affects the first component in [14],  $-\theta \cdot \partial Y / \partial I$ , as described in the previous section. Rent-seeking enters via the second component reflecting the government's marginal gain,  $-(1-\theta) \cdot \partial S / \partial I$ . Liberalization generally lowers  $\partial S / \partial I > 0$  and so discourages rent-seeking for two reasons. First, given global price, the government can no longer induce higher rents by keeping costs high. Second, facing fierce competition from abroad (instead of the downward sloping demand curve of a closed economy), the domestic sector of

an institutionally weak country is likely to shrink rapidly. This drains the pool of firms contributing side payments to government officials.

This accords with observations that liberalization weakens the established firms' ability to maintain the beneficial (to them) *status quo* – see Morck *et al.* (2000), Rajan and Zingales (2003), and Stulz (2005). In the case of equation [13], liberalization decreases  $s_2$ , and at the same time raises  $z_0$ .<sup>8</sup>

Thus, liberalization mitigates the effect of rent-seeking on a government's choice of a level of institution development. However, this mitigation varies with the prior distribution of firm types. If dominant firms have low external reliance, the local institutional environment is not a problem to them. Also, if the potential for entry by domestic entrepreneurs is slight, marginal improvement in institutions increases the government's side-payment base little, even with an expanded market potential.

An opposite movement of the equilibrium is also possible upon trade or FDI liberalization, however. If weak local institutions hurt foreign competitors by escalating the costs of importing or undertaking FDI,  $p_m > 0$ . Although foreign competitors might be less sensitive to the local institutions than some domestic firms, they may also be no match for those with extensive investments in substitutes for weak institutions. Thus, if the local institutional environment is too weak, red tape, capricious enforcement of contracts, or currency instability might effectively repel multinationals, and even foreign suppliers of imports. If so, domestic firms with extensive investments in substitutes for weak institutions might actually lobby for exceptionally dreadful institutions to deter foreign competitors and safeguard their rents.

Therefore, the liberalization case is similar to the closed economy case in the sense that low external reliance and entry push effects reduce the government's inclination to improve institutions. This happens first via the economic development factor –  $Y$  and second via the rent-seeking factor –  $(1-\alpha)S$ .

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<sup>8</sup> This does not consider rent seeking by foreign firms, which adds further layers of complication.

This consideration also explains why externally forced liberalization, without taking the composition of domestic players into consideration, may make things worse in certain circumstances. In fact, it is not unusual to see very anti-competition behaviors from the government right upon opening up – just to protect the existing interest. Such anti-competition behaviors include the government’s interference in bank loans and heavy regulations in certain industries, which may lead to even more serious conglomeration of business groups who have access to these preferential policies (see Siegel 2004b). This equilibrium is more likely to occur when the rent-seeking incentive is high.

In summary, rent-seeking reduces the government’s incentive to improve institutions because weak institutions channel profits to privileged firms who convert them as side payments to the government. Moreover, when marginal survivors and potential entries are limited, weak institutions do not erode much of the government’s base for rent revenues. Hence, rent-seeking aggravates the negative impact of low external reliance and entry push effects on institutional development. Liberalization tends to mitigate this aggravation effect as open competition limits the government’s ability to channel profits. Yet, we need to be cautious in drawing this conclusion. While global competition restrains the government from rent-seeking in the presence of strong external reliance effect and strong entry push effect, the impact may be minimal if the rents are predominately from a group of highly privileged firms. Indeed, in an economy where existing firms are predominantly privileged firms and poor institutions can hammer foreign firms’ ability to compete, liberalization may even induce the government to more aggressively utilize adverse institutions to preserve the benefit of the privileged domestic firms and thus her own interests.

## **VI. EMPIRICAL EVIDENCE**

The above analysis suggests that the impact of liberalization on institutional development, with or without political rent seeking, depends on an entry push effect and an external reliance effect. In formulating our empirical tests, we allow for

political rent-seeking. In this section, we consider empirical measures of institutional quality that might relate to the magnitudes of these two effects.

First, the entry push effect would plausibly be greater where individuals have better opportunities and incentives to become entrepreneurs. For example, a better educated population is more likely to contain nascent entrepreneurs. Likewise, an ambient respect for law and order, a professional civil service, and a general absence of corruption would also augment the entry push effect by easing entrepreneurial entry and better rewarding entrepreneurial success.<sup>9</sup>

In addition, rent seeking might be more difficult in a country of literate and skeptical voters. Similarly, peace, order, and good government might also reduce the weights political leaders attach to side payments – the  $(1-h)$  term in the government's objective function [11]. Thus, these economy characteristics ought to attenuate the negative influence of rent seeking on the government's preference for institutional development.

Second, as posited above, the external reliance effect should attenuate where domestic firms have substantial existing investments in capabilities to circumvent inadequate external institutions. Morck and Yeung (2004) and Fogel (2005) suggest that this is more likely where a greater proportion of the domestic large corporate sector is controlled by families and state firms. That is, a greater preponderance of large family group firms and state owned enterprises indicates that current domestic firms depend less on the ambient institutional environment resulting in a reduced external reliance effect.

Given these presuppositions, the empirical implication of our argument is that the impact of institutional development depends on extant institutions. Liberalization induces further institutional development only if the liberalizing country has

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<sup>9</sup> Fogel *et al.* (2005) find that an economy's entry rate of large firms is positively associated with these factors. Note that our entry push effect incorporates the size of potential entrants as well as their number..

institutions in place that ensure sufficiently large and positive entry push and external reliance effects.

We examine both trade and capital account openness. We measure *trade openness* by exports plus imports of goods and services over GDP. *Capital flow openness* is inward portfolio and foreign direct investment by non-government entities, again as a percentage of GDP.<sup>10</sup> Both variables are from IFS statistics.

Institutional changes are very long run phenomena. We therefore need to measure correspondingly long term trends in openness. We define the long term trend in openness for country  $i$  as the slope ( $\mathbf{b}_i$ ) of a country-level linear time trend regression. The OLS regression takes the form of:

$$[10] \quad y_{i,t} = \mathbf{a}_i + \mathbf{b}_i t + \mathbf{e}_{i,t}$$

where  $t \in \{1, 2, \dots\}$  and  $y_i$  is either the trade or capital account openness of country  $i$  in year  $t$ , with time an index running from 1 (for 1970) to 31 (for 2000).

We use long term development trends in stock market capitalization and the size of domestic credit to gauge the development of “advanced institutions.” These are institutions that establish and enforce property rights, including shareholders’ rights, creditors’ rights, and intellectual property rights, and thereby make viable transactions involving intangibles and transactions across large distances in time and space. These sorts of institutions are thus vital for the development of functioning factor markets, like financial, managerial, and intellectual property markets in which resources are reallocated through arm’s-length contracts based on objective value. Long-term time series measures of these institutional features are not currently available for most countries. However, these sorts of institutions correlate closely with financial development (see e.g., La Porta *et al.* 1998), which thus can serve as a proxy.

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<sup>10</sup> We could define openness by inward foreign direct investment as a percent of GDP. The results are qualitatively identical.

Our measures of financial development are *stock market capitalization* and *domestic credit*. Domestic stock market capitalization is defined as the share price times shares outstanding summed across all listed domestic companies at year end, expressed as a fraction of GDP. Domestic credit is defined as domestic credit available to the private sector divided by GDP. These data are all from World Development Indicators. Long term development trends for both variables are estimates of  $b_i$  from regression [10], but with domestic stock market capitalization or domestic credit as  $y_{it}$ . The domestic credit measure is available from 1970 to 2000, making the long term trend in domestic credit directly comparable to the two openness trend estimates. Unfortunately, domestic market capitalization data are only available beginning in 1988, so the long term trend for this financial development proxy is estimated only from that year to 2003.

Our empirical procedure contains two steps.

[Figures 1 through 4 about here]

First, we account for global trends in the co-evolution of openness and advanced institutional development. We identify these trends by plotting each country's financial development trend against their openness trends, as in Figures 1 through 4. We then estimate regression lines through each scatter plot that goes through the origin, again illustrated in Figures 1 through 4. The plots shows substantial variation in financial development associated with any given increase in openness. For example, while Mexico and Thailand experience largest increases in trade openness from 1970 to 2000, their stock markets grow little. The stock markets of Sri Lanka, Uruguay, and Venezuela actually shrink as their economies open. In contrast, increased openness is associated with large increases in market capitalizations in Finland and Switzerland.

For each of the four figures, we then divide countries into two groups. Group I contains countries whose advanced institutional improvement associated with openness falls short of the global trend. These are the countries lying below the global trend line in the figure. Group II contains countries whose advanced

institutional improvement associated with openness outpaces the global trend – countries plotted above the global trend line.

Thus, in Figure 1, where openness is measured by trade as a fraction of GDP and financial development by growth in stock market capitalization over GDP, the Group I countries are Austria, Ireland, Korea, Malaysia, Mexico, Pakistan, the Philippines, Thailand, Sri Lanka, Uruguay, and Venezuela. The remaining countries are in Group II. In Figure 2, where financial development is private credit over GDP and openness is trade over GDP, the Group I countries are Argentina, Brazil, Colombia, Denmark, Greece, India, Ireland, Italy, Malaysia, Mexico, Pakistan, the Philippines, Portugal, Spain, Sri Lanka, Turkey, and Venezuela. The remaining countries are consigned to Group II. Group I and II countries are analogously defined for Figures 3 and 4.

We then compare the soundness of primary institutions in Group I versus Group II countries using *t-tests* and *rank sum tests*. We anticipate sounder primary institutions in Group II countries than in Group I countries.

We use five variables to gauge the soundness of primary institutions: law and order, bureaucratic quality, freedom from corruption, educational attainment, and the dominance of family and state controlled business groups.

The first three variables are from the International Country Risk Guide (ICRG) for January 1984, the earliest ICRG institutional ratings. “Law and order” captures the strength and impartiality of the legal system and popular adherence to the law. Higher index values indicate a more independent judiciary system and more effective law enforcement. “Bureaucratic quality” measures the autonomy of the country’s civil service from political pressure, and assigns higher index values to bureaucracies less subject to drastic politically induced changes in policies. “Freedom from corruption” is an index reduced by any sorts of nepotism and favor trading due to “suspiciously close ties between politics and business” or by the extent to which side payments and bribes are necessary in the course of normal

business activities such as obtaining import and export licenses, foreign exchanges, or loans.

We gauge a country's education level by the total number of years of schooling for population aged 15 and over in 1970. These data are from World Development Indicators. Alternative measures, such as schooling for adults aged 25 and older, yields similar results.

We construct a "family and state" index to gauge the dominance of oligarchic family pyramids and state controlled enterprises in 1975. We follow the procedure of Fogel (2004) to construct a list of top ten business entities, ranked by total employees, and determine the ultimate controlling shareholder of each group using a 20% ownership cutoff benchmark, precisely as in La Porta *et al.* (1999). All firms controlled by the same family (family pyramids) are consolidated into a single entity. Our "family and state" index is the fraction of the country's top ten entities controlled by either a wealthy family or the state.

Table 1 presents summary statistics of the main variables. Tables 2 and 3 show our main statistical result: Group II countries' initial primary institutions are significantly sounder than those of Group I countries.

The law and order, bureaucratic quality, and freedom from corruption indexes are higher across the board for Group II countries. Group II countries also have significantly better educated populations and large corporate sector less dominated by oligarchic family pyramids and state controlled enterprises.

These results are stronger in Table 2, where we gauge openness trends using trade over GDP, than in Table 3, where we use capital account openness. Nonetheless, general pattern of results is similar.

The law and order, bureaucratic quality, and freedom from corruption indexes are significantly higher almost across the board for Group II countries when we use stock market capitalization to proxy for advanced institutional development, though "bureaucratic quality" becomes insignificant but retains its sign. When we use

domestic credit as the proxy, only the differences in education and family and state control are statistically significant. The weaker results using domestic credit perhaps suggest that this variable is a weaker instrument for advanced institutions.

These findings are all consistent with Group II countries having better initial primary institutions conducive to higher investment in entrepreneurial entry, the basis for a larger *entry push* effect. The lesser importance of family and state controlled groups in group II countries is likewise consistent with established firms relying more on ambient institutions, indicative of a larger *external reliance* effect. Consistent with our model prediction, Group II countries experience greater financial development upon increased openness than Group I countries. These results also align with the stylized facts about Spain and Mexico reported in Section II. In short, our findings provide tentative support for the general thrust of our model.

## VII. CONCLUSIONS

The large and insightful literature on globalization and institutional change usually contrasts indigenous firms with multinationals, taking institutions to mean legal, regulatory, and social constraints that lower transaction costs and thus facilitate economic transactions and economic development. We show that heterogeneity across indigenous firms can also be an important factor, for different firms react differently to public policies, thus affecting policy effectiveness.

Specifically, we decompose the marginal benefit of institutional improvement into two components – an external reliance effect and an entry push effect. The *external reliance* effect captures the benefits firms glean from improved local institutions. This effect is larger if more firms rely on domestic institutions and smaller if they have invested in substitutes for deficient institutions. To grow, small local firms and potential entrants require sound institutions, particularly those that lead to development of functional factor markets (e.g., banking, stock, and market for managerial talents). Weak institutions impose serious constraints on these small

players and potential entrants, and disadvantage them in domestic and global competition. The *entry push* effect captures the benefits that potential entrants or firms with growth opportunities derive from improved institutions. A longer queue of potential entrants implies a larger expansion of output once the institutional constraints are removed.

Considering these two effects allows us to generate path dependence in institutional development without invoking political rent-seeking. We argue that a myopic, but benevolent government compares the short term marginal benefit of institutional development against its marginal cost. Sounder basic institutions lead to larger external reliance and entry push effects, and cause the liberalization of trade and/or FDI policies to evoke more improvement in higher order institutions, such as financial development and other consequent institutional differences. Thus, an initial gap in institutional development can lead to widely divergent institutional development paths, even if rent-seeking is absent. Adding rent-seeking further magnifies the negative impact of low external reliance and entry push effects on institutional development.

This suggests that institutional development might occur in stages. The entry push and external reliance effects affect the benefits of advanced institutional development. But these effects depend on the initial quality of basic institutions. Countries with sound primary institutions have more firms (and potential entrants) willing to invest in entrepreneurial skills and fewer inclined to invest in institution-circumventing substitutes. As a result, advanced institutional development becomes more attractive in countries whose basic institutions are already well developed.

Opening up to the global economy alters the magnitudes of both the entry push and external reliance effects. Openness changes prices, inducing entry and exit in different industries. This alters the composition of firms in the economy and the queue of potential entrants, and so alters the value of further institutional improvement. If the balance shifts towards existing firms that would benefit from better institutions and if openness lengthens the queue of potential entrants,

institutional improvement ensues. The opposite may happen if the balance shifts towards existing institutional-independent business groups and multinational corporations, who are able to leverage their internal organizations and global resources, respectively, to overcome local institutional deficiencies.

Therefore, globalization *can* release countries trapped in bad institutions, but need not always do so. Globalization disturbs the previous equilibrium, reshuffles the distribution of firms, and forces politicians to reevaluate the net benefits of institutional development. Higher entry push and external reliance effects, deriving from better initial primary institutions, render openness more likely to induce further development of more advanced institutions, such as financial development. If political rent-seeking occurs, the different firms' influence over political decisions also matters, but our conclusions do not depend on this. First pass empirical results are consistent with this line of reasoning.

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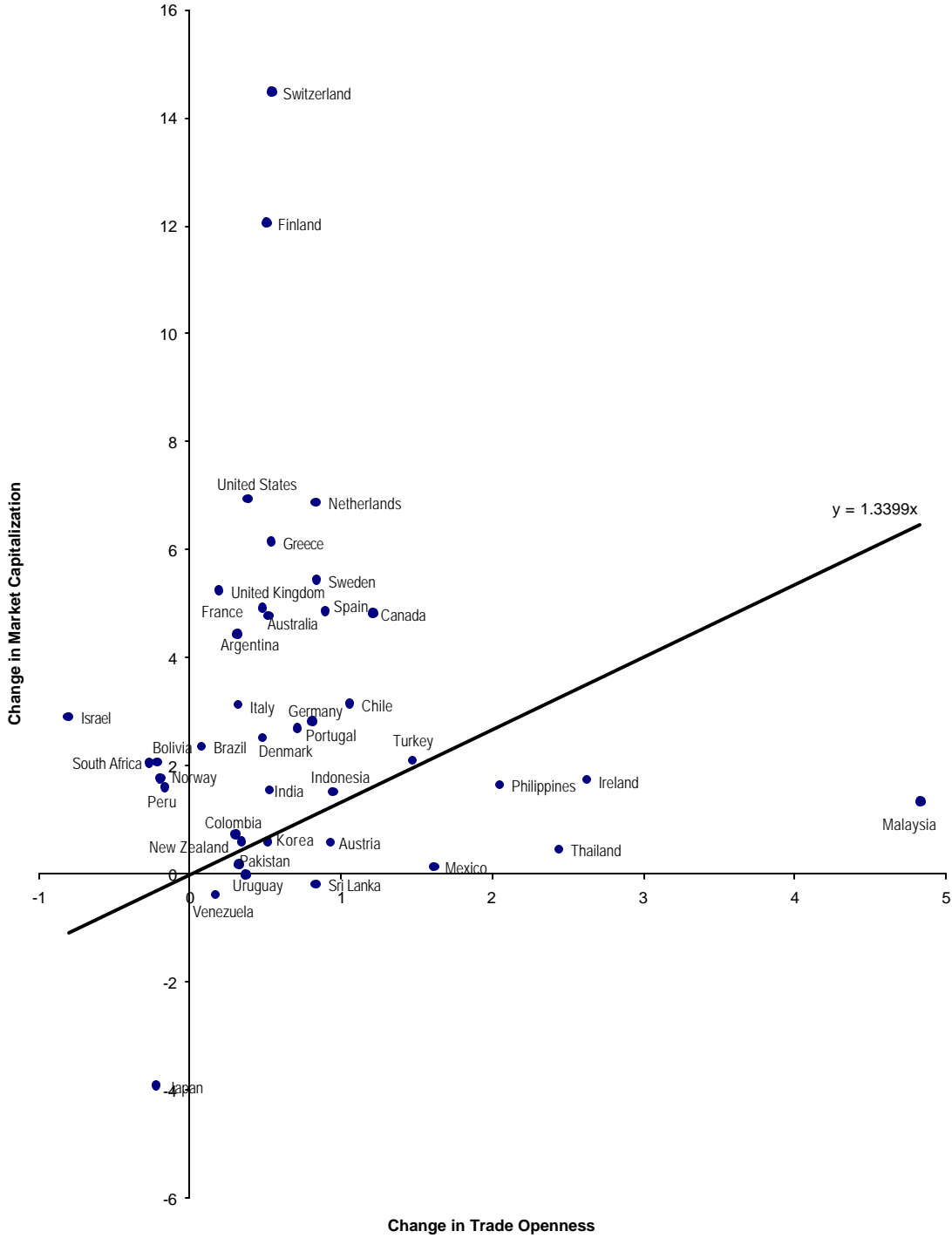
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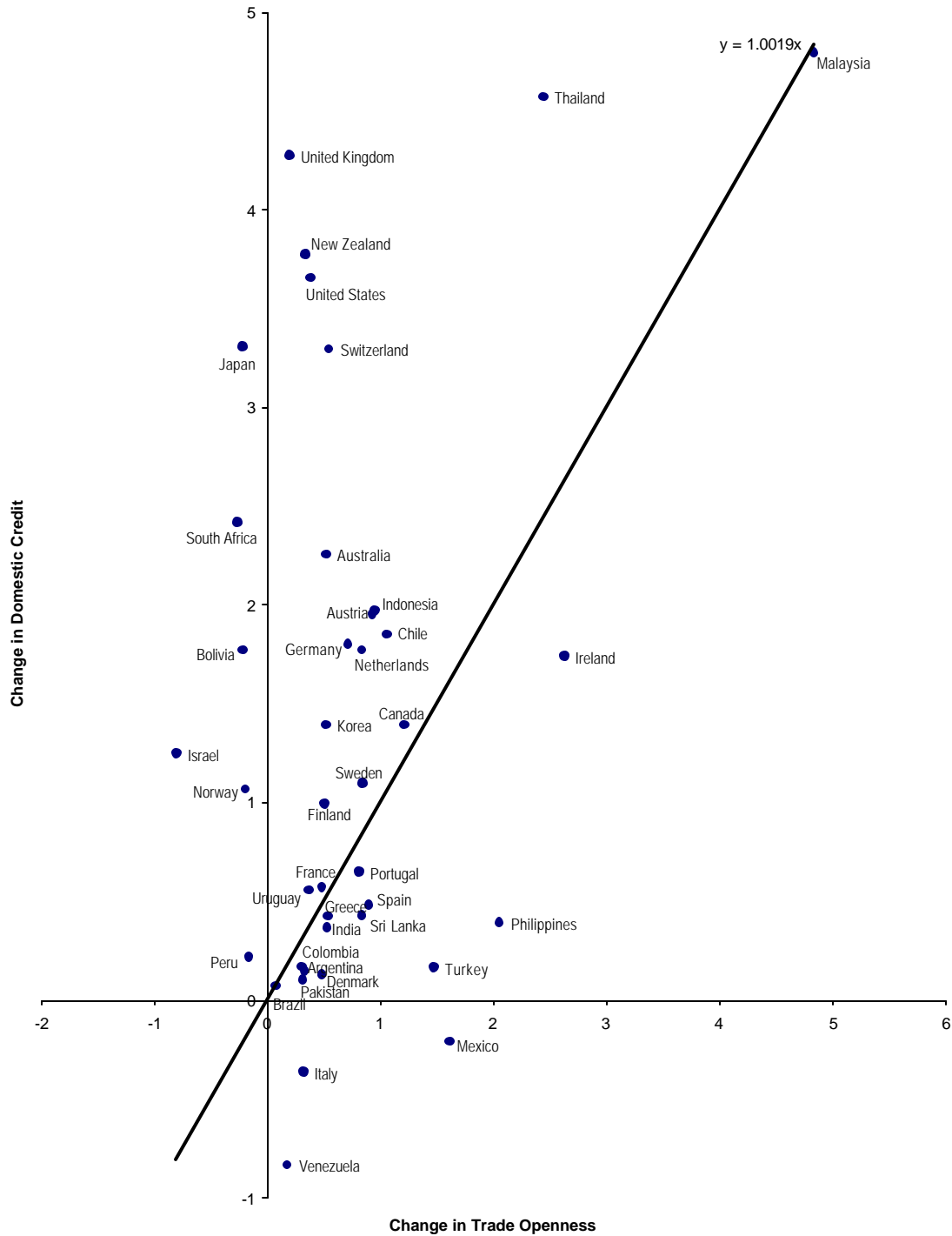
### Figure 1. Change in Stock Market Capitalization versus Change in Trade Openness

Trade openness is defined as the sum of exports and imports of goods and services as a percentage of GDP. Change in trade openness is the slope of a country-level linear time trend regression using trade data from 1970 to 2000. Stock market capitalization is defined as the share price times the number of shares outstanding of listed domestic companies at the end of the year as a percentage of GDP. Change in stock market capitalization is the slope of a country-level linear time trend regression using market capitalization data from 1988 to 2003.



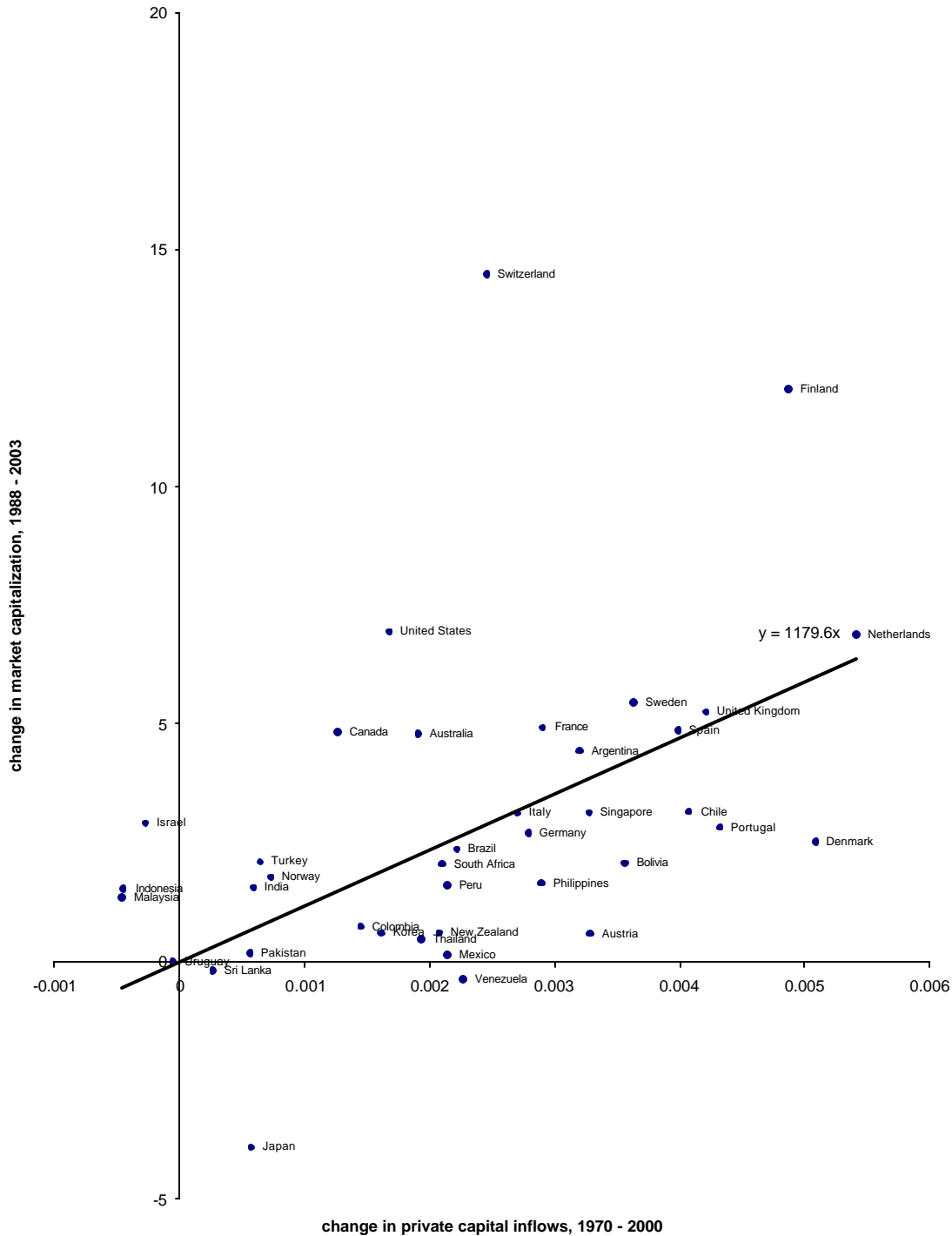
**Figure 2. Change Domestic Credit Extended versus Change in Trade Openness**

Trade openness is defined as the sum of exports and imports of goods and services as a percentage of GDP. Change in trade openness is the slope of a country-level linear time trend regression using trade data from 1970 to 2000. Domestic credit is defined as domestic credit available to the private sector as a percentage of GDP. Change in domestic credit is the slope of a country-level linear time trend regression using credit data from 1970 to 2000.



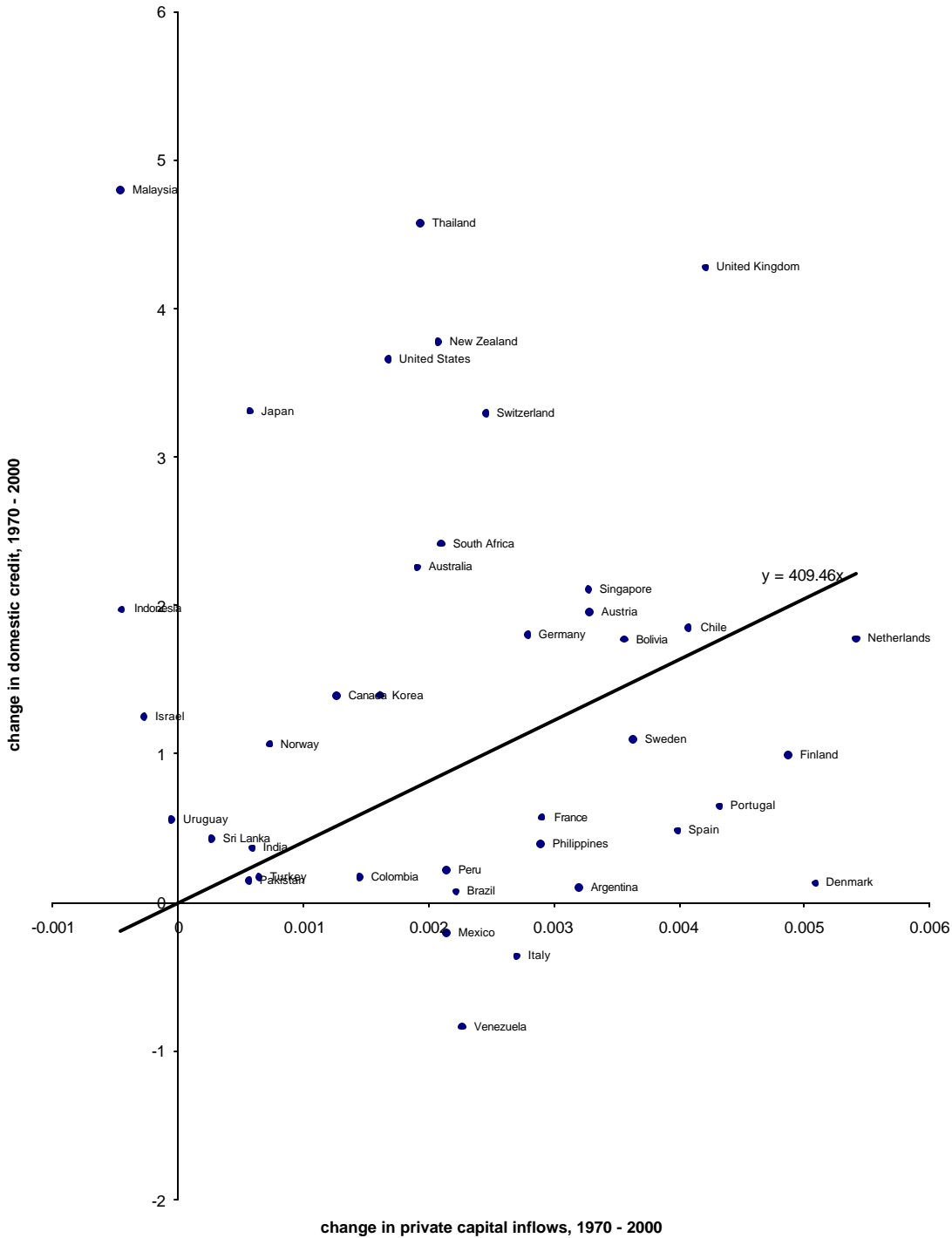
### Figure 3. Change in Stock Market Capitalization versus Change in Private Capital Inflows

Private capital inflow is defined as the sum of capital account inflows (direct investment inflows and portfolio investment inflows) as a percentage of GDP. Change in private capital inflows is the slope of a country-level linear time trend regression using capital inflow data from 1970 to 2000. Stock market capitalization is defined as the share price times the number of shares outstanding of listed domestic companies at the end of the year as a percentage of GDP. Change in stock market capitalization is the slope of a country-level linear time trend regression using market capitalization data from 1988 to 2003.



### Figure 4. Change Domestic Credit Extended versus Change in Private Capital Inflows

Private capital inflow is defined as the sum of capital account inflows (direct investment inflows, and portfolio investment inflows) as a percentage of GDP. Change in private capital inflows is the slope of a country-level linear time trend regression using capital inflow data from 1970 to 2000. Domestic credit is defined as domestic credit available to the private sector as a percentage of GDP. Change in domestic credit is the slope of a country-level linear time trend regression using credit data from 1970 to 2000.



**Table 1. Summary Statistics for Main Variables**

	<b>N</b>	<b>Mean</b>	<b>Median</b>	<b>Std Dev</b>	<b>Minimum</b>	<b>Maximum</b>
Change in stock market capitalization/GDP, 1988 - 2003	41	2.928	2.097	3.248	-3.916	14.48
Change in domestic credits to private sector/GDP, 1970 - 2000	41	1.416	1.099	1.417	-0.834	4.796
Change in FDI inflows/GDP from 1970 – 2000	41	0.116	0.091	0.111	-0.024	0.443
Change in trade/GDP, 1970 - 2000	40	0.729	0.519	0.963	-0.802	4.831
Law and order, 1984	41	3.927	4.000	1.766	1.000	6.000
Bureaucratic quality, 1984	40	2.900	3.000	1.183	0.000	4.000
Corruption, 1984	41	4.122	5.000	1.749	0.000	6.000
Total years of schooling for pop. 15 years and older, 1970	41	5.747	5.510	2.272	1.540	10.24
Family and state control in top ten groups, 1975	41	0.790	0.900	0.277	0.000	1.000

**Table 2. The Change in Financial Development Associated with Increased Trade Openness Depends as a Function of Basic Institutional Development**

Group I countries have institutional change per unit increase in openness below the global mean. Group II countries have institutional change per unit increase in openness at or above the global mean. Numbers in parentheses are probability levels for t-tests to reject equal means or rank order tests to reject equal medians.

		<b>Change in Market Capitalization Associated with Increased Trade Openness</b>			<b>Change in Domestic Credit Associated with Increased Trade Openness</b>		
		Group I	Group II	p-level	Group I	Group II	p-level
Law and order	Mean	3.091	4.241	<b>(.07)</b>	3.235	4.435	<b>(.03)</b>
	Median	3.000	5.000	<b>(.06)</b>	3.000	5.000	<b>(.03)</b>
	Sample <sup>1</sup>	11	29		17	23	
Bureaucracy	Mean	2.300	3.086	<b>(.07)</b>	2.441	3.227	<b>(.04)</b>
	Median	2.000	4.000	<b>(.02)</b>	2.000	4.000	<b>(.00)</b>
	Sample <sup>2</sup>	10	29		17	22	
Corruption	Mean	3.000	4.483	<b>(.01)</b>	3.235	4.696	<b>(.01)</b>
	Median	3.000	5.000	<b>(.01)</b>	3.000	5.000	<b>(.01)</b>
	Sample <sup>1</sup>	11	29		17	23	
Education	Mean	4.598	6.206	<b>(.05)</b>	4.300	6.846	<b>(.00)</b>
	Median	4.700	6.110	<b>(.05)</b>	3.900	7.350	<b>(.00)</b>
	Sample <sup>1</sup>	11	29		17	23	
Family and state	Mean	0.918	0.745	<b>(.08)</b>	0.912	0.704	<b>(.01)</b>
	Median	1.000	0.800	<b>(.06)</b>	1.000	0.800	<b>(.01)</b>
	Sample <sup>1</sup>	11	29		17	23	

1. Group I countries in the left panel are Austria, Ireland, Malaysia, Mexico, Pakistan, Philippines, South Korea, Sri Lanka, Thailand, Uruguay, and Venezuela. Group II countries in the left panel are Argentina, Australia, Bolivia, Brazil, Canada, Chile, Colombia, Denmark, Finland, France, Germany, Greece, India, Indonesia, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Peru, Portugal, South Africa, Spain, Sweden, Switzerland, Turkey, United Kingdom, and United States.

Group I countries in the right panel are Argentina, Brazil, Colombia, Denmark, Greece, India, Ireland, Italy, Malaysia, Mexico, Pakistan, Philippines, Portugal, Spain, Sri Lanka, Turkey, and Venezuela. Group II countries in the right panel are Australia, Austria, Bolivia, Canada, Chile, Finland, France, Germany, Indonesia, Israel, Japan, Netherlands, New Zealand, Norway, Peru, South Africa, South Korea, Sweden, Switzerland, Thailand, United Kingdom, United States, and Uruguay.

2. Group I countries in the left panel are the same as in note 1 less Uruguay. Group II countries in the left panel are the same as in note 1.

Group I countries in the right panel are the same as in note 1. Group II countries in the right panel are the same as in note 1 less Uruguay.

**Table 3. The Change in Financial Development Associated with Increased Private Capital Inflows Depends as a Function of Basic Institutional Development**

Group I countries have institutional change per unit increase in openness below the global mean. Group II countries have institutional change per unit increase in openness at or above the global mean. Numbers in parentheses are probability levels for t-tests to reject equal means or rank order tests to reject equal medians.

		Change in Market Capitalization Associated with Increased Private Capital Flows			Change in Domestic Credit Associated with Increased Private Capital Flows		
		Group I	Group II	p-level	Group I	Group II	p-level
Law and order	Mean	3.409	4.647	<b>(.03)</b>	3.765	4.091	(.58)
	Median	3.000	6.000	<b>(.03)</b>	4.000	4.000	(.54)
	Sample <sup>1</sup>	22	17		17	22	
Bureaucracy	Mean	2.691	3.177	(.22)	2.706	3.071	(.36)
	Median	3.000	4.000	(.11)	3.000	3.500	(.20)
	Sample <sup>2</sup>	21	17		17	21	
Corruption	Mean	3.500	4.941	<b>(.01)</b>	3.647	4.500	(.14)
	Median	3.000	6.000	<b>(.01)</b>	3.000	5.000	(.17)
	Sample <sup>1</sup>	22	17		17	22	
Education	Mean	5.137	6.495	<b>(.07)</b>	4.832	6.422	<b>(.03)</b>
	Median	4.755	7.160	<b>(.07)</b>	4.760	6.410	<b>(.05)</b>
	Sample <sup>1</sup>	22	17		17	22	
Family and state	Mean	0.873	0.694	<b>(.04)</b>	0.882	0.727	<b>(.06)</b>
	Median	1.000	0.800	<b>(.03)</b>	1.000	0.800	(.22)
	Sample <sup>1</sup>	22	17		17	22	

1. Group I countries in the left panel are Austria, Bolivia, Brazil, Chile, Colombia, Denmark, Germany, Italy, Japan, Korea, Mexico, New Zealand, Pakistan, Peru, the Philippines, Portugal, Singapore, South Africa, Sri Lanka, Thailand, Uruguay, and Venezuela. Group II countries in the left panel are Argentina, Australia, Canada, Finland, France, India, Indonesia, Israel, Malaysia, Netherlands, Norway, Spain, Sweden, Switzerland, Turkey, United Kingdom, and United States.

Group I countries in the right panel are Argentina, Brazil, Colombia, Denmark, Finland, France, Italy, Mexico, Netherlands, Pakistan, Peru, the Philippines, Portugal, Spain, Sweden, Turkey, and Venezuela. Group II countries in the right panel are Australia, Austria, Bolivia, Canada, Chile, Germany, India, Indonesia, Israel, Japan, Korea, Malaysia, New Zealand, Norway, Singapore, South Africa, Sri Lanka, Switzerland, Thailand, United Kingdom, United States, and Uruguay.

2. Group I countries in the left panel are the same as in note 1 less Uruguay. Group II countries in the left panel are the same as in note 1.

Group I countries in the right panel are the same as in note 1. Group II countries in the right panel are the same as in note 1 less Uruguay.