

**Institutions and Policies for Growth and Poverty Reduction:  
The Role of Private Sector Development**

Rana Hasan, Devashish Mitra, and Mehmet Ulubasoglu examine the relationship between poverty, economic growth, and indicators of business regulations and governance. The evidence suggests that regulations that facilitate the creation of new enterprises, and governance indicators that capture conduciveness to economic activity as distinct from political freedom, can play an important role in promoting growth and reducing poverty.

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and Mehmet Ulubasoglu

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AND POVERTY REDUCTION:  
THE ROLE OF PRIVATE SECTOR DEVELOPMENT**

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July 2006

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## **FOREWORD**

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## **ABSTRACT**

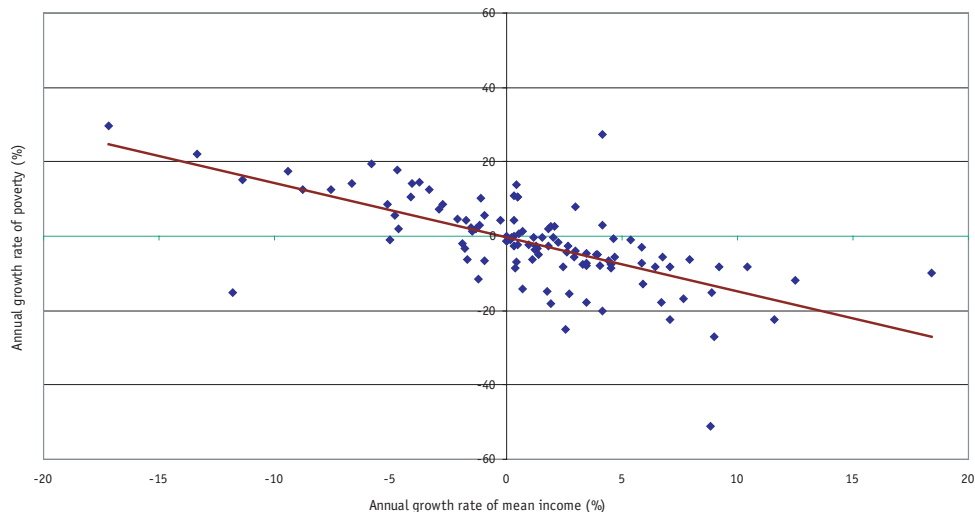
In this paper, we study the effects of institutions and policies on economic growth and poverty, paying close attention to institutions and policies that relate to the overall climate and regulations under which the private sector operates. We find that good governance, as measured by a strong commitment to the rule of law among other things, matters for poverty reduction largely through its effect on economic growth. Though not a panacea, less cumbersome regulations governing private sector operations, especially those pertaining to starting a business, can matter for both economic growth as well as poverty reduction more directly. While the impact of trade openness on growth is not clear, increases in trade shares have been associated with lower poverty. Furthermore, the size of the public sector has a strong negative effect on growth and can be bad for poverty alleviation. Finally, political freedom is not associated with either higher growth or lower poverty. Taken together, the evidence here suggests that the delivery of good governance and regulations, which facilitate the creation of new enterprises, is more relevant for growth and poverty reduction than the nature of the political system per se.

## I. INTRODUCTION

Despite having made significant progress in reducing poverty over the last several decades, 690 million people, constituting more than a fifth of Asia's population, live below the \$1-a-day poverty line (ADB 2004). On the basis of poverty lines more typically found in low-to-middle income countries as opposed to only low income countries—the \$2-a-day poverty line—an even more staggering number are poor in Asia: 60% of Asia's population or 1.9 billion people. Faced with such numbers, it is difficult to argue with the notion that the reduction of poverty is the central development challenge facing Asia, and indeed, the developing world at large.

What can policymakers do to reduce poverty? Many economists would argue that igniting economic growth and sustaining it is the surest and most sustainable way to fight poverty. Figure 1, which plots cross-country data on economic growth and poverty reduction, is consistent with this argument.<sup>1</sup> This figure shows, for example, that a 1% increase in growth has been associated on average with a 1.5% reduction in poverty. Moreover, episodes where poverty grew despite economic growth (quadrant 1) or where poverty declined despite economic contraction (quadrant 3) are clearly the minority. But Figure 1 also reveals that there is a great deal of variation in how much economic growth has reduced poverty across countries and even within countries over different periods of time. In statistical terms, the variation in economic growth can explain only around 45% of the variation in poverty reduction (ADB 2004).

**FIGURE 1**  
**GROWTH AND POVERTY REDUCTION**



<sup>1</sup> Poverty reduction is based on changes in \$1-a-day poverty rates. The source of this figure is *Key Indicators* (ADB 2004).

These two “stylized facts” about growth and poverty linkages—that poverty reduction is closely associated with economic growth but that this association is by no means perfect—suggests two challenges for policymakers. First, what are the policies and institutions that can ignite and thereafter sustain growth. Second, how does one ensure that growth generates significant opportunities for the poor. In this paper, we discuss the evidence on both of these questions, paying special attention to policies and institutions that relate to the development of the private sector. In doing so, we are informed not only by existing cross-country studies examining the impact of policies and institutions on economic growth and poverty, we also carry out empirical analysis of our own using newly available data on poverty (World Bank-PovcalNet and ADB 2004) and indicators relating to the regulations under which the private sector operates (World Bank 2004).

Our focus on private sector development stems from the now widespread belief that market forces and private initiative provide a powerful basis for generating economic growth and development. This belief explains the importance private sector development is receiving in the strategies being adopted by both developing country policymakers as well as international development agencies. From the perspective of developing country policy making, for example, scores of countries have moved over the last 10 to 20 years to liberalize their trade and industrial policy regimes. These liberalizations have been underpinned by the belief that greater reliance on private agents—including not only large-scale manufacturing firms but also farmers and micro-entrepreneurs—to allocate resources on the basis of market signals would improve economic performance. Similarly, development agencies, including the Asian Development Bank (ADB) and the World Bank, have made support to private sector development a key component of their overall strategy for assisting less developed countries. ADB’s private sector development strategy (ADB 2000), notes right at the outset that the “development of a strong and dynamic private sector is crucial to long-term, rapid economic growth.” Long term, rapid economic growth is in turn seen as a “necessary condition for sustained poverty reduction.”

The policies and institutions we focus on can be distinguished into four types. A first type relates to the various regulatory barriers faced by actual and potential private sector firms. These factors are measured in terms of variables available from the Doing Business database of the World Bank (World Bank 2004a). Examples include information on the ease of starting and closing businesses. A second type consists of broader outcome-based measures of overall policy orientations of the government that may affect the way businesses operate. These are captured by measures of openness to trade and the size of the public sector. While the former relates directly to how much domestic firms are exposed to foreign competition (via imports) and foreign markets (via exports), the latter captures quantitatively how important the private sector is in overall production. A third type relates to the institutions of governance. As is now increasingly appreciated, the most encouraging regulations (on paper) may not amount to much in terms of creating an enabling environment for the private sector if those regulations were enforced capriciously or by a predatory state machinery. Thus it is important to take into account the policy and institutional environment related to governance. A final set of variables relate to political institutions, in particular to political rights and civil liberties.

The results of our empirical work can be summarized as follows. We find that good governance as measured by a strong commitment to the rule of law, a competent and efficient government sector, and control of corruption matters for poverty reduction largely through its effect on economic growth. Though not a panacea, less cumbersome regulations governing private sector operations, especially those pertaining to starting a business, matter for both economic growth as well as poverty

reduction more directly. While the impact of trade openness on growth is not clear, increases in trade shares have been associated with lower poverty. Furthermore, the size of the public sector has a strong negative effect on growth and can be bad for poverty alleviation. Finally, political freedom is not associated with either higher growth or lower poverty. Taken together, the evidence here seems to suggest that the delivery of good governance and regulations that facilitate the creation of new enterprises are more relevant for growth and poverty reduction than the nature of the political system through which such governance and regulations are delivered.

The paper is organized as follows. Section II provides a brief discussion on policies and institutions for private sector development and why these should matter for economic performance and thus economic development. Section III reviews the related literature. Section IV describes the methodology and Section V the data and their sources. Section VI provides an in-depth description and discussion of results. Section VII concludes.

## **II. INSTITUTIONS AND POLICIES AND WHY THEY MATTER FOR ECONOMIC PERFORMANCE**

The dividing line between institutions and policies is thin. Nevertheless, it is useful to try and distinguish between them for purposes of understanding their roles in improving economic performance. One basis for distinguishing between the two is that institutions encompass the formal and informal rules and customs within which individuals and firms operate; policies, on the other hand, refer to various strategies and measures a government adopts to achieve its goals and objectives within a country's institutional framework (Quibria 2002). Of course, policies can have a profound impact on a country's institutions, and this is ultimately what the objective of the efforts at policy reform in developing countries is about. In what follows, we discuss in more detail what institutions are, what they encompass, and why they are important to economic functioning and performance. We also briefly cover key policies that may have an important bearing on economic performance and on the process of institutional change itself.

### **A. Institutions**

The work of Douglas North has been an important influence on economists' thinking about institutions and their linkages with economic performance. North (1990) describes institutions as the "rules of the game" in a society. In his words, institutions encompass "humanly devised constraints that shape human interaction." These constraints can be formal or informal. The former would include constitutions, laws, and regulations governing politics and economics, while the latter would include conventions, customs, codes of behavior, and conduct. Formal rules and informal constraints together determine the incentives in human exchange: political, social, and economic. Importantly, how well the given institutions function depends on the nature of enforcement, that is, how costly it is to identify violations of the "rules of the game" and how severe the punishments for deviating from rules are.

Why are institutions important to economic performance? According to North, institutions have a profound influence on the incentive structure of a society. Countries are rich or poor

depending on whether their institutional constraints define a set of payoffs to political and economic activity that encourage productive activity. Put differently, when organizations, including firms, trade unions, political parties, business associations, etc. are engaged in what are unproductive activities it is because the institutional framework in which they operate provides them with an incentive to be unproductive. In developing countries the institutional framework “overwhelmingly favor activities that promote redistributive rather than productive activity, that create monopolies rather than competitive conditions, and that restrict opportunities rather than expand them. They seldom induce investment in education that increases productivity” (North 1990, 9). In this way institutions affect both the process of capital accumulation as well as the process of converting this capital into output.

If developing countries are poor because their current institutions provide a weak basis for providing the incentives that generate growth, what type of institutions should they acquire? And how can developing countries get there? Recent research has been in far more agreement on the first of these questions than the second.

Consider the first question. By and large, most economists today would assign a critical role to private incentives and initiatives in driving modern economic growth via the accumulation of capital and the conversion of that capital and labor into marketable output. Underlying this process of private accumulation, production, and exchange, however, has been a set of market-supporting institutions. The most fundamental among these have been the existence of secure and stable property rights and the rule of law. The importance of these was clearly noted and anticipated by Adam Smith in his *Wealth of Nations* (as cited in Rodrik, Subramanian, and Trebbi 2002, 1): “Commerce and manufactures can seldom flourish long in any state which does not enjoy a regular administration of justice, in which the people do not feel themselves secure in the possession of their property, in which the faith of contracts is not supported by law, and in which the authority of the state is not supposed to be regularly employed in enforcing the payment of debts from all those who are able to pay. Commerce and manufactures, in short, can seldom flourish in any state in which there is not a certain degree of confidence in the justice of government.”

The experience of today’s prosperous countries therefore suggests that stable property rights and the rule of law are prerequisites for a dynamic private sector to emerge. However, their experience also reveals that market economies require much more if they are to function efficiently and with at least a modicum of equity. As the experience of the 20<sup>th</sup> century has shown, market economies also need fiscal and monetary institutions that perform stabilizing functions, institutions that try to check market failures and regulate conduct in all sorts of markets including those dealing with goods and services, labor, and finance; and institutions that provide social insurance (Rodrik 1999).

It is difficult to imagine that today’s developing countries, which are by and large transitioning to more fully market-based economic systems, will attain prosperity without these market-supporting institutions. The acquisition of these institutions is therefore part of their developmental challenge. However, it is far from clear how poor countries should go about acquiring these institutions (and as noted below, even how *urgently* they need all of them).

Rodrik (1999) discusses and contrasts two alternative approaches to the acquisition of institutions. According to the first, it is possible to “import [the] blueprint” or institutional design from the developed world. Following this approach the removal of price distortions and privatization of enterprises would be accompanied by a set of “governance” reforms that would include the

enactment of legal codes and legislations (often in line with those existing in the developed countries), establishment of an independent judiciary, etc.

The second approach, however, emphasizes that local circumstances will require in many cases a unique, context-specific institutional design. The usefulness and importance of such an approach can be understood and appreciated through the very real caution suggested by North (1994, 8): “economies that adopt the formal rules of another economy will have very different performance characteristics than the first economy because of different informal norms and enforcement. The implication is that transferring the formal political and economic rules of successful western economies to Third World and Eastern European economies is not a sufficient condition for good economic performance.”

Consider the case of property rights and rule of law (investor perceptions of which are shown to be strongly associated with better economic performance as both our literature survey below as well as our own empirical work reveals). While strengthening property rights and rule of law in an economy where they have been weak or absent to begin with are very likely to be instrumental in getting entrepreneurs and investors to expand their investment activities, there is more than one way to establish stronger property rights and respect for the rule of law. An illustration from Rodrik (2004), contrasting Russia in the 1990s with People’s Republic of China’s (PRC) investment boom driven by the township and village enterprises in the 1980s (TVEs) reveals quite clearly the complexities involved in successful institutional change. In the 1990s Russia provided its citizens with a private property rights regime that was ostensibly enforced by an independent judiciary. However, surveys routinely revealed that investors consistently gave low marks to the country insofar as rule of law was concerned. Why? While Russia made the appropriate legislative changes, weaknesses in enforcement and the actual codes of conduct to which Russians were accustomed to probably diluted the effectiveness of these changes.

Put differently, context matters so that “institutional outcomes do not map into unique institutional design.” Consider now the case of the PRC. The investment booms in the PRC’s TVEs took place despite the nonexistence of a private property regime and an independent judiciary. Apparently, investors did believe their “property” to be safe. Drawing upon the work of Qian (2002), Rodrik (2004, 9) points to what may have served to provide secure property rights when none actually existed formally: with local governments typically the owners of the TVEs and private entrepreneurs as “effective” partners, “private entrepreneurs felt secure not because the government was prevented from expropriating them, but because, sharing in the profits, it had no interest to expropriate them.”

Following the second approach’s emphasis on local context, the general lesson is that “there is no unique, noncontext specific way of achieving desirable institutional outcomes.” This, of course, makes it more difficult to give policy advice. But Rodrik argues that while good institutions are ultimately crucial for sustaining growth, igniting growth need not wait until large-scale institutional transformation has been generated. Instead, igniting growth entails the easier task of being able to identify and relax specific constraints that are holding back the private sector. Thus, in the case of the PRC in the late 1970s and 1980s, the main “binding” constraint to growth may have been the absence of market-oriented incentives. Doing away with the household responsibility system and allowing local governments to “own” the TVEs were innovations that gave entrepreneurs incentives to be productive within the existing overall institutional framework. More generally, the challenge for policy then becomes the search for responses that are appropriate for local

conditions. This in turn requires an encouragement of experimentation—risks notwithstanding—with reforms of different elements of the current institutional framework to see what types of reforms work and which ones do not.

## **B. Policies**

Policies can be thought of as the instruments by which governments can change the “rules of the game.” Which policies have a particularly important bearing on economic performance? More to the point, what policies are holding back the private sector? Until very recently policy advice for generating growth and spurring the private sector tended to emphasize policy reforms focused on a relatively narrow range of areas. In particular, policy reforms have been targeted toward macroeconomic stabilization, price liberalizations, trade liberalizations, and the privatization of public sector enterprises.

Unfortunately, undertaking these policy reforms has not led to a big expansion in private sector activities; conversely, the private sectors of some countries that have avoided the above set of policy reforms have boomed (World Bank 2003). This has led analysts to look more closely at the full range of policies that influence the environment in which production takes place (as well as the institutional framework in which policies operate).

Rodrik (2003) contrasts two views on the policies and processes that can get “entrepreneurs excited about investing in the home economy.” One view emphasizes cumbersome and misguided government regulations as the constraint to entrepreneurship and a vibrant private sector. The second view emphasizes market imperfections in developing countries. Accordingly, the government should not just get out of the way of the private sector. Instead it needs to find ways to crowd-in private investment.

According to the first view, government imposed imperfections, which include: “macroeconomic instability and high inflation, high government wages that distort the functioning of labor markets, a large tax burden, arbitrary regulations, burdensome licensing requirements, corruption” among others are holding back the private sector. Surveys of enterprises, including the investment climate studies (ICS) initiated by the World Bank and also being carried out by the ADB become a key tool in determining which aspects of government policy and regulations constrain the operations and growth of the private sector.

Per the second view, however, “economies can get stuck in the low-level equilibrium due to the nature of technology and markets, even when government policy does not penalize entrepreneurship.” Rodrik points out that even though developing countries need not create new technologies they do need to adapt technologies that are new to them. This process of adaptation will usually require a certain amount of human capital internal to the individual and the firm contemplating use of the new technology. But crucially both the costs of adaptation as well as the returns from adaptation are often subject to externalities. For example, the costs of producing a new (for the developing countries) good may be uncertain. The uncertainties can deter investors. However, even one investor’s entry into the new line of production would provide information on the costs. If the investor struggles, then this is a signal that the costs of production are high. If the investor, on the other hand, is successful then this is a signal that the costs of production are worth the effort. The point is that “entrepreneurs engaged in the cost discovery process incur

private costs, but provide social benefits that can vastly exceed the anticipated profits.” The end effect is that “the relevant learning is under produced in a decentralized equilibrium, with the consequences being that the economy fails to diversify into non-traditional, more advanced lines of activity. In such a scenario there will be policy interventions which would improve upon the decentralized outcome” (Rodrik 2003, 21).

Both of these views have merit. This is because both factors may be at work, even within the same country. Thus while learning externalities may be holding back certain types of investments, other investments could be constrained by unnecessarily burdensome regulation. Consider the wide range of regulatory policies that govern the rules and regulations on starting and closing a business. Cumbersome and/or costly regulations for starting a business could easily result in lower entry than otherwise; they could also lead to a lack of competition faced by existing firms. The result would not only be lower investment than otherwise, but also lower efficiency among incumbents protected from competition. Similarly, regulatory hurdles in closing a business would prevent firms that are currently inefficient from exiting the market. They may also deter entry by artificially raising the cost of exiting if market conditions ultimately prove to be too difficult for a firm.

A similar logic applies to labor market regulations. Labor market regulations encompass a number of issues, including the rules governing industrial relations and collective bargaining, hiring and firing of workers, minimum wage laws, health and safety regulations, and mandated benefits. These regulations can have significant implications for both efficiency as well as equity. For example, while restrictions on firing would protect the welfare of the employed, they may end up harming employment generation in general as firms respond to firing restrictions by reducing the number of workers they would otherwise hire. In an extreme case, strong restrictions to firing could even end up constraining investments, especially in labor-intensive activities as has often been claimed in the case of India (see, for example, Besley and Burgess 2003).

### III. SURVEY OF RELATED LITERATURE

#### A. Institutions, Policies, and Growth

As may be alluded from the previous discussion, the work by North (1990) has generated a great deal of interest in the role of institutions in determining output and growth. Knack and Keefer (1995) looked at the impact of property rights on economic growth. In particular, they study the effects of contract enforceability and risk. While the variables are shown to have an impact on growth, controlling for them generates estimates that show faster conditional convergence to incomes levels in the United States. In a subsequent paper, Keefer and Knack (1997) look at how the convergence rate itself might be a function of indicators of institutional quality such as the rule of law, corruption, and the risk of expropriation and contract repudiation. They study this by interacting initial income with these institutional indicators on the right-hand side of a standard, cross-country growth regression.<sup>2</sup>

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<sup>2</sup> Another paper that pursues this line of research is Rodrik (1997), which looks at the role of institutions in explaining the stellar growth performance of East Asian economies prior to the Asian financial crisis. Almost all the variation in their growth performance is explained by initial income, initial education, and institutional quality. His measure of institutional quality is drawn from the work of Knack and Keefer (1995) and Easterly and Levine (1996).

Mauro (1995) focuses on the effect of corruption on growth and finds it to be negative in his cross-country regressions. He also looks at the effects of a subjective perceptions-based index of bureaucratic efficiency as well as that of political stability and finds them to be positive. Due to the possibility of reverse causation from growth to institutions, there is a potential endogeneity problem, which Mauro corrects by instrumenting corruption by an index of ethnolinguistic fractionalization.

Another important study is by Barro (1997) who studies a panel of around 100 countries from 1960 to 1990. Using controls such as the initial level of real per capita gross domestic product (GDP), initial schooling, life expectancy, fertility, government consumption, inflation, and terms of trade, growth is found to be increasing in the rule of law. Although Barro finds a weak effect of political freedom on growth, there is some indication of a nonlinear relation, an inverted U-shaped relationship between democracy and growth, with the growth-maximizing level of political freedom lying somewhere in between a pure democracy and pure dictatorship.

Using a new database consisting of 300 indicators of governance and creating six aggregates out of those, namely rule of law, corruption, political instability, voice and accountability, and government efficiency and regulatory burden, Kaufmann, Kraay, and Zoido-Lobaton (1999) show that there is a strong association between good governance and growth, with the causation running from the former to the latter. The instruments they use for their governance indicators are the ones used by Hall and Jones (1999).

While the above papers emphasize the effect of institutions on growth, later work has mainly emphasized the impact of institutions on income levels and not on growth rates. In support of this change in emphasis, Hall and Jones (1999) have argued that “levels capture the differences in long-run economic performance that are most directly relevant to welfare as measured by the consumption of goods and services.” Also, in this context they point to the recent evidence on the transitional nature of growth rate differences across countries; the empirical questioning by Jones (1995) of the relevance of endogenous growth models; and the theoretical support from recent models that show the effect of policies on income levels and not on growth rates, and where countries in the long run differ in their income levels and not growth rates.

Hall and Jones (1999) look at how capital accumulation, productivity, and therefore output per worker are affected by social infrastructure. Social infrastructure here refers to institutional and policy variables that determine the economic environment determining capital accumulation, skill formation, invention, innovation and technology transfer. Their measure of social infrastructure is based on measures of corruption, expropriation risk, government repudiation of contracts, law and order, bureaucratic quality, and trade barriers. While output is made a function of social infrastructure in their estimation framework, they correct for endogeneity of the latter using instruments such as geographical variables, mainly distance from the equator and the extent to which modern European languages are spoken as first languages today, which captures European influences on institutions. Their study concludes that countries with better social infrastructure have higher levels of output per worker in the long run, have higher investment rates, and are more efficient at converting inputs to output.

Recently, a major advance in this literature has been made by Acemoglu, Johnson, and Robinson (2001) who looked at former European colonies to study the impact of institutions on per capita income levels. For these countries, they are able to use European settler mortality rates as instruments for institutions. In countries conquered by Europeans, whether they decided to

permanently settle or not was determined by their ability to survive there (by their mortality rates). If they decided to settle in a country themselves, they adopted good institutions, while if they decided to rule from their home country, they put in place extractive institutions. Their decision to settle in a region, however, was a function of their mortality there. On the other hand, mortality rates of potential settlers, to begin with, can be viewed as a function of geographical variables. While even after instrumenting for institutions (expropriation risk that current and potential investors face), Acemoglu, Johnson, and Robinson find statistically significant effects of these variables on per capita income in the expected direction, the instrumentation completely takes away the effect of geographical variables on income.

Turning to trade policy, the effects of trade barriers on growth and income have been studied since the early 1990s. While Dollar (1992), Sachs and Warner (1995), and Edwards (1998) showed positive effects of trade on growth using different measures of openness, in many cases constructed from standard policy measures, these papers have been strongly criticized by Rodriguez and Rodrik (2001) for the problems with measures of trade openness and the econometric techniques used, as well as for the difficulty in establishing the direction of causality. While Rodriguez and Rodrik (2001) have criticized the measure of openness used by Sachs and Warner (1995) as capturing many aspects of the macroeconomic environment in addition to trade policy, Baldwin (2002) has recently defended that approach on the grounds that the other policy reforms captured in the measure, though not trade reforms per se, accompany most trade reforms sponsored by international institutions. Therefore, using such a measure tells us the value of the entire package of trade and accompanying reforms. Wacziarg and Welch (2003) have updated the Sachs-Warner data set and have again shown the benefit of such reforms in driving growth.

Just as in the case of the literature on the effect of institutions as explained above, the trade literature has also shifted focus to levels from growth rates. Frankel and Romer (1999) look at the effect of trade share in GDP on income levels across countries for the year 1985. They construct an instrument for the trade share by summing up the gravity-model driven, geography-based predicted values of bilateral trade flows across all trading partners. The variables used to predict bilateral trade flows include distance, country size variables such as land area and population, and dummies for whether the countries are landlocked or have a common border, etc. They find that their instrumental variables approach produces positive effects of trade on income levels that are greater than the estimates produced by ordinary least squares. Irwin and Tervio (2002) apply the Frankel-Romer approach to cross-country data from various periods in the 20<sup>th</sup> century to show that this trade-income relationship is indeed highly robust.

Building on two literatures, namely the one on institutions and incomes and the other on trade and incomes, Rodrik, Subramanian, and Trebbi (2002) looked at the simultaneous effects of institutions, geography, and trade on per capita income levels. They used a measure of property rights and the rule of law to capture institutions and the trade-GDP ratio to capture openness in trade, treating both as endogenous in their growth regressions. They used the instruments of Acemoglu, Johnson, and Robinson (2001) and Frankel and Romer (1999) to instrument institutions and trade openness, respectively, and separately. Rodrik, Subramanian and Trebbi (2002) find that “the quality of institutions trumps everything else.” However, trade and institutions have positive effects on each other, so that the former affects incomes through the latter. Similarly, geography also affects institutions.

## **B. Institutions, Policies, and Poverty**

Moving from growth rates and incomes to poverty, we find that the literature on the determinants of poverty rates and changes (or reductions) in it is much smaller. Dollar and Kraay (2002), in a cross-country study of 92 countries over the last four decades, find that the growth rates of average incomes of people in the bottom quintile are no different from the growth rates of overall per capita incomes, with the former growth always positively associated with the latter. Thus the share of the bottom quintile of the population in overall income is fairly stable. Likewise, policies that promote overall growth advance growth in the incomes of the poor. These policies include trade openness, macroeconomic stability, moderate government size, financial development, and strong property rights and the rule of law.

One difficulty with interpreting the results of Dollar and Kraay is in their measure of poverty being a relative one. Due to their focus on incomes of the bottom quintile, it can be argued that their paper is more directly connected to the issue of inequality rather than absolute poverty per se. As a number of analysts have argued, insofar as developing countries are concerned, it is not so much relative poverty but absolute poverty that needs to be the focus of attention. Cross-country studies on absolute poverty are to our knowledge very limited. Ravallion (2001) studies the relationship between \$1-a-day poverty rates and economic growth. He finds that an increase in per capita income by 1% can reduce the proportion of people below the \$1-a-day poverty line by about 2.5% on average. This “poverty elasticity” varies across countries, depending on initial inequality. In other words, how close the poor are to the poverty line matters. Ravallion, however, does not examine the links between (absolute) poverty and policies. A recent paper that does so is that of Hasan, Quibria, and Kim (2003). A key finding of this paper is that measures of economic freedom are found to be closely linked to reductions in poverty.<sup>3</sup> A measure of political freedom, on the other hand, is not. Economic freedom indicators used by these authors include government size, price stability, freedom to trade with foreigners, and measures of political and civil liberties.

Moving to country-specific empirical work, a notable study is that of Ravallion and Datt (1999) on the determinants of poverty reduction across India’s major states between 1960 and 1994. The study shows empirically how initial conditions—and thus initial inequalities—matter. Similar to the findings from cross-country comparisons of poverty–growth linkages, Ravallion and Datt find that the impact of a given amount of growth in nonfarm output on poverty reduction can vary considerably across India’s states. For example, a 1% increase in nonagricultural state domestic product leads to a 1.2% decline in poverty rates in the states of Kerala and West Bengal versus only 0.3% decline in Bihar. The fact that growth of nonfarm output was also relatively meager in Bihar over the period under consideration exacerbated the poverty problem in Bihar.<sup>4</sup>

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<sup>3</sup> It may be noted that this paper derives estimates of absolute poverty by combining data on the distribution of per capita income (expenditure) with national account data on income (private consumption expenditure). Such an approach has been used by Bhalla (2002) and Sala-I-Martin (2002).

<sup>4</sup> Ravallion and Datt then explore which factors “explain” this differential impact of nonfarm sector growth on poverty by state. Differences in initial conditions relating to rural development and human resources are found to be a key source of the interstate differential in poverty impacts of nonfarm output. The role played by initial literacy appears especially large. In particular, Ravallion and Datt find that more than half of the differential impact of nonfarm output on poverty rates is attributable to Kerala’s much higher levels of initial literacy. Their results suggest that while the

## IV. METHODOLOGY

In this paper, we look at the determinants of growth and poverty focusing attention on institutions and policies, especially those relating to regulation of the private sector. Our variables on the right-hand side fall into two broad categories, namely institutional indicators and policy variables. Thus, our estimating equation for growth is the following:

$$g_i = \alpha_0 + \alpha_1 \cdot y_i + \alpha_2 \cdot INV_i + \beta \cdot Inst_i + \gamma \cdot Policy_i + \varepsilon_i \quad (1)$$

where  $g_i$  stands for the average growth rate of per capita income during a decade (1990–1999),  $y_i$  stands for the logarithm of initial per capita income (at the beginning of the decade),  $INV_i$  stands for the average investment rate (investment as a fraction of overall GDP) for that decade,  $Inst_i$  is the decade average vector of institutional variables and  $Policy_i$  the vector of policy variables.<sup>5</sup> Our estimating equation for poverty is the following:

$$P_i = b_0 + b_1 y_i + B \cdot Inst_i + C \cdot Policy_i + v_i \quad (2)$$

where  $P_i$  stands for the poverty rate, given by the under-\$2-a-day headcount ratio in 1999 and the other variables are as defined earlier.

The institutional variables include a measure of governance—the principle-component aggregate of measures of the rule of law, government efficiency, and corruption. These also include the “meta-institution” of democracy as captured by an index of political freedom. Why do we include a measure of political freedom? There is a strong presumption that the lack of property rights, high regulatory burden, and high levels of corruption, etc., result in high levels of rent-seeking activity and the exploitation of the rest of the society by the elite through the exercise of “public power for private benefit”. Thus the poor could end up getting a very small share of an already small pie. In a democracy, however, it can be dangerous to keep a significant proportion of the population deprived and angry. Alternatively, political freedom could lead to populist policies that could end up reducing economic growth. We therefore look at the impact of political freedom and governance on the incidence of poverty.

Some have argued that institutions are endogenous to growth. However, in the new literature (Hall and Jones 1999; Rodrik, Subramanian, and Trebbi 2004) as explained in Section III, it is

transition from (low-wage) agriculture to (higher wage) nonfarm sectors may be key for the removal of poverty, making the transition is not easy or automatic for the poor. In other words, there are costs to be incurred on the part of a poor agricultural worker to making the transition. These costs are not only pecuniary ones but also nonpecuniary associated with investments in minimum levels of education, nutrition, and health so as to be able to work productively in the nonfarm sector.

<sup>5</sup> The institutional and policy variables can affect the rate of growth through investment and other channels. Therefore, we run the above regression with and without INV as a regressor. This helps us somewhat in identifying the investment and noninvestment channels.

the income level and not the growth rate that depends on institutions, which in turn also depend on the income level itself. If we believe that institutions are slow to adjust, then using initial per capita income as a control should take care of the bulk of the endogeneity problem.

The policy variables capture key regulations governing the operations of the private sector. These include measures relating to the ease of starting a business, closing a business, and labor market policies that businesses must abide by. Our policy variables also include measures of government size and trade openness. We know that the public sector provides basic infrastructure and social services, and that, at one level, it can have strong complementarities with the private sector. However, too big a government can lead to inefficiency especially if it tries to operate in spheres that are normally meant for the private sector. Also, big governments can be captured by the elite and can promote rent seeking at the cost of real production. Trade, on the other hand, can generate efficiency through gains from specialization and exchange, as well as through the availability of larger varieties of final and intermediate goods. Thus, it can result in enhanced real incomes. While the theoretical foundations for enhanced real income levels through trade are strong, the growth effects are less clear cut. There is a vast and rich theoretical literature on trade and growth, but the results span the entire spectrum depending on the specifics of the assumptions made. Therefore, this is an empirical question that has received considerable attention recently but for which no conclusive answers have been provided so far.

Further, the size of the public sector and trade openness should also have an impact on poverty. As explained above, the size of the public sector should affect income and growth and thus, for a given distribution of income, have an impact on poverty. Additionally, the size of the public sector can also have an impact on the distribution of income. If the government believes in making society more egalitarian, it will use its machinery to provide social services for the relatively poorer sections of the society. On the other hand, the government can just be an instrument of the elite, which means that an increase in government size will worsen the distribution of income. We therefore empirically explore the relationship between poverty and the share of the government in overall GDP.

International trade can have an impact on poverty through its effects on the overall level of real income, the distribution of income, the sectoral composition of the economy, the relative rewards to different factors of production and the extent of urbanization. Again, trade affects poverty through both growth and distribution. As Bhagwati (2004, 53), focusing on the growth channel writes, "The scientific analysis of the effect of trade on poverty ... has centered on a two-step argument: that trade enhances growth, and that growth reduces poverty." Furthermore, Winters, McCulloch, and McKay (2004) argue that "although growth can be unequalizing, it has to be strongly so if it is to increase absolute poverty. This appears to be not the case either in general or for growth associated with freer trade." They argue that it is, in fact, the openness-growth link on which economists differ.

Other channels, according to Winters, McCulloch, and McKay through which trade can affect poverty are through its effects on overall economic stability, the creation and destruction of markets, output prices, wages, and employment. Also, how trade will affect wages of the poor will depend on the nature of factor endowments and comparative advantage. An important factor here is the extent of transitional unemployment caused by trade liberalization that gets concentrated on the poor. Finally, trade liberalization also does have an impact on the poor through its effects on government revenue.

## V. DATA

Our complete data set covers over a hundred countries, each with one data point (a decadal average unless otherwise stated) for each variable over the period 1990–1999. Fifteen countries are from developing Asia. Our data set covers a number of variables obtained from various sources. Growth is the average of annual percentage changes in real GDP per capita (base year 1995) within a decade. Initial income is the log real per capita income of 1990. INV is the share of investment (gross capital formation) in GDP; PUB is the share of general government final consumption expenditure in GDP; and trade/GDP is the sum of exports and imports of goods and services measured as a share of gross domestic product. We obtained these data from *World Development Indicators* (World Bank 2003).

Poverty is measured as the proportion of the population living on less than “\$2-a-day” and is primarily obtained from the PovcalNet database of the World Bank (World Bank 2004b).<sup>6</sup> For a few countries from developing Asia, however, we replaced the poverty estimates from PovcalNet with estimates from *Key Indicators* (ADB 2004). These countries are Cambodia, Lao PDR, Malaysia, Nepal, Pakistan, and Viet Nam.<sup>7</sup> While Chen and Ravallion (2004) describe the PovcalNet data in detail, the following points are useful to keep in mind. First, the PovcalNet database presents two types of poverty estimates: “actual” and “synthetic.” The former pertain to years in which nationally representative household income and/or expenditure surveys were carried out. The latter pertain to poverty estimates derived for common “reference” years.<sup>8</sup> We use poverty estimates from 1990 and 1999 reference years for the 76 developing countries that overlap across our sample and the PovcalNet database. While many of these reference-year estimates may be “synthetic” ones, including these in the analysis allows us to carry out a much richer analysis than would otherwise have been possible. Second, our choice of using the \$2-a-day poverty line, as opposed to the \$1-a-day poverty line popularly used in the international media, is due to the fact that it conforms better with poverty lines more typical in low-middle-income countries as opposed to low-income countries only. Additionally, using the \$2-a-day poverty line enables us to increase our sample size in a meaningful way. This is because while \$1-a-day poverty estimates exist for many middle-income countries, these estimates can be extremely low (close to 0) thereby reducing the variation in poverty rates in the way that could bias econometric results.

Political freedom is the simple average of the countries’ political rights and civil liberties scores as given in the Freedom House (2003) report. The correlation between political rights and civil liberties is very high, so taking their simple average is expected to measure the overall political freedom in the countries.

We have also utilized a set of institutional variables capturing the state of “governance” obtained from Kaufman et al. (1999). These are measures of Rule of Law, Government Efficiency, and Control of Corruption. While we used these variables individually in the regressions, we also exercised

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<sup>6</sup> The term \$2-a-day is used for convenience. The actual figure is \$2.15 in 1993 PPP exchange rates for the consumption aggregate.

<sup>7</sup> See ADB (2004) for more details.

<sup>8</sup> Since most countries typically carry out the relevant household surveys every 3-5 years, it will be common to find that a survey is not carried out in one of the reference years. In all such cases, poverty estimates are obtained for reference years using the extrapolation methods of Chen and Ravallion (2004).

with their principal components aggregation, and we report the results with this variable. Additionally, because these data are available from 1996 onward, we used the 1996 values only, and in that way we limited the scope for reverse causation.

We also used a set of Doing Business variables obtained from World Bank (2004a). While there are five broad categories (entry regulations, labor regulations, contract enforcement, getting credit, and closing business) to measure business regulations, with several criteria within each category, we used some single measures. These are for the categories of entry regulations, closing business categories, and labor regulations, to capture the business environment, believing that the other categories are generally covered by our other governance variables. The original sources for these data are Djankov et al. (2002) and Djankov et al. (2003), respectively, for entry/starting a business, closing a business, and labor market regulations. In particular, for entry regulations we used the number of procedures for starting a business, cost of starting a business (as a percent of income per capita), and time/duration taken for starting a business (in days). As in the case of Kaufman et al. variables, we exercised with these single indicators as well as with their principal components aggregation. Regarding closing a business, we used the cost of closing a business (as a percent of the value of the estate) and time required for closing a business (in years), as both single and aggregated indicators. For labor market regulations, we worked with indexes of regulatory difficulties associated with hiring workers and firing workers (the values of both indexes ranging from 0 to 100), and the costs of firing workers (in terms of weekly wages).<sup>9</sup> Lastly, we aggregated these various Doing Business indicators using principal components to obtain aggregated Doing Business variables, and the results are also reported with these variables. The Doing Business variables—whether in aggregated form or in terms of their individual values—are again treated as belonging to the 1990s.

## VI. RESULTS

### A. Summary Statistics and Broad Regional/Country Comparisons

Tables 1 to 3 present summary statistics on the variables of interest in this paper. While Table 1 presents mean values by region for all but the Doing Business variables, Tables 2 and 3 present country-specific values for all variables pertinent to this paper's analysis including the Doing Business variables for not only ADB's developing member countries (DMCs) but also various other countries, developing and developed, to serve as points of comparison.

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<sup>9</sup> The difficulty of hiring index measures whether term contracts can only be used for temporary tasks; the maximum duration of term contracts; and the ratio of the mandated minimum wage to the average value added per working population. The difficulty of firing index is composed of various components that include whether regulations allow dismissal on the basis of worker redundancy, whether the firing of redundant workers require notification of labor union or labor ministry, whether their approval is required, etc. The cost of firing indicator measures the cost of advance notice requirements, severance payments, and penalties that may arise when firing a worker. All of these costs are totaled and expressed in terms of weekly wages. See World Bank (2004a).

Consider first the region-specific averages presented in Table 1. The DMCs are grouped into three categories:

- (i) DMC South Asia comprising Bangladesh, India, Nepal, and Pakistan
- (ii) DMC East and Southeast Asia (ESA) 3 comprising Republic of Korea; Singapore; and Taipei, China
- (iii) DMC East and Southeast Asia (ESA) 7 comprising Cambodia, People's Republic of China, Indonesia, Malaysia, Philippines, Thailand, and Viet Nam

The first three columns of Table 1 reveal that as of 1990 the highest poverty rates existed in South Asia, sub-Saharan Africa, and DMC ESA 7. As for changes in poverty, the largest declines took place in DMC ESA 7. South Asia also saw reasonable declines in poverty; however, this record is rendered a bit suspect due to the case of Pakistan for which national estimates of poverty reveal poverty to have increased slightly over the 1990s (see ADB 2004 for more details). In contrast, declines in poverty were on average meager for sub-Saharan Africa.

The experiences with poverty reduction follow closely the experiences with economic growth. Thus, the large declines in poverty experienced by ESA 7 have been accompanied by high growth per capita incomes—on average 4% per annum. Similarly, sub-Saharan Africa's meager reduction in poverty has been accompanied by a slight contraction of its economy over the 1990s. A clear outlier in this general pattern is the Middle East and North Africa region. In this region, despite positive though low economic growth, we find that poverty rates increased by 5 percentage points over the 1990s.

High growth in the ESA region has itself been accompanied by a high share of investment in GDP, low shares of government consumption expenditures in GDP, and a high degree of international integration whether measured in terms of trade shares or in terms of the SW-WH index of openness. By comparison, investment rates have been significantly lower in South Asia and the degree of international integration has been quite a bit less. Indeed, South Asia is less integrated than any other developing region in the world including sub-Saharan Africa. However, the share of government expenditures has been comparable to that of ESA.

South Asia also shows up performing poorly on our measure of governance (where lower values reflect worse governance). Only sub-Saharan Africa comes up with a poorer level of governance. On political freedom, however, South Asia does not perform too badly. In terms of the index of political freedom, whereby lower values reflect more political freedom, South Asia is found to have on average greater political freedom than ESA 7, sub-Saharan Africa, and Middle East and North Africa.

In summary, region-specific averages indicate that among developing regions where poverty is still a significant problem, ESA 7 has done the best job in reducing poverty. It has had the highest rates of economic growth, the highest rates of investment, and been quite open to trade. In terms of governance, however, its performance has been average while on political freedom it ranks low. At the same time, it should not be forgotten that poverty rates in ESA continued to be far higher than in three other major developing regions: Latin America, Middle East and North Africa, and Eastern Europe.

Since region-specific averages can mask important differences across countries we now turn to an examination of country-specific values taken by the variables of interest in this paper including

TABLE 1  
 SUMMARY STATISTICS BY REGION

REGION	INITIAL POVERTY (1990)	FINAL POVERTY (1999)	CHANGE IN POVERTY (1990-99)	PER CAPITA INCOME GROWTH (1990-99)	INITIAL PER CAPITA INCOME (1990)	INVESTMENT SHARE (AVERAGE, 1990s)	GOVERNMENT EXPENDITURE (AVERAGE, 1990s)	TRADE SHARE (AVERAGE, 1990s)	SW-WH (AVERAGE, 1990s)	GOVERNANCE (1996)	POLITICAL FREEDOM (AVERAGE, 1990s)
DMC South Asia	76.8	68.9	-7.9	2.9	370.8	21.8	9.4	42.2	0.4	-1.0	3.7
DMC East & Southeast Asia 7	60.5	48.0	-12.5	4.0	1,110.0	28.6	10.0	83.2	0.8	-0.6	5.2
DMC East & Southeast Asia 3	n.a.	n.a.	n.a.	4.4	11,527.4	31.5	11.8	161.0	1.0	1.9	3.3
Eastern Europe	4.8	9.6	4.8	-1.0	4,152.7	23.5	17.6	84.7	0.7	-0.3	2.6
Latin America	30.7	29.1	-2.9	1.6	3,244.2	21.8	12.6	77.0	0.9	-0.7	2.6
Middle East & North Africa	17.0	22.3	5.3	1.6	4,850.1	23.1	20.5	85.3	0.6	-0.2	5.3
Sub-Saharan Africa	73.2	71.9	-1.1	-0.1	771.1	18.9	14.2	64.6	0.5	-1.3	4.6
Developed	N.A.	N.A.	N.A.	2.1	24,243.4	21.6	20.0	77.7	0.9	2.6	1.1

N.A. means not applicable/ not available.

TABLE 2  
SUMMARY STATISTICS

REGION	INITIAL POVERTY (1990)	FINAL POVERTY (1999)	CHANGE IN POVERTY (1990-99)	PER CAPITA INCOME GROWTH (1990-99)	INITIAL PER CAPITA INCOME (1990)	INVESTMENT SHARE (AVERAGE, 1990s)	GOVERNMENT EXPENDITURE (AVERAGE, 1990s)	TRADE SHARE (AVERAGE, 1990s)	SW-WH (AVERAGE, 1990s)	POLITICAL FREEDOM (AVERAGE, 1990s)
DMC										
Bangladesh	85.5	79.6	-5.9	3.0	278.2	19.1	4.5	25.7	0.4	3.2
Cambodia	84.3	77.7	-6.6	1.7	239.6	15.8	8.5	55.4	n.a.	5.9
PRC 71.5	50.0	-21.5	8.5	350.3	38.4	12.4	39.7	0.0	-0.5	6.9
India 86.1	80.8	-5.3	3.7	323.9	23.1	11.4	23.0	0.0	-0.6	3.3
Indonesia	70.9	55.4	-15.5	3.3	776.7	27.6	7.8	57.6	1.0	5.7
Malaysia	11.4	9.6	-1.8	4.6	3104.0	36.3	12.1	178.1	1.0	4.6
Nepal	83.8	75.7	-8.1	2.4	188.0	22.9	8.8	50.0	0.9	3.4
Pakistan	87.9	77.2	-10.7	1.4	448.2	18.7	12.5	36.4	0.0	4.5
Philippines	54.9	48.1	-6.9	0.5	1090.9	22.4	11.3	82.4	1.0	2.9
Singapore	n.a.	n.a.	n.a.	4.6	17620.4	35.5	9.5	328.6	1.0	4.7
South Korea	n.a.	n.a.	n.a.	5.2	7967.4	34.4	10.4	64.5	1.0	2.2
Sri Lanka	40.6	31.3	-9.3	4.0	615.9	24.9	9.9	75.9	0.9	4.2
Taipei,China	n.a.	n.a.	n.a.	3.5	8994.3	24.6	15.4	90.0	1.0	2.9
Thailand	43.3	31.6	-11.7	4.2	1997.1	36.3	10.1	87.1	1.0	3.4
Viet Nam	87.4	63.6	-23.8	5.5	211.2	23.5	8.1	82.5	n.a.	7.0
Latin America										
Argentina	n.a.	n.a.	n.a.	3.2	5775.8	17.8	10.0	18.7	0.9	2.5
Brazil	32.3	23.7	-8.6	0.4	4079.1	20.8	18.4	18.0	0.9	3.1
Chile 24.8	9.4	-15.4	4.9	3282.6	25.1	10.2	59.1	1.0	1.8	2.1
Mexico	43.6	23.5	-20.1	1.7	3187.2	22.9	10.1	49.0	1.0	3.8
Africa										
Botswana	55.7	48.1	-7.6	2.2	3067.7	29.4	27.3	94.0	1.0	2.0
Ethiopia	83.7	77.8	-6.0	1.2	100.3	14.4	13.5	30.6	0.4	5.1
Ghana	74.3	78.5	4.2	1.6	345.9	20.7	12.5	62.7	1.0	4.2
Kenya	61.2	64.9	3.8	-0.5	358.0	16.7	16.4	64.1	0.7	5.8
Nigeria	86.6	91.2	4.7	0.2	258.5	19.8	12.9	79.8	0.0	5.5
South Africa	31.8	33.5	1.7	-0.6	4112.6	14.6	19.6	44.3	0.9	2.8
Developed Countries										
France	n.a.	n.a.	n.a.	1.4	25966.7	19.8	23.6	44.6	1.0	1.5
Italy n.a.	n.a.	n.a.	1.3	18160.6	19.7	19.0	44.4	1.0	0.9	1.5
Japan	n.a.	n.a.	n.a.	1.4	39955.4	29.2	14.6	18.2	1.0	2.0
United Kingdom	n.a.	n.a.	n.a.	1.9	18072.1	17.2	19.6	53.4	1.0	1.5
United States	n.a.	n.a.	n.a.	1.8	26140.6	18.2	15.6	22.5	1.0	2.8

n.a. means not applicable/ not available.

**TABLE 3**  
**BUSINESS REGULATIONS BY COUNTRY**

REGION	START-PROCEDURES (NUMBERS)	START-TIME (DAYS)	START-COST (% OF INCOME PER CAPITA)	CLOSE-TIME (YEARS)	CLOSE-COST (% OF ESTATE)	LABOR-HIRING INDEX (0-100)	LABOR-FIRING INDEX (0-100)	FIRING COST (WEEKS)
DMC								
Bangladesh	8.0	35.0	91.0	4.0	8.0	11	20	47
Cambodia	11.0	94.0	480.1	n.a.	n.a.	33	30	39
PRC	12.0	41.0	14.5	2.4	18.0	11	40	90
India	11.0	89.0	49.5	10.0	8.0	33	90	79
Indonesia	12.0	151.0	130.7	6.0	18.0	61	70	157
Malaysia	9.0	30.0	25.1	2.3	18.0	0	10	74
Nepal	7.0	21.0	74.1	5.0	8.0	22	90	90
Pakistan	11.0	24.0	36.0	2.8	4.0	78	30	90
Philippines	11.0	50.0	19.5	5.6	38.0	22	40	90
Singapore	7.0	8.0	1.2	0.8	1.0	0	0	4
South Korea	12.0	22.0	17.7	1.5	4.0	11	30	90
Sri Lanka	8.0	50.0	10.7	2.2	18.0	0	80	108
Taipei,China	8.0	48.0	6.3	0.8	4.0	61	30	90
Thailand	8.0	33.0	6.7	2.6	38.0	67	20	47
Viet Nam	11.0	56.0	28.6	5.5	18.0	44	70	98
Latin America								
Argentina	15.0	32.0	15.7	2.8	18.0	44	30	94
Brazil	17.0	155.0	11.7	10.0	8.0	67	70	165
Chile	9.0	27.0	10.0	5.6	18.0	17	20	51
Mexico	8.0	58.0	16.7	1.8	18.0	67	90	83
Africa								
Botswana	11.0	108.0	11.3	2.2	18.0	0	40	19
Ethiopia	7.0	32.0	77.4	2.4	8.0	50	20	48
Ghana	12.0	85.0	87.5	1.9	18.0	11	50	25
Kenya	12.0	47.0	53.4	4.5	18.0	22	30	47
Nigeria	10.0	44.0	95.2	1.5	18.0	22	30	13
South Africa	9.0	38.0	9.1	2.0	18.0	56	60	38
Developed Countries								
France	7.0	8.0	1.1	1.9	8.0	78	40	32
Italy	9.0	13.0	16.2	1.2	18.0	61	30	47
Japan	11.0	31.0	10.6	0.5	4.0	33	0	21
United Kingdom	6.0	18.0	0.9	1.0	6.0	11	10	25
United States	5.0	5.0	0.6	3.0	8.0	0	10	8

n.a. means not applicable/ not available.

Source: World Bank (2004).

those pertaining to business regulation. An examination of changes in poverty by country, shown in column 3 of Table 2, reveals, for example, that while Latin America's performance in reducing poverty may have been lackluster on average over the 1990s, some individual Latin American countries did quite well in reducing poverty. For example, Mexico reduced poverty rates by 20 percentage points over the 1990s. This performance is comparable to the poverty reduction record of Vietnam and PRC. In contrast, the examination of changes in poverty in major African countries reveals that their performance has been much worse than that of the average country in that region. Similarly, it can be seen that ESA 7's high investment shares are driven mainly by the extraordinarily high values registered by PRC, Indonesia, Malaysia, and Thailand. On the other hand, Philippines, Viet Nam, and especially Cambodia are marked by investment shares that are much lower than the average for this region. On governance, although South Asia registers a weak score, disaggregating the numbers by country, we see that the weak score is driven to a large degree by the very low scores for Bangladesh and Pakistan.

We now turn to the Doing Business measures of business regulation. What is interesting to note is the wide variance in the values taken by the various business regulation variables across the countries. Singapore is found to have the least cumbersome regulations governing entry and exit of businesses and labor issues in Asia. Singapore's regulations even compare favorably with the most developed countries in the world. By contrast, starting a business in Cambodia, India, and Indonesia is found to entail far more time; the relative costs for starting to business are also far higher, especially in Cambodia and Indonesia. Similarly, while it takes less than a year to close a business in Singapore it takes as long as 10 years to do so in India! This can represent a considerable wastage of capital—both physical as well as entrepreneurial—as the capital waits to get redeployed from a failing business to an alternative one. Next, while three countries in the region have few restrictions on the hiring of workers (for example, they do not disallow the usage of fixed term contracts for particular types of tasks) a number of other countries in the region, including Indonesia; Pakistan; Taipei, China; and Thailand put considerable restrictions on the types of contracts that can be used to hire workers. Interestingly, virtually every country, with the notable exception of Singapore from developing Asia, puts in place restrictions on firing workers. These restrictions are especially severe in India and Nepal followed by Indonesia, Sri Lanka, and Viet Nam. Finally, while firing workers entails a cost of four weeks of wages for firms in Singapore, this can be as high as 157 weeks in the case of Indonesia and 108 weeks in the case of Sri Lanka.

In what follows, we implement growth and poverty regressions involving the various variables we have discussed above including business regulation variables provided in the Doing Business database. In this way we are able to determine whether and how these variables are related to economic growth and poverty.

## **B. Growth Regressions**

Tables 4a–7 present the results of our growth regressions. Tables 4a-6b come in two versions. In Tables 4a, 5a, and 6a the Doing Business variables enter the regression equation expressed as principal components. In contrast, in Tables 4b, 5b, and 6b they appear in terms of the actual values taken by the individual regulatory measures, for example, as numbers of procedures, duration or time, and costs of starting a business, etc. While Tables 4a and 4b only introduce measures

of governance, political freedom, and the Doing Business measures as explanatory variables, Tables 5a–6b also introduce measures of openness and the size of public sector as elements of the overall, economywide policy setup. Initial income is included in every regression equation we run.<sup>10</sup>

Consider first the effect of governance on growth. As noted earlier, the variable governance is the principal component aggregation of the rule of law, government efficiency, and corruption variables of Kaufman et al. As is clearly seen in all tables, regardless of the controls used, governance is strongly significant at the 1% level with a robust positive sign. What is its quantitative impact on growth? Consider the first column of Table 4a where the coefficient of governance is 1.37. This implies that, holding all else constant, an improvement in governance from the value registered by Cambodia (the lowest in Asia) to the value registered by Singapore (not only the best in Asia but the best in the world) would lead to a 7.5 percentage point increase in the growth rate. This is clearly a dramatic effect. On the other hand, political freedom is mostly insignificant across specifications. In the few instances in which political freedom enters significantly, it shows up with a positive sign. Since larger values of political freedom imply a more authoritarian regime, this suggests that controlling for initial income, governance, and other variables, greater political freedom has been weakly associated with lower economic growth. This would be consistent with recent work that has stressed the importance of good governance as distinct from political freedom being critical for driving economic growth (Glaeser et al. 2004).

As noted earlier, we introduced the Doing Business variables into the growth regressions in terms of two broad approaches. One approach aggregates individual variables in various combinations using principal component analysis. First, we aggregate the individual measures of business regulation relating to starting and closing a business and labor issues with the principal component method using the various individual measures in different combinations. Higher values of the principal component variables reflect more cumbersome regulations. Tables 4a, 5a, and 6a described these results. “Doing Business – 1” is the principal component aggregation of the number of procedures, costs, and the time for starting a business; and the costs and the time required for closing a business. The most notable result is that this “super-aggregated” variable is estimated with a negative and significant (at 10%) coefficient when governance is not in the regression; but in the presence of governance the coefficient becomes insignificant. Exactly the same result holds for “Doing Business – 2”, which also includes in the principal component aggregation of “Doing Business – 1”, indexes of difficulties in hiring and firing workers and a measure of the monetary costs of firing workers.

A less aggregated approach is also used for constructing principal component variables. “Start” is the principal component aggregation of the number of procedures, costs, and the time needed for starting a business; “close” is the principal component aggregation of the costs and the time required for closing a business; and “labor” is the principal component aggregation of indexes of difficulties in hiring and firing workers and the costs associated with firing workers. We employ these variables both separately and jointly in the regressions. All of them are estimated to be insignificant in the regressions, except one case of “close” where it is employed individually and

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<sup>10</sup> From all these tables, we see that there is some evidence of conditional convergence, depending on the controls used. In other words, in some cases the logarithm of the initial per capita income has a negative sign and is significant. The evidence is not so strong as our sample consists of only the time period 1990–1999 (due to the institutional data availability). The Asian financial crisis took place toward the end of this period and may have interfered with convergence effects among countries.

**TABLE 4A**  
**PER CAPITA INCOME GROWTH: INSTITUTIONS AND BUSINESS REGULATIONS I**

	PER CAPITA INCOME GROWTH							
Initial Income	-1.073 (4.06)***	0.080 (0.49)	0.009 (0.07)	-0.008 (0.06)	0.067 (0.48)	0.100 (0.82)	0.126 (1.05)	0.008 (0.05)
Governance	1.371 (5.27)***							
Political Freedom		-0.224 (1.07)						
Doing Business – 1			-0.318 (1.86)*					
Doing Business – 2				-0.300 (1.71)*				
Start					-0.289 (1.39)			-0.212 (0.96)
Close						-0.266 (1.62)		0.167 (0.96)
Labor							-0.217 (1.13)	-0.133 (0.68)
Constant	9.613 (4.70)***	1.259 (0.71)	1.103 (0.97)	1.239 (1.08)	0.626 (0.56)	0.406 (0.39)	0.184 (0.19)	1.226 (1.04)
Observations	116	131	112	112	115	112	115	112
Adjusted R-squared	0.24	0.02	0.02	0.03	0.02	0.01	0.01	0.01

Note: Robust t statistics in parentheses.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

**TABLE 4B**  
**PER CAPITA INCOME GROWTH: INSTITUTIONS AND BUSINESS REGULATIONS II**

	PER CAPITA INCOME GROWTH					
Initial Income	-0.099 (0.69)	-1.397 (5.43) <sup>***</sup>	0.105 (0.85)	-1.185 (4.52) <sup>***</sup>	0.114 (0.96)	-1.203 (4.26) <sup>***</sup>
Governance		1.919 (6.44) <sup>***</sup>		1.618 (5.41) <sup>***</sup>		1.662 (5.51) <sup>***</sup>
Political Freedom		0.306 (1.88) <sup>*</sup>		0.228 (1.30)		0.228 (1.37)
Start-Procedures	-0.070 (0.77)	0.167 (1.96) <sup>*</sup>				
Start-Time	0.005 (0.58)	0.008 (1.16)				
Start-Cost	-0.006 (5.46) <sup>***</sup>	-0.006 (7.23) <sup>***</sup>				
Close-Time			-0.041 (0.37)	0.020 (0.19)		
Close-Cost			-0.023 (1.42)	0.010 (0.38)		
Labor - Hiring					-0.016 (2.15) <sup>**</sup>	-0.001 (0.12)
Labor - Firing					-0.011 (0.97)	-0.015 (1.41)
Labor - Cost					0.009 (1.38)	0.014 (1.95) <sup>*</sup>
Constant	2.809 (1.75) <sup>*</sup>	9.429 (4.53) <sup>***</sup>	0.841 (0.69)	9.473 (4.67) <sup>***</sup>	0.750 (0.64)	9.520 (4.27) <sup>***</sup>
Observations	115	105	112	103	115	105
Adjusted R-squared	0.10	0.41	0.00	0.27	0.04	0.30

Note: Robust t statistics in parentheses.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

**TABLE 5A**  
**PER CAPITA INCOME GROWTH: INSTITUTIONS, BUSINESS REGULATIONS, OPENNESS, AND GOVERNMENT EXPENDITURE I**

	PER CAPITA INCOME GROWTH							
Initial Income	-0.925 (3.66)***	0.184 (1.15)	0.138 (0.97)	0.127 (0.88)	0.190 (1.34)	0.230 (1.73)*	0.269 (2.15)**	0.124 (0.84)
Government	-0.141	-0.111	-0.116	-0.123	-0.113	-0.108	-0.110	-0.122
Expenditure	(3.76)***	(2.98)***	(3.16)***	(3.30)***	(2.98)***	(3.01)***	(2.95)***	(3.15)***
Trade Share	0.007 (1.53)	0.011 (2.88)***	0.006 (1.56)	0.004 (0.97)	0.006 (1.72)*	0.007 (1.75)*	0.005 (1.16)	0.004 (1.01)
Governance	1.437 (5.33)***							
Political Freedom		-0.252 (1.23)						
Doing Business – 1			-0.366 (2.08)**					
Doing Business – 2				-0.370 (1.94)*				
Start					-0.350 (1.59)			-0.273 (1.18)
Close						-0.287 (1.73)*		-0.171 (0.98)
Labor							-0.251 (1.15)	-0.171 (0.77)
Constant	10.140 (4.70)***	1.482 (0.86)	1.491 (1.26)	1.828 (1.42)	0.959 (0.82)	0.603 (0.55)	0.416 (0.38)	1.778 (1.39)
Observations	115	130	112	112	115	112	115	112
Adjusted R-squared	0.31	0.08	0.06	0.07	0.06	0.05	0.05	0.05

Note: Robust t statistics in parentheses.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

**TABLE 5B**  
**PER CAPITA INCOME GROWTH: INSTITUTIONS, BUSINESS REGULATIONS, OPENNESS,  
AND GOVERNMENT EXPENDITURE II**

	PER CAPITA INCOME GROWTH					
Initial Income	0.034 (0.24)	-1.243 (4.98) <sup>***</sup>	0.239 (1.75) <sup>*</sup>	-1.055 (4.30) <sup>***</sup>	0.240 (1.91) <sup>*</sup>	-1.050 (3.89) <sup>***</sup>
Government Expenditure	-0.120 (3.03) <sup>***</sup>	-0.136 (3.68) <sup>***</sup>	-0.111 (3.05) <sup>***</sup>	-0.150 (3.85) <sup>***</sup>	-0.094 (2.49) <sup>**</sup>	-0.123 (3.09) <sup>***</sup>
Trade Share	0.005 (1.27)	-0.002 (0.40)	0.007 (1.79) <sup>*</sup>	-0.001 (0.22)	0.005 (1.06)	-0.001 (0.11)
Governance		1.984 (6.58) <sup>***</sup>		1.757 (5.82) <sup>***</sup>		1.731 (5.67) <sup>***</sup>
Political Freedom		0.322 (1.95) <sup>*</sup>		0.225 (1.23)		0.243 (1.37)
Start-Procedures	-0.105 (1.11)	0.126 (1.50)				
Start-Time	0.005 (0.60)	0.007 (1.11)				
Start-Cost	-0.006	-0.006	(5.73) <sup>***</sup>	(8.37) <sup>***</sup>		
Close-Time			-0.029 (0.25)	0.026 (0.26)		
Close-Cost			-0.027 (1.65)	0.005 (0.17)		
Labor - Hiring					-0.016 (2.02) <sup>**</sup>	-0.001 (0.14)
Labor - Firing					-0.008 (0.72)	-0.010 (1.11)
Labor - Cost					0.006 (0.83)	0.009 (1.12)
Constant	3.601 (2.12) <sup>**</sup>	10.824 (4.92) <sup>***</sup>	1.049 (0.82)	10.918 (5.22) <sup>***</sup>	0.935 (0.67)	10.389 (4.50) <sup>***</sup>
Observations	115	105	112	103	115	105
Adjusted R-squared	0.15	0.48	0.04	0.35	0.06	0.34

Note: Robust t statistics in parentheses.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

**TABLE 6A**  
**PER CAPITA INCOME GROWTH: INSTITUTIONS, BUSINESS REGULATIONS, OPENNESS, AND GOVERNMENT EXPENDITURE III**

	PER CAPITA INCOME GROWTH							
Initial Income	-0.859 (3.22)***	0.168 (0.76)	0.015 (0.09)	-0.017 (0.10)	0.040 (0.24)	0.090 (0.59)	0.079 (0.49)	-0.005 (0.03)
Government Expenditure	-0.150 (3.36)***	-0.083 (1.92)*	-0.094 (2.17)**	-0.102 (2.37)**	-0.088 (1.97)*	-0.082 (1.93)*	-0.085 (1.98)*	-0.101 (2.29)**
SW-WH	0.317 (0.44)	1.634 (2.21)**	1.562 (1.77)*	1.570 (1.81)*	1.686 (2.01)**	1.610 (1.77)*	1.726 (2.02)**	1.588 (1.77)*
Governance	1.415 (5.15)***							
Political Freedom		-0.124 (0.47)						
Doing Business – 1			-0.298 (1.74)*					
Doing Business – 2				-0.333 (1.93)*				
Start					-0.304 (1.47)			-0.214 (0.98)
Close						-0.209 (1.21)		-0.090 (0.48)
Labor							-0.278 (1.48)	-0.219 (1.15)
Constant	9.955 (4.24)***	0.310 (0.13)	1.319 (1.16)	1.696 (1.45)	0.916 (0.84)	0.538 (0.53)	0.570 (0.59)	1.572 (1.33)
Observations	108	120	106	106	108	106	108	106
Adjusted R-squared	0.30	0.11	0.11	0.12	0.11	0.09	0.11	0.10

Note: Robust t statistics in parentheses.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

**TABLE 6B**  
**PER CAPITA INCOME GROWTH: INSTITUTIONS, BUSINESS REGULATIONS, OPENNESS,  
AND GOVERNMENT EXPENDITURE IV**

	PER CAPITA INCOME GROWTH					
Initial Income	-0.088 (0.51)	-1.135 (4.35)***	0.096 (0.62)	-0.951 (3.58)***	0.068 (0.41)	-0.914 (3.28)***
Government Expenditure	-0.096 (2.16)**	-0.130 (3.05)***	-0.083 (1.93)*	-0.150 (3.34)***	-0.069 (1.62)	-0.118 (2.66)***
SW-WH	1.461 (1.73)*	0.706 (0.95)	1.598 (1.76)*	0.921 (1.17)	1.652 (1.89)*	0.990 (1.20)
Governance		1.843 (6.06)***		1.627 (5.42)***		1.553 (5.04)***
Political Freedom		0.393 (1.94)*		0.296 (1.44)		0.337 (1.57)
Start-Procedures	-0.093 (1.02)	0.118 (1.30)				
Start-Time	0.005 (0.63)	0.007 (1.09)				
Start-Cost	-0.006 (4.91)***	-0.006 (7.29)***				
Close-Time			-0.037 (0.29)	0.027 (0.26)		
Close-Cost			-0.017 (1.02)	0.011 (0.37)		
Labor - Hiring					-0.018 (2.36)**	-0.003 (0.45)
Labor - Firing					-0.007 (0.67)	-0.010 (1.09)
Labor - Cost					0.007 (0.90)	0.008 (1.09)
Constant	3.298 (1.95)*	9.115 (3.89)***	0.886 (0.71)	9.020 (3.86)***	1.016 (0.84)	8.257 (3.40)***
Observations	108	100	106	99	108	100
Adjusted R-squared	0.19	0.48	0.09	0.36	0.13	0.35

Note: Robust t statistics in parentheses.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

**TABLE 7**  
**PER CAPITA INCOME GROWTH: INSTITUTIONS, POLICIES, AND INVESTMENT SHARES**

	PER CAPITA INCOME GROWTH							
Initial Income	-1.079 (4.01)***	-1.095 (4.08)***	-0.099 (0.61)	-1.187 (4.71)***	0.048 (0.33)	-1.076 (3.93)***	0.015 (0.09)	-1.123 (4.20)***
Government Expenditure	-0.140 (3.20)***	-0.141 (3.18)***	-0.109 (2.69)***	-0.128 (2.99)***	-0.096 (2.54)**	-0.144 (3.26)***	-0.083 (2.11)**	-0.109 (2.51)**
SW-WH	0.834 (1.16)	0.820 (1.11)	1.541 (1.87)*	0.683 (0.91)	1.694 (1.96)*	0.841 (1.15)	1.652 (1.97)*	0.795 (1.07)
Governance	1.619 (5.12)***	1.603 (5.22)***		1.798 (6.04)***		1.573 (5.21)***		1.570 (5.33)***
Political Freedom	0.164 (0.83)	0.148 (0.76)		0.293 (1.47)		0.169 (0.84)		0.187 (0.90)
Doing Business – 1	0.160 (0.86)							
Doing Business – 2		0.103 (0.59)						
Start-Procedures			-0.091 (0.96)	0.114 (1.26)				
Start-Time			0.003 (0.39)	0.007 (1.05)				
Start-Cost			-0.004 (3.81)***	-0.005 (7.00)***				
lose-Time					-0.032 (0.26)	0.011 (0.10)		
Close-Cost					-0.004 (0.25)	0.014 (0.59)		
Labor - Hiring							-0.009 (1.34)	0.003 (0.40)
Labor - Firing							-0.009 (0.94)	-0.014 (1.72)*
Labor - Cost							0.005 (0.86)	0.010 (1.58)
Investment Share	0.121 (2.57)**	0.122 (2.65)***	0.104 (2.94)***	0.075 (1.91)*	0.128 (3.43)***	0.120 (2.53)**	0.119 (3.13)***	0.136 (3.01)***
Constant	7.927 (3.32)***	8.087 (3.31)***	1.193 (0.69)	8.152 (3.41)***	-1.651 (1.32)	7.718 (3.10)***	-1.120 (0.86)	7.227 (3.04)***
Observations	99	99	108	100	106	99	108	100
Adjusted R-squared	0.43	0.43	0.25	0.50	0.20	0.42	0.22	0.44

Note: Robust t statistics in parentheses.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

the controls are initial income, government expenditure, and share of trade in GDP (Table 5a). In this case, it has a negative sign significant at the 10% level. In other words, regulations that make it more difficult to close a business are associated with lower growth.

A second approach to introducing the Doing Business variables is to use the actual values taken by the various measures of regulation. It is useful to recall that as the values of these variables rise, regulations become more cumbersome. The key findings are as follows. Most notably, starting cost is robustly significant at the 1% level with a negative sign, both with and without the governance and the political freedom variables in the regressions. The coefficient is estimated consistently to be around  $-0.005$ . This implies that holding all else constant, a decline in starting costs from the levels recorded for Cambodia (by far the highest in Asia) to those recorded for the United States (among the lowest in the world) would lead to a 2.4 percentage point increase in growth rates. Starting procedures, however, has unexpectedly a positive and significant (at 10%) sign in one case (Table 4b) so that an increase in starting procedures is associated with an increase in growth rates. However, the impact of this variable is not very robust. When government expenditure and openness are controlled for (as in Tables 5b and 6b), the impact of starting procedures turns to be insignificant. Starting time is in all cases estimated as insignificant.

Closing time and closing costs are estimated insignificant in all cases as well. However, firing costs have the same result as starting procedures: a positive and significant (at 10%) sign in one case (Table 4b) so that the higher the firing costs, the higher the growth. But again, when government expenditure and trade policy are controlled for, this sign turns to be insignificant (as in Tables 5b and 6b).

Cumbersome labor hiring regulations have a negative and significant impact (at the 5% level) on growth in the absence of the governance and political freedom variables as controls.<sup>11</sup> The coefficient on labor hiring implies that, holding all else constant, moving from the level of difficulties in hiring regulations seen in Pakistan (the most difficult in Asia) to those in Singapore or Sri Lanka (the least difficult) would lead to an increase in growth of about 1.25–1.4 percentage points. Interestingly, difficulties in firing labor always appear with a negative sign, implying that the greater regulatory barriers to firing workers are associated with lower economic growth. However, the effect is typically found to have an insignificant impact on growth, the exception being when governance, political freedom, and investment variables are jointly controlled for in the regression. In this case regulatory restrictions on firing workers have a negative and significant coefficient at 10%.

The results with the Doing Business variables imply that there is some evidence that private sector regulations have an impact on growth. But the results also suggest that it is not individual components of the set of regulations but the overall package that is more important. In other words, there could be several alternative combinations of various regulations that might result in a given growth rate, and this results in the significance of the overall index and not the individual components. Also, it is only through better governance that better packages of regulations can be delivered, and therefore controlling for the former takes away the effect of the latter.

From our regressions, we cannot really say that openness as measured by the share of trade in GDP has any systematic effect on the growth rate of an economy. In most of the regressions, this variable is insignificant. The impact of openness, however, is often positive when we use the

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<sup>11</sup> This suggests that the influence of labor hiring on growth works through these variables.

Sachs-Warner index of openness updated by Wacziarg and Welch (SWWH). When this index is significant, the coefficient is estimated to be between 1.5–1.7. This implies that completely open regimes—such as that of Singapore (SWWH index = 1)—have, on average, growth rates that are 1.5–1.7 percentage points higher than those of closed regimes such as that of India (SWWH index = 0). However, very interestingly, the significance of SWWH is conditional upon the absence of the governance variable in the regression. There are two possible reasons for this conditional significance of the SWWH dummy. Firstly, the opening of the trade regime, as shown by the SWWH dummy, captures more than trade liberalization; it involves a higher scale policy reform and institutional changes.<sup>12</sup> Secondly, the governance variable itself could capture trade policy if good trade policy itself is an integral part of good governance. A possible implication of this conditional significance of the trade policy variable is that all well-governed economies are open to trade but not all open economies are well governed; and that openness, in the absence of good governance, is irrelevant for economic growth.

Lastly, we consider the size of public sector, as measured by the share of government expenditure in GDP, and trade policy variables. In almost all our growth regressions, government expenditure is negative and significant. This means that the larger the size of the public sector relative to the overall economy, the lower is the growth rate. While the public sector provides infrastructure essential to the proper functioning of the private sector, an increase in its size could also portend a reduction in the more dynamic component of the economy, namely the private sector. Also, the public sector may breed corruption and inefficiency, and increase the incentives for unproductive activities such as lobbying. We see from our regressions that a percentage point increase in the share of the public sector is generally associated with a 0.1–0.15 percentage point reduction in the growth rate.

As one can see, our regressions, except the ones presented in Table 7, do not include INV (investment as a share of GDP) as a right-hand side variable. The reason is that our institutional, policy, and governance variables may affect growth through their effect on investment as well as independently of it. In the former case, we would like to allow the parameter estimates of the policy and institutional variables to capture their full role in the determination of growth through all possible mechanisms. But as we clearly see in Table 7, there is no drastic change in the impact of policy and institutional variable on growth when INV is controlled for in the regressions as compared to the results reported in Table 6b. The results for government expenditure, SWWH, governance, and starting costs are qualitatively the same. There are only three changes over previous results. First, although countries that lack political freedom continue to tend toward having higher growth rates, this effect is not statistically significant in any specification. Similarly, restrictions on hiring workers now do not show up with a significant negative impact on growth. Both suggest that the impact of these variables on growth work through their (positive) effect on investment rates. Interestingly, however, there is some evidence now that restrictions on labor firing can have a negative and significant impact on growth (last column). The coefficient of  $-0.014$  implies that holding all else constant, moving from a regime such as that of India (difficulty of firing worker index = 90) to that of Singapore (index equal 0) would add 1.26 percentage points to growth rates.

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<sup>12</sup> Rodriguez and Rodrik (2001) note that the SW dummy is a better measure of institutional change than being a trade policy indicator.

As for the impact of investment on growth, as can be seen from examining Table 7, investment has a positive and robust effect on growth. This is consistent with the old Harrod-Domar type as well as Mahalanobis type growth models. It is also consistent with the prediction of recent endogenous growth theories. Additionally, Easterly and Levine (1997) find that among nearly 50 variables considered in growth regressions, the most robust effect is that of investment. A high rate of investment helps build up the economy's future capacity to produce, and hence results in higher growth. We see from our regressions reported in Table 7 that a 15 percentage point increase in the investment rate—the difference in investment rates across the PRC and India—can bring about a 1.2–2.1 percentage point increase in the growth rate depending on the particular specification employed.

In sum, a lot of the cross-country differences in growth can be explained by differences in governance quality, investment, and size of the public sector. Since good governance should lead to good policies, and we do not see good (bad) policies when the quality of governance is poor (good), policies do not exhibit an independent impact on growth. Additionally, policies will be effective for growth as long as the institutional framework allows them to do so. However, investment and public sector size do seem to matter for growth independently of institutions, as they may not entirely be a function of the nature, quality, and style of governance. While savings, and therefore investment rates, also depend on rates of time preference and intergenerational altruism of households, the size of the public sector depends on the government's inequality aversion and its concern for unemployment reduction. In other words, it is possible to have good governments both to the left and right of center, and they may resolve the equity–efficiency trade-offs in different ways.

### **C. Poverty Regressions**

Tables 8 through 10 are our poverty regressions. Table 8 includes as regressors only our institutional variables (governance and political freedom) and the Doing Business variables introduced in terms of the two approaches noted above (that is, in terms of various principal component aggregations as well as values taken up by the individual measures). Table 9 introduces the share of government expenditure as well as trade shares as a measure of openness, while Table 10 uses the SWWH index as a measure of openness in place of trade shares. Initial income is included in all specifications.<sup>13</sup>

A notable result and one that is very different from the growth regressions above is that the poverty regressions mostly fail to produce significant estimates for the governance variable. However, it should be mentioned that the sign of the governance variable is always negative, indicating that better governance has been associated with lower poverty levels. Moreover, in the one case where governance does show up with a statistically significant impact—the case where government expenditure, trade policy as measured by the SWWH index, and closing time and costs are jointly controlled for (Table 10)—the “economic” impact of governance can be very large. The size of

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<sup>13</sup> As we can see, a higher initial per capita income is negatively correlated with the poverty rate. A 1% increase in the initial per capita income can lead to a reduction in the poverty rate from anywhere between 20 and 23 percentage points. While these are pretty extreme numbers, they are a reflection of a significant bunching of large groups of the population around the \$2-a-day poverty line.

**TABLE 8**  
**\$2-A-DAY POVERTY: INSTITUTIONS AND BUSINESS REGULATIONS**

	\$2-A-DAY POVERTY									
Initial Income	-22.412 (11.13)***	-22.799 (10.75)***	-20.936 (11.77)***	-23.500 (12.06)***	-22.235 (15.96)***	-22.553 (15.61)***	-22.151 (15.53)***	-20.607 (11.92)***	-23.014 (16.50)***	-23.277 (16.59)***
Governance	-2.530 (0.95)	-2.630 (0.95)	-3.347 (1.34)							
Political Freedom	-2.131 (1.41)	-2.457 (1.56)		-1.486 (0.87)						
Doing Business – 1	3.206 (2.15)**				3.568 (2.52)**					
Doing Business – 2		1.518 (1.14)				1.619 (1.37)				
Start							4.514 (2.60)**			
Close							1.021 (0.47)			
Labor							-1.287 (0.92)			
Start-Procedures								0.441 (0.69)		
Start-Time								0.061 (1.15)		
Start-Cost								0.051 (2.24)**		
Close-Time									-0.132 (0.14)	
Close-Cost									0.234 (1.59)	
Labor - Hiring										0.048 (0.74)
Labor - Firing										0.071 (0.91)
Labor - Cost										-0.096 (2.00)**
Constant	194.584 (19.27)***	205.776 (10.41)***	182.997 (12.97)***	210.387 (11.15)***	194.584 (19.27)***	197.261 (18.67)***	194.179 (18.68)***	172.896 (11.53)***	197.918 (18.51)***	204.321 (17.62)***
Observations	73	68	72	80	73	73	73	76	73	76
Adjusted R-squared	0.75	0.72	0.70	0.69	0.75	0.73	0.75	0.77	0.73	0.75

Note: Robust t statistics in parentheses.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

**TABLE 9**  
**\$2-A-DAY POVERTY: INSTITUTIONS AND POLICIES (TRADE SHARES)**

	\$2-A-DAY POVERTY							
Initial Income	-22.652 (10.05)***	-23.007 (9.76)***	-20.418 (11.22)***	-21.598 (8.83)***	-22.740 (15.22)***	-22.970 (10.14)***	-22.496 (14.68)***	-22.494 (9.95)***
Government Expenditure	0.808 (1.79)*	0.808 (1.76)*	0.706 (1.73)*	0.681 (1.56)	0.863 (2.02)**	0.880 (1.81)*	0.476 (1.04)	0.469 (0.94)
Trade Share	-0.087 (1.18)	-0.091 (1.15)	-0.120 (1.95)*	-0.102 (1.40)	-0.134 (2.23)**	-0.122 (1.55)	-0.141 (1.96)*	-0.126 (1.49)
Governance	-2.630 (1.04)	-2.686 (1.01)		-1.447 (0.49)		-3.282 (1.26)		-3.261 (1.23)
Political Freedom	-2.161 (1.35)	-2.489 (1.49)		-2.341 (1.55)		-2.387 (1.40)		-2.445 (1.39)
Doing Business - 1	3.182 (1.96)*							
Doing Business - 2		1.497 (0.99)						
Start-Procedures			0.222 (0.32)	0.300 (0.37)				
Start-Time			0.065 (1.29)	0.073 (1.26)				
Start-Cost			0.051 (2.41)**	0.044 (1.93)*				
Close-Time					-0.237 (0.31)	-0.147 (0.16)		
Close-Cost					0.264 (1.80)*	0.269 (1.06)		
Labor - Hiring							0.020 (0.29)	-0.017 (0.22)
Labor - Firing							0.051 (0.68)	0.088 (1.15)
Labor - Cost							-0.095 (1.98)*	-0.083 (1.61)
Constant	197.792 (10.17)***	202.071 (10.07)***	171.851 (11.14)***	185.776 (9.63)***	192.696 (17.69)***	199.031 (9.35)***	203.738 (17.67)***	207.937 (11.35)***
Observations	68	68	76	70	73	68	76	70
Adjusted R-squared	0.74	0.73	0.77	0.76	0.75	0.73	0.76	0.74

Note: Robust t statistics in parentheses.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

**TABLE 10**  
**\$2-A-DAY POVERTY: INSTITUTIONS AND POLICIES (TRADE POLICY)**

	\$2-A-DAY POVERTY							
Initial Income	-22.416 (9.76)***	-22.902 (9.49)***	-19.726 (9.00)***	-20.743 (-7.81)***	-23.267 (12.85)***	-22.782 (-9.61)***	-23.021 (12.65)***	-22.685 (9.92)***
Government Expenditure	0.326 (0.61)	0.355 (0.65)	0.016 (0.03)	0.093 (0.17)	0.203 (0.39)	0.347 (0.63)	-0.154 (0.29)	-0.029 (0.05)
SW-WH	-3.395 (0.61)	-2.839 (0.49)	-5.658 (1.02)	-5.643 (-1.02)	-3.827 (0.65)	-3.188 (-0.56)	-3.680 (0.64)	-1.795 (0.31)
Governance	-3.125 (1.30)	-3.189 (1.25)		-1.558 (-0.54)		-4.497 (-1.96)*		-3.910 (1.50)
Political Freedom	-1.902 (1.21)	-2.308 (1.39)		-2.293 (-1.53)		-2.040 (-1.22)		-2.173 (1.21)
Doing Business – 1	3.764 (2.52)**							
Doing Business – 2		2.163 (1.61)						
Start-Procedures			0.441 (0.67)	0.449 (0.55)				
Start-Time			0.061 (1.16)	0.068 (1.12)				
Start-Cost			0.069 (3.09)***	0.064 (2.30)**				
Close-Time					0.309 (0.38)	0.508 (0.57)		
Close-Cost					0.292 (2.02)**	0.319 (1.27)		
Labor - Hiring							0.058 (0.89)	0.022 (0.27)
Labor - Firing							0.065 (0.83)	0.096 (1.23)
Labor - Cost							-0.087 (1.66)	-0.078 (1.41)
Constant	197.576 (10.55)***	201.863 (10.31)***	168.842 (10.29)***	181.993 (9.49)***	196.606 (16.87)***	193.533 (9.26)***	206.184 (15.47)***	204.926 (11.49)***
Observations	66	66	73	67	71	66	73	67
Adjusted R-squared	0.74	0.73	0.78	0.76	0.75	0.73	0.75	0.73

Note: Robust t statistics in parentheses.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

the estimated coefficient on governance implies that India's poverty rate would be 18.9 percentage points lower if its governance was as good as that of Singapore (that is, a value of 3.6 rather than -0.6 for our measure of governance) while holding all else constant. As for political freedom, this variable is estimated to be insignificant in all cases, a case generally in concurrence with the growth regressions.

Interestingly, "Doing Business - 1" is estimated to be significant in all cases at levels varying between 5-10%. The average of the coefficient is 3.4. "Doing Business - 2", however, is estimated as insignificant in all regressions. Recall that this variable includes "start", "close" and "labor" in its aggregation, suggesting that something regarding the labor regulations is working against the Doing Business - 1 variable. This can be confirmed by examining the business regulation variables on a more disaggregated basis. Indeed, as suggested by column 7 of Table 8, which reports the results from principal component aggregations of Doing Business variables by separate "start", "close" and "labor" groupings, the significant impact of Doing Business - 1 on poverty is driven by regulations having to do with starting businesses. Regulations associated with closing businesses also matter in the same direction, that is, an increase in regulations is associated with greater poverty, albeit not significantly so. However, increased regulations relating to labor are associated with lower poverty (though not significantly so).

To get a better sense of which specific types of regulations affect poverty, we can turn to the remainder of the results that are based on including the Doing Business variables in terms of the values taken by individual measures of regulation. Starting costs are estimated to have a robust adverse impact on poverty in all cases, significant at 1% level. The coefficient centers on 0.055. To get a sense of the quantitative impact of this variable on poverty we can note that a reduction in starting costs from the levels registered in Cambodia (by far the highest in Asia and perhaps the world) to levels registered in the United States would, holding all else constant, lead to a decline in poverty rates of 26.4 percentage points. Taking less extreme values, we can note that a reduction in starting costs from the levels registered in Indonesia to levels registered by its Southeast Asian neighbor, Thailand, would lead to a reduction in poverty rates of 6.8 percentage points. Clearly, this is not a trivial decline. In contrast to starting costs, starting procedures and starting time are estimated to be insignificant in affecting poverty.

As for closing regulations, while the estimate for closing time is always insignificant closing cost is estimated to have some impact on poverty, with a positive sign that is significant between 5-10% levels. Focusing on the statistically significant estimates, a decline in closing costs from levels registered in the Philippines, where among Asian countries they are the highest, to a level registered by Pakistan, among the lowest in Asia, would lead to a decline of around 8.8-9.9 percentage points in poverty rates holding all else constant. Lowering closing costs to levels registered in Singapore would lead to even lower poverty rates.

Among labor regulations variables, firing costs enter with a negative sign, which in some cases are significant at the 5-10% levels. This is interesting, as it implies that an increase in firing costs decreases poverty. Thus, while higher firing costs may be a detriment to investments, our results are consistent with the notion that higher firing costs lead firms to either fire workers in lesser numbers or that the various payments that firms must make to workers they are firing helps them from falling into poverty. On the other hand, difficulties with hiring and firing regulations seem not to have any impact on poverty. Overall, except for the firing costs results, the results with disaggregated Doing Business variables are in line with the results for the growth regressions.

The impact of openness on poverty depends crucially on which measure of openness is used. In striking contrast to the results from the growth regressions, we find that larger trade shares are often associated with lower poverty while a higher value of the SWWH index of openness is always insignificantly related to poverty. These results suggest that while a more open trade *policy* may not lead to significantly lower poverty, countries that have managed to increase trading volumes relative to their GDP have often done so with benefits flowing to the poor. This is not as weak a result as some may claim. For example, media reports sometimes claim that trade has benefited countries at the expense of their poor. Our results here do not lend support to such reports.

Interestingly, the particular measure of openness used also has an important bearing on the estimated impact of government expenditures on poverty. When trade shares are used as the measure of openness, increased government expenditures show up with a positive and significant impact on poverty. In other words, a larger public sector (as proxied by government expenditures) is significantly associated with higher poverty. However, moving to the SWWH index of openness completely wipes out the statistical significance on the coefficient of government expenditures. This is understandable, as large government expenditures are a sign of fiscal irresponsibility and the SWWH captures macroeconomic/fiscal reforms that accompany most trade reforms (see Rodriguez and Rodrik 2001).

In sum, initial income, “Doing-Business – 1” and starting costs turn out to be the important variables that matter for poverty. In some contrast to the results for the growth regressions, this suggests more room for policies that could fuel private sector activities in the economy. The fact that governance and political freedom variables are mostly insignificant suggests that governments of the same quality can resolve the equity–efficiency trade-offs in different ways. Noting that governance is always significant in growth regressions, this further suggests that the actions to be taken to reduce poverty are quicker than those to increase steady-state growth, which requires institutional modification.

## VII. CONCLUDING REMARKS

In this paper, we have studied the role of institutions and policies in driving economic growth and explaining poverty, paying close attention to institutions and policies that relate to the overall climate and regulations under which the private sector operates. We find that good governance as measured by a strong commitment to the rule of law among other things, matters for poverty reduction largely through its effect on economic growth. While the impact of trade openness on growth is not clear, increases in trade shares have been associated with lower poverty. Furthermore, the size of the public sector has a strong negative effect on growth and can be bad for poverty alleviation. While a large public sector can be an asset to the rest of the economy in terms of the infrastructure and social services it provides, it also means that the economy has a relatively smaller private sector, usually the more dynamic sector. We interpret our regressions to show that in most countries, growth is driven by the dynamism of the private sector, which in turn depends importantly on the quality of governance.

Less cumbersome regulations governing private sector operations, especially those pertaining to starting a business, matter for both economic growth as well as poverty reduction more directly. However, it is important to point out that eliminating cumbersome regulations is unlikely to serve

as a panacea. There are no doubt regulatory practices that are at best inefficient and at worst perhaps fostering serious corruption. Eliminating such practices will probably be good for both business as well as economy and for the poor. Our results on starting costs, in particular, are certainly consistent with this notion. At the same time, policymakers must not lose sight of the fact that spurring the private sector is unlikely to be driven by the elimination or alleviation of “government failures.” Spurring the private sector will also require the elimination or alleviation of market failures through appropriately designed public–private partnerships. The critical challenge for private sector development is probably getting this design correct. More research in uncovering the nature and processes that can lead to more effective public-private partnerships is likely to be a higher value-added activity. It is also one that is likely to require in-depth, country-specific studies.

Finally, political freedom is not associated with either higher growth or lower poverty. Indeed, the evidence here seems to suggest that the delivery of good governance and regulations that facilitate the creation of new enterprises are more relevant for growth and poverty reduction than the nature of the political system per se.

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