Strengthening Globalization’s Invisible Hand: What Matters Most?

DEVELOPED FINANCIAL MARKETS, HUMAN CAPITAL, ACCESS TO TECHNOLOGY, AND STRONG LEGAL SYSTEMS ARE ESSENTIAL FOR HEALTHY ECONOMIC GROWTH.

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In this paper, we investigate what matters most to sus-
taining strong economic growth in today’s more global-
ized, knowledge economy. An examination of 2005-2006 statistical and survey data across 52 countries reveals that economic growth is driven mainly by developed and trustworthy financial markets, a well-educat-
ed and skilled workforce, and access to information and communications technologies. Moreover, we find that creditworthy financial markets are strengthened by free and open economies based on the rule of law and legal protections. Our findings support the notion that inno-

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Understanding the forces driving economic growth and the wealth of nations has been hotly debated and contested since at least the days of Adam Smith and the dawn of economics. Smith’s *An Inquiry into the Nature and Causes of the Wealth of Nations*, published in 1776, is a stylish masterpiece that provides deep insights on the underlying framework for understanding the role of markets and institutions to maximize output and minimize disruptions. As capitalism’s prophet, Smith argued that a society composed of individuals acting in the pursuit of their own interests would result in a more stable, free, and prosperous economy than one planned by the state.

For Smith, economic growth comes from the division and specialization of labor, and nations that allow market forces to generate such growth will become better-off. Smith's idea of the invisible hand to describe the market’s ongoing process in efficiently and effectively organizing prices and quantities is a powerful metaphor of how competitive markets successfully create wealth.

Following Smith, in 1817, David Ricardo stressed the importance of free trade in his theory of comparative advantage. Ricardo showed that through specialization and trade, two nations could produce more output using the same factor inputs than if they tried to produce the same output in isolation. Since Ricardo’s exposition, the importance of comparative advantage—allowing individuals, businesses, and nations to do what they do best and trade for the rest—has been one of the most compelling insights in understanding the forces driving economic growth.

The theme of the 2006 NABE Annual Meeting and Edmund A. Mennis Contributed Paper Competition is “Comparative Advantage in the 21st Century: Information Technology and the Professional Network.” In this paper, we examine what matters most to sustaining strong economic growth in today’s more globalized, knowledge economy. While the thoughts put forth by Smith and Ricardo roughly 200 years ago still ring true, strengthening globalization’s invisible hand today requires understanding ideas, education, technological change, finance and national policies on freedom and trade in a new light.

Ideas matter. Perhaps more than anything else, new ideas that allow firms to have a comparative advantage over their competitors and thereby increase productivity and output are the keys to increasing prosperity and living standards around the world. Trademarks, formulas, business processes, designs, copyrights, computer algorithms, intellectual property rights, patents, recipes, trade secrets, and the like all present opportunities for comparative advantage—at least temporarily.

In today’s fast-paced global economy, information travels fast. And maintaining one’s comparative advantage is becoming increasingly difficult as the benefits of good ideas can be rapidly disseminated more easily through vastly improved information and communications technologies. Today, with a computer, an Internet connection, and a little know-how, individuals and companies in the remotest ends of the earth can compete and collaborate globally.

While many factors may influence modern-day globalization, evidence is presented here that countries that sustain economic growth do so because their economies are based on principles that encourage and reward innovative ideas—a developed and trustworthy financial infrastructure to manage investment risk, an education system focused on creating high-skilled knowledge workers, a legal system that protects people and ideas, and information and communication technologies that help move ideas and things better, faster, and cheaper. And it appears that these factors are transforming labor, capital, and product markets around the world by making it easier and cheaper to deploy the productive use of new ideas. Yet, at the same time, these factors also appear to provide enough protection to create sufficient incentives to continue the search for even better, more productive ideas.

Our findings suggest that innovative ideas and entrepreneurism are at the heart of economic growth. However, if not supported by institutional policies and practices that create and sustain growth, innovative ideas alone may not be enough to cause the economic spark that emerging economies are so desperate to kindle.

**What Drives Economic Growth?**

Many factors have been identified in the literature as contributing to a nation’s economic growth. In a sense, these factors can all be classified into three broad categories: policies, practices, and proficiencies. Some authors argue that a nation’s institutional factors and laws that limit or promote entrepreneurial activities drive economic growth (see Barro, 1991 and 2003; Knack and Keefer, 1995 and 1997; Sachs and Warner, 1995; Goldsmith, 1995; and Roll and Talbott, 2001). Others argue that economic growth is mainly driven by better management practices and technological change that provide them a comparative advantage over their competitors (Romer, 1990 and Solow, 1956). Still others focus on the importance of a well-trained, educated, and skilled workforce in driving growth (Murphy, Shleifer and Vishny, 1991 and Black and Lynch, 2001).

Of course, it is likely that it is a combination of all these factors that allow some countries to prosper and grow while others flounder. And it also seems likely that there are necessary conditions to growth. That is, certain
conditions must be put in place before other potential drivers can really influence growth. For example, Barro (2003) finds that growth depends positively on the rule of law and the investment ratio and negatively on the fertility rate, the ratio of government consumption to GDP, and the inflation rate. To develop our model, we explore some of the other explanations given as main contributors to economic growth.

**The Importance of Ideas**

In 1990, Paul Romer shed new light on the question of what drives economic growth. In essence, his mathematical model sought to redefine the basic building blocks of economic theory from the traditional factors of production—land, labor and capital—to also include ideas. Romer stressed the importance of including the growth of knowledge and technological change to help explain economic growth.

Romer (2006) uses the kitchen to describe production in an economy: “Economic growth springs from better recipes, not just from more cooking. New recipes generally produce fewer unpleasant side effects and generate more economic value per unit of raw material.” In other words, new ideas generate economic growth. This growth takes place whenever resources are re-examined, re-arranged, and re-allocated so as to maximize their value. Innovations can expand the economic pie and increase productivity by providing better ways to produce more output.

**The Importance of Good Policies**

But innovations generally occur only when inventors and innovators have adequate incentives and protections. Idea-generators are far more likely to share their inventions and innovations when they have the economic incentive to do so and the intellectual property protections to ensure that they receive their just rewards. And without incentives and protections to innovate, economic growth would eventually stagnate since economies would always rely on using the same finite resources in the same ways.

Mandich (1948) researched the importance of protections given to the very first patents issued in 15th century Venice. According to Mandich, the goals for patent and innovation protection were “founded on the natural right of the inventor to the fruits of his labour, the benefits accruing therefrom to society at large, society’s compensation of the costs incurred by him, and the fillip this would provide to inventive propensities.” For national economic growth, these principles remain just as important today. New ideas—essential for greater economic growth—happen only when idea-makers have sufficient economic incentive to share them. Moreover, these ideas need to be protected for a sufficient time and within, at least, a local area.

For policymakers, this strongly supports the notion that the development of policies that provide intellectual property protection and the enforcement of contracts are important to economic growth. Kanwar and Evenson (2001) developed a model to analyze intellectual property rights as a facilitator of technological innovation. The authors sampled 32 countries from 1981-1990 to capture the “long term” relationship between intellectual property protection and research and development investment. With technological change represented by research and development investment as a proportion of gross national product, their results highlight the significance of intellectual property rights in spurring innovation.

**The Importance of Investment**

While incentives and protections are important for idea-generation and idea-sharing, sufficient and available financial capital is often required for idea-execution and idea-implementation. British Prime Minister William Gladstone in 1858 articulated the significance of finance in generating economic growth in his often-cited quote: “Finance is, as it were, the stomach of the country, from which all the other organs take their tone.” Indeed, a well-developed and deep financial market is essential for an economy to be able to receive the right resources at the right times and in the right places.

Rousseau and Sylla (2001) present a cross-country analysis of seventeen nations from 1850 to 1997 to demonstrate the correlation between financial factors and a country’s economic growth rate. Their analysis suggests that countries with more sophisticated financial markets tend to be better integrated with foreign economies and engaged in more trade. They provide convincing evidence that suggests that economic growth and increasing globalization may be “finance-led,” meaning that a modern financial system must be established before powerful economic growth is possible. Thus, economic growth and increasing globalization appear to be positively related to more developed and stable financial markets. Such financial systems, in turn, allocate the world’s financial capital more efficiently, thereby promoting economic growth in those regions.

**The Importance of Good Policies (Again)**

But well-functioning financial markets also require incentives and protections. Hernando de Soto (2000) is a prominent advocate of private property rights being a prerequisite to economic growth. De Soto argues that long-term economic growth is dependent on having a clear sys-
tem of property rights as foundational. Hence, entrepreneurship (the implementation of new ideas in a business context) can effectively happen only when an individual can leverage their ownerships into collateral.

Much of De Soto’s work focuses on the need for developing countries to have in place an integrated system of formal property rights to enhance economic growth. In reference to the lack of private property rights among underdeveloped nations, De Soto states the following:

The poor inhabitants of these (developing) nations—five-sixths of humanity—do have things, but they lack the process to represent their property and create capital. They have houses but not titles; crops but not deeds; businesses but not statutes of incorporation. It is the unavailability of these essential representations that explains why people who have adopted every other western invention, from the paper clip to the nuclear reactor, have not been able to produce sufficient capital to make domestic capitalism work.

In developing nations, the lack of a process to define property rights and use legal protections to create wealth produces “dead capital,” defined by De Soto as “possessions which are locked out of the capitalized economy by discriminatory laws.” In the Philippines, an estimated 57 percent of city-dwellers and 67 percent of people in the countryside live in housing that is dead capital. These hindrances and inefficiencies also discourage entrepreneurship and foreign investment. In India, Brazil, and China it can take well over 90 days to establish a legal business.

Countries that do not provide access to “real” capital resources do not allow Smith’s invisible hand to effectively allocate resources to their most productive activities. Rather, unfriendly legal obstacles and/or the lack of laws to protect individuals and private property rights, including the enforcement of legal contracts, often leave nations further behind.

Drawing on extensive research, Mishkin (2006) argues that a financial system based on strong property rights and effective legal protections are key ingredients to economic development. In his view, opening markets to flows of foreign capital—financial globalization—will be the main driving force for growth in the future, and it will be particularly important for less-developed countries of the world.

The Importance of Education

Good ideas generally come from individuals who are well educated and skilled at what they do. And these ideas, properly implemented, result in higher levels of productivity that benefit all members of society as the economy produces more with less. Cox and Alm (2005) show the positive relationship between years of schooling and per capita GDP across countries. Increased skills not only enable workers to compete for better jobs in newer industries, but also enable employers to develop more streamlined operations and improved business processes to redesign work to take advantage of those higher skills, boosting productivity even more. Black and Lynch (2001) found that raising the education level of employees by one academic year results in an increase in labor productivity of between 8 and 13 percent.

Over the last decade, India has risen to prominence in one of the fastest growing industries in the world: information technology (IT). While a great deal of reform has spanned the country during these years with deregulation of financial markets, adoption of policies to promote foreign direct investment, and new businesses and development of the nation’s IT infrastructure, the importance of education should not be overlooked. India’s leaders are dedicated to growth and understand the importance of developing its knowledge base to generate innovative ideas. In seeking the determinants that elevated India to become more globally competitive, Kapur (2002) concludes that investment in education—particularly engineering—laid the human capital foundation needed to spark the economic growth that thrust India onto the forefront of the IT industry.

The Importance of Technology

Finally, the role of technology, specifically information and communications technologies, in fostering economic growth needs consideration. Much was made of the “new economy” in the late-1990s when productivity growth remained high as businesses invested in new technologies and successfully began using these technologies to more efficiently and effectively manage supply chains, back-office operations, call centers, information processing, and the like. The availability of information and communication technologies in a nation is directly related to its competitiveness in the global economy.

According to Solow (1970), technological innovation creates an increase in the marginal productivity of capital for every unit of labor—a shift of the production function upward. Assuming increasing growth in the workforce and in technology, innovations will raise the steady-state level of output per worker and allow a greater allocation of resources from which growth can occur.

Colecchia and Schreyer (2002) conducted a comparative study of nine OECD countries to examine the sources and differences in growth patterns across nations. Specifically, they examined the role of information and communications technologies as a source of capital serv-
ices in delivering inputs to the production process and quantified its contribution to output growth. They discovered that over the past twenty years the contribution of IT equipment and software to output growth has been between 0.2 and 0.5 percentage points per year.

**Our Model**

Our model, shown in Figure 1, is derived from the above discussion on what drives economic growth. We start with Romer’s factors of production—people, ideas and things—as the main inputs into an economy. An efficient mix of these “ingredients” should create our desired output: economic growth. However, as noted in the literature, the blending of people, ideas, and things to create higher value-added outputs and greater productivity growth typically requires ample financing and an investment climate that stimulates and encourages entrepreneurial activity—that is, an effective and efficient financial system. Also, to be sure, all trade and transactions carried on in a nation should be based on the rule of law and also provide effective protections for its people, ideas and things (see Mishkin, 2006).

**Data**

We use data from the Institute for Management Development’s (IMD) 2006 World Competitiveness Yearbook. The IMD collects 312 criteria across four core competitiveness factors (economic performance, government efficiency, business efficiency, and infrastructure) for 53 industrialized and developing economies, listed in the appendix.1 The criteria include both numerical data collected from international and national statistical organizations (public and private), as well as survey data collected from 4,053 business executives located in all the countries included in the IMD Yearbook.

For our model, we selected several criteria from the IMD data to proxy the factors we identified above. As shown in Figure 2, our explanatory variables combine people with ideas and ideas with things. Since we are interested in understanding what matters most to generate economic growth, we use gross domestic product (GDP) per capita, adjusted at purchasing power parity (PPP), as our output measure. These estimates are from the World Bank for 2005 and are in U.S. dollars.

For an input variable to proxy a well-educated and skilled workforce, we use a survey variable—called “brain drain” in the IMD Yearbook—that measures the availability of a country’s skilled labor force in enhancing competitiveness as perceived by its business executives. This “skilled workforce” variable can range from a low of zero to a high of ten. Our other input variable combines ideas and things together and serves as a proxy for technology, or technological change. The variable is the number of computers per 1000 people in the economy, available from the Computer Industry Almanac.

To model an economy’s investment climate, we use IMD’s “investment risk” measure, which is an overall country risk score (on a scale from 0 to 100) determined

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1The data set, excluding Luxembourg because it is so small, is available from Tom Siems at tom.siems@dal.frb.org.
by assigning weights to nine categories. Computed by Euromoney magazine, the categories include political risk, economic performance, debt indicators, debt in default or rescheduled, credit ratings, access to bank finance, access to short-term finance, access to capital markets, and forfaiting (purchasing credit instruments on a non-recourse basis in foreign exchange transactions). The higher the index value the better the investment risk in the nation.

As a final point, and one that will be modeled separately, we use two variables as factors that explain a country’s rule of law. The first is IMD’s “bribing and corruption” index. This index is determined through a survey of business executives and ranges from a low of zero (indicating that bribing and corruption exists and is a problem in the economy) to a high of 10 (indicating that bribing and corruption does not exist in the economy). The second variable acts as a proxy for protecting people, ideas, and things in the economy—referred to herein as legal protections—and is IMD’s “personal security and private property” index. This is also an index developed through a survey of business executives, ranging from 0 to 10 with a higher rating indicating greater protections.

The countries are sorted by GDP/capita (PPP) and grouped into four general geographic clusters (Latin America; Western Europe, United States, Canada, Australia, and New Zealand; Asia, Middle East and Africa; and Eastern Europe). While these groupings are somewhat subjective, we thought it would also be interesting to see if any patterns or more explanatory regressions characterized one “region” over another.

For the most part, the countries in the “Western Europe” region comprise the most developed economies on the planet, excluding Japan, Hong Kong, and Singapore, which are included in the Asia region. The nations in the Eastern Europe region are generally considered as emerging countries coming out of the former Soviet Bloc. Nations in the Asia region are all over the map and comprise both developed economies and less developed emerging markets. Finally, countries in the Latin American region are all generally considered to be developing economies.

Methodology and Results

Ordinary least squares (OLS) regression analysis is used to test our models and examine the significance of our variables. Not surprisingly, many of our independent variables are highly correlated with each other. Table 1 displays the correlations between all of the explanatory variables considered herein. Multicollinearity can poten-

| TABLE 1 |
| CROSS-COUNTRY CORRELATIONS OF EXPLANATORY VARIABLES |

<table>
<thead>
<tr>
<th></th>
<th>GDP/capita (PPP)</th>
<th>Investment Climate</th>
<th>Computers per 1,000 People</th>
<th>Skilled Workforce</th>
<th>Rule of Law</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment Climate</td>
<td>0.93</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Computers/1000 People</td>
<td>0.94</td>
<td>0.90</td>
<td></td>
<td></td>
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<tr>
<td>Skilled Workforce</td>
<td>0.67</td>
<td>0.62</td>
<td>0.62</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rule of Law</td>
<td>0.80</td>
<td>0.83</td>
<td>0.88</td>
<td>0.68</td>
<td></td>
</tr>
<tr>
<td>Legal Protections</td>
<td>0.70</td>
<td>0.77</td>
<td>0.71</td>
<td>0.75</td>
<td>0.84</td>
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</table>

| TABLE 2 |
| CROSS-COUNTRY REGRESSIONS OF GDP/CAPITA (PPP) ON EXPLANATORY VARIABLES |

<table>
<thead>
<tr>
<th>Dependent Variable: GDP/capita (PPP)</th>
<th>Regression Empirical specification (1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model I</td>
<td>Model II</td>
<td>Model III</td>
<td>Model IV</td>
<td>Model V</td>
</tr>
<tr>
<td>Investment Climate</td>
<td>532.0***</td>
<td>252.2***</td>
<td>234.1***</td>
<td>(17.40)</td>
<td>(4.57)</td>
</tr>
<tr>
<td>Computers/1000 people</td>
<td>39.1***</td>
<td>22.6***</td>
<td>21.0***</td>
<td>(18.90)</td>
<td>(5.63)</td>
</tr>
<tr>
<td>Skilled Workforce</td>
<td>4707.5***</td>
<td>754.3**</td>
<td>(6.43)</td>
<td>(6.06)</td>
<td>(2.05)</td>
</tr>
<tr>
<td>Constant</td>
<td>-17874.8***</td>
<td>5800.9***</td>
<td>-5285.1**</td>
<td>-6202.0**</td>
<td>-8439.5***</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.86</td>
<td>0.87</td>
<td>0.44</td>
<td>0.91</td>
<td>0.92</td>
</tr>
</tbody>
</table>

Note: *values in brackets; * denotes statistical significance at the 10%, ** at the 5%, *** at the 1%-level.
Models to Explain Economic Growth

Our first regressions, shown in Table 2, examine how well a country’s skilled workforce, technological savvy, and investment climate explain economic growth.\(^2\)

With GDP/capita (PPP adjusted) as the dependent variable, Model I includes only a country’s investment climate measure as an explanatory variable, Model II includes only computers per 1000 people, and Model III includes only a measure of a country’s skilled workforce. In each of these three regressions, the right hand side variable is significant at the one percent level; and the coefficient is positive, as expected. Model IV includes both the investment climate measure and computers/capita on the right hand side, and Model V combines all three of these variables together by also including the skilled workforce metric. Our investment climate measure and technology measure are both significant at the one percent level in both models, with positive and consistent coefficients across the two models. When the skilled workforce measure is added to the regression (Model V), it is significant at the five percent level and retains a positive coefficient.

Model I: The Importance of the Investment Climate

Model I shows a highly significant correlation between a country’s economic output per person and the importance of its investment climate. A nation’s investment climate is a product of its financial institutions, central bank policy, stock markets, and overall capital liquidity. The higher this measure, the more likely individuals, companies, and governments from around the world will be to conduct business and take prudent investment risks in this country. Figure 3 shows the relationship between these two variables for the 52 nations in our sample, and also includes regression lines for each of the four regional groupings described earlier.

Model II: The Importance of Technology

Model II and Figure 4 depict the highly significant relationship between economic growth and computers per 1,000 people (the importance of technology). In today’s global economy, it is important to be connected and able to utilize computers to increase productivity. Modern information and communications systems can connect retailers, warehouses, manufacturers, suppliers, accountants, and financiers instantaneously. Consequently, any activity that can be digitized—including virtually all information flows—can be cheaply moved to anywhere in the world in seconds. The impact of improved computer technologies on global supply chains in recent years has been remarkable: companies are more efficient and competitive; consumers benefit from lower prices; and macroeconomies experience lower inflation, reduced economic volatility, stronger productivity growth, and improved living standards (see Siems (2005)).

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\(^2\)All regressions were tested for heteroscedasticity, which did not seem to be a problem. Detailed results may be obtained from Tom Siems at tom.siems@dal.frb.org.
**Model III: The Importance of Education**

Model III and Figure 5 show the highly significant correlation between economic growth and a nation’s skilled workforce (importance of education). History has shown that nations with more professionals specializing in math, science, and engineering stand at the forefront in producing inventions and innovations that benefit societies all over the world. It makes sense that as a country’s well-educated and skilled people enhance its competitiveness, the nation’s economic output per person will increase.

**Models IV and V: The Combined Importance of Investment, Technology and Education**

In all five models shown in Table 2, the t-statistics are highly significant; and the signs of the coefficients are positive, as predicted. That is, the regression results conform quite well to our expectation that higher economic output comes from a healthy and creditworthy investment climate, the availability of (and connectedness to) technology, and a country’s skilled workforce in enhancing competitiveness.

Model V includes all three explanatory variables together in
one equation. By taking logs of both sides of the equation, we find that a one percent increase in a country’s investment risk measure should cause a 0.45 percent increase in GDP/capita (PPP); a one percent increase in computers per 1,000 people should result in a 0.50 percent increase in GDP/capita (PPP); and a one percent increase in the skilled workforce rating should increase GDP/capita (PPP) by 0.15 percent.

In trying to answer the question “what matters most?” we conclude that all three factors are important. However, we are particularly drawn to the greater significance of the investment climate measure. While ideas and technological change may be a great driving force for economic growth, these clearly cannot happen in a vacuum. An environment that provides financial support to entrepreneurs is needed. But what type of environment can cultivate this requirement?

Models to Explain Investment Climate

Our second set of regressions examines how well the rule of law and legal protections explain a country’s investment climate. Table 3 displays the results for these regressions. Model VI includes only the rule of law variable, Model VII includes only the legal protections measure, and Model VIII combines both of these variables together into one regression.

Models VI, VII, and VIII: The Importance of the Rule of Law and Legal Protections to Investment

As shown, all of the variables in the models have significant t-statistics and their coefficients have the expected signs. And, consistent with our model, these regressions indicate that a country’s investment climate is strengthened by a legal system that protects people, ideas, and things and one that also enforces contracts and penalizes criminality and thievery under the rule of law. Bribery and corruption, two sources of great inefficiency and insecurity, typically involve a misuse of public power for private benefit and, in many cases, results in a decline in overall social welfare. In contrast, economies with less corruption allow the market’s “invisible hand” to function in society’s best interest, rather than in the interest of a handful of wealthy politicians and businessmen.

Combined with the outcome obtained earlier in Model V, these results fit well within the existing literature. For example, Roll and Talbott (2001) find that “countries can develop faster by enforcing strong property rights, fostering an independent judiciary, attacking corruption, dismantling burdensome regulation, allowing press freedom, and protecting political rights and civil liberties.” We see these institutional characteristics as foundational in that they are needed to create an investment climate that can take good ideas and blend them together with an educated, skilled workforce and improved technology that moves information better, faster, and cheaper to boost national productivity and living standards.

Economic growth comes from combining ideas, people, and things together in an environment where entrepreneurs and investors are free to take prudent investment risks. To boost economic growth, individual nations should examine their own strengths and weaknesses: to capitalize on their strengths and shore up their weaknesses. It appears that nations should first focus on good institutional structures that protect people and property, but also allow individuals the freedoms to pursue their own interests and market their ideas. Once these freedoms and protections are established, then a financial system can develop that is able to provide the financing needed for good ideas.

Models to Explain Economic Growth across Regions

While our model seems to adequately explain economic growth for our entire sample of 52 countries, we also examine models across the four general geographic regions described earlier. As mentioned earlier, Figures 3, 4 and 5 show the relationship of each of our three explanatory variables—investment climate, computers/1000 people and skilled workforce rating, respectively—against our dependent variable for economic growth (GDP/capita, PPP adjusted). In all three figures, the relationship between our explanatory variables and a country’s GDP/capita is upward sloping (positive) in all four regions, although the slopes are noticeably much flatter for the six countries in the Latin America region.
Table 4 reports the regression results for the four regions using the same model as displayed in Model V in Table 2. None of the variables are significant in the model for the Latin America region (Model IX). This is likely due to the facts that Argentina and Mexico appear as outliers and that there are so few observations in this sample.

For the Asia region (Model X), the investment climate and computers/capita variables are both significant with positive coefficients, and the results look similar to the full model. It appears that countries in this group benefit most by having access to a healthy and developed financial environment and from being connected to the rest of the world through information and communications technologies. The skilled workforce variable is positive, but not statistically significant.

For the Western Europe region (Model XI), only the skilled workforce variable is significant in explaining economic growth. However, the remaining variables have the expected positive coefficients. It could be the case that the investment climate measure does not enter the model because most of these countries already have well-developed and deep financial markets. Figure 3 shows that all of these markets are in the upper right-hand corner of
Our suspicion is that the skilled workforce variable is the most significant in this region because that is where new ideas (and, as a result, good growth prospects) come from once all other conditions, like legal protections and a well-developed financial system that encourages entrepreneurship, have been met.

For the Eastern Europe region (Model XII), the investment climate measure is significant, and the skilled workforce variable is nearly so. This may indicate the importance to these countries to first establish an attractive investment environment as the main driver for future growth.

**Models to Explain Investment Climate across Regions**

Finally, we examined the investment risk measure as the dependent variable and rule of law and legal protections variables as explanatory variables in our regional models. Figures 6 and 7 show the relationship of each of these two explanatory variables, respectively, to economic growth. As in the regressions for the full model, the relationship is positive across all four regions, although it is interesting to note the relative positions of the four regional regression lines.

Table 5 shows the regression results for these regions along with the full model (Model VIII) that was discussed in Table 3. None of the regional models indicate statistical significance for the legal protections variable, however, two of the models—Asia (Model XIII) and Western Europe (Model XVI)—indicate that the rule of law variable is significant. This does not come as a complete surprise, and may even
strengthen our result that a well-developed and well-functioning financial system is dependent on the rule of law. The two regions with a significant explanatory variable for a country’s investment risk comprise 29 of the highest 31 creditworthy nations in our sample, including all of the nations in the Western Europe region.

Conclusions

As globalization intensifies with greater integration of labor, product, and capital markets across borders, it is imperative that we understand what drives the differences between rich and poor nations. Most of the conventional wisdom is that improvements in technology, education, and global capital are needed to close the gap between rich and poor nations. While we find that these factors are indeed important, we also find evidence that their success is dependent on public policies that are founded upon the rule of law and that promote legal protections.

Governments that provide individuals legal protections from the destructive outcomes associated with bribery and corruption and allow individuals the freedom to engage in trade and commerce will experience faster economic growth. The role of private property rights and the rule of law cannot be underestimated. We find that such a foundation is required before a country can create trustworthy and well-functioning financial markets. And ideas, the only true and real driver of economic growth, can best be shaped and implemented by a skilled and technologically competent workforce in an investment climate that encourages entrepreneurship.

Thus, to strengthen globalization’s invisible hand, countries should first focus on the enforcement of legal protections under the rule of law. This appears to matter most, as it is a necessary condition to one of our three main drivers of growth: an investment climate that rewards the entrepreneurial spirit. The other two main drivers include an educated and skilled workforce and the availability of computers and technology to take new ideas and increase productivity and output. Indeed, ideas matter. However, ideas by themselves are of little benefit. Ideas come from the growth of knowledge and the sharing of that knowledge. And ideas are best generated and shared in an environment where they can be protected and financed.

Policy Implications

For developing nations, we see a clear path to progress. A necessary condition is for a country to first have good policies in place to protect its citizens and property (physical and intellectual). Such protection, however, should be such that individuals and companies have the freedom to pursue opportunities and implement new ideas. These foundational characteristics are required before a country can expect to have a well-functioning and trustworthy financial system, which appears to be a powerful precondition to greater economic growth.

For developed nations, the focus needs to be more on people, ideas, and technology. Of course, we do not mean that legal protections and the rule of law are no longer required. Rather, these protections and freedoms need to be vigorously defended. But once these factors are in place, the country’s investment climate should be conducive to growth. And then, developed nations can concentrate more on developing a skilled and competitive workforce through education and training and the implementation and use of new technologies to improve productivity.

Acknowledgment

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References


IMD World Competitiveness Yearbook. 2006. Institute for Management Development, Lausanne, Switzerland.


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**APPENDIX**

**COUNTRIES AND COUNTRY CODES, RANKED BY GDP PER CAPITA ADJUSTED FOR PURCHASING POWER PARITY**

<table>
<thead>
<tr>
<th>▲ United States (USA)</th>
<th>▲ Finland (FIN)</th>
<th>● Korea (KOR)</th>
<th>▲ Mexico (MEX)</th>
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<tbody>
<tr>
<td>▲ Ireland (IRL)</td>
<td>▲ Sweden (SWE)</td>
<td>▲ Czech Republic (CZE)</td>
<td>▲ Romania (ROM)</td>
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<tr>
<td>▲ Norway (NOR)</td>
<td>● Japan (JPN)</td>
<td>● Portugal (PRT)</td>
<td>● Bulgaria (BGR)</td>
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<tr>
<td>▲ Iceland (ISL)</td>
<td>● France (FRA)</td>
<td>● Hungary (HUN)</td>
<td>● Thailand (THA)</td>
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<tr>
<td>● Hong Kong (HKG)</td>
<td>● Singapore (SGP)</td>
<td>● Estonia (EST)</td>
<td>▲ Brazil (BRA)</td>
</tr>
<tr>
<td>● Switzerland (CHE)</td>
<td>● Germany (DEU)</td>
<td>● Slovak Republic (SVK)</td>
<td>● Turkey (TUR)</td>
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<tr>
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<td>● Italy (ITA)</td>
<td>● Argentina (ARG)</td>
<td>● Colombia (COL)</td>
</tr>
<tr>
<td>● Austria (AUT)</td>
<td>● Taiwan (TWN)</td>
<td>● Poland (POL)</td>
<td>● Venezuela (VEN)</td>
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<tr>
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<td>● Spain (ESP)</td>
<td>● Croatia (HRV)</td>
<td>● China Mainland (CHN)</td>
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<tr>
<td>● Canada (CAN)</td>
<td>● Israel (ISR)</td>
<td>● South Africa (ZAF)</td>
<td>● Jordan (JOR)</td>
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<tr>
<td>● Belgium (BEL)</td>
<td>● New Zealand (NZL)</td>
<td>● Chile (CHL)</td>
<td>● Philippines (PHL)</td>
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<tr>
<td>● United Kingdom (UK)</td>
<td>● Greece (GRC)</td>
<td>● Malaysia (MYS)</td>
<td>● Indonesia (IDN)</td>
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<tr>
<td>● Australia (AUS)</td>
<td>● Slovenia (SLA)</td>
<td>● Russia (RUS)</td>
<td>● India (IND)</td>
</tr>
</tbody>
</table>

**KEY:**

▲ Latin America  ■ Western Europe  ● Asia, Middle East and Africa  ❑ Eastern Europe

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