CHAPTER 1.2

Building the Microeconomic Foundations of Prosperity: Findings from the Business Competitiveness Index[1]

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Competitiveness has become a central preoccupation of both advanced and developing countries in an increasingly open and integrated world economy. Despite its acknowledged importance, the concept of competitiveness is often misunderstood. Here, we define *competitiveness* concretely, show its relationship to a nation's standard of living, and outline a conceptual framework for understanding its causes.

The Business Competitiveness Index (BCI), based on this conceptual framework, provides a data-rich approach to measuring and analyzing the fundamental competitiveness of a large number of countries in a comparative context. This year's BCI includes 101 countries, up from 80 last year. Our aim is to rank country competitiveness across countries, identify individual countries' competitive strengths and weaknesses, reveal the trends in competitiveness in the global economy, and extend our basic knowledge about the sources of competitiveness and the process of economic development.

Most discussion of competitiveness and economic development is still focused on the macroeconomic, political, legal, and social circumstances that underpin a successful economy. It is well understood that sound fiscal and monetary policies, a trusted and efficient legal system, a stable set of democratic institutions, and progress on social conditions contribute greatly to a healthy economy. However, these broader conditions are necessary but not sufficient. They provide the opportunity to create wealth but do not themselves create wealth. Wealth is actually created at the microeconomic level of the economy, rooted in the sophistication of actual companies as well as in the quality of the microeconomic business environment in which a nation's firms compete. Unless these microeconomic capabilities improve, macroeconomic, political, legal, and social reforms will not bear full fruit.

Beginning in 1998, we began an effort to examine statistically the microeconomic foundations of competitiveness and prosperity across a wide array of countries. This is a daunting task, given the need to measure and compare the complex array of national circumstances that support a high and sustainable level of productivity. The effort aims to move beyond the examination of broad, aggregate variables typical of most economic growth analyses, and provide a framework for countries and companies to understand their detailed competitive strengths and weaknesses. It also aims to be as rigorous as possible, verifying the importance of variables statistically and using statistical techniques to weight the contribution of individual variables. Finally, we know that improvement in competitiveness is not a simple linear process but one where nations at different levels of development face different challenges and priorities. This effort aims to highlight these differences.

The Business Competitiveness Index seeks to explore the underpinnings of a nation's prosperity measured by its level of GDP per capita. The focus of this index is on whether current prosperity is sustainable, and on the specific areas that must be addressed if GDP per capita is to achieve higher levels in the future. A separate Growth Competitiveness Index (GCI), discussed in the previous chapter of this *Report*, examines the sources of GDP per capita growth, which is more dependent on investment rates and other macroeconomic policies. The sustainable level of current GDP per capita and its rate of growth will be related in the long term, but each area requires its own distinctive policy agenda. We have renamed the BCI this year to highlight its focus on firms and productivity. However, the conceptual framework and statistical approach follow that of the previous reports, and the findings are fully comparable with previous Microeconomic Competitiveness Index results.

The analysis here is pragmatic, making use of the best available data and econometric methods even though both are far from perfect. We also confront the challenge of establishing the direction of causality, given limited time series data. However, even if definitive tests of causality are not yet possible, understanding the microeconomic correlates of prosperity remains crucial. There may be a natural tendency for some microeconomic conditions to improve as GDP per capita increases, but the large observed differences across countries, even countries at similar income levels, reveal that this improvement is far from automatic.

Despite the statistical challenges and the addition of 21 mostly low income countries, mainly from Africa, to the sample of countries, the statistical findings overall are remarkably stable and robust compared with the *Global Competitiveness Report 2002–2003* (GCR) and earlier *Reports*. We expand this year's analysis to include an analysis of natural resource endowments and their role in competitiveness, a crucial issue especially for developing countries. The results again provide strong support for the importance of microeconomic competitiveness for economic development and prosperity. Our findings also verify the striking and regular pattern of microeconomic changes that accompany economic development.

The Business Competitiveness Index proves to account for 83 percent of the variation across countries in the level GDP per capita,[2] remarkably high given the addition of so many low income countries. These findings highlight the pressing need to better incorporate microeconomic competitiveness agenda into efforts to stimulate economic growth. In advanced countries, which have largely gotten their macro policies right, it is micro reform that holds the key to reversing unemployment problems, to growing exports, and to translating economic growth into a rising standard of living.

In developing countries, microeconomic failures nullify macroeconomic and social programs again and again. By accessing global capital markets, countries can engineer spurts of growth through macroeconomic stabilization and financial reforms that bring in floods of capital and create the illusion of progress as construction cranes dot the skyline. Without microeconomic reforms, however, growth will be snuffed out as exports and jobs fail to materialize, wages stagnate, and the return on investments proves disappointing. This disappointment, and the austerity that results from such cycles, is at the heart of the backlash against globalization.

Successful economic development requires progress on multiple fronts simultaneously. Reform efforts need to be tightly connected to the country's current stage of development. As an economy progresses, the constraints to its continued advancement shift. At strategic points in the development process, the whole basis of national competitiveness must be transformed. Many aspects of company strategy must be shifted and new requirements in the national business environment must be met. Our analysis provides the conceptual framework and comparative data to define such national agendas and to measure progress.

Competitiveness and its causes

Measuring and ranking competitiveness requires a clear conceptual framework, drawing on the accumulated knowledge about competitiveness and its sources. We summarize the framework here, drawing on previous years' chapters while extending it to incorporate recent learning.

What is competitiveness?

Competitiveness remains a concept that is not well understood, despite widespread acceptance of its importance. The most intuitive definition of *competitiveness* is a country's share of world markets for its products. This makes competitiveness a zero-sum game, because one country's gain comes at the expense of others. This view of competitiveness is used to justify intervention to skew market outcomes in a nation's favor (so-called industrial policy). It also underpins policies intended to provide subsidies, hold down local wages, and devalue the nation's currency, all aimed at expanding exports. In fact, it is still often said that lower wages or devaluation "make a nation more competitive." Business leaders are drawn to the market-share view because these policies seem to address their immediate competitive concerns.

Unfortunately, the most intuitive view of competitiveness is deeply flawed, and acting on it works against national economic progress. The need for low wages reveals a lack of competitiveness and holds down prosperity. Subsidies drain national income and bias choices away from the most productive use of the nation's resources.

Devaluation results in a collective national pay cut by discounting the products and services sold in world markets while raising the cost of the goods and services purchased abroad. Exports based on low wages or a cheap currency, then, do not support an attractive standard of living.

To understand competitiveness, the starting point must be the underlying sources of prosperity. A nation's standard of living is determined by the *productivity* of its economy, which is measured by the value of goods and services produced per unit of the nation's human, capital, and natural resources. Productivity depends both on the value of a nation's products and services, measured by the prices they can command in open markets, and the efficiency with which they can be produced.

True competitiveness, then, is measured by productivity. Productivity allows a nation to support high wages, a strong currency, and attractive returns to capital—and with them a high standard of living. Productivity is the goal, not exports *per se*. Only if a nation expands exports of products or services it can produce productively will national productivity rise. Productivity is the goal, not whether firms operating in the country are domestic or foreign owned. What matters most is not ownership, but the nature and productivity of the companies' activities in a particular country. Purely local industries also matter for competitiveness because their productivity has a major influence on the cost of living and the cost of doing business, not to mention their level of wages. The productivity of the entire economy matters for the standard of living, not just the traded goods sector.

The world economy is not a zero-sum game. Many nations can improve their prosperity if they can improve productivity. The central challenge in economic development, then, is how to create the conditions for rapid and sustained productivity growth.

Microeconomic foundations of productivity

Stable political, legal, and social institutions and sound macroeconomic policies create the potential for improving national prosperity. But wealth is actually created at the microeconomic level—in the ability of firms to create valuable goods and services using efficient methods. Only in this way can a nation support high wages and the attractive returns to capital necessary to support sustained investment (see Figure 1).

The microeconomic foundations of productivity rest on two interrelated areas: (1) the sophistication with which domestic companies or foreign subsidiaries operating in the country compete, and (2) the quality of the microeconomic business environment in which they operate.

The productivity of a country is ultimately set by the productivity of its companies. An economy cannot be competitive unless companies operating there are competitive, whether they are domestic firms or subsidiaries of foreign companies. However, the sophistication and productivity of companies are inextricably intertwined with the quality of the national business environment. More productive company strategies require more highly skilled people, better information, more efficient government processes, improved infrastructure, better suppliers, more advanced research institutions, and more intense competitive pressure, among other things.

Companies in a nation must upgrade their ways of competing if successful economic development is to occur. Broadly, companies must shift from competing on endowments or comparative advantages (low-cost labor or natural resources) to competing on competitive advantages arising from superior or distinctive products and processes. Companies must move from tapping foreign distribution channels to building their own channels. These and other transitions in corporate strategies and operating practices required for successful economic development are shown in Figure 2.

Figure 1: Determinants of productivity and productivity growth

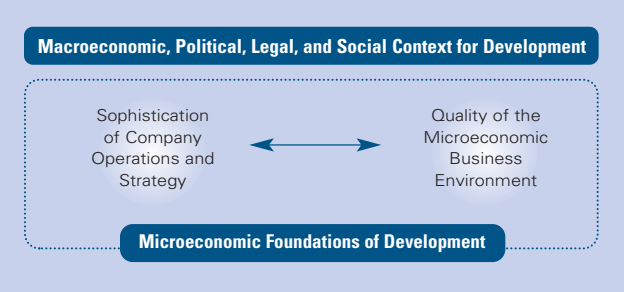
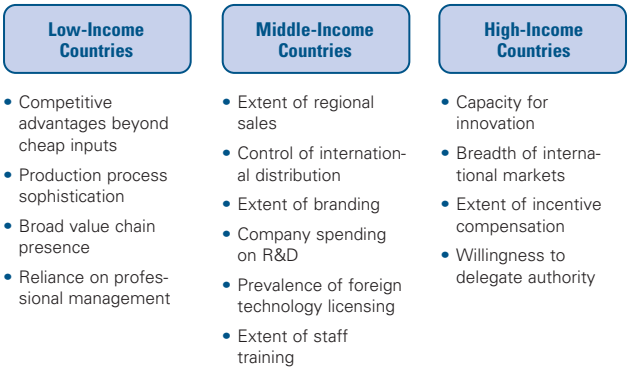


Figure 2: Company sophistication and economic development



What were strengths in competing at earlier stages of development become weaknesses at more advanced levels of development. Extensive technology licensing works for lower- and middle-income countries, but must give way to indigenous technology development. Necessary changes are often resisted by the corporate sector because past approaches were profitable and because old habits are deeply ingrained.

Moving to more sophisticated ways of competing depends on parallel changes in the microeconomic business environment. The business environment can be understood in terms of four interrelated areas: the quality of factor (input) conditions, the context for firm strategy and rivalry, the quality of local demand conditions, and the presence of the related and supporting industries. Because of their graphical representation (see Figure 3), the four areas have collectively become referred to as the *diamond*.

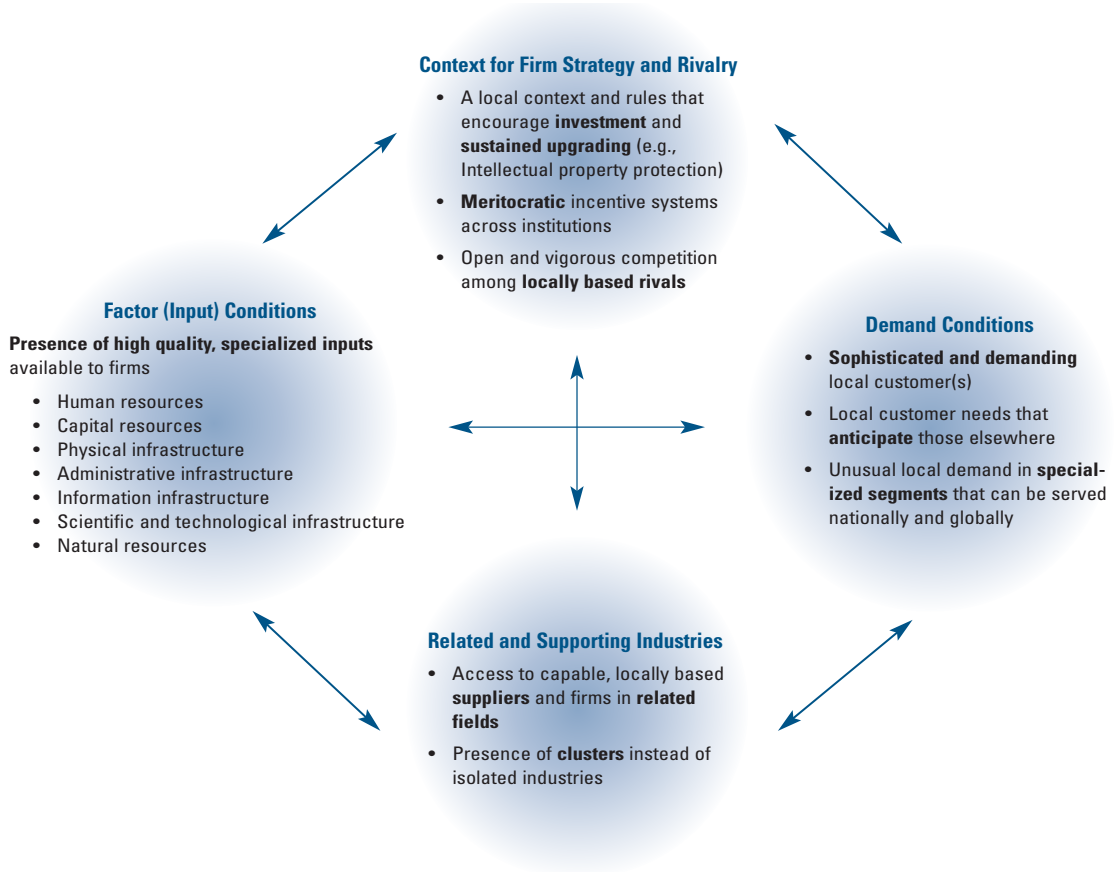
As the diamond framework reveals, *almost everything matters* for competitiveness. The schools matter, the roads matter, the financial markets matter, customer sophistication matters, among many other aspects of a nation's circumstances, many of which are deeply rooted in a nation's institutions, people, and culture. This makes improving competitiveness a special challenge, because there is no single policy or grand step that can create competitiveness, only many improvements in individual areas that inevitably take time to accomplish. Improving competitiveness is a marathon, not a sprint. How to sustain momentum in competitiveness improvements over time is among the greatest challenges facing countries.

There are distinct influences on competitiveness at *multiple geographic levels*: national, state, and local.[3] In many countries, we observe striking differences in economic performance among subnational regions. In countries such as China, India, and the United States, the benefits of decentralization of economic policy and strong initiative in individual regions is evident. The crucial need for economic strategies for subnational units such as states or regions is among the most important new directions in competitiveness thinking and practice.

National productivity can also be enhanced through coordinating policies among neighboring countries. A concerted effort to improve the business environment is needed both within countries and across countries.

Government plays an inevitable role in economic development because it affects many aspects of the business environment. Government shapes factor conditions, for example, through its training and infrastructure policies. The sophistication of home demand derives in part from regulatory standards, consumer protection laws, government purchasing practices, and openness to imports. Similar policy influences are present in all four parts of the

Figure 3: The microeconomic business environment



diamond. Many government departments and agencies impinge on competitiveness, as do government entities at the provincial, state, and city levels. The question is not whether government has a role, but what that role should be and how to coordinate policies across parts of government. Many countries have sought to limit the inappropriate roles of government while ignoring its positive roles. Government must set the right rules and incentives and make the public investments needed for a productive economy.

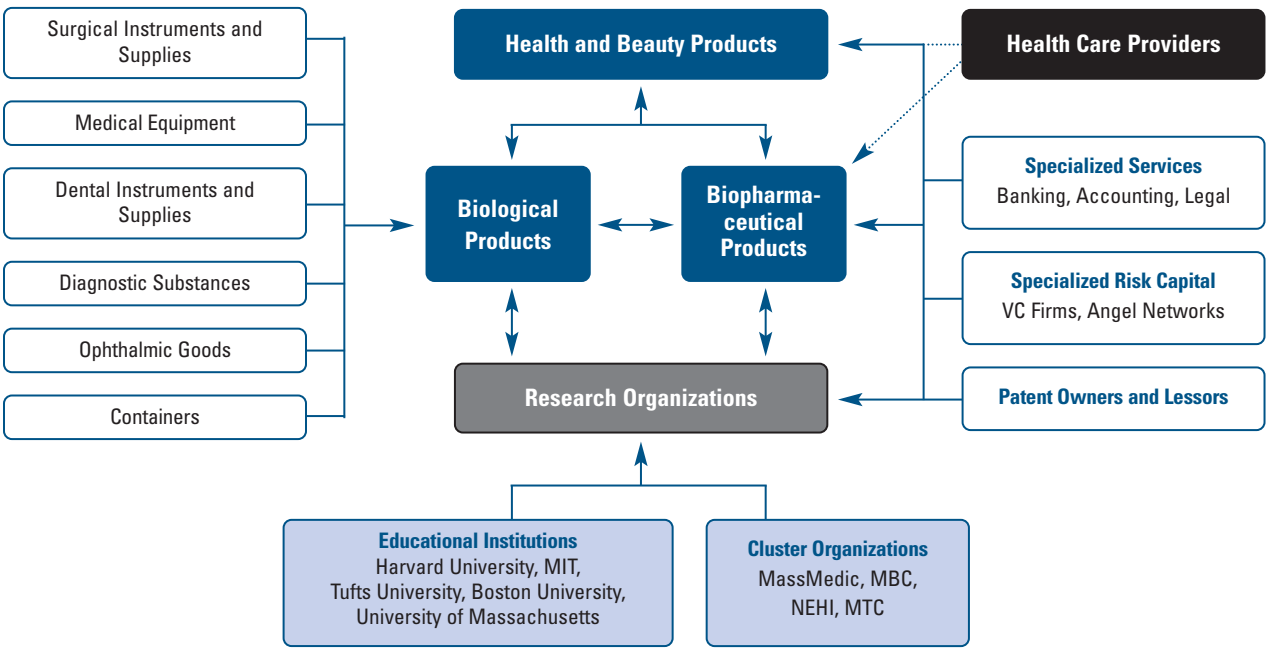
National endowments such as natural resources play a declining role in competitiveness as the resource intensity of the economy falls and as technology substitutes for resources or opens up new resource locations. The real prices of most resources or resource-intensive goods have been falling over the decades. It is the productivity with which natural resources can be utilized, not the resources themselves, that normally have the strongest influence on prosperity. Abundant natural resources also carry a risk. In countries where natural resources are abundant or dominate economic activity, forces are set in motion that limit the development of policies, skills, and attitudes enhancing competitiveness. Exploiting and redistributing resource spoils can become the dominant orientation rather than enhancing productivity. We explore the relationship between natural resource endowments and competitiveness in a later section.

Clusters and economic development

An improving business environment gives rise to the formation of clusters. *Clusters* are geographically proximate groups of interconnected companies, suppliers, service providers, and associated institutions in a particular field, linked by commonalities and complementarities. Clusters, such as software in India or high-performance cars in Germany, are often concentrated in a particular region within a larger nation, and sometimes in a single town.

Clusters affect competitiveness in three broad ways. First, they increase the productivity of constituent firms or industries. Firms with a cluster have more efficient access to specialized suppliers, employees, information, and training than isolated firms. The presence of a full range of inputs, machinery, skills, and knowledge promotes greater efficiency and flexibility than vertical integration or relationships with distant suppliers. In the Boston Life Sciences Cluster, for example, the local presence of sophisticated suppliers and research hospitals enables biotech companies to access capital and technology while operating more efficiently than in most other locations around the world.

Figure 4: The Boston Life Sciences Cluster



Source: Institute for Strategy and Competitiveness, Harvard Business School

Second, clusters increase the capacity for innovation and productivity growth. Opportunities for innovation can often be perceived more easily within clusters, and the assets, skills, and capital are more available to pursue them. In the Boston Life Sciences Cluster, for example, the presence of world-class research universities, teaching hospitals, competing biotech companies, and cluster institutions that facilitate interaction among them provide a fertile ground for new ideas and foster the rapid dissemination of knowledge: Between 1996 and 2000, Boston generated the highest number of life science patents of any economic area in the United States.

Third, clusters stimulate and enable new business formation that supports innovation and expands the cluster. The local presence of experienced workers and access to all the needed inputs and specialized services, for example, reduces the barriers to entry. In Boston, the availability of highly experienced managers, researchers, and technicians in the life science field; and access to specialized venture capital providers, lawyers, and suppliers all reduce the costs and risks of starting a new life sciences company. The many local options for employment in other cluster companies lower the perceived risk of failure.

National economies tend to specialize in particular clusters, which account for a disproportionate share of their output and exports. This specialization is even more evident in subnational regions. The nature and depth of clusters varies with the state of development of the economy. In developing countries, clusters are normally shallow or underdeveloped. Firms compete based on cheap labor or local natural resources, and they depend heavily on imported components, machinery, and technology. Specialized local infrastructure and institutions are absent or inefficient which limits local processing of products and limits quality. As economies advance, clusters develop and deepen to include suppliers of specialized inputs, components, machinery, and services; specialized infrastructure; and institutions providing specialized training, education, information, research, and technical support.

It is rare that there is only a single cluster in the world in a given field; usually there is an array of clusters in different locations with different levels of sophistication and specialization. In a given field, only a small number of clusters tend to be true innovation centers, such as Silicon Valley and Japan in semiconductors. These innovation centers sometimes specialize in particular market segments—the Silicon Valley cluster is unusually strong in microprocessors. Other locations may be manufacturing centers. Still other clusters can be regional assembly and service clusters.

Firms based in the most advanced clusters often seed or enhance clusters in other locations as they disperse some activities to reduce risk, access lower cost inputs, or better serve particular regional markets. Intel, for example, has moved some assembly and testing and some wafer fabrication to a number of non-US locations that have become regional clusters. The challenge for an economy is to move from isolated firms to an array of clusters, and upgrade the sophistication of clusters to more advanced activities.

Stages of competitive development

Successful economic development is a process of successive upgrading, in which a nation's business environment evolves to support and encourage increasingly sophisticated and productive ways of competing by firms based there. Nations at different levels of development face distinctly different challenges.

Figure 5: Stages of competitive development

Source: Porter (1990)

As nations develop, they progress in terms of their competitive advantages and modes of competing.[4] In the Factor-Driven stage, basic factor conditions such as low-cost labor and unprocessed natural resources are the dominant sources of competitive advantage and exports. Firms produce commodities or relatively simple products designed in other, more-advanced countries. Technology is assimilated through imports, supply agreements, foreign direct investment, and imitation. In this stage, companies compete on price and lack direct access to consumers. They have limited roles in the value chain, focusing on assembly, labor-intensive manufacturing, and resource extraction. A Factor-Driven economy is highly sensitive to world economic cycles, commodity prices, and exchange rate fluctuations.

In the Investment-Driven stage, efficiency in producing standard products and services becomes the dominant source of competitive advantage. Heavy investment in efficient infrastructure, business-friendly government administration, strong investment incentives, and better access to capital allow major improvements in productivity. The products and services produced become more sophisticated, but technology and designs still come largely from abroad. Technology is accessed through licensing, joint ventures, foreign direct investment, and imitation. However, nations at this stage not only assimilate foreign technology but also begin to develop the capacity to improve on it. Companies serve a mix of OEM customers

and end users. Firms extend capabilities more widely in the value chain. An Investment-Driven economy is concentrated on manufacturing and on outsourced service exports. It is susceptible to financial crises and external, sector-specific demand shocks.

In the Innovation-Driven stage, the ability to produce innovative products and services at the global technology frontier, using the most advanced methods, becomes the dominant source of competitive advantage. The national business environment is characterized by strengths in all areas, together with the presence of deep clusters. Institutions and incentives supporting innovation are well developed. Companies compete with unique strategies that are often global in scope. An Innovation-Driven economy has a high share of services in the economy and is resilient to external shocks. (See Chapter 2.3 for a more extensive discussion on the sources of innovative capacity at the national level and comparisons across countries.)

Seeing economic development as a sequential process of building interdependent microeconomic capabilities, shifting company strategies, improving incentives, and increasing rivalry exposes important pitfalls in economic policy. The influence of one part of the microeconomic business environment depends on the state of others. Lack of improvement in any important area can lead to a plateau in productivity growth and stalled development. Worse still, it can undermine the whole economic reform process. When well-trained college graduates cannot find appropriate jobs because companies are still competing based on cheap labor, for example, a backlash against business is created.

This analysis also begins to reveal why countries find the transition to a new stage of development so difficult. Such inflection points require wholesale transformation of many interdependent aspects of competition. The central and eastern European countries poised to join the European Union (EU) face such challenges. With a legal framework and many EU policies designed for current members of the EU, they must compete despite having economies at a different level. The strong EU focus on technological innovation rather than applying established processes, for example, is out of sync with the challenges of integrating into tougher European markets.

Institutions and roles in economic development

Although government is important to competitiveness, government alone is less and less able to build a competitive economy. Many other national and local institutions also have a role in competitiveness and economic development. The influence of universities and schools is growing as knowledge and technology become more and more central to competition. Universities and schools must not only improve the educational and research capabilities, but become better connected to the private sector.

The private sector has also become a crucial actor in improving competitiveness and in setting economic policy. The private sector is not only a consumer of the business environment, but it also can and must play a role in shaping it. Individual firms, through steps such as establishing educational programs, attracting suppliers, or defining standards, not only benefit themselves but also improve the overall environment for competing. Collective industry bodies, such as trade associations and chambers of commerce, also have important roles to play in improving infrastructure, providing training, and developing export markets that are often overlooked. Collective efforts to enhance the capabilities of individual companies, such as quality certification programs and manufacturing assistance centers, are becoming more prominent. Engagement of the private sector in competitiveness is also important to provide the *continuity of attention* necessary to sustain progress through changes of government and to counteract the relatively short attention span of political leaders.

Finally, a whole class of institutions, which we term *Institutions for Collaboration* (IFCs), play an important role in competitiveness, though they have been largely ignored in economic development thinking.[5] Neither government agencies, educational institutions, nor firms, these organizations—trade associations, entrepreneur networks, standard setting agencies, quality centers, technology networks, and many others—are common. They are especially prevalent in the most advanced economies, but also play crucial roles in developing countries. IFCs play an essential role in connecting the parts of the diamond and fostering efficient collective activities in both advanced and developing countries.

The relationship between macroeconomic and microeconomic policy

Our analysis makes it clear why the traditional focus on macroeconomic stabilization and market opening is insufficient. Macroeconomic policies fostering high rates of capital investment, for example, will not translate into rising productivity unless the forms of investment are appropriate, the company skills and supporting industries are present to make the investments efficient, and strong competitive pressures and adequate corporate governance provide the needed market discipline. Sound monetary and fiscal policies and the removal of distortions in exchange rates and other prices will eliminate impediments to productivity, but microeconomic foundations must be in place if productivity is actually to increase.

Appropriate levels of foreign debt depend on microeconomic circumstances. The prudence of foreign debt levels depends on exactly where the foreign capital is invested, together with the microeconomic fundamentals

surrounding its deployment and governance. Regulating overall debt levels is less important, in many ways, than improving the microeconomic foundations.

High rates of public investment in human capital will not pay off unless a nation's microeconomic circumstances create the demand for skills in companies. Privatization will not boost prosperity unless companies can improve efficiency and are pressured by local competition. For sound policies at the macroeconomic level to translate into an increasingly productive economy, then, parallel microeconomic improvements must take place.

The effects of trade agreements and other market opening measures, a major focus in today's international economic policymaking, also depends on microeconomic policies. Market opening is good, but its benefits in terms of prosperity depend on microeconomic progress. If the local business environment does not become more efficient and local companies do not improve their productivity and sophistication, then market opening will boost imports, while growth in exports and the attraction of foreign investment will be painfully slow. Improvement in the microeconomic business environment begins *before* market opening measures are complete.

A greater focus on microeconomic reforms will pay another essential dividend. While macro reforms almost inevitability inflict hardship in the short and medium run through raising interest rates and prices while cutting public expenditures, micro reforms can produce tangible and visible benefits for citizens. Breaking up local cartels and monopolies, for example, lowers the cost of food, housing, electricity, telephone service, and other costs of living. Regulatory reform can rapidly begin to ease inefficiencies, reduce pollution, improve product quality, and end unsafe practices. Bold steps to improve the quality of education and training are particularly important because they offer the hope of a better life for children. If citizens see businesses reforming themselves and having to confront tough competitive challenges, they themselves will be more willing to live with personal sacrifices and less likely to side with antireform interest groups. The political will and public support to make real economic change is elevated.

Ranking competitiveness

Measures of competitiveness

The Business Competitiveness Index (BCI) is constructed from measures drawn primarily from the survey of 7,707 senior business leaders in 101 countries, shown in Table 1.[6] Compared to 2002 we have added 21 countries: Algeria, Angola, Cameroon, Chad, Egypt, Ethiopia, Gambia, Ghana, Kenya, Macedonia, Madagascar, Malawi, Mali, Malta, Mozambique, Pakistan, Senegal, Serbia, Tanzania, Uganda, and Zambia. Egypt has been restored to the rankings after having been excluded last year due to the unavailability of Survey data.

Measuring competitiveness is challenging because of the sheer number and variety of influences that shape national productivity. Only through a detailed survey can textured measures of the competitive environment and company practices be assembled across many countries. The Survey questions aim to capture the state of circumstances in a nation, but do so in way that is meaningful for Survey respondents. For example, we get at the stock of basic human capital with a question on the quality of public schools because this is something that respondents can compare more readily across countries. The quality of schools, a flow measure, will be highly correlated with the stock of basic skills.

Quantitative measures are utilized for patenting rates, Internet penetration, and cellular phone penetration. For all of the other dimensions we measure, however, quantitative data are simply unavailable, especially for so many countries. The Survey not only offers many unique measures, but captures the informed judgments of thousands of actual participants in the economies examined. The Survey responses are important in their own right, because they reflect the attitudes of the decision makers that ultimately determine economic activity.

In an effort to broaden the rankings, a large number of low income countries participated in the Survey this year for the first time, many with relatively isolated economies. In view of this, we undertook additional efforts to examine the consistency of the survey data. For each Survey question we compared the standard deviation of answers within a country to the standard deviation of answers across all countries. This is a weak statistical test that the vast majority of countries easily meet. However, in those countries with high within-country variance of responses for many Survey questions, it is hard to interpret the country averages independently of the possible reasons for the variances.[7] In addition to examining all responses for each country, we further analyzed within-country consensus in the subset of responses from executives from foreign companies operating in the country. We expect these respondents to have the best perspective on how the country compares to others.

For the 80 countries ranked last year, there were few data issues.[8] We rank the 80 countries in last year's sample and compare their rankings to previous years in Table 1.

Of the new countries, 15 countries had overall survey data with a high degree of within-country consensus or foreign company responses with a high degree of within-country consensus.[9] The original 80 countries plus this group constituted a 95-country sample that was used to calculate the regression utilized to validate variables and to compute the Index model. The final 6 countries, all low-income countries, had low within-country consensus,

Table 1: The Business Competitiveness Index, constant country sample of 80 countries

	BCI ranking						Company operations and strategy ranking						Quality of the national business environment ranking						2002 GDP per capita rank	2002 GDP per capita (PPP-adjusted)*
Country	2003	2002	2001*	2000	1999	1998	2003	2002	2001	2000	1999	1998	2003	2002	2001	2000	1999	1998		
Finland	1	2	1	1	2	2	4	4	2	3	7	8	1	2	1	1	2	2	15	25,859
United States	2	1	2	2	1	1	2	1	1	2	1	2	2	1	2	2	1	1	2	35,158
Sweden	3	6	6	7	4	7	3	6	6	6	3	4	5	8	6	11	7	9	19	25,315
Denmark	4	8	8	6	7	8	7	9	9	8	9	10	3	9	10	4	6	7	3	29,975
Germany	5	4	4	3	6	4	1	2	4	1	5	1	9	4	4	6	5	8	12	26,324
United Kingdom	6	3	7	8	10	5	8	3	7	11	13	9	6	3	8	9	8	5	16	25,672
Switzerland	7	5	5	5	5	9	5	5	5	5	2	3	8	6	5	10	9	10	7	28,359
Singapore	8	9	9	9	12	10	12	14	15	15	14	12	4	5	9	5	12	6	21	23,393
Netherlands	9	7	3	4	3	3	10	8	3	7	8	5	11	10	3	3	3	4	10	27,275
France	10	15	13	15	9	11	9	10	10	9	6	6	14	21	13	15	11	13	14	26,151
Australia	11	14	14	10	13	15	18	19	24	20	19	22	7	11	7	7	10	12	8	27,756
Canada	12	10	12	11	8	6	14	13	14	16	12	15	10	7	11	8	4	3	5	28,699
Japan	13	11	10	14	14	18	6	7	8	4	4	7	20	17	16	19	19	19	17	25,650
Iceland	14	17	16	17	22	24	15	17	16	14	21	28	12	14	15	16	21	23	4	29,614
Belgium	15	13	15	12	15	19	11	11	12	10	11	13	17	15	14	13	15	18	11	26,695
Taiwan	16	16	21	21	19	20	16	16	20	18	17	16	16	13	21	21	22	21	20	23,420
Austria	17	12	11	13	11	16	13	12	11	12	10	11	18	12	12	12	13	17	6	28,611
New Zealand	18	22	20	19	16	17	23	25	19	22	16	19	13	20	20	17	14	16	23	20,455
Hong Kong SAR	19	19	18	16	21	12	22	24	21	23	24	17	15	16	17	14	18	11	13	26,235
Israel	20	18	17	18	20	21	20	20	18	13	18	21	19	18	18	20	20	20	24	19,382
Ireland	21	20	22	22	17	13	17	15	17	19	20	18	22	22	22	22	17	14	9	27,642
Norway	22	21	19	20	18	14	21	23	23	21	23	14	21	19	19	18	16	15	1	36,047
Korea	23	23	26	27	28	28	19	21	26	25	27	24	25	23	29	28	30	28	28	16,465
Italy	24	24	23	24	25	26	24	18	13	17	15	20	23	24	24	26	27	27	18	25,570
Spain	25	25	24	23	23	22	25	22	22	24	22	23	26	25	23	23	23	22	22	20,697
Malaysia	26	26	37	30	27	27	26	27	37	30	25	34	24	26	37	30	31	26	43	8,922
South Africa	27	29	25	25	26	25	28	31	25	26	28	33	28	33	27	25	25	25	37	10,132
Estonia	28	30	28	—	—	—	36	36	32	—	—	—	27	28	26	—	—	—	33	11,712
Latvia	29	45	41	—	—	—	29	48	35	—	—	—	31	42	42	—	—	—	42	8,965
Slovenia	30	27	32	—	—	—	27	26	28	—	—	—	34	27	35	—	—	—	27	17,748
Thailand	31	35	38	40	39	37	31	33	42	47	43	37	32	35	39	40	39	36	50	6,788
Chile	32	31	29	26	24	23	34	35	30	27	26	25	30	31	30	24	24	24	40	9,561
Tunisia	33	32	—	—	—	—	38	37	—	—	—	29	30	—	—	—	—	—	51	6,579
Brazil	34	33	30	31	35	35	30	28	29	29	32	27	39	36	32	32	37	39	48	7,516
Czech Republic	35	34	34	34	41	30	33	34	41	41	55	31	38	34	31	34	36	33	29	15,148
Portugal	36	36	33	28	29	33	46	41	38	35	37	48	33	32	28	27	26	30	26	17,808
India	37	37	36	37	42	44	40	40	43	40	48	50	36	37	34	37	43	42	72	2,571
Hungary	38	28	27	32	33	31	45	29	33	34	36	39	37	29	25	31	33	31	30	13,129
Greece	39	43	46	33	36	38	39	47	51	32	45	32	40	41	43	33	34	38	25	18,184
Lithuania	40	40	50	—	—	—	41	39	47	—	—	—	41	39	47	—	—	—	38	10,015
Jordan	41	53	47	35	32	32	57	59	56	46	44	42	35	48	41	35	28	32	64	4,106
Slovak Republic	42	42	40	36	48	36	44	43	57	31	51	40	42	40	36	36	47	37	31	12,426
Mauritius	43	49	51	38	30	—	35	42	49	37	29	—	45	50	50	38	29	—	35	10,530
Costa Rica	44	39	48	43	38	—	32	32	34	39	35	—	46	47	51	42	41	—	45	8,470
China	45	38	43	44	49	42	42	38	39	38	31	35	43	38	46	45	50	44	62	4,475
Poland	46	46	42	41	37	41	43	46	55	36	38	38	44	45	40	41	38	40	36	10,187
Mexico	47	55	52	42	34	39	37	45	46	42	30	29	50	60	52	43	35	41	44	8,707
Morocco	48	48	—	—	—	—	48	50	—	—	—	—	48	46	—	—	—	—	68	3,767
Vietnam	49	60	62	53	50	43	52	67	64	50	41	36	47	58	62	52	49	43	76	2,240
Colombia	50	56	57	48	52	49	49	51	52	48	40	43	53	57	59	48	53	49	56	6,068
Turkey	51	54	35	29	31	29	50	56	44	28	33	26	54	55	33	29	32	29	55	6,176
Trinidad and Tobago	52	44	31	—	—	—	53	44	27	—	—	—	52	44	38	—	—	—	41	9,114
Botswana	53	57	—	—	—	—	63	64	—	—	—	—	49	51	—	—	—	—	46	8,244
Namibia	54	51	—	—	—	—	61	58	—	—	—	—	51	49	—	—	—	—	52	6,410
Jamaica	55	59	39	—	—	—	54	60	31	—	—	—	55	59	44	—	—	—	67	3,774
Sri Lanka	56	47	58	—	—	—	51	52	58	—	—	—	57	43	56	—	—	—	69	3,447
Panama	57	50	49	—	—	—	58	54	40	—	—	—	58	52	49	—	—	—	57	5,972
Indonesia	58	64	55	47	53	51	59	55	50	51	47	52	59	65	58	47	52	51	71	3,138
Dominican Republic	59	41	60	—	—	—	55	30	59	—	—	—	60	53	61	—	—	—	54	6,197
Croatia	60	52	—	—	—	—	62	53	—	—	—	—	56	54	—	—	—	—	39	9,967
El Salvador	61	63	64	51	47	—	56	61	66	57	46	—	62	62	64	50	48	—	61	4,675
Philippines	62	61	53	46	44	45	47	49	45	43	34	41	66	67	54	46	46	45	65	4,021
Russian Federation	63	58	56	52	55	46	64	62	54	33	42	45	61	56	55	53	55	47	47	7,926
Argentina	64	65	54	45	40	34	60	57	53	45	39	30	65	68	53	44	40	34	34	10,594
Uruguay	65	62	45	—	—	—	70	63	48	—	—	—	63	61	45	—	—	—	32	12,118
Ukraine	66	69	59	56	56	52	66	66	62	52	50	51	68	69	57	56	56	52	60	4,714
Romania	67	67	61	—	—	—	72	69	63	—	—	—	64	64	60	—	—	—	53	6,326
Bulgaria	68	68	68	55	54	—	73	72	70	54	52	—	67	63	65	54	54	—	49	6,909
Zimbabwe	69	70	65	50	45	48	65	68	60	56	54	46	71	70	67	49	45	48	77	1,993
Nigeria	70	71	66	—	—	—	67	71	61	—	—	—	70	71	68	—	—	—	80	851
Peru	71	66	63	49	46	47	71	65	65	53	56	49	69	66	63	51	44	46	59	4,924
Venezuela	72	72	67	54	51	50	68	73	67	49	53	44	72	72	66	55	51	50	58	5,226
Guatemala	73	73	69	—	—	—	69	70	69	—	—	—	73	73	69	—	—	—	66	3,927
Ecuador	74	77	72	57	57	—	74	74	71	55	57	—	75	77	72	58	57	—	70	3,357
Bangladesh	75	74	73	—	—	—	76	76	72	—	—	—	74	74	73	—	—	—	78	1,736
Nicaragua	76	75	71	—	—	—	77	75	73	—	—	—	76	76	70	—	—	—	74	2,510
Honduras	77	78	74	—	—	—	75	78	74	—	—	—	77	79	75	—	—	—	73	2,520
Paraguay	78	76	70	—	—	—	78	77	68	—	—	—	79	75	71	—	—	—	63	4,419
Bolivia	79	79	75	58	58	—	79	79	75	58	58	—	78	78	74	57	58	—	75	2,360
Haiti	80	80	—	—	—	—	80	80	—	—	—	—	80	80	—	—	—	—	79	1,578

Note: GNI per capita is used for Ireland

even among units of foreign companies. We calculated Index rankings for all 101 countries shown in Table 2, with those marked with an asterisk subject to large variance in some of the Survey data.[10] The quality of Survey responses is expected to improve with future educational efforts and improved sampling in these countries. In the meantime, these rankings should be interpreted with caution.

For the 95-country sample used in the regressions and for computing the Index model, there is an average of more than 70 respondents per country. The degree of within-country consensus is striking. For all measures, the proportion of variation due to country differences is statistically significant. For most measures, between one third and one half of the overall variation in the responses is driven by country-specific differences for that measure. As expected, the within-country consensus rate is higher for cross-cutting business environment indicators, such as overall infrastructure quality, and lower for measures where there would be variation within the country across companies and clusters, such as state of cluster development. The country averages, then, capture meaningful differences across countries in competitive circumstances while limiting idiosyncratic biases that would result if there were only a handful of responses per country.

The dependent variable used to develop the BCI is the level of GDP per capita in 2002, adjusted for purchasing power parity (PPP).[11] GDP per capita is the broadest measure of national productivity and is strongly linked over time to a nation's standard of living.[12] It is the best single, summary measure of microeconomic competitiveness available across all countries.[13] GDP per capita will reflect a country's structural fundamentals over the medium and long term. However, it is also influenced by a wide array of short-term and idiosyncratic factors such as natural disasters, macroeconomic shocks, and price movements in particular export industries. The proportion of the variation in GDP per capita across all countries that can be explained by microeconomic fundamentals is interesting in its own right.

To explore differences in the sources of competitiveness across countries at different levels of development, we divided countries into three groups based on income. There is no accepted division among low-, medium-, and high-income countries, and efforts to define income cutoffs statistically have not proved fertile. Instead, we proceed pragmatically, dividing countries based on two criteria. First, we use income cutoffs that yield to logical divisions of countries in terms of aspiration and competitive position. Second, we ensure that there are enough countries in each group to allow meaningful statistical tests. This year, with the addition of many low-income countries, we were for the first time in a position to move the cutoffs down to levels that we believe are more appropriate: US$4,000 GDP per capita (PPP) for low- to middle-income countries and US$17,000 GDP per capita (PPP) for medium- to high-income countries. Hence Israel, Portugal, Greece, and Slovenia become part of the high-income group, and Thailand, Tunisia, Namibia, Romania, the Dominican Republic, Turkey, Colombia, Panama, Venezuela, Peru, the Ukraine, El Salvador, China, Paraguay, Jordan, and the Philippines become part of the middle-income group. Since there are likely to be relatively few new countries added to the sample in the future, these cutoffs should remain stable. However, differences between this year's and last year's income analysis should be interpreted with caution.

The addition of many low-income countries allows a wider separation between income groups compared to previous years. In our sample made for statistical analysis of 95 countries, there were 28 low-income countries with a purchasing power–adjusted US-dollar GDP per capita in 2002 below US$4,000, 39 middle-income countries with GDP per capita between US$4,000 and US$17,000, and 28 high-income countries with a GDP per capita above US$17,000. With the exception of Malta (high-income) and Algeria (middle-income), the new countries entering the Survey fall into the low-income group. As will be reported, these groups exhibited different patterns of influence among variables.

Sources of competitiveness

To construct an overall index of competitiveness, we first validated the statistical relationship of a wide array of measures of microeconomic competitiveness with GDP per capita that are suggested by our conceptual framework. Variables are drawn from Survey responses and available quantitative measures, and are grouped into those measuring the sophistication of company operations and strategy and those measuring the quality of the national business environment. A number of new questions were included in the Survey this year, with several addressing the context for company strategy and rivalry. A full list of Survey questions and available quantitative measures is given in Appendix A.

Table 3 gives bivariate regressions on GDP per capita that proved the most statistically significant. Included in the table is the mean response across all countries or groups of countries, the slope of the regression relationship, a measure of the statistical significance of the relationship, and the adjusted R^2 (or proportion of variation in GDP per capita explained by the variable, adjusted for statistical degrees of freedom).[14] While the bivariate regressions are not meant to represent a fully specified model, they provide a basic test of whether the variables have a meaningful relationship with the level of GDP per capita across countries. All the reported variables are highly statistically significant in the full sample of countries. A wide

Table 2: The Business Competitiveness Index, full sample of 101 countries

Country	BCI ranking, 2003	Company operations and strategy ranking, 2003	Quality of the national business environment ranking, 2003	2002 GDP per capita rank	2002 GDP per capita (PPP adjusted)
Finland	1	4	1	15	25,859
United States	2	2	2	2	35,158
Sweden	3	3	5	19	25,315
Denmark	4	7	3	3	29,975
Germany	5	1	9	12	26,324
United Kingdom	6	8	6	16	25,672
Switzerland	7	5	8	7	28,359
Singapore	8	12	4	21	23,393
Netherlands	9	10	11	10	27,275
France	10	9	14	14	26,151
Australia	11	18	7	8	27,756
Canada	12	14	10	5	28,699
Japan	13	6	20	17	25,650
Iceland	14	15	12	4	29,614
Belgium	15	11	17	11	26,695
Taiwan	16	16	16	20	23,420
Austria	17	13	18	6	28,611
New Zealand	18	23	13	23	20,455
Hong Kong SAR	19	22	15	13	26,235
Israel	20	20	19	24	19,382
Ireland	21	17	22	9	27,642
Norway	22	21	21	1	36,047
Korea	23	19	25	29	16,465
Italy	24	24	23	18	25,570
Spain	25	25	26	22	20,697
Malaysia	26	26	24	44	8,922
South Africa	27	28	28	38	10,132
Estonia	28	36	27	34	11,712
Latvia	29	29	31	43	8,965
Slovenia	30	27	34	27	17,748
Thailand	31	31	32	51	6,788
Chile	32	34	30	41	9,561
Tunisia	33	38	29	52	6,579
Brazil	34	30	39	49	7,516
Czech Republic	35	33	38	30	15,148
Portugal	36	46	33	26	17,808
India	37	40	36	77	2,571
Hungary	38	45	37	31	13,129
Greece	39	39	40	25	18,184
Lithuania	40	41	41	39	10,015
Jordan	41	59	35	67	4,106
Malta	42	47	42	28	17,344
Slovak Republic	43	44	43	32	12,426
Mauritius	44	35	46	36	10,530
Costa Rica	45	32	47	46	8,470
China	46	42	44	65	4,475
Poland	47	43	45	37	10,187
Mexico	48	37	51	45	8,707
Morocco	49	49	49	71	3,767
Vietnam	50	53	48	81	2,240
Colombia	51	50	54	58	6,068
Turkey	52	51	55	57	6,176
Trinidad and Tobago	53	54	53	42	9,114
Botswana	54	67	50	47	8,244
Namibia	55	64	52	53	6,410
Jamaica	56	56	56	70	3,774
Sri Lanka	57	52	59	73	3,447
Egypt	58	55	62	72	3,701
Panama	59	60	60	59	5,972
Indonesia	60	62	61	76	3,138
Dominican Republic	61	57	63	56	6,197
Croatia	62	65	58	40	9,967
Ghana*	63	66	57	83	2,050
El Salvador	64	58	65	64	4,675
Philippines	65	48	74	68	4,021
Russian Federation	66	69	64	48	7,926
Kenya	67	61	72	94	992
Tanzania	68	68	67	101	557
Argentina	69	63	73	35	10,594
Gambia*	70	80	66	87	1,723
Uruguay	71	77	68	33	12,118
Malawi	72	71	76	100	586
Ukraine	73	72	77	63	4,714
Uganda*	74	78	69	91	1,354
Pakistan	75	81	70	84	2,014
Romania	76	84	71	54	6,326
Bulgaria	77	85	75	50	6,909
Zimbabwe	78	70	81	85	1,993
Serbia	79	75	79	75	3,270
Nigeria	80	73	80	96	851
Peru	81	83	78	62	4,924
Macedonia*	82	79	83	55	6,262
Cameroon*	83	86	82	88	1,712
Zambia	84	82	85	97	806
Venezuela	85	74	87	61	5,226
Guatemala	86	76	88	69	3,927
Senegal	87	94	84	90	1,535
Algeria	88	93	86	60	5,536
Ecuador	89	87	92	74	3,357
Madagascar	90	88	90	98	735
Bangladesh	91	91	91	86	1,736
Mali*	92	98	89	95	878
Mozambique	93	90	95	92	1,237
Nicaragua	94	92	93	79	2,510
Honduras	95	89	96	78	2,520
Ethiopia	96	96	94	99	724
Paraguay	97	95	98	66	4,419
Bolivia	98	97	97	80	2,360
Chad	99	99	99	93	1,008
Haiti	100	101	100	89	1,578
Angola	101	100	101	82	2,053

(cont'd.)

* Survey data for these countries have high within-country variance. Until the reliability of Survey responses improves with future educational efforts and improved sampling in these countries, their rankings should be interpreted with caution.

range of company practices and multiple dimensions of the business environment prove strongly related to competitiveness. These findings are highly consistent with results from earlier *Global Competitiveness Reports*. While a bilateral statistical correlation to GDP per capita does not necessarily imply causation, it does refute the hypothesis that microeconomic variables have no important relation to prosperity. Interestingly, prominent macroeconomic variables such as the national savings rate and the level of investment as a percentage of GDP are either not significantly related to the level of GDP per capita in bilateral regressions or are associated with only a minor share of its variation across countries.[15]

Among the company variables, production process sophistication, the willingness to delegate authority, the extent of branding, the capacity for innovation, and the extent of staff training have the strongest bilateral association with per capita GDP. By itself, the measure of overall competitive approach—whether competitive advantage is based on cheap inputs or on unique products and processes—explains a remarkable 68 percent of the variance in GDP per capita.

All four parts of the business environment prove important, with the influences of individual variables highly stable from previous years. Among factor conditions, telecommunication access (cellular phone and Internet use), the quality of electricity supply, the quality of public schools, and university-industry research collaboration have the strongest bilateral association with GDP per capita. Many of the most important influences on GDP per capita relate to policies and institutions rather than factor stocks.

Measures of local demand conditions perform particularly strongly. The presence of demanding regulatory standards, stringent environmental regulations, and buyer sophistication, among other measures, are strongly associated with the variation in GDP per capita. These results run counter to the perceived wisdom that local demand and local market conditions are not important in a global economy.

Cluster linkages, especially the quality of local suppliers and the presence of specialized local research and training providers, also prove significant and highlight the role of clusters in competitiveness. Finally, the incentives and rules governing local competition show a strong relationship to national productivity. Intellectual property protection, the prevalence of illegal or unfair activities (corruption), the effectiveness of antitrust policy, and the openness to trade tariff and nontariff barriers are particularly potent variables.

It is important to acknowledge that causality can be argued in both directions for some of the variables, though the Survey questions were worded to avoid spurious reverse causality. The quality of scientists and engineers or the sophistication of buyers, for example, could be partly the *result* of high per capita GDP and not the cause. Note that the same causality issue applies to macroeconomic and economic growth analyses. We provide some evidence of causality from microeconomic conditions to GDP per capita later in this chapter, but more years of surveying will be required to establish definitive cause-and-effect relationships.

Competitiveness and economic development

As has been discussed, the appropriate company strategies and operating practices, as well as the influence of particular elements of the business environment will differ for countries at different levels of development. As noted earlier, the transition to entirely different stages of competitive development is particularly challenging.

To examine these issues, we explored the impact of measures of microeconomic competitiveness in the three country groups based on per capita GDP. While the reported variables are statistically significant across the entire sample and strongly distinguish countries across groups, individual variables, as expected, differ in their influence within groups. Some variables will not yet be important for low-income countries. Others may act via a threshold a country may have to reach.

The right-hand side of Table 3 presents regressions by income subgroups. We explore the differences in the mean Survey response, the differences in slope as well as the pattern of statistical significance of each variable with the caveat that limitations on subgroup sample size and the more limited variation of the dependent variable within subgroups reduce statistical power.

It is notable that for all variables the mean Survey response increases as we compare low- and high-income countries. This confirms the fact that economic development is associated with sustained improvement across many aspects of the business environment and company behavior. However, we find distinctive differences in the relative importance and trajectory of improvements of particular of the process of development.

Low-income countries

For low-income countries at the Factor-Driven stage of development, the ability to move beyond competing solely on cheap labor/natural resources is the essential challenge revealed in the regressions. At the company level, improving the sophistication of production processes, extending the presence along the value chain, and beginning to practice marketing and branding are revealed as most significant. Some progress in professionalizing the organization and widening international presence is important. At this stage, progress on other dimensions of corporate strategy and operations, especially those related to distinctive products or technology, is premature.

Low-income countries score low on most measures of the business environment, but especially on infrastructure, educational quality, cluster development, capital access, and measures related to technology and innovation. Priorities for improving the business environment in low-income countries revealed in the regressions start with upgrading the quality of infrastructure (including electricity, communications, and transportation networks) and schools. Also revealed as important are the creation of financial markets (access to risk capital and loans), the strengthening of emerging clusters (local supplier quality, local availability of machinery and components, and local availability of process machinery), and the opening of competitive processes (reduction of trade barriers and favoritism in decisions by government officials). All these steps create a foundation of efficiency, transparency, and competitive pressure that supports Factor-Driven competition. Other aspects of the business environment, such as expanding the availability of scientists and engineers, and updating regulatory standards are not yet priorities at this stage of development.

Middle-income countries

Moving into middle income, the task is to move beyond Factor-Driven competition to the Investment-Driven stage. The regressions suggest the following patterns: improving production process sophistication remains the single most important corporate priority. But companies must also begin to build brands (versus relying on commodities or products designed by foreign OEMs), expand regional and international markets, create the capacity for technology absorption and innovation, and increase the professionalism of employees and management. Their biggest challenge remains the nature of their competitive advantages, often still based solely on low cost of production inputs.

To reach the middle-income level, countries must have improved in basic factor conditions such as physical infrastructure and human resources. Continued progress in some of those areas remains important, with public schools, electricity supply, telecommunication quality, and Internet usage particularly significant, as revealed in the regressions. Success as a middle-income county also raises new challenges in the business environment. Improving university-industry research collaboration and the quality of research institutions becomes important. The quality of the judicial system becomes significant. Improving local demand conditions, for example through more stringent environmental and consumer protection laws, is needed to pressure improvements in producer quality. All aspects of cluster development become significant, with widening the supplier base and improving the availability of specialized research and training institutions registering the greatest absolute impact in statistical terms. Finally, moving to higher levels of competition and rivalry is needed in many dimensions, including tariff and nontariff barrier liberalization, improving antitrust policy, and opening the market for corporate control.

High-income countries

To reach high-income status, improvement in quality and efficiency are no longer enough. The hurdle is to move to the Innovation-Driven stage. The patterns of regressions suggest the following priorities: companies must develop the ability to innovate at the world technology frontier, create unique product designs, become experts in marketing, build international brands, and sell their products and services globally. Reliance on foreign technology becomes a negative. In order to accomplish this transformation, a series of organizational changes such as extensive staff training, use of greater incentive compensation, and the ability to professionalize management and delegate authority becomes necessary.

High-income countries have all achieved strengths in many aspects of the business environment. Continuing to improve infrastructure, simplicity and fairness of regulation, and schools remain important. The factors that distinguish high-income countries are concentrated in areas connected to innovation and the creation of distinctive strategies: the quality of management education, availability of scientific talent, the quality of research institutions, the extent of research collaboration with universities, venture capital availability, the sophistication of demand conditions (eg, demanding regulatory standards and local buyer sophistication), deep cluster development, decentralization of corporate activity away from large business groups, and sophisticated regulatory rules on bankruptcy and corporate governance.

Trends in competitiveness in the global economy

With several years of consistent Survey data, we can examine the trends in the variables that offset competitiveness between the 1998 Survey and the 2003 Survey.[16] Table 4 identifies those variables where substantial changes in company practices and the quality of the business environment, defined as greater than 10 percent positive or negative changes in the mean Survey responses between 1998 and 2003, were registered in eight more countries, or 15 percent of the sample of 52 countries for which we have six years of data. Other measures of change (fixed absolute changes or different percentage cutoffs) produce virtually identical results.

Overall, there is clear upgrading in national business environments. The bar is rising, and improvement here is needed just to maintain position vis-à-vis other countries. In company operations and strategy, companies are progressing along some dimensions in many countries but

Table 3: Bivariate regression results, dependent variable: 2002 GDP per capita (PPP adjusted US dollars)

	All countries (N = 95)			Low-income countries GDP per capita < $4,000 ($N$ = 28)			Middle-income countries GDP per capita > $4,000 and < $17,000 ($N$ = 39)			High-income countries GDP per capita > $17,000 except Norway ($N$ = 27)		
	Mean	Slope	Adj. R^2	Mean	Slope	Adj. R^2	Mean	Slope	Adj. R^2	Mean	Slope	Adj. R^2
I. COMPANY OPERATIONS & STRATEGY												
Production process sophistication	3.86	7378.6**	0.825	2.68	1198.5**	0.398	3.60	3573.9**	0.370	5.40	4282.3**	0.472
Nature of competitive advantage	3.55	7040.8**	0.678	2.82	504.3	0.026	3.06	1960.5**	0.081	4.99	2260.7**	0.254
Extent of staff training	3.91	8120.4**	0.705	3.04	660.6*	0.075	3.68	1775.5**	0.116	5.11	4583.9**	0.503
Extent of marketing	4.30	7559.3**	0.689	3.26	655.6**	0.179	4.17	2347.5**	0.211	5.54	5597.1**	0.533
Willingness to delegate authority	3.70	8250.4**	0.731	2.83	739.4*	0.080	3.45	1928.0*	0.073	4.89	3485.4**	0.432
Capacity for innovation	3.49	7617.3**	0.720	2.62	708.0*	0.087	3.17	2981.8**	0.275	4.82	2726.7**	0.293
Company spending on research and development	3.44	8196.3**	0.630	2.71	511.0	0.039	3.20	2625.6**	0.183	4.53	2877.8**	0.273
Value chain presence	3.82	6302.4**	0.669	2.78	839.3**	0.222	3.49	1713.9**	0.157	5.34	2069.4**	0.192
Breadth of international markets	3.87	6404.8**	0.661	2.81	579.3*	0.107	3.62	1624.8**	0.184	5.31	3132.5**	0.335
Degree of customer orientation	4.58	9638.3**	0.632	3.87	279.8	–0.015	4.44	1686.1*	0.058	5.50	6630.9**	0.462
Control of international distribution	3.87	10759.9**	0.637	3.28	953.3**	0.134	3.71	1787.6	0.042	4.69	5323.7**	0.473
Extent of branding	3.57	6902.7**	0.731	2.57	1094.4**	0.309	3.22	2693.0**	0.227	5.08	2629.5**	0.339
Reliance on professional management	4.69	7864.4**	0.559	4.05	–212.0	–0.019	4.44	2262.8**	0.203	5.69	3656.7**	0.348
Extent of incentive compensation	4.01	8652.5**	0.632	3.26	637.3	0.062	3.85	1803.5**	0.115	5.01	4139.8**	0.358
Extent of regional sales	4.56	5971.9**	0.515	3.47	281.0	0.012	4.57	1506.1**	0.165	5.66	2847.9**	0.276
Prevalence of foreign technology licensing	4.51	5651.7**	0.164	3.95	321.3	0.020	4.65	1322.0*	0.054	4.87	–1298.5	–0.030
II. NATIONAL BUSINESS ENVIRONMENT												
A. FACTOR (INPUT) CONDITIONS												
1. Physical Infrastructure												
Overall infrastructure quality	3.94	5428.4**	0.652	2.51	738.7**	0.182	3.81	1078.3**	0.093	5.58	2503.7**	0.308
Railroad infrastructure development	3.16	4276.0**	0.475	2.02	230.1	–0.003	2.91	929.6**	0.133	4.71	1382.5**	0.175
Port infrastructure quality	3.93	5253.6**	0.586	2.60	652.4**	0.256	3.78	813.9	0.046	5.49	1693.6*	0.082
Air transport infrastructure quality	4.58	5864.4**	0.494	3.66	287.3	0.013	4.38	443.3	–0.006	5.80	3197.4**	0.216
Quality of electricity supply	4.68	5381.3**	0.701	2.94	751.7**	0.408	4.77	2179.1**	0.377	6.29	4571.3**	0.491
Telephone/fax infrastructure quality	5.32	4917.3**	0.478	3.91	349.1**	0.148	5.43	1171.9**	0.104	6.59	5294.2*	0.094
Cellular telephones, 2002	35.98	270.9**	0.779	5.61	108.4**	0.464	27.66	124.5**	0.606	77.71	–95.3	0.065
Internet users, 2002	16.68	495.3**	0.840	1.49	436.8**	0.322	10.36	206.1**	0.499	40.32	198.2**	0.230
2. Administrative Infrastructure												
Reliability of police services	4.16	5939.4**	0.572	3.20	345.0	0.032	3.82	387.4	–0.012	5.59	3377.6**	0.212
Judicial independence	3.95	4951.1**	0.539	2.82	–3.3	–0.038	3.66	1003.7**	0.131	5.50	1801.7	0.067
Efficiency of legal framework	3.88	5823.7**	0.562	2.93	–4.3	–0.038	3.57	849.7*	0.053	5.26	2634.8**	0.205
Administrative burden for startups	4.04	5860.6**	0.312	3.46	5.4	–0.038	3.93	682.0	0.009	4.78	1815.3*	0.106
Extent of bureaucratic red tape	5.53	12876.9**	0.248	5.28	1206.0**	0.121	5.52	1429.8	0.011	5.77	5644.0	0.012
3. Human Resources												
Quality of management schools	4.28	7575.3**	0.611	3.34	553.5**	0.118	4.19	1558.9**	0.077	5.34	4016.8**	0.322
Quality of public schools	3.80	5585.4**	0.701	2.30	720.8**	0.148	3.69	1722.0**	0.364	5.46	2918.0**	0.175
Quality of the educational system	3.54	6380.4**	0.605	2.41	233.4	–0.015	3.42	1376.0**	0.113	4.85	2224.5**	0.120
Quality of math and science education	4.17	5627.1**	0.421	3.21	273.6	0.008	4.16	1382.8**	0.185	5.19	1897.2	0.053
4. Technology Infrastructure												
Utility patents, 2002	28.34	112.8**	0.483	0.07	2799.1**	0.141	2.83	121.1**	0.222	93.57	23.8**	0.181
Availability of scientists and engineers	4.70	6593.7**	0.422	3.96	204.1	–0.008	4.62	1508.1**	0.122	5.55	3507.7**	0.188
Quality of scientific research institutions	4.04	7852.2**	0.590	3.29	79.7	–0.035	3.84	2775.9**	0.285	5.07	3882.2**	0.333
University/industry research collaboration	3.33	8012.8**	0.656	2.48	458.2	0.031	3.13	2087.8**	0.164	4.46	3686.0**	0.318
5. Capital Markets												
Financial market sophistication	4.02	6189.1**	0.628	2.88	721.7**	0.198	3.85	872.4	0.036	5.43	3159.0**	0.318
Venture capital availability	3.24	8253.2**	0.610	2.51	1114.0**	0.285	3.03	1839.2**	0.148	4.24	2911.1**	0.176
Ease of access to loans	3.26	7883.5**	0.548	2.48	911.4**	0.214	3.13	947.8	0.022	4.20	2611.9*	0.109
Local equity market access	4.61	3723.5**	0.217	4.08	66.7	–0.030	4.33	278.5	–0.017	5.53	2479.7	0.064
B. DEMAND CONDITIONS												
Buyer sophistication	3.94	7604.6**	0.710	2.93	501.2*	0.073	3.72	2067.3**	0.134	5.28	5373.0**	0.414
Sophistication of local buyers' products and processes	4.49	9128.1**	0.660	3.66	402.5	0.010	4.37	2493.1**	0.175	5.47	4411.8**	0.207
Government procurment of advanced technology products	3.60	8329.1**	0.329	3.16	–23.5	–0.038	3.53	1464.4*	0.063	4.15	2807.0*	0.079
Presence of demanding regulatory standards	4.25	7178.5**	0.745	3.04	477.3	0.063	4.13	2934.4**	0.411	5.62	5273.6**	0.513
Laws relating to ICT	3.74	7647.1**	0.596	2.80	670.0*	0.102	3.67	1729.8**	0.158	4.76	3485.5**	0.199
Stringency of environmental regulations	4.03	6619.8**	0.741	2.83	363.6	–0.001	3.81	2496.4**	0.334	5.49	2679.2**	0.325

(cont'd.)

Table 3: Bivariate regression results, dependent variable: 2002 GDP per capita (PPP adjusted US dollars) *(cont'd.)*

	All countries (N = 95)			Low-income countries GDP per capita < $4,000 ($N$ = 28)			Middle-income countries GDP per capita > $4,000 and < $17,000 ($N$ = 39)			High-income countries GDP per capita > $17,000 except Norway ($N$ = 27)		
	Mean	Slope	Adj. R^2	Mean	Slope	Adj. R^2	Mean	Slope	Adj. R^2	Mean	Slope	Adj. R^2
II. NATIONAL BUSINESS ENVIRONMENT *(cont'd.)*												
C. RELATED AND SUPPORTING INDUSTRIES												
Local supplier quality	4.33	8170.6**	0.719	3.33	730.2**	0.150	4.20	2312.1**	0.190	5.54	6621.8**	0.567
State of cluster development	3.27	6960.8**	0.424	2.77	397.3	0.040	3.00	1343.5*	0.051	4.14	2309.3**	0.188
Local availability of process machinery	2.87	6544.6**	0.476	2.08	746.6**	0.178	2.76	1415.6**	0.101	3.84	2295.7**	0.246
Local availability of specialized research and training services	4.10	8219.7**	0.674	3.18	674.4**	0.145	3.98	3061.8**	0.279	5.21	4512.0**	0.439
Extent of collaboration among clusters	3.60	7933.6**	0.561	2.84	705.2**	0.133	3.47	1734.5**	0.122	4.53	3550.1**	0.335
Local supplier quantity	4.68	8671.7**	0.489	4.04	179.1	–0.023	4.59	2056.2**	0.119	5.45	6349.7**	0.420
Local availability of components and parts	3.22	6594.6**	0.465	2.35	643.2**	0.155	3.19	1325.5**	0.083	4.13	2527.5**	0.226
D. CONTEXT FOR FIRM STRATEGY AND RIVALRY												
1. Incentives												
Extent of distortive government subsidies	3.37	6395.3**	0.179	3.02	490.3	0.006	3.34	1120.3	0.032	3.80	238.4	–0.039
Favoritism in decisions of government officials	3.30	7231.0**	0.494	2.61	160.1	–0.030	3.09	938.2	0.023	4.27	2051.4**	0.111
Cooperation in labor–employer relations	4.45	7573.8**	0.288	4.06	–450.2	–0.004	4.33	–116.5	–0.026	4.99	2668.7**	0.189
Efficacy of corporate boards	4.45	10674.2**	0.497	4.02	–465.3	0.009	4.29	2010.5*	0.065	5.11	4574.1**	0.293
Intellectual property protection	3.82	6818.2**	0.751	2.67	725.9**	0.109	3.53	1559.7**	0.119	5.37	3893.6**	0.411
Protection of minority shareholders' interests	4.50	7490.2**	0.439	3.99	–203.4	–0.024	4.21	101.5	–0.026	5.40	2462.1*	0.081
Regulation of securities exchanges	4.80	6933.8**	0.469	4.05	4.0	–0.038	4.66	1179.6*	0.060	5.75	4111.3**	0.207
Effectiveness of bankruptcy law	4.45	6679.7**	0.625	3.48	–134.9	–0.029	4.20	995.5	0.043	5.76	4584.6**	0.497
2. Competition												
Hidden trade barriers	4.57	8000.4**	0.597	3.73	292.0	–0.019	4.41	2354.2**	0.264	5.67	964.3	–0.024
Intensity of local competition	4.75	9526.1**	0.449	4.16	81.3	–0.036	4.71	2087.5**	0.085	5.41	6273.3**	0.125
Extent of locally based competitors	4.26	7599.2**	0.377	3.58	502.6*	0.085	4.29	982.4	0.013	4.92	4594.5**	0.252
Effectiveness of antitrust policy	3.96	7596.4**	0.654	3.05	253.1	–0.017	3.73	1742.1**	0.129	5.18	3085.4**	0.178
Decentralization of corporate activity	3.93	7606.3**	0.564	3.24	186.1	–0.023	3.66	1005.4	0.011	5.01	3609.0**	0.393
Business costs of corruption	3.92	7198.4**	0.688	3.01	567.4	0.022	3.60	1674.0**	0.127	5.28	2231.9**	0.157
Cost of importing foreign equipment	5.87	10668.5**	0.579	5.20	1050.6**	0.266	5.82	2874.5**	0.184	6.65	8374.0*	0.076
Centralization of economic policymaking	2.99	6164.9**	0.337	2.50	222.8	–0.017	2.82	1569.4**	0.077	3.72	1944.3**	0.216
Prevalence of mergers and acquisitions	3.93	8565.9**	0.525	3.28	725.4**	0.140	3.82	2304.5**	0.112	4.73	3056.3**	0.292
Foreign ownership restrictions	5.02	6102.9**	0.168	4.75	–123.5	–0.032	4.92	1864.9**	0.097	5.45	1364.9	–0.001

Note: * denotes p < 0.10, ** denotes p < 0.05

there are also signs that the growing intensity of competition is making it hard to keep up, and that greater international specialization of activity is occurring.

As shown in Table 4, companies are working to professionalize management in increasingly competitive markets, the single most widespread global development among companies. Also widespread are improvements in marketing and customer orientation plus moves to regionalize sales as regional trade opening continues.

Although companies are improving in some respects, they are struggling to cope with tough international competition. Especially in middle-income countries, companies report less presence in value chain, often accompanied by greater international specialization of activities. Companies in middle-income countries are also having difficulty defending brands and maintaining global distribution and marketing presence. Overall, these observations are consistent with a global marketplace that has, in many ways, become more sophisticated and more demanding, especially for companies in middle-income countries that are trying to move away from dependence on cheap inputs.

Table 4 shows that governments around the world are continuing to reduce bureaucratic red tape, lower tariffs, improve corporate governance, upgrade financial markets, and improve infrastructure. Progress in these areas is increasingly becoming a given if countries are to participate fully in the world economy.

This year's data confirm a trend already noted last year: *middle-income economies have been less successful in sustaining the improvements in their business environments than high-income economies*. Hence, the competitive gap between economies at different stages of development seems to be rising again; this is a trend especially pronounced in some aspects of the context for firm rivalry and, alarmingly, in the quality of public schools. Recent worldwide economic conditions, coupled with debates about globalization, appear to have made it more difficult for less-developed

Table 4: Significant changes in competitive conditions in eight or more countries, 1998–2003

	Improving international competitive conditions	No. of countries			Worsening international competitive conditions	No. of countries		
		Total	L	M	H	Total	L	M	H
Sophistication of Company Operations and Strategy	Reliance on professional management	41	3	17	21	Value chain presence	29	4	19	6
	Extent of marketing	23	2	7	14	Extent of branding	26	4	17	5
	Degree of customer orientation	23	2	11	10	Breadth of international markets	24	4	15	5
	Extent of regional sales	21	2	9	10	Control of international distribution	16	2	7	7
	Extent of staff training	17	2	5	10	Capacity for innovation	12	1	8	3
	Nature of competitive advantage	12	3	6	3	Production process sophistication	12	1	9	2
	Prevalence of foreign technology licensing	8	2	4	2	Nature of competitive advantage	9	1	7	1
						Prevalence of foreign technology licensing	8	1	—	7
Quality of the Business Environment	Extent of bureaucratic red tape	48	5	21	22	Extent of distortive government subsidies	26	3	9	14
	Cost of importing foreign equipment	37	5	17	15	Judicial independence	21	2	10	9
	Efficacy of corporate boards	33	4	14	15	Efficiency of legal framework	21	2	13	6
	Financial market sophistication	32	4	15	13	Venture capital availability	20	2	12	6
	Overall infrastructure quality	28	2	13	13	Administrative burden for startups	18	2	10	6
	Extent of locally based competitors	25	1	9	15	Intellectual property protection	16	2	8	6
	Quality of scientific research institutions	24	4	13	7	Quality of public schools	16	4	11	1
	Railroad infrastructure development	22	2	13	7	Buyer sophistication	16	1	8	7
	Favoritism in decisions of government officials	21	1	7	13	Favoritism in decisions of government officials	14	2	9	3
	Quality of management schools	21	1	9	11	Local equity market access	14	1	5	8
	Air transport infrastructure quality	18	2	12	4	University/industry research collaboration	11	2	3	6
	Port infrastructure quality	17	2	7	8	Reliability of police services	9	1	3	5
	Local supplier quantity	17	2	10	5	Railroad infrastructure development	8	3	2	3
	Reliability of police services	15	1	11	3	Air transport infrastructure quality	8	3	1	4
	Presence of demanding regulatory standards	15	3	8	4					
	Effectiveness of antitrust policy	14	2	6	6					
	Venture capital availability	13	1	6	6					
	Telephone/fax infrastructure quality	12	1	10	1					
	Quality of public schools	12	1	1	10					
	Hidden trade barriers	12	2	4	6					
	Local equity market access	11	2	4	5					
	University/industry research collaboration	10	2	4	4					
	Efficiency of legal framework	8	2	3	3					
	Administrative burden for startups	8	1	3	4					

Note: L, M, and H refer to low- , middle- , and high-income countries, respectively. Significant change is defined as 10 percent or more change in country average score over the 5-year period from the score of year 1998. There are 5 low- , 21 middle- , and 26 high-income countries in this sample.

countries to sustain the investments and policies needed to improve their competitiveness, a dangerous development. Also, the data reveal the disturbing trend in high-income countries to resort to distortive government subsidies to shelter their economies from global competition.

Ranking competitiveness

To derive an overall Business Competitiveness Index (BCI), we compute subindexes measuring the sophistication of company operations and strategy and the quality of the national business environment. Because many of the dimensions of company sophistication and the quality of the business environment tend to move together, the sample of countries is relatively small, and the number of relevant variables is high, the impact of individual variables is difficult to distinguish statistically. Hence we use common factor analysis instead of multiple regressions to compute the subindexes. The first common factors defined as the index accounts for 82.2 percent of the variation among company sophistication measures and 69.8 percent of the variation among national business environment measures.

The weighted average of the two subindexes is defined as the BCI. The weights are determined from the coefficients of a multiple regression of the subindexes on GDP per capita. This procedure results in a weight of 0.66 (2002: 0.63) for national business environment and 0.34 (2002: 0.37) for company operations and strategy, quite stable in comparison with last year's weights. When we include an interaction term in the regression on GDP per capita of the two subindexes, it proves to be positive and significant. This means that the benefits of a better business environment for prosperity are increasing with the sophistication of company operations and strategy, and vice versa. Countries that improve both the business environment and company sophistication in tandem reap disproportionate benefits, while countries where there is an imbalance bear disproportionate costs.

Figure 6 plots BCI against 2002 GDP per capita for each country in the sample of 95 countries used to develop the model. The regression line is shown, together with bands above and below the regression line that delineate the 95 percent confidence forecast region.[17] Only two countries, Norway and India, fall outside the forecast region. *Differences in BCI account for a remarkable 83 percent of variation in GDP per capita across a widely disparate group of countries*.

This year, we have modified the regression to allow for a nonlinear relationship between the BCI and GDP per capita. The resulting polynomial regression indicates a higher impact on GDP per capita of improvements in BCI for higher-income countries than for lower-income countries. This finding has a number of possible interpretations: first, improvements in microeconomic conditions should have positive spillovers; that is, an improvement in one part of the business environment has more impact if other parts of the business environment are stronger. This is consistent with the positive interaction between company sophistication and the business environment previously reported. Second, lower-income countries may reap fewer benefits for productivity from microeconomic improvements because of weaknesses in macroeconomic, political, legal, and social conditions.

We use the model along with data for each country to calculate a BCI for each country. The overall BCI rankings for 2003 for the 80 countries that were also surveyed last year are shown in Table 1, along with the rankings of the previous four years. Also included are separate subindex rankings. The rankings for all 101 countries are shown in Table 2.

Please refer to the Country Profiles section of the Report *for detailed descriptions of the competitive advantages and disadvantages of each country*. As noted earlier, competitiveness is not a zero-sum game. Many countries can improve productivity and prosperity. BCI tracks both the absolute and relative progress of countries in building a productive economy.

Finland retakes the leading position, after dropping to second place behind the United States last year. Finland remains one of the world's most remarkable success cases over the last decade. The United States was pulled down by concerns about rising trade protection, tightening capital availability, and weakening cluster vitality. Other advanced nations improving their rankings include France, Denmark, Sweden, Australia, and New Zealand. France gained five ranks, mainly due to an improving business environment, regaining its pre-2000 ranking. Heartening for France are improvements in local competition, governance, and reductions in government distortions. Denmark and New Zealand gained four ranks, mainly based on improvements in the business environment. Australia continued its upward trend, while Sweden reached the third position based on company and business environment improvements.

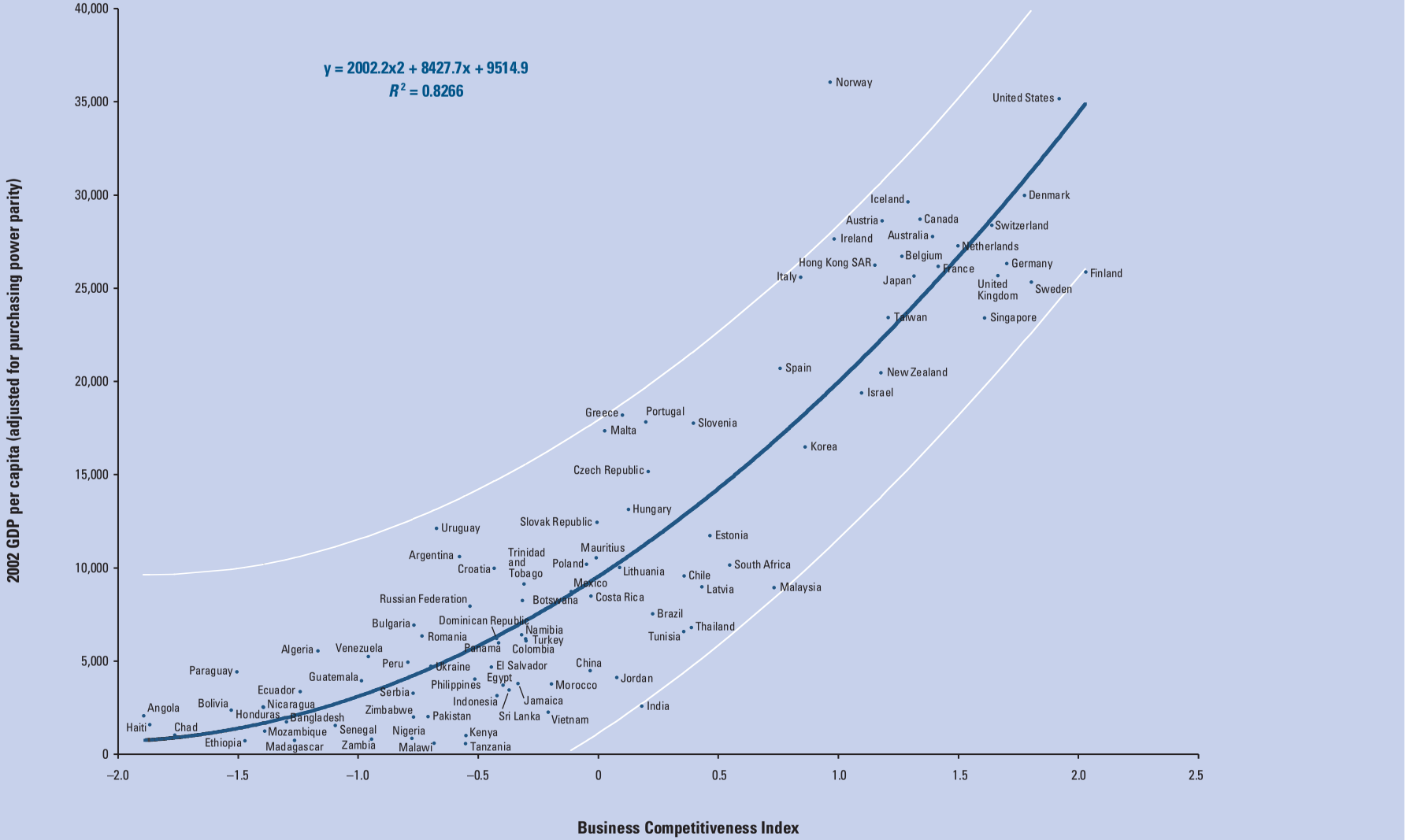
Advanced countries slipping in the rankings include Austria based on a deteriorating business environment. The United Kingdom also slipped several places after strong gains last year, but remains on a long-term positive trend. Other advanced nations that are slipping are Switzerland, Canada, and Japan. Japan, while still sliding, registered strong improvements in corporate governance and cluster collaboration. Germany's rank falls only one place, but the quality of its business environment dropped precipitously. Labor-management relations are a growing concern, along with creeping subsidies and a hollowing of clusters.

Middle-income nations improving their competitiveness rankings this year include Latvia, Jordan, Vietnam, Mexico, Colombia, Indonesia, Mauritius, Greece, and Thailand. One new country, Malta, entered the middle-income group, ranked at 42. Egypt reentered the ranking at 58, showing a significant decline compared to its ranking in the 1998–2001 period. Latvia jumped by a remarkable 16 ranks, driven by strong perceived across-the-board improvements in the business environment and company sophistication. Whether this large jump is a temporary event reflecting positive near-term sentiment or sustainable will become more evident in subsequent years.

Middle-income countries losing rank in competitiveness include the Dominican Republic, Hungary, Sri Lanka, Trinidad and Tobago, Croatia, and China. The Dominican Republic (down 18 places) and Sri Lanka (down 9 places) fall back after strong jumps last year, signaling that last year's rankings might have been anomalies. The Dominican Republic's ranking was led down by concerns about the state of local companies. Hungary (down 10) and Croatia (down 8) appear to be suffering from increasing competition from other transition countries. Finally, Trinidad and Tobago has experienced declining competitiveness since its entry into the ranking in 2001. China, which showed a strong gain last year, has reverted back to its ranking of previous years. A surge in confidence about China's prospects proves not to have been sustainable. China was pulled down by concerns about red tape, corruption, judicial independence, and trade barriers, among other factors, though Chinese companies were judged to be making positive progress. Russia continues a slow downward trend, while Argentina's position seems to have stabilized.

Among low-income countries, rankings compared to last year were quite stable. Peru slipped significantly (down 5 places) continuing a negative trend. Ecuador moved up 3 places. Of the low-income countries ranked for the first time, Ghana entered at 63, Kenya at 67, and Tanzania at 68. Pakistan entered at 75 and Serbia at 79. Angola became the lowest-ranked country at 101.

Figure 6: The relationship between business competitiveness and GDP per capita



We also calculated the BCI for low-income countries incorporating only variables with a significant relationship to GDP per capita for this income group in order to recognize the more limited set of variables that prove significant early in development.[18] The rankings using this alternative approach turn out to be highly correlated (95 percent) to the rankings based on the general model. Honduras, Serbia, Indonesia, and Guatemala rank slightly higher based on the alternative model, while Malawi, Tanzania, and Zambia rank slightly lower.

Company competitiveness versus the quality of the business environment

To gain deeper insight into the competitive position of countries, normalized subindexes of company sophistication and the quality of the microeconomic business environment are plotted against each other in Figure 7. Countries near the line enjoy the positive interaction of the two subindexes, as noted previously. Countries lying above the 45-degree line are those whose companies are more advanced than the state of their business environment. Those below the line are countries whose business environment is more advanced than their companies.

Countries whose company development is ahead of the business environment include Japan, Germany, France, Sweden, the Philippines, Argentina, and Venezuela. With the exception of the Philippines, all these countries have reported a relative weakness in the business environment relative to company development for some years. Significant changes in public policy are necessary in these countries to improve the platform for productivity. Unless the business environment improves, companies will be prone to *move operations or make new investments outside the country*. Japan remains the advanced economy with the most glaring weaknesses in the business environment, despite strong companies. The consequences of weakness in the business environment for Japan's economic growth have been severe, as Japanese corporate investment has fled the country.[19]

Countries whose business environment ranks ahead of current company sophistication include Jordan, Estonia, Australia, Tunisia, Portugal, New Zealand, and Senegal. Many leading companies in these countries still rely on natural resource extraction (eg, Australia and New Zealand), depend heavily on OEM production, or have prevalent local subsidiaries of foreign multinationals that fail to compete with sophisticated enough strategies (eg, Portugal, Senegal, and Tunisia). In some countries, such as Australia, part of the issue is that rapid improvements in the business environment have not yet been harnessed by companies that remain focused on traditional ways of competing. Efforts to improve entrepreneurship, strategic thinking, managerial practice, and business education are high priorities in these countries.

Country overperformance and underperformance

We can gain insights into the sustainability of a country's prosperity by looking at its level of microeconomic (business) competitiveness relative to its current per capita income. Table 5 lists countries in order of the divergence between actual GDP per capita and the expected GDP given microeconomic competitiveness. Countries lying above the regression line in Figure 6 are those whose current GDP per capita *exceeds* that predicted by their microeconomic competitiveness, as measured by the BCI index. This is a danger sign, because it means that a country's per capita income may be unsustainable. Among high-income countries, Malta, Greece, Portugal, Italy, Ireland, and especially Norway all continue to enjoy a level of prosperity that exceeds their microeconomic fundamentals. Paraguay, Uruguay, Algeria, and Argentina are among a group of middle-income countries whose levels of income appear unsustainable without substantial microeconomic reform. Angola, Ecuador, and Bolivia are low-income countries in this precarious position.

Reasons for country overperformance seem to vary and can be either stable over time or transitory. Overperformance can persist for many years if it is based on natural resource endowments, as in the case of Norway, as long as the natural resources are not exhausted and commodity price levels are maintained at high enough levels. Large foreign aid inflows can also support otherwise unsustainable prosperity levels, which may explain the overperformance of a country such as Haiti. Overperformance can be more transitory if it is based on a boom in foreign investment or European Structural Fund inflows, as in Ireland, Greece, and Portugal. Overperformance can also reflect a lag in income behind deteriorating microeconomic conditions, as in Paraguay, Uruguay, Algeria, and Argentina. We find relatively few low-income countries that are overperformers. This is consistent with the higher incidence of macroeconomic, political, and social challenges among low-income countries that depresses GDP per capita levels below what could be expected given their BCI position.

Countries lying below the regression line in Figure 6 are those whose microeconomic competitiveness is *stronger* than current GDP per capita. We term them *underperformers*. Underperformance bodes well for the future, because the platform is in place to support higher GDP per capita if macro, political, or other constraints can be eased.

Finland, Sweden, Singapore, and the United Kingdom lead the advanced countries with upside potential. Jordan, China, Tunisia, Thailand, and Malaysia are among the middle-income countries that should be able to support a higher GDP per capita, given microeconomic fundamentals. India continues to head the list of low-income countries with upside potential, alongside the African countries of Tanzania, Malawi, Kenya, Nigeria, and Zambia.

Figure 7: The relative development of companies and the microeconomic business environment

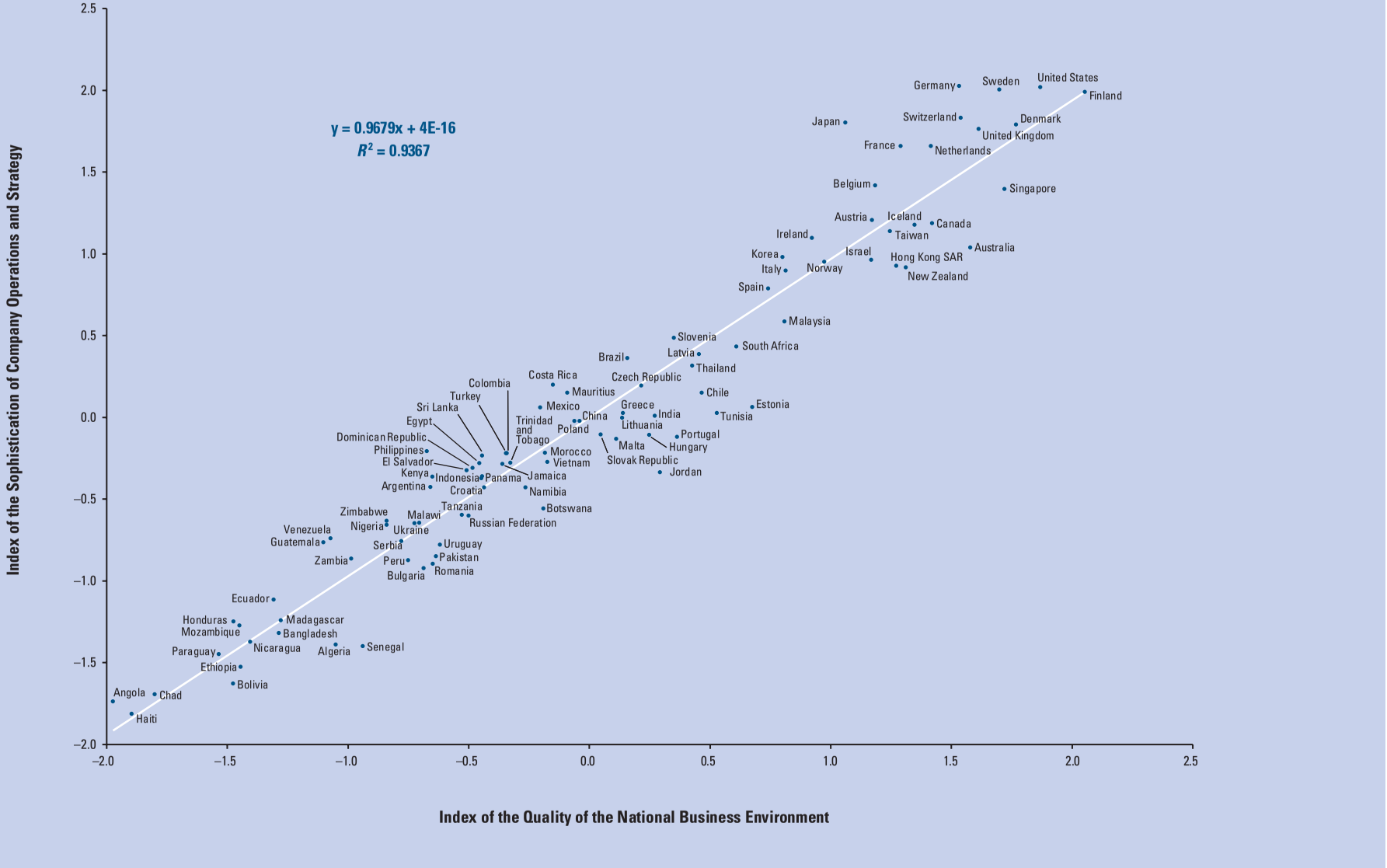


Table 5: GDP per capita relative to business competitiveness

	High-income countries	Middle-income countries	Low-income countries
UPSIDE POTENTIAL			
Microeconomic competitiveness would support higher per capita income	Finland Sweden Singapore United Kingdom Germany	Malaysia Thailand Tunisia Jordan China South Africa Latvia Brazil Chile	India Vietnam Tanzania Kenya Morocco Malawi Nigeria Sri Lanka Indonesia Jamaica Egypt Zambia Pakistan Zimbabwe Madagascar Senegal
NEUTRAL			
Competitiveness and income are balanced	Israel New Zealand Denmark Switzerland Netherlands France Taiwan Japan United States Australia	Estonia Korea Philippines El Salvador Colombia Turkey Costa Rica Namibia Panama Lithuania Dominican Republic Ukraine Mexico Peru Poland Mauritius Botswana Romania Venezuela Trinidad and Tobago Russian Federation	Serbia Ethiopia Mozambique Bangladesh Chad Guatemala Haiti Nicaragua Honduras
CURRENT OVERACHIEVERS			
Per capita income is high relative to microeconomic competitiveness	Belgium Spain Canada Hong Kong SAR Slovenia Iceland Austria Portugal Italy Malta Greece Ireland Norway	Hungary Bulgaria Slovak Republic Paraguay Algeria Croatia Czech Republic Argentina Uruguay	Bolivia Ecuador Angola

Reasons for country underperformance also reflect a variety of circumstances. Chronic underperformance results from persistent structural political, governmental, or social challenges. For India and China, for example, measured underperformance on a per capita basis may well result from the sheer number of people living at the subsistence level outside the mainstream economy. In these and other countries, the Survey confirms large regional differences in business environment quality, while responses tend to come from executives in the more advanced regions. The average prosperity of such countries will remain below measured microeconomic potential until progress is spread throughout the country. More transitory underperformance can also occur in the aftermath of a macroeconomic crisis that did not lead to a deterioration of the microeconomic fundamentals, as in Thailand, Malaysia, and Singapore. Underperformance may also reflect a lag in prosperity adjusting upward to improving microeconomic conditions. This seems to be the case in Finland and the United Kingdom.

Regional disparities

This year, we included a new question on regional differences in a country's business environment. Not surprisingly, countries such as Italy, Russia, Brazil, China, and India register high regional heterogeneity. For countries such as China and India, this high degree of regional heterogeneity could help explain the low level of GDP per capita relative to the reported BCI. The Survey will tend to be completed by companies in regions better integrated into the world economy, which may not reflect average conditions in the economy.

Our data on regional differences in the business environment also hold implications for economic policy. Reducing regional disparities is revealed as one of the critical agendas in the development process. In future years, we can examine the change in regional disparity to glean lessons about policy successes and failures.

Natural resources and development

Natural resources have played a prominent role in thinking about economic development. Historically, abundant resources were seen as the source of national prosperity. In the last decade, however, the importance of natural resources has been called into question as the knowledge and skill intensity of competition has risen and technology and widening resource availability have led to generally falling real resource prices.[20]

In this year's *Report*, we set out to explore the relationship between resource abundance and competitiveness. For 85 countries in the sample we were able to assemble data on the size of minimally processed natural resources as well as overall exports.[21] The largest absolute natural resource exporters among those countries are the United

States, Canada, Norway, Russia, Nigeria, and Australia. The countries with the highest share of natural resources exports to total exports are Nigeria, Ethiopia, Paraguay, Ecuador, Venezuela, Kenya, Nicaragua, and Honduras, all with a share of greater than 50 percent. Natural resource exports per capita as a proportion of GDP per capita are plotted on Figure 8.

Natural resources result from endowments, not economic competitiveness. Countries' world market share of natural resource exports proves to be more closely related to their geographic size than to their share of world GDP, while non-natural resource exports are closely correlated to a country's share of world GDP. Natural resource exports per capita are not related to underlying competitiveness, as measured by BCI, controlling for country size (we use population density, the inverse of land area per capita). In contrast, non-natural resource exports are strongly correlated with BCI. We find that the natural resource share of a country's exports (and GDP) is decreasing in GDP per capita, again controlling for country size, as we might expect. Countries with lower levels of productivity are more dependent on natural resource exports.

Theory suggests another effect of natural resources that would counteract the positive direct effect on prosperity: abundant natural resources might bias policies toward rent seeking and redistribution and work against overall competitiveness. A crude analysis of changes in BCI supports this view: a dummy variable for countries with high natural resource exports (more than 2 percent of GDP) is negatively and significantly correlated with changes in the BCI rank between 1998 and 2003.[22]

Changing microeconomic competitiveness and prosperity growth

We also examined whether countries that are improving or worsening their competitiveness ranking register corresponding trends in growth of GDP per capita. Changes in BCI rank should affect growth in GDP per capita as per capita income responds to a new sustainable level. While macroeconomic adjustments and other shocks may also affect per capita income growth, the relationship between shifts in BCI ranking and prosperity growth provides a tentative indication of causality in the relationship between BCI and prosperity.

Regressing GDP per capita growth between 1998 and 2002 on BCI rank changes between 1999 and 2003 yields a statistically significant relationship that explains about 23 percent of the total variation in growth in GDP per capita across countries. Two outliers, Ireland and Zimbabwe, reduce the fit. Ireland's foreign direct investment inflows have been extraordinary and led to probably unsustainable growth in income; the severe political crisis for Zimbabwe has been devastating to income despite economic fundamentals. Dropping the outliers and introducing a dummy variable for low-ranked and high-ranked countries to control for the boundedness of the ranking from above and below, the R^2 moves up to 30 percent. The relationship is highly significant. The coefficient of the relationship implies that an increase of 10 BCI ranks over the five-year time period is associated with a 1.9 percent higher growth rate in GDP per capita.

Conclusions

National prosperity is strongly affected by competitiveness, which is defined by the productivity with which a nation utilizes its human, capital, and natural resources. Competitiveness is rooted in a nation's microeconomic fundamentals, as manifested in the sophistication of its companies and the quality of its microeconomic business environment. Political stability, sound macroeconomic policies, market opening, and privatization have long been considered the cornerstones for economic development. The results here suggest that they are necessary but not sufficient. More than 80 percent of the variation of GDP per capita across countries is accounted for by microeconomic fundamentals. We find strong evidence that microeconomic upgrading is a sequential process in which countries at different levels of development face distinctly different challenges.

Importance of microeconomic reforms and other analysis results

While focus has been on macro reforms and debt relief, our findings suggest that micro reforms are equally if not more important. Without micro reforms, growth in GDP induced by sound macro policies, market opening, and privatization will be unsustainable or will not translate into improvements in GDP per capita. Appropriate micro reforms, which boost productivity and productivity growth, can greatly ease the challenge of meeting government's fiscal obligations and reducing macroeconomic distortions. Microeconomic reforms can also reduce the political pressure on governments trying to defend macroeconomic stabilization and market opening against vested interests. Citizens who see monopolies loosening their grip, businesses reforming themselves, and opportunities for employment and entrepreneurship increasing are much less likely to be seduced by the false promises of redistribution and government intervention.

Our results once again challenge the notion that microeconomic improvement is automatic if proper macroeconomic policies are instituted. Although there may be a tendency for microeconomic conditions to improve because GDP per capita rises, such improvement appears to be far from automatic. Moreover, the rate of improvement in microeconomic competitiveness can be

Figure 8: Natural resource exports share of GDP versus GDP per capita, PPP adjusted

affected markedly by purposeful action in both government and the private sector. As our results reveal, microeconomic conditions can move ahead of or fall behind current GDP per capita. Shifts in competitiveness have a significant influence on future economic growth.

Our findings indicate that it is unwise to view micro reforms narrowly in terms of reducing the role of government and abolishing market distortions. Such steps remain a critical challenge that many countries still must master. Yet government has a range of positive roles that are fundamental to prosperity, such as investing in human resources, stimulating advanced demand by setting appropriate regulatory standards, and building innovative capacity. Many nations need to move beyond first-stage reforms and address these agendas. The private sector has an important role in improving a nation's competitive platform through collective activities and cluster development initiatives. Second-stage micro reforms require a new perspective on the role of the private sector.

While clusters have an important role in competitiveness as the results validate, our analysis also makes it clear that microeconomic reform is much more than cluster development. The proliferating efforts to develop and enhance clusters around the world are highly encouraging. Yet countries also need to pursue improvements throughout the business environment, or cluster initiatives will be ultimately stymied.

Finally, our results highlight the need to align a nation's economic priorities with its level of development. We describe the differing challenges for low-, medium-, and high-income countries, and the difficult transitions between broad development stages. Countries that have been very successful in one mode of competing need to recognize the multifaceted adjustments necessary for managing the transition to the next mode.

If there is to be continued momentum for economic reform in nations around the world, there is a pressing need to move to the next level of thinking and practice about economic development. Approaches centered largely on responding to international financial markets and ceding choices to impersonal global forces are producing a backlash that erodes the consensus for global economic progress and encourages populist national policies that are fundamentally self-defeating. Economic reform must move beyond now-standard approaches and embrace the textured agenda that the results here suggest.

Countries are converging on macroeconomic stabilization, trade opening, and privatization. The central challenge to much of the world economy is now microeconomic reform. Progress in improving the sophistication of companies and the quality of the business environment is the only way to produce real improvements in efficiency, product quality, and new business opportunities that support a rising standard of living for citizens.

Competitiveness and the role of international development assistance

The results presented here not only have implications for policymakers in individual countries but also offer useful guidance to international organizations active in economic development, especially in low- and middle-income countries.

A substantial number of multilateral and national aid organizations have come to play a prominent role in economic development. The World Bank, the International Monetary Fund (IMF), the United Nations, regional development banks, and single-country organizations such as the U.S. Agency for International Development (USAID) have provided, on average, over US$60 billion of development assistance annually over the last decade, or more than US$600 billion. Aid organizations have supported a wide array of agendas.

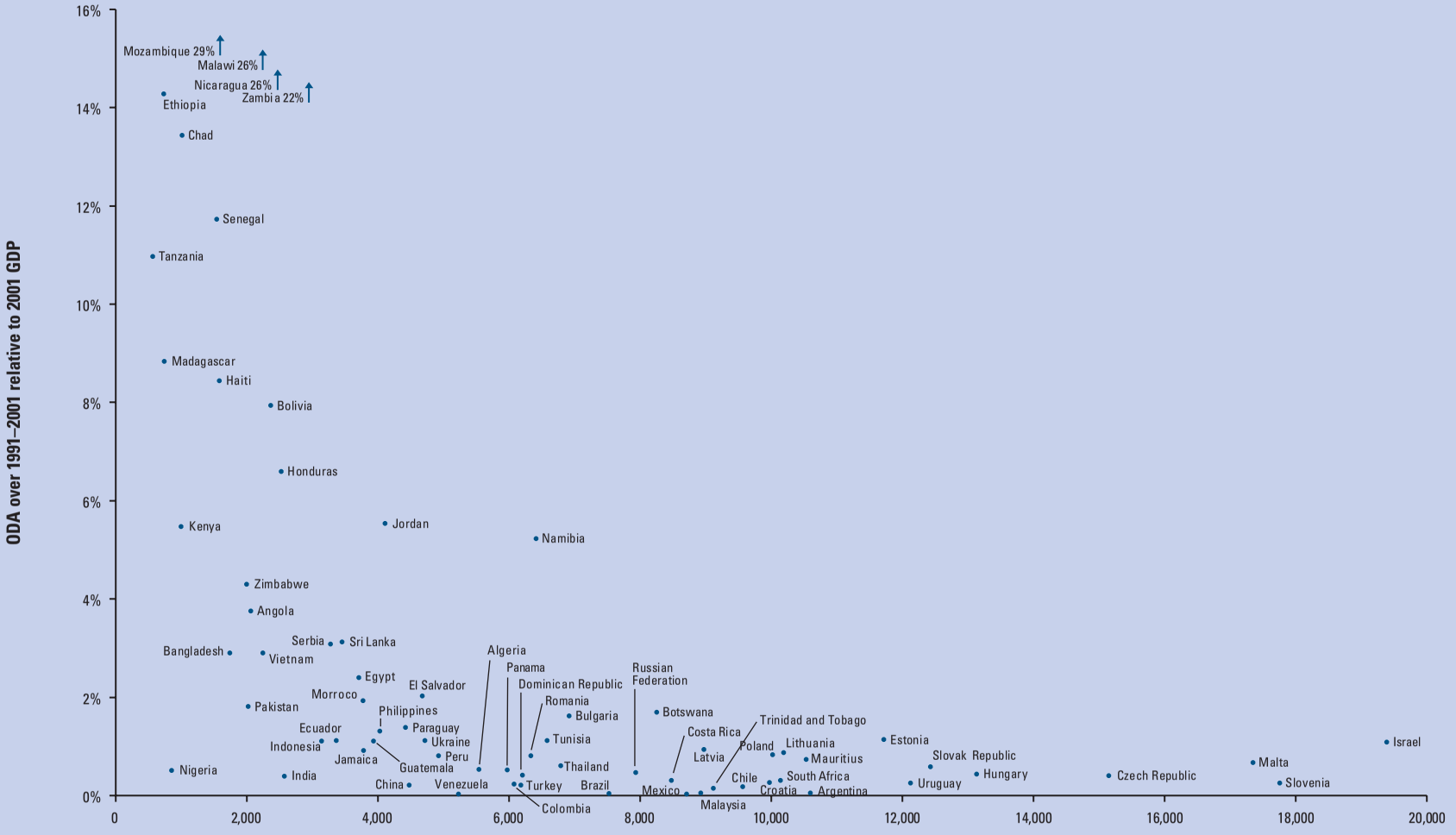
The effectiveness of this aid has, on the whole, been disappointing.[23] Our data combined with data on official development assistance (ODA) over the last decade confirm this view (see Figure 9). The level of ODA per capita provided over the last decade shows no systematic relationship to either GDP per capita or BCI. Controlling for initial GDP per capita, we find that ODA inflows over the last decade (measured either in absolute terms or relative to GDP per capita) are not positively correlated to changes in BCI or to growth in GDP per capita for the countries receiving ODA. Based on these data, then, ODA investments have not paid off. Deducting ODA inflows from GDP per capita in our model modestly increases the explanatory power of BCI for GDP per capita; this is consistent with ODA being a windfall gain in prosperity with no further effect on underlying competitiveness.

The disappointing results of development assistance are directly related to the way it has been deployed. Funding tends to be fragmented, spread over a myriad of programs that are costly for both aid organizations and recipient countries to administer. Impact is blunted by lack of concentrated and consistent spending on priority areas. The projects funded are often driven as much by donor organization priorities as by the particular needs of the recipient country. Fads and politics intrude into the giving process.

The agendas of the numerous aid organizations are largely uncoordinated in recipient countries except in rare circumstances. Recipient countries face the complex challenge of negotiating with the various organizations and adapting to donor priorities.

Recipient governments, on their side, have often failed to deliver on their commitments, spent aid money unwisely, and allowed corruption to drain resources away from meeting pressing needs. This had led to the creation of special institutional arrangements to reduce the risk of disappointments, including direct funding of projects

Figure 9: Official development assistance relative to GDP versus GDP per capita



outside of the government budget and strict negotiating structures. The net result is even more complexity for all the parties.

The disappointing results of past efforts suggest the need to rethink and restructure international development assistance. The aims, the institutional structure, and the process all must be redesigned.

In the context of this *Report*, we focus on the aims of development aid. The goal of poverty reduction has taken prominence among development agencies in recent years, reflecting the view that aid must benefit the poor rather than enrich the elites in developing countries. The World Bank, for example, is requiring Poverty Reduction Strategies to qualify for the Bank's concessional assistance. While this approach is laudable in many respects, it also carries a risk. Efforts to alleviate poverty that are unsustainable can gravitate to social spending and subsidies to disadvantaged groups.

A better goal is to *improve income, jobs, and wealth* that is widely shared. This places the focus where it must be: on building a viable and competitive economy. Aid agencies must step up their attention to competitiveness relative to other agendas. Improvements in macroeconomic stability, political stability, and social conditions that are sustainable all depend, in the medium and long term, on having a competitive economy. Otherwise, any progress in these areas is temporary, as we have learned over and over again.

New institutional structures will be necessary to advance competitiveness. These must include not only national governments but also need to incorporate the roles of business, educational organizations, regional governments, and other institutions. National competitiveness committees including these players should have formal responsibilities for planning and monitoring competitiveness programs. Aid must be based on objective national competitiveness assessments, not donor priorities.

The findings in this *Report* can help guide and inform such efforts. In the coming years, our aim is to work more and more closely with country leaders to improve the objectivity of the data collected in this *Report*, disseminate it more broadly, and create forums and other mechanisms to inform and catalyze local action.

Notes

1 I would like to thank Christian Ketels and Weifeng Weng for their major role in the analyses reported here. Lyn Pohl provided able supervision of the final production of the chapter.

2 The proportion has grown modestly over the last several years as the model has been improved.

3 See the *Clusters of Innovation* report (Porter, Council on Competitiveness, and Monitor Group, 2001); further reports on five U.S. regions are available at www.compete.org.

4 The stages were first introduced in Porter (1990).

5 The notion of institutions for collaboration has been developed further in joint work with Willis Emmons, Georgetown University. See Porter and Emmons (2003).

6 One surveyed economy, Luxembourg, was not included in the calculations because of its small size, functional concentration on a few sectors, and almost complete integration into the neighboring economies. It is better understood as a region within these economies.

7 These reasons could include larger actual heterogeneity within the country, as well as greater uncertainty by respondents about appropriate international benchmarks.

8 For Morocco, we utilized all Survey responses, and the country ranking was quite stable from last year, despite the within-country variance of responses. For Romania, we utilized the average Survey responses from foreign companies as the country average because they have a high degree of within-country consensus.

9 For Egypt, Senegal, Serbia, and Zambia, we utilized the average Survey responses from foreign subsidiaries as the country average.

10 These countries are Cameroon, Gambia, Ghana, Macedonia, Mali, and Uganda.

11 The GDP per capita (PPP adjusted) data for Norway were revised by the World Bank, leading to a 17 percent jump in the country's GDP per capita relative to the data available last year. Norway becomes an even more striking outlier due to this revision.

12 GDP per worker is employed as a productivity measure in some studies. We used the broader measure here because GDP per worker can be increased by high unemployment or low workforce participation, which do not increase wealth. Also, holders of capital, not only workers, contribute to national productivity. In comparing the United States and France, for example, the United States has absorbed a huge influx of new workers (higher workforce participation) over the last decade, while France has maintained high GDP per worker through suffering high unemployment and maintaining a large student population not counted as part of the potential workforce.

13 In the case of Ireland, we used GNP instead of GDP because of the size of dividend outflows to foreign investors. Ireland's GDP is about 20 percent higher than its GNP.

14 Statistical significance at ** = 5 percent and * = 10 percent (all two-tailed tests) is noted in the table.

15 We conducted additional bivariate regressions (not reported here) using macroeconomic indicators collected for the *Global Competitiveness Report*. These regressions show no statistical relationship between GDP per capita and individual macroeconomic indicators. See also Easterly (2001), who finds similar results.

16 This analysis covers the Survey questions that have been common over five years, which comprise the great majority of questions.

17 The forecast region has wider bands than a 95 percent mean confidence region. The mean confidence region provides a confidence interval for a given level of competitiveness over repeated observations. The forecast region method, in contrast, reflects a higher degree of inherent uncertainty in predicting a single observation. As a result, interpretation of the proximity of data points to the regression line should be undertaken with appropriate caveats. Note that the forecast region widens slightly as it moves away from the "center" of the graph. The center is the point located at the intersection of the mean GDP per capita level and mean factor score.

18 For medium- and high-income countries, most of the individual variables included in the BCI are significant.

19 For a more detailed examination of Japan's competitive situation, see Porter and Hirotaka with Sakakibara (2000).

20 See Sala-I-Martin and Subramanian (2003).

21 Data were drawn from "Trade Analysis System on Personal Computer, 1997–2001," SITC Rev.3. A list of SITC industries included can be obtained from the author.

22 The time-series data available for this analysis unfortunately include few low-income countries with high natural resource export share. The analysis will be expanded as more country data become available over time.

23 See, for example, Boone (1995), Tsikata (1998), and Lancaster (1999).

Selected References

Baumol, W. J. 2002. *The Free-Market Innovation Machine: Analyzing the Growth Miracle of Capitalism*. Princeton, NJ: Princeton University Press.

Barro, R. J. 1991. "Economic Growth in a Cross Section of Countries," *Quarterly Journal of Economics* 106 (2): 407–443.

Boone, P. 1995. "Politics and the Effectiveness of Foreign Aid," NBER Working Paper No. 5308. Cambridge, MA: National Bureau of Economic Research.

Department of Trade and Industry. 2001. *UK Competitiveness Indicators*, 2nd Edition. London: Department of Trade and Industry.

Easterly, W. 2001.*The Elusive Quest for Growth: Economists' Adventures and Misadventures in the Tropics*. Cambridge, MA: MIT Press.

Easterly, W. and R. Levine. 2002. "Tropics, Germs, and Crops: How Endowments Influence Economic Development," NBER Working Paper No. 9106. Cambridge, MA: National Bureau of Economic Research.

European Commission. 2002. *European Competitiveness Report 2002*. Brussels: European Commission.

Enright, M. J., A. Francés, and E. S. Saavadra. 1994. *Venezuela: El Reto de la Competitividad*. Caracas, Venezuela: Ediciones IESA.

Fairbanks, M. and S. Lindsay. 1997. *Plowing the Sea: The Challenge of Competitiveness in the Developing World*. Boston: Harvard Business School Press.

Hall, R. E. and C. I. Jones. 1999. "Why Do Some Countries Produce So Much More Output per Worker than Others?" *Quarterly Journal of Economics* 114 (1): 83 –116.

Hirschman, A. O. 1958. *The Strategy of Economic Development* New Haven, CT: Yale University Press.

Lancaster, C. 1999. "Aid Effectiveness in Africa: The Unfinished Agenda," *Journal of African Economics* 8(4): 487–503.

Lucas, R. E., Jr. 1988. "On the Mechanics of Economic Development," *Journal of Monetary Economics* 22 (July 1988): 3–42.

Mankiw, N. G. 1995. "The Growth of Nations," *Brookings Papers on Economic Activity* 1 (1): 275–310.

Mankiw, N. G., D. Romer, and D. N. Weil. 1992. "A Contribution to the Empirics of Economic Growth," *Quarterly Journal of Economics* 107(2): 407–437.

Nickell, S. 1996. "Competition and Corporate Performance," *Journal of Political Economy* 104 (1996): 724-746.

Nordhaus, W. D. 1994. "Climate and Economic Development." In *Proceedings of the World Bank Annual Conference on Development Economics 1993*. Washington, DC: The International Bank for Reconstruction and Development/The World Bank.

North, D. C. 1990. *Institutions, Institutional Change and Economic Performance: Political Economy of Institutions and Decisions*. Cambridge: Cambridge University Press.

Porter, M. E. 2003. "The Economic Performance of Regions," *Regional Studies* 37(6&7): 549–678.

———. 2000a. "Attitudes, Values, Beliefs, and the Microeconomic of Prosperity." In L. E. Harrison and S. P. Huntington, eds., *Culture Matters*. New York: Basic Books, 2000: 14–28.

———. 2000b. "Locations, Clusters, and Company Strategy." In G. L. Clark, M. P. Feldman, and M. S. Gertler, eds., *The Oxford Handbook of Economic Geography*. New York: Oxford University Press, 2000: 253–274.

———. 1998a. "Introduction." In *The Competitive Advantage of Nations: With a New Introduction*. New York: The Free Press.

———. 1998b. "Clusters and Competition: New Agendas for Companies, Governments, and Institutions." In *On Competition*. Boston: Harvard Business School Press.

———. 1996. "What Is Strategy?" *Harvard Business Review* 74 (6): 61–78.

———. 1995. "Comment on 'Interaction Between Regional and Industrial Policies: Evidence From Four Countries,' by J. Markusen." In *Proceedings of The World Bank Annual Conference on Development Economics 1994*. Washington, DC: The International Bank for Reconstruction and Development/The World Bank.

———. 1990. *The Competitive Advantage of Nations*. New York: The Free Press.

Porter, M. E., Council on Competitiveness, and Monitor Group. 2001. *Clusters of Innovation Initiative: Regional Foundations of U.S. Competitiveness*. Washington, DC: Council on Competitiveness.

Porter, M.E., and W. Emmons. 2003. "Institutions for Collaboration: Overview". Harvard Business School case 9-703-436.

Porter, M. E. and T. Hirotaka with M. Sakakibara. 2000. *Can Japan Compete?* Basingstoke, England, and New York: Macmillan and Basic Books.

Porter, M. E. and C. Ketels. 2003. "UK Competitiveness: Moving to the Next Stage," DTI Economics Paper No.3. London: Department of Industry and Trade & Economic and Social Research Council (ESRC).

Porter, M. E. and C. van der Linde. 1995. "Toward a New Conception of the Environment-Competitiveness Relationship," *Journal of Economic Perspectives* 9(4): 97–118.

Romer, P. M. 1990. "Endogenous Technological Change," *Journal of Political Economy* 98(5): S71–S102.

Sachs, J. D. and A. Warner. 1995. "Economic Reform and the Process of Global Integration," *Brookings Papers on Economic Activity* 1(1): 1–118.

Sakakibara, M. and M. E. Porter. 1998. "Competing at Home to Win Abroad: Evidence from Japanese Industry," Harvard Business School Working Paper No. 99-036. Cambridge, MA: Harvard Business School Press.

Sala-i-Martin, X. and A. Subramanian. 2003. "Addressing the Natural Resource Curse: An illustration from Nigeria," IMF Working Paper 03/139, Washington, DC: International Monetary Fund.

Solow, R. M. 1956. "A Contribution to the Theory of Economic Growth," *Quarterly Journal of Economics* 70(1): 65–94.

Tsikata, T.M. 1998. "Aid Effectiveness: A Survey of the Recent Empirical Literature," IMF, PPA/98/1. Washington, DC: International Monetary Fund.

Appendix A: ANOVA Analysis for Survey Responses

I. COMPANY OPERATIONS & STRATEGY	R^2
Production process sophistication	0.489
Nature of competitive advantage	0.412
Extent of staff training	0.390
Extent of marketing	0.439
Willingness to delegate authority	0.332
Capacity for innovation	0.434
Company spending on research and development	0.360
Value chain presence	0.458
Breadth of international markets	0.444
Degree of customer orientation	0.256
Control of international distribution	0.200
Extent of branding	0.456
Reliance on professional management	0.324
Extent of incentive compensation	0.290
Extent of regional sales	0.431
Prevalence of foreign technology licensing	0.190

II. NATIONAL BUSINESS ENVIRONMENT	R^2
A. FACTOR (INPUT) CONDITIONS	
1. Physical Infrastructure	
Overall infrastructure quality	0.638
Railroad infrastructure development	0.650
Port infrastructure quality	0.567
Air transport infrastructure quality	0.505
Quality of electricity supply	0.618
Telephone/fax infrastructure quality	0.548
2. Administrative Infrastructure	
Reliability of police services	0.416
Judicial independence	0.465
Efficiency of legal framework	0.433
Administrative burden for startups	0.284
Extent of bureaucratic red tape	0.113
3. Human Resource s	
Quality of management schools	0.403
Quality of public schools	0.566
Quality of the educational system	0.398
Quality of math and science education	0.435
4. Technology Infrastructure	
Availability of scientists and engineers	0.338
Quality of scientific research institutions	0.335
University/industry research collaboration	0.304
5. Capital Markets	
Financial market sophistication	0.512
Venture capital availability	0.278
Ease of access to loans	0.275
Local equity market access	0.402

II. NATIONAL BUSINESS ENVIRONMENT *(Cont'd.)*	R^2
B. DEMAND CONDITIONS	
Buyer sophistication	0.365
Sophistication of local buyers' products and processes	0.285
Government procurment of advanced technology products	0.203
Presence of demanding regulatory standards	0.498
Laws relating to ICT	0.336
Stringency of environmental regulations	0.488
C. RELATED AND SUPPORTING INDUSTRIES	
Local supplier quality	0.409
State of cluster development	0.266
Local availability of process machinery	0.349
Local availability of specialized research and training services	0.321
Extent of collaboration among clusters	0.301
Local supplier quantity	0.257
Local availability of components and parts	0.326
D. CONTEXT FOR FIRM STRATEGY AND RIVALRY	
1. Incentives	
Extent of distortive government subsidies	0.212
Favoritism in decisions of government officials	0.299
Cooperation in labor-employer relations	0.230
Efficacy of corporate boards	0.164
Intellectual property protection	0.463
Protection of minority shareholders' interests	0.254
Regulation of securities exchanges	0.374
Effectiveness of bankruptcy law	0.409
2. Competition	
Hidden trade barriers	0.303
Intensity of local competition	0.202
Extent of locally based competitors	0.197
Effectiveness of antitrust policy	0.352
Decentralization of corporate activity	0.314
Business costs of corruption	0.327
Cost of importing foreign equipment	0.296
Centralization of economic policymaking	0.264
Prevalence of mergers and acquisitions	0.238
Foreign ownership restrictions	0.226