

Microeconomic competitiveness: Findings from the 1999 Executive Survey

By Michael E Porter, C Roland Christensen Professor of Business Administration, Harvard Business School¹

.....
The microeconomic index highlights the importance of microeconomic factors in country and corporate competitiveness

The political, legal, and macroeconomic underpinnings of competitiveness and economic development are becoming better understood. Yet a stable political context and sound macroeconomic policies are necessary but not sufficient to ensure a prosperous economy. As important – or even more so – are the microeconomic foundations of economic development, rooted in firm operating practices and strategies as well as in the business inputs, infrastructure, institutions, and policies that constitute the environment in which a nation's firms compete. Unless there is appropriate improvement at the microeconomic level, political and macroeconomic reform will not bear full fruit.

Last year's *Global Competitiveness Report* marked the first time that the microeconomic foundations of economic development could be examined statistically across a wide array of countries. Microeconomic differences account for much of the variation across countries in GDP per capita. Last year's GCR introduced an Index of microeconomic competitiveness, which allowed a ranking of countries that was complementary to the overall GCR ranking.

This paper presents the results of the second microeconomic ranking. This year's results reflect richer data, a broader sample of countries, and additional analyses not included in last year's report. In addition to overall rankings, we present subrankings of company competitiveness and micro-business environment competitiveness, explore the overall patterns of microeconomic reform in the world economy, and identify the most pressing agenda items in each country for corporations and for business environment upgrading based on the analysis.

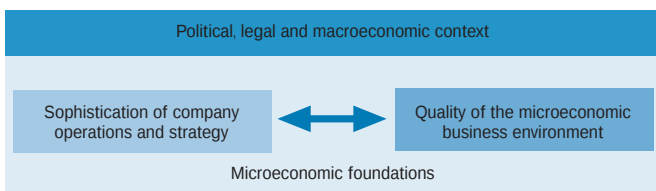
Overall, this year's results provide even stronger support for the importance of microeconomic conditions for economic development. The findings again verify the striking and regular pattern of microeconomic changes that occur with economic development. While there may be some natural tendency for some microeconomic conditions to improve as GDP per capita grows, *such improvement appears to be far from automatic*. In all areas, the rate of microeconomic improvement can be affected markedly by action in both government and the private sector.

Our results highlight the pressing need to better integrate microeconomic and competitive thinking into the economic reform process. If reform efforts in developing countries remain limited to IMF-style macroeconomic adjustments, we will face a continued succession of disappointments. In advanced countries, which have largely gotten their macro policies right, it is micro reform that holds the key to reversing unemployment problems and translating economic growth into a rising standard of living. In Canada, New Zealand, and the United Kingdom, for example, macro reforms have triggered spurts of investment and growth but have not yet materially increased the prosperity of the average citizen.

Microeconomic foundations of economic development

Standard of living is determined by the productivity of a nation's economy, which is measured by the value of goods and services (products) produced per unit of the nation's

Figure 1: Determinants of productivity and productivity growth



human, capital, and natural resources. The central issue in economic development is how to create the conditions for rapid and sustained productivity growth. Stable political/legal 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 productively to support high wages and high returns to capital. Political and legal institutions coupled with macroeconomic policies set the context, yet prosperity depends on improving a nation's capabilities at the microeconomic level (see Figure 1).

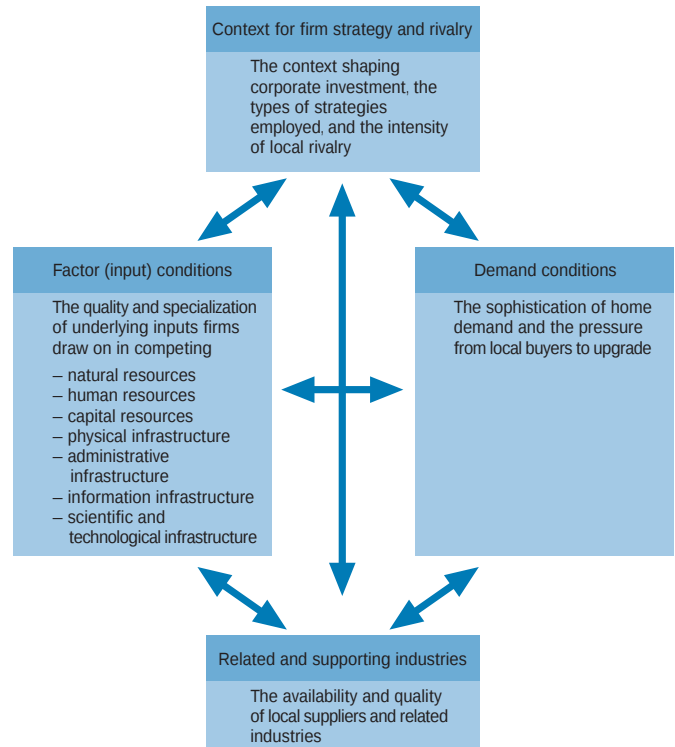
The microeconomic foundations of productivity rest on two interrelated areas: (1) the sophistication with which companies compete and (2) the quality of the microeconomic business environment. Companies ultimately set the level of national productivity, and their ability to upgrade is inextricably intertwined with the quality of the national business environment. More sophisticated strategies by companies require improved infrastructure, more advanced institutions, higher skilled people, and better incentives.

If there is to be rising prosperity, companies must transform their ways of competing. The types of competitive advantages a nation's companies enjoy must shift from comparative advantage (low-cost labor or natural resources) to competitive advantages due to unique products and processes. The transitions in goals, operating practices, and strategies required for successful development are described in detail in last year's report. What were strengths in traditional ways of competing become weaknesses at more advanced levels of development. Changes are often resisted, because past approaches were profitable and because old habits are deeply ingrained in companies.

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 influences: factor (input) conditions; the context for firm strategy and rivalry; demand conditions; and related and supporting industries (see Figure 2).

Successful economic development is a process of successive upgrading, in which the business environment in a nation evolves to support increasingly sophisticated and productive ways of competing. Nations at different levels of development face distinctly different challenges. The succession of improvements in the microeconomic

Figure 2: Microeconomic business environment



environment that accompany successful development were explored in detail in last year's report.

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 is influenced by regulatory standards and processes, government purchasing, and openness to imports. Similar policy influences are present in all parts of the diamond. Moreover, distinct roles for government exist at the national, state, and local levels. A concerted effort to improve the business environment should take place at all three levels.

In addition to government, however, many other institutions in an economy have a role in economic development. Universities, schools, infrastructure providers, standard-setting agencies, and a myriad of others contribute in some way to the microeconomic business environment. Such institutions must not just develop and improve, but become more connected to the economy and better linked with the private sector.

Finally, the private sector itself is not only a consumer of the business environment but can and must play a role in shaping it. Individual firms can take steps such as establishing schools, attracting suppliers, or defining standards that not only benefit themselves but 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, upgrading training institutions, and the like, that are not often recognized.

Seeing economic development as a sequential process

of building interdependent microeconomic capabilities, improving incentives, and evolving the modes of competing also exposes important pitfalls in economic policy. The influence of one part of the microeconomic business environment depends on others. Lack of improvement in any important area can lead to a plateau in productivity growth and stalled development.

This analysis also begins to reveal why macroeconomic policy alone is insufficient. Macro policies fostering high rates of capital investment will not translate into rising productivity unless the forms of investment are appropriate, the skills and supporting industries are present to make the investments efficient, and strong competitive pressures and corporate governance provide adequate market discipline. In Asia, for example, it was micro weaknesses in these areas that brought down economies that looked solid in terms of macroeconomic indicators. Similarly, the prudence of foreign debt levels depends on what the capital is invested in and the microeconomic fundamentals surrounding its deployment and governance. Regulating overall debt levels is less important, in many ways, than improving the micro foundations.

Other macro policies also depend on supporting microeconomic conditions. 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. Removing distortions in exchange rates and other prices will eliminate impediments to productivity, but micro foundations must be in place if productivity is to increase. For sound policies at the macro level to translate into an increasingly productive economy, therefore, parallel microeconomic improvements must take place.

Findings from the 1999 survey

This year's *Global Competitiveness Report* includes the second examination of national microeconomic performance. Most of the data are again drawn from the survey of senior business leaders and government officials. The 1999 survey included 3,934 respondents, up from about 3,000 in 1998.² Most countries had 50 respondents or more. This year's survey included questions about the affiliation of the respondent. Approximately 26% of respondents were from largely domestic companies, 42% from significant exporters, 25% from multinationals operating in the country, and 7% from government.

The survey of practices in company operations and strategy included new questions on products, processes, marketing, and senior management recruiting. For the microeconomic business environment, new questions were added in the areas of information infrastructure, capital access, and openness to internal competition. Also included were new hard data on international patents per capita.³

Survey data was obtained for 58 countries, ranging from Vietnam, Ukraine, and Indonesia with low levels of per capita income to advanced industrial economies such as Sweden and the United States.⁴ All OECD countries were again included. This year, Bolivia, Bulgaria, Costa Rica, Ecuador, El Salvador, and Mauritius were added to the sample. The principal dependent variable used in this year's analysis is the level of GDP per capita for 1998, adjusted

for purchasing power parity. (The countries included in this year's analysis are shown in Table 1, along with their 1998 GDP per capita adjusted for purchasing power parity⁵) We also examine in a more limited way the determinants of GDP per capita growth from the 1992 to 1998. GDP per capita is the broadest measure of national productivity and clearly linked to standard of living.⁶ As with last year, our primary focus is on the level of GDP per capita. Survey data is available for only two consecutive years which limits our ability to relate changes in the microeconomic environment to GDP per capita growth. However, because many of the microeconomic variables also bear on the rate of productivity growth (e.g., the intensity of local rivalry, the purchasing sophistication of buyers, and the quality of linkages between universities and business), we include a more preliminary growth analysis.

Microeconomic competitiveness and the level of GDP per capita

Table 2 presents the bivariate relationships between the microeconomic variables and GDP per capita. As with last year's report, the variables are grouped into measures of company operations and strategy and measures of the national business environment. Included in the table is the regression slope, an indication of statistical significance, and the adjusted R^2 (or proportion of variation in GDP per capita explained).⁷

The findings are highly consistent with last year's report, an important indication that the influence of microeconomic circumstances are robust and not an artifact of one survey. For the full set of countries, all of the variables are statistically significant, including the extent of locally-based competitors which was re-worded from the 1998 survey to mitigate ambiguity among respondents. All of the new measures prove highly significant and important, especially the state of production technology.

Among the company variables, the nature of competitive advantage, extent of presence throughout the value chain, and breadth of international markets are particularly associated with per capita GDP. By itself, the nature of competitive advantage possessed by a nation's companies explains a remarkable 80.6% of the variance. This measure captures the extent to which the competitive advantage of companies rests on cheap labor or natural resources, on one end of the spectrum, or innovative products and processes on the other. Monitoring the competitive approaches of companies is a powerful indicator of progress in economic development.

In this year's analysis, we introduced a number of statistical modifications which proved to strengthen the results. First, we investigated alternative functional forms for each variable, including linear, exponential, and logarithmic specifications, to measure the way in which the variable's influence changed at different levels. For questions relating to the business environment, we compared the findings based on all respondents with data drawn only from domestic exporters and multinationals, who should have a more objective assessment of how the country stacks up to others. The results were qualitatively the same but more robust statistically. We also experimented with measuring

Table 1 Comparing the microeconomic competitiveness index (MICI) with the Competitiveness Index

Country	MICI Rank		Competitiveness Index Rank			1998 GDP Per Capita
	1999	1998	1999	1998	1997	
United States	1	1	2	3	3	\$31,483
Finland	2	2	11	15	18	\$21,197
Netherlands	3	3	9	7	11	\$23,361
Sweden	4	7	19	23	21	\$20,765
Switzerland	5	9	6	8	6	\$27,892
Germany	6	4	25	24	24	\$23,313
Denmark	7	8	17	16	19	\$24,670
Canada	8	6	5	5	4	\$23,660
France	9	11	23	22	22	\$23,908
United Kingdom	10	5	8	4	7	\$22,303
Austria	11	16	20	20	26	\$24,000
Singapore	12	10	1	1	1	\$27,754
Australia	13	15	12	14	16	\$22,447
Japan	14	18	14	12	13	\$24,255
Belgium	15	19	24	27	30	\$24,497
New Zealand	16	17	13	13	5	\$17,838
Ireland	17	13	10	11	15	\$19,482
Norway	18	14	15	9	10	\$25,904
Taiwan	19	20	4	6	8	\$19,838
Israel	20	21	28	29	23	\$19,053
Hong Kong	21	12	3	2	2	\$24,055
Iceland	22	24	18	30	37	\$25,312
Spain	23	22	26	25	25	\$17,448
Chile	24	23	21	18	12	\$13,140
Italy	25	26	35	41	38	\$21,921
South Africa	26	25	47	42	43	\$7,139
Malaysia	27	27	16	17	9	\$10,879
Korea	28	28	22	19	20	\$13,469
Portugal	29	33	27	26	29	\$15,339
Mauritius	30	–	29	–	–	\$10,304
Turkey	31	29	44	40	35	\$6,950
Jordan	32	32	40	34	42	\$3,669
Hungary	33	31	38	43	45	\$7,790
Mexico	34	39	31	32	32	\$8,734
Brazil	35	35	51	46	41	\$6,413
Greece	36	38	41	44	47	\$14,245
Poland	37	41	43	49	49	\$7,130
Costa Rica	38	–	34	–	–	\$7,060
Thailand	39	37	30	21	17	\$6,518
Argentina	40	34	42	36	36	\$10,869
Czech Republic	41	30	39	35	31	\$11,880
India	42	44	52	50	44	\$1,814
Egypt	43	40	49	38	27	\$3,010
Philippines	44	45	33	33	33	\$3,672
Zimbabwe	45	48	57	51	50	\$2,568
Peru	46	47	36	37	39	\$4,508
El Salvador	47	–	46	–	–	\$3,217
Slovakia	48	36	45	48	34	\$8,661
China	49	42	32	28	28	\$4,068
Vietnam	50	43	48	39	48	\$1,855
Venezuela	51	50	50	45	46	\$9,040
Colombia	52	49	54	47	40	\$6,963
Indonesia	53	51	37	31	14	\$2,982
Bulgaria	54	–	56	–	–	\$4,302
Russia	55	46	59	52	52	\$4,269
Ukraine	56	52	58	53	51	\$2,282
Ecuador	57	–	53	–	–	\$4,975
Bolivia	58	–	55	–	–	\$2,954

Table 2: Bivariate regression results, dependent variable: 1998 GDP Per Capita

	<i>All Countries (n = 58)</i>		<i>Low (n = 20)</i> <i>GDP per capita</i> <i>< \$7,100</i>		<i>Medium (n = 19)</i> <i>GDP per capita</i> <i>\$7,100 - \$20,000</i>		<i>High (n = 19)</i> <i>GDP per capita</i> <i>> \$20,000</i>	
	<i>Slope</i>	<i>Adj. R2</i>	<i>Slope</i>	<i>Adj. R2</i>	<i>Slope</i>	<i>Adj. R2</i>	<i>Slope</i>	<i>Adj. R2</i>
I. Company Operations & Strategy								
6.11 Nature of Competitive Advantage	6143.2**	0.8062	2560.6**	0.4939	3774.4**	0.5782	521.6	-0.0394
6.12 Value Chain Presence	7241.7**	0.7413	2583.7*	0.1369	4911.6**	0.5427	446.4	-0.0424
6.04 Attention to Staff Training	9504.1**	0.5802	858.2	-0.0102	405.7*=	0.1070	717.8	-0.0386
5.08 Capacity for Innovation	6841.2**	0.5869	32.2	-0.0554	3792.6**	0.3371	434.4	-0.0455
Patents per Capita (1998)	102.2**	0.5179	1661.6*	0.0982	54.4**	0.3695	12.5	0.0537
6.16 Control of International Distribution	8981.7**	0.5849	-295.3	-0.0516	5828.0**	0.1913	-1049.2	-0.0019
6.15 Extent of Branding	7802.9**	0.5149	-1380.8	0.0685	579.7**=	0.2350	-92.7	-0.0582
6.18 Breadth of International Markets	6790.8**	0.6467	250.5**=	0.4643	3202.8**	0.3214	440.1	-0.0449
6.17 Extent of Regional Sales	662.2**=	0.3899	-28.9	-0.0554	-624.5	-0.0369	1056.8	-0.0262
6.14 Product Designs	7391.8**	0.5819	-435.8	-0.0365	658.6**=	0.3714	-324.8	-0.0509
6.08 Production Processes	7845.8**	0.7608	180.3**=	0.1813	554.0**=	0.5544	1022.1	-0.0264
6.09 Marketing Expertise	959.0**=	0.6660	139.6**=	0.0973	453.6**=	0.1674	1357.2	-0.0031
6.10 Customer Orientation	956.6**=	0.5727	944.4	0.0187	375.7**=	0.2451	1872.8	0.0505
6.19 Senior Management Recruitment	823.3**=	0.4645	760.8	0.0017	874.2	-0.0400	5.0	-0.0588
II. Quality of the National Business Environment								
<i>A. Factor (Input) Conditions</i>								
1. Physical Infrastructure								
4.01 Overall Infrastructure Quality	5069.6**	0.7275	59.7	-0.0546	2581.8**	0.1736	139.9**=	0.1343
a. Basic								
4.03 Road Infrastructure Quality	4830.9**	0.6220	81.7	-0.0527	1894.1*	0.1044	1360.0	0.0766
4.04 Railroad Infrastructure Development	481.4**=	0.4379	-802.2**	0.2333	415.9	-0.0442	50.2	-0.0581
4.06 Port Infrastructure Quality	5513.6**	0.6559	-301.9	-0.0412	2504.5**	0.2331	463.8	-0.0366
4.05 Air Transport Infrastructure Quality	6096.6**	0.6156	140.2**=	0.2110	1839.0*	0.1251	165.3**=	0.1072
b. Advanced								
4.07 Telephone/Fax infrastructure quality	692.1**=	0.6525	447.4	0.0014	473.0**=	0.3884	2513.0	-0.0043
4.09 IDD Communications Costs	5870.3**	0.4515	827.7**	0.1520	3421.2**	0.2929	211.3	-0.0549
2. Administrative Infrastructure								
8.14 Safeguarding of Personal Security	508.6**=	0.6318	-116.3	-0.0486	324.9**=	0.6916	877.9	-0.0135
8.05 Judicial Independence	4282.5**	0.4487	-34.1	-0.0550	231.2**=	0.2677	-375.3	-0.0441
8.10 Adequacy of private sector legal recourse	5198.9**	0.4603	70.8	-0.0534	227.3**=	0.1692	360.5	-0.0531
2.07 Administrative Burden for Start-ups	575.9**=	0.1991	949.9	0.0448	267.8=	0.0693	712.4	0.0285
2.02 Bureaucratic "Red Tape"	7658.1**	0.4856	552.6	-0.0110	2795.6*	0.1333	473	-0.0587
3. Information Infrastructure								
S.01 Business Information Availability	706.1**=	0.7420	432.1	-0.0216	423.2**=	0.4373	459.6	-0.0512
5.12 Computer Utilization	9888.3**	0.7722	207.4**=	0.2102	6234.6**	0.4640	1588.0	0.0009
S.02 Financial Disclosure Requirements	839.6**=	0.5055	228.4	-0.0501	2934.7**	0.1606	-564.1	-0.0492
5.13 Email Usage	684.3**=	0.3592	93.2**=	0.1619	1428.0	-0.0114	1099.4	-0.0518
4. Capital Availability								
3.01 Financial Market Sophistication	5368.1**	0.6014	488.7	0.0146	334.7**=	0.2730	887.4	0.0319
3.11 Stock Market Access	621.0**=	0.5289	-150.9	-0.0482	318.5**=	0.3270	568.2	-0.0390
3.13 Venture Capital Availability	5882.3**	0.4427	-743.3	0.0153	354.4**=	0.3431	499.2	-0.0291
3.05 Ease of Access to Loans	7720.9**	0.6093	-84.2	-0.0551	2758.5*	0.1379	-168.3	-0.0573
S.05 Ease of Financing Start-ups	6916.7**	0.5318	-570.8	-0.0082	562.0**=	0.4175	412.5	-0.0491
5. Human Resources								
7.01 Adequacy of Average Years of Schooling	658.2**=	0.5681	-133.8	-0.0512	261.9**=	0.2820	769.0	-0.0433
5.03 Quality of Scientists & Engineers	6052.3**	0.2774	54.5	-0.0549	2131.5	0.0844	1534.8	0.0267
6.20 Quality of Business Schools	6534.0**	0.3250	1080.1**	0.1637	1952.3	0.0304	742.7	-0.0216
6. Science & Technology								
5.05 Public Investment in Non-Military R&D	5898.6**	0.5655	-316.6	-0.0360	416.4**=	0.2975	836.8	0.0134
5.04 Quality of Science Research Institutions	5683.8**	0.5295	127.2	-0.0511	220.1=	0.0819	770.2	-0.0104
5.07 University/Industry research collaboration	8014.3**	0.6404	886.1	-0.0039	450.9**=	0.2069	646.2	-0.0322
<i>B. Demand Conditions</i>								
S.08 Buyer Sophistication	875.7**=	0.7765	207.8	-0.0483	625.7**=	0.6590	193.2=	0.0234
S.11 Demanding Regulatory Standards	7285.3**	0.7772	215.6**=	0.1700	507.4**=	0.2522	79.3	-0.0586
8.23 Openness of Public Sector Contracts	4372.0**	0.1091	377.1	-0.0294	2245.8	0.0425	-833.3	-0.0034

Table 2 (continued): Bivariate regression results, dependent variable: 1998 GDP Per Capita

	All Countries (n = 58)		Low (n = 20) GDP per capita < \$7,100		Medium (n = 19) GDP per capita \$7,100 - \$20,000		High (n = 19) GDP per capita > \$20,000	
	Slope	Adj. R2	Slope	Adj. R2	Slope	Adj. R2	Slope	Adj. R2
<i>C. Related and Supporting Industries</i>								
S.09 Domestic Supplier Quantity	963.3**=	0.5128	430.7	-0.0325	4123.5*	0.1148	635.7	-0.0466
S.10 Domestic Supplier Quality	924.1**=	0.8044	211.5**=	0.2317	615.9**=	0.6070	772.6	-0.0482
<i>D. Context for Firm Strategy and Rivalry</i>								
5.11 Intellectual Property Protection	790.7**=	0.8023	972.0	0.0932	656.7**=	0.5298	671.7	-0.0410
8.03 Irregular Payments (Bribery)	5371.5**	0.7050	5975	0.0370	290.6**=	0.4583	-90.1	-0.0585
1.01 Tariff Liberalization	6131.7**	0.6978	1066.2**	0.2333	401.4**=	0.5044	-1728.2	0.0218
1.02 Hidden Trade Barrier Liberalization	5930.0**	0.5347	469.9	-0.0021	341.4**=	0.3316	-1046.2	0.0117
1.10 Negotiation of Cross-Border Ventures	6699.2**	0.4330	8575**	0.1690	2640.1	0.0502	-1269.3	-0.0125
S.12 Intensity of Local Competition	10941.7**	0.4109	692.4	-0.0084	523.3**=	0.1640	1121.2	-0.0385
S.03 Extent of Locally Based Competitors	6043.7**	0.1050	855.0	0.0393	286.1=	0.0430	965.6	-0.0440
8.22 Effectiveness of Anti-trust Policy	7474.9**	0.6505	1129.1*	0.1250	464.8**=	0.3438	-966.3	-0.0239
S.07 Legal Barriers to Entry	882.2**=	0.5836	588.4	-0.0082	356.3**=	0.1433	561.7	-0.0498
S.13 Decentralization of Corporate Activity	5992.5**	0.4961	-214.9	-0.0441	382.2**=	0.3294	559.2	-0.0389

Note: * denotes $p < 0.10$, ** denotes $p < 0.05$; = denotes regressions for which the question value is squared.

the company variables based only on the responses of companies based in the country, because we found that some multinationals seemed to be describing their overall characteristics rather than how they operated in the country. This adjustment also increased statistical power.

Overall, the findings again provide strong support for the relationship between microeconomic conditions and economic performance. Traditional factor accumulation (IIA), including human resources and physical infrastructure, is less associated with differences in national per capita income than business information availability, information technology infrastructure, and infrastructure in science and technology. Demand conditions (IIB) and related and supporting industries (IIC) perform particularly strongly in explaining variation in GDP per capita, suggesting the importance of local clusters in competitiveness. The context for firm strategy and rivalry (IID) also proves important with intellectual property protection, absence of bribery, openness to trade and investment, and the intensity of local competition all highly significant.

The influence of some variables on GDP per capita is linear, while for others the influence is exponential. In other words, improvement at higher levels of the variable has more influence on GDP per capita than at lower levels. This is true for our measures of cluster strength (buyer sophistication, supplier quantity, supplier quality), intellectual property protection, business information availability, and financial disclosure. Progress in moving to a higher level of sophistication in these areas has a disproportionate influence on income.

As with last year's results, 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. (Note that the same issue applies in macroeconomic analyses.) The quality of scientists and engineers or buyer sophistication, for example, could be partly the result of high per capita GDP and not the cause. We explore causality tentatively through

a statistical test to be reported later in this paper, but more years of surveying will be required to establish definitive cause and effect relationships.

While causality remains ambiguous, the findings again verify the striking and regular pattern of microeconomic changes that occur with economic development. While there may be some natural tendency for some microeconomic conditions to improve as GDP per capita grows, *such improvement appears to be far from automatic*. In all areas, the rate of microeconomic improvement *can be affected* markedly by purposeful action in both government and the private sector.

Ranking microeconomic competitiveness

As in last year's report, we employ common factor analysis to provide a single composite picture of the relative microeconomic competitiveness of each country, weighting all the variables.⁸ Because many of the dimensions of the microeconomic environment tend to move together, the impact of individual variables cannot be statistically distinguished due to the relatively small sample size.

One dominant factor was present among the variables which captured 67.8% of the variance among them.⁹ The factor score can be interpreted as a microeconomic competitiveness index (MICI). Note that this index is narrower and not directly comparable to the Competitiveness Index, because it focuses exclusively on microeconomic conditions. Regressing GDP per capita on MICI explains a very high 83.3% of the variance across countries, up slightly from 82.4% in last year's report. There is a strong relationship between microeconomic circumstances and competitiveness.

Figure 3 plots MICI against 1998 GDP per capita for each country in the sample. The line through the center of the country data points is the regression line, while the lines above and below delineate the 95% confidence forecast region¹⁰. The fit is tight with only one country, Italy, falling outside the forecast region. It is also again notable that

Figure 3: The relationship between MICI and GDP per capita

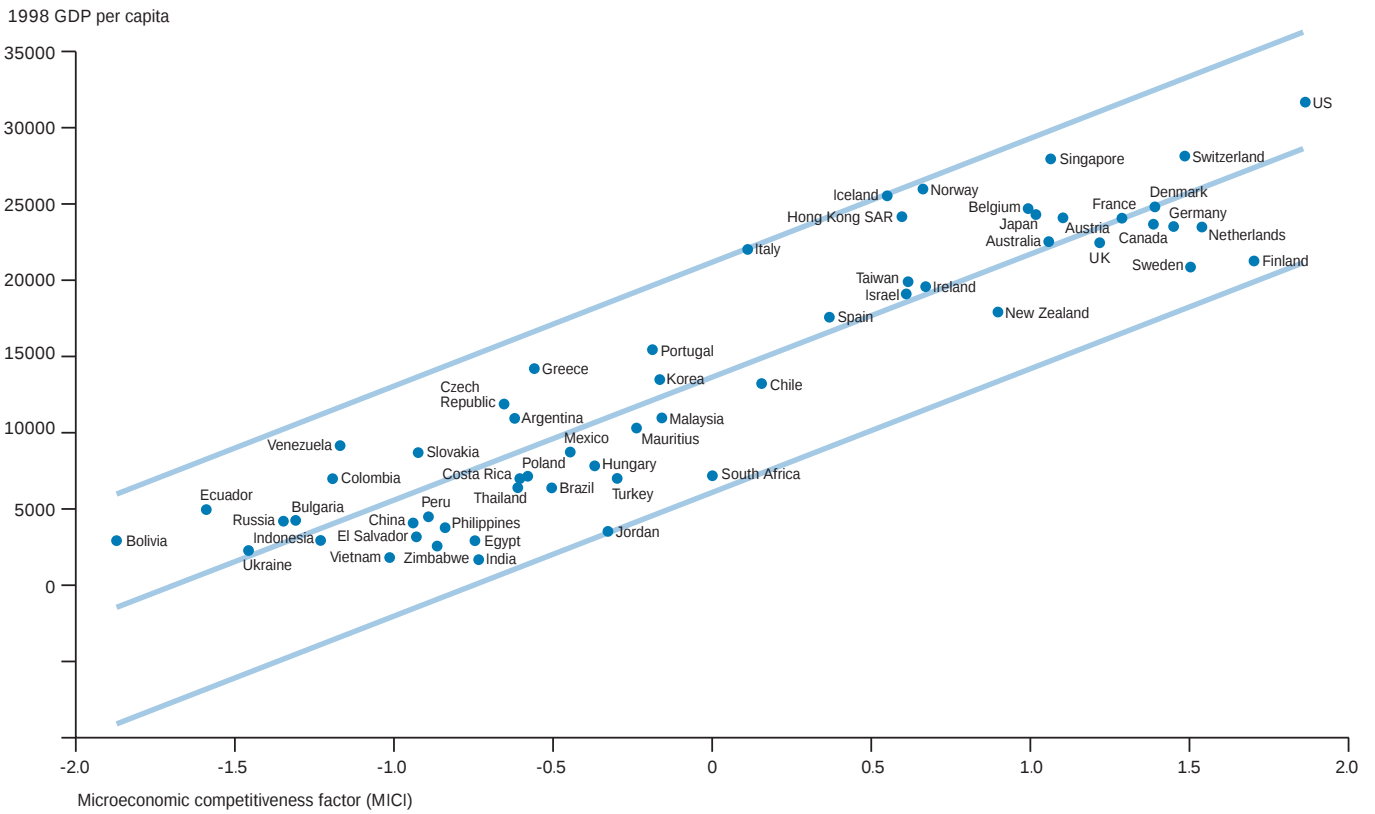
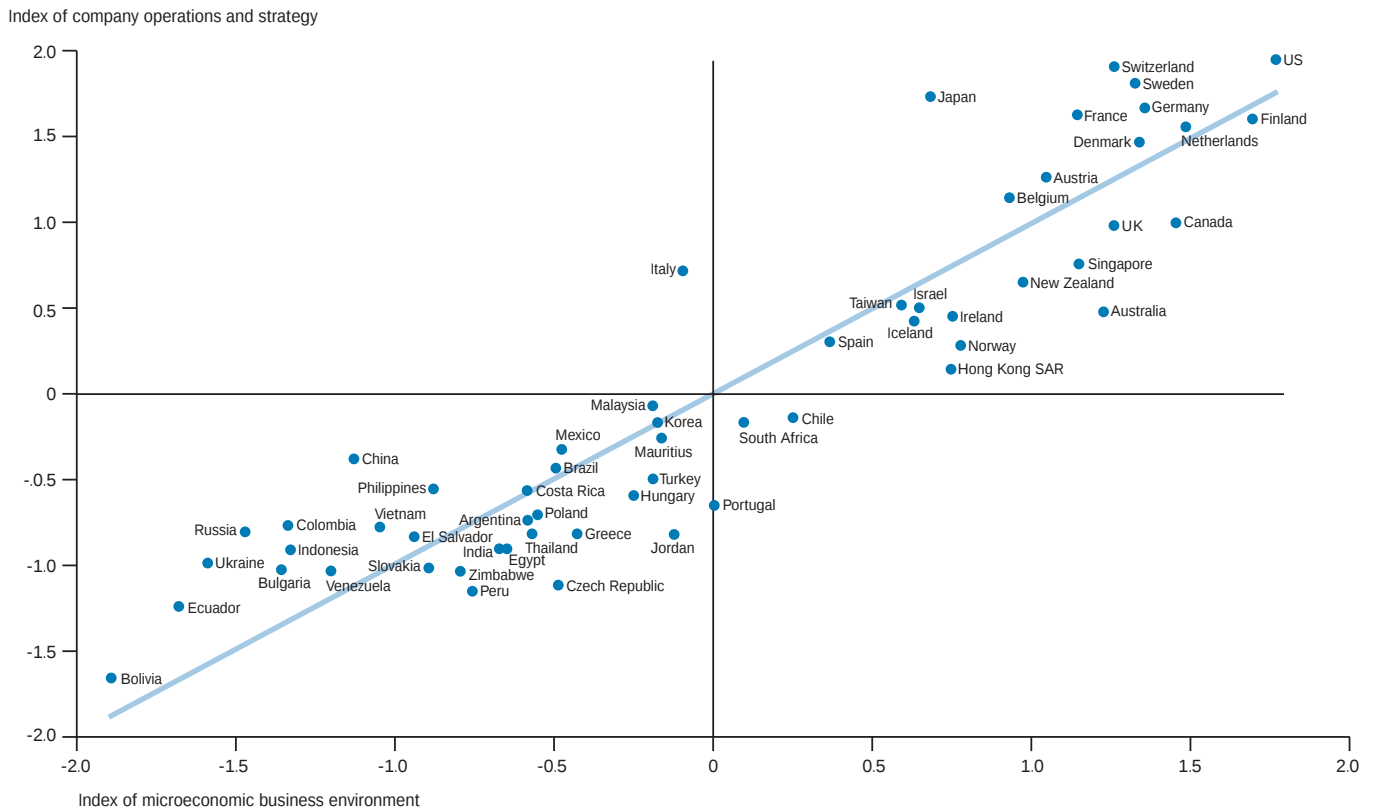


Figure 4: The relative development of companies and the microeconomic business environment



several of the so-called transitional economies – Russia, Poland, Bulgaria (new to the report this year), and Ukraine – fall on or close to the regression line. Although transitioning from a different economic system, their GDP per capita is strongly associated with their microeconomic fundamentals.

Countries lying above the regression line are those whose GDP per capita exceeds that predicted by their microeconomic foundations, as measured by the factor. This is a danger sign, because the per capita income performance may be unsustainable. Countries *overperforming* their measured microeconomic foundations include Italy, Iceland, and Norway, who are farthest above the line, and Hong Kong, Singapore, Greece, and Venezuela. Norway, Singapore, and Greece have become much greater overperformers in the last year.

Reasons for overperformance seem to vary. For example, Venezuela, Norway, and Iceland have unusual resource endowments that may be supporting unsustainable income levels. Hong Kong and Singapore are regional trading centers with strength in infrastructure but weaknesses in institutions and company practices relative to other nations at their income levels. Italy's microeconomic business environment continues to be eroded by conditions in the south.¹¹ These results are similar to last year's report. Two of the countries newly added to this year's report, Bolivia and Ecuador, also prove to be overperformers though at low income levels.

Countries lying below the line are those whose microeconomic foundations are stronger than current GDP per capita. Underperformance bodes well for the future, because the platform is in place for higher GDP per capita if macroeconomic or political constraints can be eased. Countries currently *underperforming* their microeconomic fundamentals include South Africa, Finland, India, Sweden, Turkey, Germany, China, and Chile. South Africa and Turkey continue to cope with unusual political challenges. Germany continues to face the economic discontinuity of unification. The performance of China and India may be pulled down by the large populations outside the mainstream economy. Three countries new to the report this year, El Salvador, Costa Rica, and Mauritius, are also underperformers. All are poised for GDP per capita improvement. Finally, compared to last year, Thailand and Indonesia have moved from overperformers to underperformers, probably reflecting a fall in income due to the Asian economic crisis. We will explore the relationship between under and over performance and GDP per capita growth below.

To further analyze each country's circumstances, we divided the variables into those related to company operations and strategy and those related to the microeconomic business environment, computing separate factors for each.¹² One of the central tenets of diamond theory is that company strategies are dependent on the microeconomic business environment and vice versa. Statistical analysis supports this relationship – the correlation between the two factors is 0.91.

To explore the relative state of company sophistication and the microeconomic business environment, the normalized factors are plotted against each other in Figure 4. Company sophistication is on the vertical axis and

business environment on the horizontal axis. Countries lying above the 45 degree line are those whose company development is more advanced than the business environment, while those below the line are countries whose business environment is more advanced than the average state of local companies.

Countries whose company development is ahead of the business environment include Japan, Italy, Switzerland, China, and, to a lesser extent, France, Sweden, Russia, Colombia, and Ukraine. These results are consistent with last year's report. Companies also lead in two newly added countries, Ecuador and Bulgaria.

Countries whose business environment continues to lead company practice include Australia, Finland, Netherlands, Canada, Hong Kong, Jordan, Portugal, and the Czech Republic. Many of the leading companies in these countries are still heavily involved in natural resource extraction or OEM production despite relatively advanced business conditions. Of the new countries, Mauritius, Costa Rica, and El Salvador fall close to the 45 degree line, indicating that company practice and business environment in these countries are at similar stages of development.

With two years of survey data, we can also explore the overall patterns of microeconomic improvement in the world economy. Table 3 shows areas where important microeconomic changes were reported in at least ten countries. Also indicated is whether these changes occurred primarily in advanced countries, developing countries, or both.

Overall, companies are getting more regional. Infrastructure, institutions, and education are improving. However, companies perceive themselves as losing ground on innovation, international market access, and control over the value chain. The business environment is also worsening in many countries in terms of tariff barriers, the vitality of competition, ability to access financial markets, and surprisingly, communications costs.

Microeconomic competitiveness and the state of development

We expect the influence of individual microeconomic variables to differ for countries at very different income (and productivity) levels. As with last year, we examined these issues by dividing the countries in the sample into three per capita GDP groups: low; medium; and high.¹³ The variance in GDP per capita is much greater for the middle income subgroup than for the high and low income groups, which again affects the statistical power of the analysis.

With these limitations in mind, the right-hand side of Table 2 presents the subgroup analysis. For low income countries, opening the economy to trade and foreign investment, more demanding regulatory standards, improving information technology infrastructure, effectiveness of antitrust, improving air transport and communications, and quality of business schools are the most important influences on GDP per capita. Even in low income countries, traditional factor accumulation proves not nearly as important as international openness, efficiency of the operating environment, and creation of an appropriate context for competition. Among companies, shifting away

Table 3: Major changes in microeconomic conditions between 1998 and 1999, ten or more countries

		<i>Improving Microeconomic Conditions</i>	<i>Worsening Microeconomic Conditions</i>
Company operations and strategy	B	Extent of regional sales	DC Presence throughout the value chain
			DC Capacity for innovation
			B Control of international distribution
			DC Breadth of international markets
National business environment	B	Overall infrastructure quality	B International direct dial communications costs
	B	Road infrastructure quality	B Stock market access
	DC	Business information availability	B Tariff liberalization
	B	Financial market sophistication	DC Intensity of local competition
	DC	Adequacy of average years of schooling	
	B	Quality of scientists & engineers	
	B	Quality of business schools	
	AC	Public investment in non-military R&D	
	DC	Quality of science research institutions	
	DC	Irregular payments (bribery)	
	B	Extent of locally based competitors	

AC = primarily advanced countries; DC = primarily developing countries; B = both advanced and developing countries

from competing solely on cheap labor and natural resources is crucial, as is broadening international markets and improving production technology. Widening value chain presence and better marketing are also significant.

Among middle income, many more parts of the diamond become important. The strongest influences were personal safety, cluster development (buyer sophistication, supplier quality), information availability, capital market upgrading, and intellectual property protection. At the company level, the nature of competitive advantage and value chain presence were joined by innovative capacity, broadening international markets, and product design ability as important factors in moving to the next level of sophistication.

The statistical results for the high income subgroup were affected by limited variance in income level. While the GDP per capita level and growth analysis were compromised, the high income subgroup proved amenable to first differences analysis. Table 4 shows the results regressing the change in GDP per capita 1997-1998 on the change in the micro variables between 1997 and 1998. High income countries with improving supplier quality, better information availability, improving computer utilization, rising public R&D investment, more research collaboration, better stock market and venture capital availability, growing judicial independence, better intellectual property protection, and rising effectiveness of antitrust were growing most rapidly. Among company variables, improving capacity for innovation and customer orientation among firms in high income countries were most associated with rapid growth.

Overall, the subgroup results are highly suggestive of a process of economic development which involves a sequential strengthening of microeconomic fundamentals.

Microeconomic competitiveness and economic growth

Microeconomic fundamentals also bear on the sustainable rate of growth in productivity that an economy can achieve.

The variables most related to innovation and productivity growth include the intensity of competition, buyer and supplier quality, business information availability, intellectual property protection, and measures of R&D infrastructure. Among the company variables, innovation capacity, attention to staff training, breadth of international markets, and senior management professionalism should be especially linked to productivity growth.

Though only two years of survey data on the microeconomic variables are available, their link to growth in GDP per capita can still be investigated preliminarily. Table 5 presents the bivariate regressions of GDP per capita growth between 1992 and 1998 and microeconomic variables, controlling for initial (1992) income level.¹⁴ The most influential single variable is the intensity of local competition, which alone explained 36% of the differences in GDP per capita growth across countries. Other variables with an important relationship with growth include: production process technology; professionalism of management; telephone/fax quality; personal security; business information availability; stock market access; ease of financing start-ups; buyer sophistication; domestic supplier quantity and quality; intellectual property protection; low prevalence of irregular payments; and effectiveness of antitrust policy.

We also find that decentralization of corporate activity away from large business groups, a new question in this year's survey, is associated with higher growth. We also found a strong positive relationship between decentralization and GDP per capita.

Among low income countries, growth in GDP per capita is most strongly linked statistically to the intensity of local rivalry and domestic supplier quantity (these results are not shown). As in last year's results, the intensity of local competition, which was not significant in explaining the level of GDP per capita for low income countries, is highly significant in explaining growth. Overall, these results provide strong confirmation of how important it is for

developing countries to become part of the international economy and to develop real domestic competition.

Among middle income countries, growth in GDP per capita is most strongly influenced statistically by buyer sophistication, information availability, supplier quality, adequacy of schooling, demanding regulatory standards, personal security, the intensity of rivalry, and financial market sophistication. At the company level, breadth of markets, production technology, marketing expertise, and customer orientation are the most important.

We also examined the influence of MICI on GDP per capita growth.¹⁵ Controlling for initial level, MICI explained 27% of the variation in GDP per capita growth across countries and is highly significant ($p < .001$). This result tracks closely with last year's report.

To explore growth, we also calculated a new measure (GAP) using the results of last year's report. GAP is the difference between a country's actual 1997 GDP per capita and its predicted level based on its 1997 MICI factor. In other words, GAP measures the degree to which a country was "overperforming" or "underperforming" its microeconomic fundamentals last year. (The 1998 analog would be to take the distance above/below the regression line in Figure 3 for each country.)

GAP should be negatively related to GDP per capita growth between 1997 and 1998. Countries with positive GAP were overperforming their fundamentals last year and would be expected to experience a drag on growth in 1998, while the reverse should be true for countries underperforming their fundamentals last year. With only one year's data, however, the strength of the effect may be modest because of the susceptibility of GDP per capita growth to a myriad of transient and other disturbances.

Preliminary evidence is supportive of the influence of microeconomic conditions on growth. Regressing 1997-98 GDP per capita growth on GAP produced negative coefficients for all income categories, though only in the low income category was the coefficient statistically significant ($p < 0.05$, adjusted $R^2 = 0.24$). Introducing a control for 1997 GDP per capita did not change the results substantively. These results provide a highly tentative indication of causality from microeconomic conditions to changes in income. More definitive tests await additional years of consistent survey data.

To complete the growth analysis, we introduce macroeconomic variables into the 1992-98 growth equation with MICI and 1992 GDP per capita. Macro variables should be important to growth, because they shape the context for microeconomic improvement. As with the microeconomic variables, however, the statistical test is hindered by the lack of historical data. Gross domestic investment and national savings as a percentage of GDP prove significant in explaining GDP per capita growth (and highly collinear). Government spending, exchange rate misalignment, and secondary school enrollment (a measure of human capital investment) prove insignificant.

Controlling for initial income level alone, gross domestic investment by itself explains 20% of the variation in GDP per capita growth. Additional macro variables add no more explanatory power. Combining MICI and the investment

rate into a single equation explains 47% of the variation of growth, controlling for initial income level. Thus, microeconomic foundations contribute more than half of the explanatory power of the model. Macro policies are important to growth, but so are sound micro foundations.

Ranking microeconomic foundations

This year's overall MICI rankings are shown in Table 6 along with last year's ranking. Also included, for the first time, are the company and business environment rankings.

The top three spots in the overall MICI ranking mirror last year's results with the United States at the top, followed by Finland and the Netherlands. Advanced nations significantly improving their micro rankings include Sweden, Switzerland, Austria, Japan, and Belgium. Advanced countries falling materially in the rankings include the United Kingdom, Ireland, Norway, and Hong Kong. Developing nations improving their micro rankings include Portugal, Mexico, Poland, and Zimbabwe. Those falling include Argentina, the Czech Republic, Slovakia, China, and Russia. Two newly added countries, Bolivia and Ecuador, rank at the bottom.

While each of the improving countries is different, there are some striking commonalities. In particular, financial markets are becoming more sophisticated, competition is increasing, openness is growing, information is becoming more available, and technological infrastructure is improving. These countries' companies are becoming more regional and international, and senior management recruiting is increasingly targeting professionals instead of family members.

Countries losing position are those where bureaucratic red tape is rising, innovative and technological capability is falling behind, the vitality of competition and antitrust effectiveness is weakening, communications costs are rising, stock market access is worsening, and the breadth of international markets is diminishing.

Table 1 compares the micro rankings with the GCR's Competitiveness Index. The Competitiveness Index is broader, and weighs macroeconomic, political, and microeconomic factors. There are major differences between the two rankings, especially in the top half. The MICI rankings are more stable, as would be expected. Finland, Sweden, Germany, Denmark, France, Austria, Belgium, Israel, Italy, South Africa, Turkey and Brazil are ranked much higher on micro than on overall competitiveness as measured by the Competitiveness Index. Canada, Singapore, Ireland, Taiwan, Hong Kong, Thailand, Philippines, Peru, China, and Indonesia are ranked materially lower.

Interestingly, the rankings are converging. Their correlation has risen from 0.82 last year to 0.86 this year. Big gaps in last year's Report have narrowed, especially in Finland, Belgium, Norway, Iceland, Chile, Malaysia, Hungary, Greece, Thailand Colombia, and Indonesia.

Table 7 – split into three parts depending on a country's income – presents the top three competitive advantages and disadvantages of each nation's companies and the top three advantages and disadvantages of its business environment, relative to income level. In other words, these are the areas where the country's circumstances diverge

Table 4: Bivariate regression results, dependent variable: percentage change in GDP per capita

1997-1998^a

	High (n = 19) GDP per capita > \$20,000	
	Slope	Adj. R2
I. Company Operations & Strategy		
6.11 Nature of Competitive Advantage	0.11	0.0813
6.12 Value Chain Presence 0.05	-0.0256	
6.04 Attention to Staff Training	0.23*	0.1323
5.08 Capacity for Innovation	0.23**	0.2968
Patents per Capita (1998) 0.02	-0.0172	
6.16 Control of International Distribution	0.13**	0.1695
6.15 Extent of Branding 0.36**	0.5293	
6.18 Breadth of International Markets	0.00	-0.0585
6.18 Extent of Regional Sales	0.22**	0.1761
6.14 Product Designs 0.16**	0.3735	
6.08 Production Processes 0.34**	0.5117	
6.09 Marketing Expertise 0.12**	0.1608	
6.10 Customer Orientation 0.27**	0.2911	
6.19 Senior Management Recruitment	0.02	-0.0440
II. Quality of the National Business Environment		
A. Factor (Input) Conditions		
1. Physical Infrastructure		
4.01 Overall Infrastructure Quality	0.12*	0.1322
a. Basic		
4.03 Road Infrastructure Quality	0.03	-0.0410
4.04 Railroad Infrastructure Development	0.01	-0.0574
4.06 Port Infrastructure Quality	0.19	0.0489
4.05 Air Transport Infrastructure Quality	0.01	-0.0581
b. Advanced		
4.07 Telephone / Fax Infrastructure Quality	0.39	0.0403
4.09 IDD Communications Costs	0.11	0.0283
2. Administrative Infrastructure		
8.14 Safeguarding of Personal Security	0.15	0.0309
8.05 Judicial Independence	0.27*	0.1441
8.10 Adequacy of Private Sector Legal Recourse	-0.03	-0.0487
2.07 Administrative Burden for Start-ups	New Question	
2.02 Bureaucratic "Red Tape"	0.05	-0.0428
3. Information Infrastructure		
S.01 Business Information Availability	0.44**	0.2528
5.12 Computer Utilization 0.55**	0.2817	
S.02 Financial Disclosure Requirements	New Question	
5.13 Email Usage New Question		
4. Capital Availability		
3.01 Financial Market Sophistication	0.03	-0.0506
3.11 Stock Market Access 0.22*	0.1388	
3.13 Venture Capital Availability	0.09*	0.1423
3.05 Ease of Access to Loans	New Question	
S.05 Ease of Financing Start-ups	New Question	
5. Human Resources		
7.01 Adequacy of Average Years of Schooling	0.19	0.0449
5.03 Quality of Scientists & Engineers	0.02	-0.0536
6.20 Quality of Business Schools	0.03	-0.0538
6. Science & Technology		
5.05 Public Investment in Non-Military R&D	0.15**	0.2006
5.04 Quality of Science Research Institutions	0.10*	0.1193
5.07 University / Industry Research Collaboration	0.23**	0.2097
B. Demand Conditions		
S.08 Buyer Sophistication 0.21	0.0722	
S.11 Demanding Regulatory Standards	0.36	0.1007
8.23 Openness of Public Sector Contracts	0.18	0.0307

Table 4 (continued): Bivariate regression results, dependent variable: Percentage change in GDP per capita 1997-1998^a1997-1998^a

		<i>High (n = 19) GDP per capita > \$20,000</i>	
		<i>Slope</i>	<i>Adj. R2</i>
C. Related and Supporting Industries			
S.09 Domestic Supplier Quantity		0.18	0.0456
S.10	Domestic Supplier Quality	0.37**	0.3529

Note: * denotes $p < 0.10$, ** denotes $p < 0.05$ a Dependent variable is computed as follows: $(1998 \text{ GDPpc} - 1997 \text{ GDPpc}) / 1997 \text{ GDPpc}$.

All independent variables are similarly constructed.

		<i>High (n = 19)</i>	
		<i>(GDP per Capita > \$20,000)</i>	
		<i>Slope</i>	<i>Adj. R2</i>
D. Context for Firm Strategy and Rivalry			
5.11 Intellectual Property Protection		0.19*	0.1184
8.03 Irregular Payments (Bribery)		0.02	-0.0573
1.01 Tariff Liberalization	0.02	-0.0572	
1.02 Hidden Trade Barrier Liberalization		-0.03	-0.0469
1.10 Negotiation of Cross-Border Ventures		0.24	-0.0182
S.12 Intensity of Local Competition		0.20	0.0725
S.03 Extent of Locally Based Competitors		0.05	-0.0186
8.22 Effectiveness of Anti-trust Policy		0.15*	0.1118
S.07 Legal Barriers to Entry		New Question	
S.13 Decentralization of Corporate Activity		New Question	

Note: * denotes $p < 0.10$, ** denotes $p < 0.05$ a Dependent variable is computed as follows: $(1998 \text{ GDPpc} - 1997 \text{ GDPpc}) / 1997 \text{ GDPpc}$. All independent variables are similarly constructed.

Table 5: Bivariate regression results, dependent variable: 1992-1998 GDP per capita growth

	<i>All Countries (n = 48)</i>	
	<i>Slope</i>	<i>Adj. R2</i>
I. Company Operations & Strategy		
6.11 Nature of Competitive Advantage	0.75	0.0124
6.12 Value Chain Presence	0.41	-0.0138
6.04 Attention to Staff Training	1.11	0.0347
5.08 Capacity for Innovation	0.23	-0.0167
Patents per Capita (1998)	-0.00	-0.0196
6.16 Control of International Distribution	0.19	-0.0192
6.15 Extent of Branding	0.12	-0.0200
6.18 Breadth of International Markets	1.05*	0.0628
6.17 Extent of Regional Sales	0.63	0.0231
6.14 Product Designs	-0.33	-0.0141
6.08 Production Processes	2.23**	0.2184
6.09 Marketing Expertise	1.97**	0.1669
6.10 Customer Orientation	1.77**	0.1170
6.19 Senior Management Recruitment	1.98**	0.1989
II. Quality of the National Business Environment		
A. Factor (Input) Conditions		
1. Physical Infrastructure		
4.01 Overall Infrastructure Quality	0.63	0.0243
a. Basic		
4.03 Road Infrastructure Quality	0.44	0.0048
4.04 Railroad Infrastructure Development	-0.01	-0.0207
4.06 Port Infrastructure Quality	0.79*	0.0452
4.05 Air Transport Infrastructure Quality	1.22**	0.0909
b. Advanced		
4.07 Telephone / Fax Infrastructure Quality	2.37**	0.2744
4.09 International Direct Dial Communications Costs	0.73*	0.0435
2. Administrative Infrastructure		
8.14 Safeguarding of Personal Security	1.00**	0.1880
8.05 Judicial Independence	0.47	0.0254
8.10 Adequacy of Private Sector Legal Recourse	0.63	0.0199
2.07 Administrative Burden for Start-ups	0.92**	0.0852
2.02 Bureaucratic "Red Tape"	1.28**	0.1037
3. Information Infrastructure		
S.01 Business Information Availability	1.81**	0.1820
5.12 Computer Utilization	1.72**	0.0847
S.02 Financial Disclosure Requirements	1.82**	0.1321
5.13 Email Usage	1.61**	0.1307
4. Capital Availability		
3.01 Financial Market Sophistication	1.05**	0.1134
3.11 Stock Market Access	0.89**	0.0690
3.13 Venture Capital Availability	1.07**	0.1009
3.05 Ease of Access to Loans	1.60**	0.1496
S.05 Ease of Financing Start-ups	1.41**	0.1563
5. Human Resources		
7.01 Adequacy of Average Years of Schooling	0.44	-0.0032
5.03 Quality of Scientists & Engineers	-0.28	-0.0149
6.20 Quality of Business Schools	0.75	0.0231
6. Science & Technology		
5.05 Public Investment in Non-Military R&D	1.07**	0.0868
5.04 Quality of Science Research Institutions	-0.09	-0.0198
5.07 University / Industry Research Collaboration	1.67**	0.1513
B. Demand Conditions		
S.08 Buyer Sophistication	2.86**	0.2834
S.11 Demanding Regulatory Standards	0.97	0.0207
8.23 Openness of Public Sector Contracts	0.84*	0.0519

Table 5 (continued): Bivariate regression results, dependent variable: 1992-1998 GDP per capita growth

	<i>All Countries (n = 48)</i>	
	<i>Slope</i>	<i>Adj. R2</i>
C. Related and Supporting Industries		
S.09 Domestic Supplier Quantity	2.21**	0.1514
S.10 Domestic Supplier Quality	2.19**	0.1491
D. Context for Firm Strategy and Rivalry		
5.11 Intellectual Property Protection	1.75**	0.1513
8.03 Irregular Payments (Bribery)	1.21**	0.1785
1.01 Tariff Liberalization	1.29**	0.1396
1.02 Hidden Trade Barrier Liberalization	1.04**	0.1086
1.10 Negotiation of Cross-Border Ventures	0.47	-0.0042
S.12 Intensity of Local Competition	3.37**	0.3569
S.03 Extent of Locally Based Competitors	1.53**	0.0850
8.22 Effectiveness of Anti-trust Policy	1.72**	0.1951
S.07 Legal Barriers to Entry	1.50**	0.1121
S.13 Decentralization of Corporate Activity	1.48**	0.1937
Note: * denotes $p < 0.10$, ** denotes $p < 0.05$		

most from the expected performance given its GDP per capita.¹⁶ The advantages represent important national strengths, while the disadvantages represent central national economic challenges.

Conclusions

Political stability and sound macroeconomic policies have long been considered the cornerstone for economic development. The results here suggest that they are necessary but not sufficient. Parallel improvements in the microeconomic foundations of economic development are needed, rooted in the nature of company operations and strategies and in the microeconomic business environment. We find strong evidence that microeconomic upgrading is a sequential process in which the countries at different levels of development face distinctly different challenges.

Taken as a whole, the results again challenge the notion that microeconomic improvement is automatic if proper macroeconomic policies are instituted. We find that microeconomic conditions can get ahead of or fall behind current GDP per capita and evidence that this has an influence on economic growth.

While institutions such as the IMF have strongly pushed macro reforms, our findings suggest that micro reforms are equally if not more important. Without micro reforms, growth in GDP per capita induced by sound macro policies will be unsustainable. Appropriate micro reforms, which will boost productivity and productivity growth, can also greatly ease the challenge of meeting fiscal obligations and reducing macroeconomic distortions.

A greater focus on micro reforms will pay another, essential dividend. While macro reforms almost inevitably inflict hardship in the short and medium run, micro reforms can produce tangible and visible benefits for citizens. Breaking up local cartels and monopolies can lower the cost of food, housing, electricity, telephone service, and other costs of living. Regulatory reform can rapidly begin to ease inefficiencies, reduce pollution, and improve unsafe practices. Improvements in infrastructure can boost mobility and tangibly ease congestion. Bold steps to improve 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 will be more willing themselves to live with personal sacrifices and less likely to side with anti-reform interest groups. The political will and public support to make real economic change is elevated.

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. Approaches based heavily on macroeconomic adjustment are producing a backlash that erodes consensus for economic progress. Macro-driven adjustment policies are also providing an opening to those who criticize the market economy and global capital markets as negatives for the social development of countries. Countries are converging on macro policies, and strong market forces penalize any nation that fails to reform. The central challenge to the world economy is now micro reform.

References

- Barro, Robert J. "Economic Growth in a Cross Section of Countries," *Quarterly Journal of Economics* 106, no. 2 (May 1991): 407-43.
- Competitiveness Policy Council. "Lifting All Boats: Increasing the Payoff from Private Investment in the US Economy," report of the Capital Allocation Subcouncil, Washington, DC: Competitiveness Policy Council, 1995.
- Enright, Michael J., Antonio Francés, and Edith Scott Saavdra. *Venezuela: El Reto de la Competitividad*. Caracas, Venezuela: Ediciones IESA, 1994.
- Fairbanks, Michael and Stace Lindsay. *Plowing the Sea: The Challenge of Competitiveness in the Developing World*. Boston: Harvard Business School Press, 1997.
- Ghemawat, Pankaj, Michael E. Porter, and U. Srinivasa Rangan. "A New Vision for Indian Economic Development: The Corporate Agenda," working paper, October 17, 1995.
- Hall, Robert E. and Charles I. Jones. "Why Do Some Countries Produce So Much More Output per Worker than Others?" March 1998 draft, forthcoming in *Quarterly Journal of Economics*.
- Hirschman, Albert O. *The Strategy of Economic Development*. New Haven: Yale University Press, 1958.
- Ingham, Veronica H. "The Competitiveness of Argentina: From Sheltered Markets to Global Rivalry," Ph.D. diss., Fletcher School of Law and Diplomacy, Tufts University, May 1995.
- Lucas, Robert E., Jr. "On the Mechanics of Economic Development," *Journal of Monetary Economics* 22 (July 1988): 3-42.
- Mankiw, N. Gregory, David Romer, and David N. Weil. "A Contribution to the Empirics of Economic Growth," *Quarterly Journal of Economics* 107, no. 2 (May 1992): 407-437.
- Mankiw, N. Gregory. "The Growth of Nations," *Brookings Papers on Economic Activity* 1, no. 1 (August 1995): 275-310.
- Nordhaus, William D. "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, 1994: 355-376.
- North, Douglass C. *Institutions, Institutional Change and Economic Performance: Political Economy of Institutions and Decisions*. Cambridge: Cambridge University Press, 1990.
- Panayotou, Theodore and Jeffrey R. Vincent. "Environmental Regulation and Competitiveness," in *The Global Competitiveness Report 1997*. Geneva, Switzerland: World Economic Forum, 1997.
- Porter, Michael E. "Introduction," *The Competitive Advantage of Nations: With a New Introduction*. New York: The Free Press, 1998a.
- Porter, Michael E. "Clusters and Competition: New Agendas for Companies, Governments, and Institutions," in *On Competition*. Boston: Harvard Business School Press, 1998b.
- "What is Strategy?," *Harvard Business Review* 74, no. 6 (November-December 1996): 61-78.
- . "Comment on 'Interaction Between Regional and Industrial Policies: Evidence From Four Countries,' by 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, 1995: 303-307.
- The Competitive Advantage of Nations*. New York: The Free Press, 1990.
- Porter, Michael E. with Graham T. Crocombe, and Michael J. Enright. *Upgrading New Zealand's Competitive Advantage*. Auckland, New Zealand: Oxford University Press, 1991.
- Porter, Michael E., Pankaj Ghemawat, and U. Srinivasa Rangan. "A New Vision for Indian Economic Development," working paper, March 17, 1995.
- Porter, Michael E., Scott Stern, and Council on Competitiveness. *The New Challenge to America's Prosperity: Findings from the Innovation Index*. Washington, D.C., March 1999.
- Porter, Michael E. and Takeuchi, Hirotaka. "Fixing What Really Ails Japan," *Foreign Affairs* 78, no. 3 (May-June 1999).
- Porter, Michael E. and Takeuchi, Hirotaka with Mariko Sakakibara. "The Two Japans: Reinterpreting the Japanese Model of Competitiveness," forthcoming.
- Porter, Michael E. and Claas van der Linde. "Toward a New Conception of the Environment-Competitiveness Relationship," *Journal of Economic*

Table 6: The microeconomic competitiveness index (MICI)

Country	Overall MICI ranking		Company ranking		Business environment ranking	
	1999	1998	1999	1998	1999	1998
United States	1	1	1	2	1	1
Finland	2	2	7	8	2	2
Netherlands	3	3	8	5	3	4
Sweden	4	7	3	4	7	9
Switzerland	5	9	2	3	9	10
Germany	6	4	5	1	5	8
Denmark	7	8	9	10	6	7
Canada	8	6	12	15	4	3
France	9	11	6	6	11	13
United Kingdom	10	5	13	9	8	5
Austria	11	16	10	11	13	17
Singapore	12	10	14	12	12	6
Australia	13	15	19	22	10	12
Japan	14	18	4	7	19	19
Belgium	15	19	11	13	15	18
New Zealand	16	17	16	19	14	16
Ireland	17	13	20	18	17	14
Norway	18	14	23	14	16	15
Taiwan	19	20	17	16	22	21
Israel	20	21	18	21	20	20
Hong Kong	21	12	24	17	18	11
Iceland	22	24	21	28	21	23
Spain	23	22	22	23	23	22
Chile	24	23	26	25	24	24
Italy	25	26	15	20	27	27
South Africa	26	25	28	33	25	25
Malaysia	27	27	25	34	31	26
Korea	28	28	27	24	30	28
Portugal	29	33	37	48	26	30
Mauritius	30	–	29	–	29	–
Turkey	31	29	33	26	32	29
Jordan	32	32	44	42	28	32
Hungary	33	31	36	39	33	31
Mexico	34	39	30	29	35	41
Brazil	35	35	32	27	37	39
Greece	36	38	45	32	34	38
Poland	37	41	38	38	38	40
Costa Rica	38	–	35	–	41	–
Thailand	39	37	43	37	39	36
Argentina	40	34	39	30	40	34
Czech Republic	41	30	55	31	36	33
India	42	44	48	50	43	42
Egypt	43	40	49	47	42	35
Philippines	44	45	34	41	46	45
Zimbabwe	45	48	54	46	45	48
Peru	46	47	56	49	44	46
El Salvador	47	–	46	–	48	–
Slovakia	48	36	51	40	47	37
China	49	42	31	35	50	44
Vietnam	50	43	41	36	49	43
Venezuela	51	50	53	44	51	50
Colombia	52	49	40	43	53	49
Indonesia	53	51	47	52	52	51
Bulgaria	54	–	52	–	54	–
Russia	55	46	42	45	55	47
Ukraine	56	52	50	51	56	52
Ecuador	57	–	57	–	57	–
Bolivia	58	–	58	–	58	–

Perspectives 9, no. 4 (1995): 97-118.

Romer, Paul M. "Endogenous Technological Change," *Journal of Political Economy* 98, no. 5 (October 1990): S71-S102.

Sachs, Jeffrey and Andrew Warner. "Economic Reform and the Process of Global Integration," *Brookings Papers on Economic Activity* 1, no. 1 (August 1995): 1-118.

Sakakibara, Mariko and Michael E. Porter. "Competing at Home to Win Abroad: Evidence from Japanese Industry," *Harvard Business School Working Paper 99-036*, September 4, 1998.

Solow, Robert M. "A Contribution to the Theory of Economic Growth," *Quarterly Journal of Economics* 70, no. 1 (February 1956): 65-94.

Footnotes

1 Gregory Bond and Steven Yonish played a major role in the statistical analyses reported in this article. Thanks also to Andrew Warner for his contribution to compiling the data. The theory and methodology in this article are more fully described in "The Microeconomic Foundations of Economic Development," The Global Competitiveness Report 1998, Geneva, Switzerland: World Economic Forum, 1998. The work also draws on Michael E. Porter, Scott Stern, and Council on Competitiveness, The New Challenge to America's Prosperity Findings from the Innovation Index, Washington, DC, March 1999.

2 The structure of the questions and their dispersion throughout the broader survey were similar to last year.

3 For all countries except the United States, the number of patents is defined as the number of patents granted by the US Patent Office to businesses, governments, and individuals located in the country. Since nearly all US-filed patents by foreign entities are also patented in the country of origin, international patents provide a useful metric of a country's commercially significant international patenting activity. For the United States, the number of patents has been adjusted to reflect commercially significant patents, using data developed by CHI Research

4 We omitted Luxembourg from the analysis because its tiny population and idiosyncratic circumstances limited its comparability with the rest of the sample.

5 As in last year's report, there is less income variation between countries in the low and high ends of the income spectrum, and a larger variation in per capita income in the middle. The income variation affects the ability to discern statistical significance in a relatively small sample such as these will be important to keep in mind when interpreting the results.

6 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 but with high unemployment and a large student population not counted as part of the potential workforce.

7 Statistical significance at $\alpha=5\%$ and $\alpha=10\%$ (all two-tailed tests) is noted in the table.

8 Common factor analysis is a statistical technique for summarizing data by accounting for the common variance among all included variables. An alternative approach using a principal components analysis yielded identical qualitative results.

9 No other factor accounted for more than 6.5% of the covariance.

10 The forecast region has wider bands than a 95% mean confidence region. The latter 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 is 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.

11 The presence of regional clustering can diminish the appropriateness of data at the national level.

12 In each case, a statistically significant, dominant factor again explains the great majority of the variance.

13 Twenty "low" income countries had a GDP per capita less than \$7,100; nineteen "medium" income countries had a GDP per capita between \$7,100 and \$20,000; and nineteen "high" income countries had a GDP per capita greater than \$20,000.

14 Only 48 countries were examined in the growth regressions due to the unavailability of comparable 1992 GDP per capita data for six countries.

15 Given the large number of overlapping significant variables, we did not compute a separate microeconomic growth factor.

16 We determined expected performance by calculating the regression line relating each variable and GDP per capita.

Table 7: Leading national microeconomic advantages and disadvantages relative to income level

<i>Company strategy</i>		
<i>Country (high income)</i>	<i>Competitive advantages</i>	<i>Competitive disadvantages</i>
Australia	Professionalism of senior management recruitment	Value chain presence
	Marketing expertise	Nature of competitive advantage
	Attention to staff training	Product designs
Austria	Attention to staff training	Breadth of international markets
	Control of international distribution	Marketing expertise
	Customer orientation	Extent of branding*
Belgium	Extent of regional sales	Attention to staff training
	Nature of competitive advantage	Marketing expertise
	Value chain presence	Production processes
Canada	Customer orientation	Breadth of international markets
	Professionalism of senior management recruitment	Nature of competitive advantage
	Attention to staff training	Product designs
Denmark	Nature of competitive advantage	Breadth of international markets
	Product designs	Control of international distribution
	Professionalism of senior management recruitment	Marketing expertise
Finland	Control of international distribution	Extent of regional sales
	Product designs	Marketing expertise
	Production processes	Customer orientation*
France	Extent of branding	Production processes*
	Marketing expertise	Customer orientation*
	Control of international distribution	Attention to staff training*
Germany	Nature of competitive advantage	Customer orientation
	Value chain presence	Professionalism of senior management recruitment*
	Production processes	Extent of regional sales*
Hong Kong SAR	Breadth of international markets	Production processes
	Value chain presence	Extent of branding
	Extent of regional sales*	Capacity for innovation
Iceland	Control of international distribution	Value chain presence
	Extent of branding	Marketing expertise
	Product designs*	Breadth of international markets
Italy	Product designs	Attention to staff training
	Extent of branding	Professionalism of senior management recruitment
	Control of international distribution	Customer orientation
Japan	Customer orientation	Extent of regional sales
	Control of international distribution	Professionalism of senior management recruitment
	Production processes	Value chain presence*
Netherlands	Value chain presence	Capacity for innovation*
	Control of international distribution	Product designs*
	Breadth of international markets	Production processes*
Norway	Professionalism of senior management recruitment*	Value chain presence
	Extent of regional sales*	Marketing expertise
	Attention to staff training*	Nature of competitive advantage
Singapore	Attention to staff training	Product designs
	Extent of regional sales*	Extent of branding
	Professionalism of senior management recruitment*	Control of international distribution
Sweden	Control of international distribution	Extent of regional sales*
	Value chain presence	Customer orientation*
	Product designs	Breadth of international markets*
Switzerland	Value chain presence	Professionalism of senior management recruitment
	Extent of branding	Production processes*
	Nature of competitive advantage	Product designs*
United Kingdom	Value chain presence	Attention to staff training
	Extent of branding	Production processes
	Marketing expertise	Customer orientation
United States	Marketing expertise	Nature of competitive advantage
	Customer orientation	Production processes
	Capacity for innovation	Control of international distribution

<i>National business environment</i>	
<i>Competitive advantages</i>	<i>Competitive disadvantages</i>
Effectiveness of anti-trust policy	Port infrastructure quality
Intellectual property protection	Tariff liberalization
Computer utilization	Venture capital availability
Demanding regulatory standards	International direct dial communications costs
Domestic supplier quality	Venture capital availability
Safeguarding of personal security	Stock market access
University / industry research collaboration	Safeguarding of personal security
Port infrastructure quality	Extent of irregular payments (bribery)
Buyer sophistication	Judicial independence
Buyer sophistication	Ease of access to loans
Business information availability	Bureaucratic "red tape"
Legal barriers to entry	Ease of financing start-ups
Demanding regulatory standards	Administrative burden for start-ups
Business information availability	Intensity of local competition
Overall infrastructure quality	Extent of locally based competitors
University / industry research collaboration	Domestic supplier quantity
Ease of access to loans	Intensity of local competition
Ease of financing start-ups	Financial market sophistication*
Domestic supplier quality	Bureaucratic "red tape"
Railroad infrastructure development	Administrative burden for start-ups
Domestic supplier quantity	Email usage
Domestic supplier quality	Ease of financing start-ups
Intellectual property protection	Administrative burden for start-ups
Demanding regulatory standards	Hidden trade barrier liberalization
Administrative burden for start-ups	Intellectual property protection
Port infrastructure quality	Demanding regulatory standards
Intensity of local competition	University / industry research collaboration
Administrative burden for start-ups	Railroad infrastructure development
Ease of financing start-ups	Domestic supplier quality
Computer utilization	Domestic supplier quantity
Domestic supplier quantity	University / industry research collaboration
Domestic supplier quality	Business information availability
Tariff liberalization*	Computer utilization
Railroad infrastructure development	Hidden trade barrier liberalization
Domestic supplier quantity	Computer utilization
Public investment in non-military R&D	Legal barriers to entry
Buyer sophistication	Safeguarding of personal security
Ease of access to loans	Road infrastructure quality
Port infrastructure quality	Quality of scientists & engineers
Ease of financing start-ups	Domestic supplier quality
Ease of access to loans	Intellectual property protection
International direct dial communications costs	Domestic supplier quantity
Administrative burden for start-ups	Domestic supplier quality
Port infrastructure quality	Domestic supplier quantity
Air transport infrastructure quality	Effectiveness of anti-trust policy
Intellectual property protection	Administrative burden for start-ups
Demanding regulatory standards	Intensity of local competition
Business information availability	Quality of scientists & engineers
Railroad infrastructure development	Port infrastructure quality
Financial market sophistication	International direct dial communications costs
Bureaucratic "red tape"	Financial disclosure requirements
Financial market sophistication	Adequacy of average years of schooling
Intellectual property protection	Overall infrastructure quality
Venture capital availability	Quality of scientists & engineers
Venture capital availability	Extent of irregular payments (bribery)
Domestic supplier quantity	Tariff liberalization
Stock market access	Bureaucratic "red tape"

Table 7 (continued): Leading national microeconomic advantages and disadvantages relative to income level

	<i>Company strategy</i>	
<i>Country (middle income)</i>	<i>Competitive advantages</i>	<i>Competitive disadvantages</i>
Argentina	Extent of regional sales	Extent of branding
	Nature of competitive advantage	Control of international distribution
	Attention to staff training	Customer orientation
Chile	Breadth of international markets	Nature of competitive advantage
	Professionalism of senior management recruitment	Product designs
	Marketing expertise	Value chain presence
Czech Republic	Extent of regional sales	Production processes
	Product designs*	Customer orientation
	Control of international distribution*	Attention to staff training
Greece	Extent of regional sales*	Professionalism of senior management recruitment
	Customer orientation*	Attention to staff training
	Marketing expertise*	Capacity for innovation
Hungary	Breadth of international markets	Production processes
	Professionalism of senior management recruitment	Attention to staff training
	Control of international distribution	Marketing expertise
Ireland	Extent of regional sales	Product designs
	Production processes	Value chain presence
	Customer orientation	Capacity for Innovation
Israel	Nature of competitive advantage	Extent of regional sales
	Capacity for innovation	Customer orientation
	Value chain presence	Attention to staff training
Korea	Breadth of international markets	Professionalism of senior management recruitment
	Extent of regional sales	Value chain presence
	Nature of competitive advantage	Capacity for innovation
Malaysia	Breadth of international markets	Capacity for innovation
	Attention to staff training	Product designs
	Customer orientation	Nature of competitive advantage
Mauritius	Production processes	Extent of regional sales
	Customer orientation	Breadth of international markets
	Marketing expertise	Professionalism of senior management recruitment
Mexico	Extent of regional sales	Value chain presence
	Customer orientation	Capacity for innovation
	Production processes	Breadth of international markets
New Zealand	Professionalism of senior management recruitment	Product designs
	Capacity for innovation	Nature of competitive advantage*
	Extent of branding	Breadth of International Markets*
Poland	Professionalism of senior management recruitment	Nature of competitive advantage
	Extent of regional sales	Extent of branding
	Marketing expertise	Control of international distribution
Portugal	Extent of regional sales	Value chain presence
	Production processes*	Extent of branding
	Product designs*	Attention to staff training
Slovakia	Extent of regional sales	Nature of competitive advantage
	Product designs	Customer orientation
	Extent of branding*	Marketing expertise
South Africa	Marketing expertise	Customer orientation
	Professionalism of senior management recruitment	Control of international distribution*
	Nature of competitive advantage	Extent of branding
Spain	Breadth of international markets	Customer orientation
	Control of international distribution	Nature of competitive advantage
	Production processes	Value chain presence
Taiwan	Customer orientation	Extent of branding
	Breadth of international markets	Professionalism of senior management recruitment
	Production processes	Control of international distribution
Venezuela	Extent of regional sales	Customer orientation
	Capacity for innovation*	Value chain presence
	Professionalism of senior management recruitment*	Breadth of international markets

<i>National business environment</i>	
<i>Competitive advantages</i>	<i>Competitive disadvantages</i>
Negotiation of cross-border ventures	Effectiveness of anti-trust policy
Openness of public sector contracts	Judicial independence
Quality of business schools	Stock market access
Extent of irregular payments (bribery)	Overall infrastructure quality
Computer utilization	Railroad infrastructure development
International direct dial communications costs	Road infrastructure quality
Adequacy of average years of schooling	Legal barriers to entry
Hidden trade barrier liberalization	Financial market sophistication
Tariff liberalization	Stock market access
Hidden trade barrier liberalization	University / industry research collaboration
Tariff liberalization	Quality of science research institutions
Ease of access to loans	Quality of business schools
Bureaucratic "red tape"	Email usage
Legal barriers to entry	Port infrastructure quality
Demanding regulatory standards	Air transport infrastructure quality
Buyer sophistication	Road infrastructure quality
Adequacy of average years of schooling	Overall infrastructure quality
Financial market sophistication	Railroad infrastructure development
Venture capital availability	Railroad infrastructure development
Quality of science research institutions	Demanding regulatory standards
Computer utilization	Hidden trade barrier liberalization
Adequacy of average years of schooling	Legal barriers to entry
Extent of locally based competitors	Decentralization of corporate activity
International direct dial communications costs	Judicial independence
Overall infrastructure quality	Effectiveness of anti-trust policy
Air transport infrastructure quality	Judicial independence
Road infrastructure quality	Openness of public sector contracts
Ease of access to loans	Quality of business schools
Port infrastructure quality	Railroad infrastructure development
Ease of financing start-ups	Decentralization of corporate activity
Tariff liberalization	Safeguarding of personal security
Effectiveness of anti-trust policy	Ease of financing start-ups
Intellectual property protection	Decentralization of corporate activity
Extent of irregular payments (bribery)	Quality of scientists & engineers
Tariff liberalization	Public investment in non-military R&D
Computer utilization	Venture capital availability
Decentralization of corporate activity	Road infrastructure quality
Ease of access to loans	Telephone / fax infrastructure quality
Domestic supplier quantity	Air transport infrastructure quality
Tariff liberalization	Adequacy of average years of schooling
Ease of access to loans	University / industry research collaboration
Hidden trade barrier liberalization	Domestic supplier quality
Adequacy of average years of schooling	Air transport infrastructure quality
Demanding regulatory standards	Financial disclosure requirements
University / industry research collaboration	Buyer sophistication
Stock market access	Adequacy of average years of schooling
Port infrastructure quality	Safeguarding of personal security
Financial market sophistication	Quality of scientists & engineers
Domestic supplier quality	University / industry research collaboration
Tariff liberalization	Public investment in non-military R&D
Extent of irregular payments (bribery)	Quality of science research institutions
Venture capital availability	Legal barriers to entry
Public investment in non-military R&D	Judicial independence
Intensity of local competition	Financial market sophistication
Email usage	Business information availability
Quality of business schools	Domestic supplier quality
Negotiation of cross-border ventures	Intellectual property protection

Table 7 (continued): Leading national microeconomic advantages and disadvantages relative to income level

<i>Country (low income)</i>	<i>Company strategy</i>	<i>Competitive advantages</i>	<i>Competitive disadvantages</i>
Bolivia	Nature of competitive advantage*	Customer orientation	
	Extent of branding*	Production processes	
	Extent of regional sales*	Attention to staff training	
Brazil	Marketing expertise	Extent of branding	
	Production processes	Product designs*	
	Breadth of international markets	Control of international distribution	
Bulgaria	Product designs	Production processes	
	Capacity for innovation	Attention to staff training	
	Control of international distribution	Marketing expertise	
China	Capacity for innovation	Attention to staff training	
	Professionalism of senior management recruitment	Marketing expertise	
	Product designs	Extent of regional sales*	
Colombia	Nature of competitive advantage	Production processes	
	Extent of regional sales	Marketing expertise	
	Extent of branding	Breadth of international markets	
Costa Rica	Nature of competitive advantage	Control of international distribution	
	Breadth of international markets	Extent of regional sales	
	Attention to staff training	Extent of branding	
Ecuador	Attention to staff training	Customer orientation	
	Nature of competitive advantage*	Product designs	
	Value chain presence*	Production processes	
Egypt	Production processes	Attention to staff training	
	Extent of branding	Product designs	
	Customer orientation	Capacity for innovation	
El Salvador	Attention to staff training	Capacity for innovation	
	Nature of competitive advantage	Production processes	
	Professionalism of senior management recruitment	Breadth of international markets	
India	Marketing expertise	Extent of regional sales	
	Breadth of international markets	Attention to staff training	
	Value chain presence	Professionalism of senior management recruitment*	
Indonesia	Production processes	Professionalism of senior management recruitment	
	Value chain presence	Nature of competitive advantage	
	Breadth of international markets	Attention to staff training	
Jordan	Production processes	Capacity for innovation	
	Control of international distribution	Marketing expertise	
	Customer orientation	Breadth of international markets	
Peru	Nature of competitive advantage	Attention to staff training	
	Marketing expertise	Control of international distribution	
	Professionalism of senior management recruitment	Extent of regional sales	
Philippines	Attention to staff training	Breadth of international markets	
	Marketing expertise	Extent of regional sales	
	Customer orientation	Control of international distribution	
Russia	Capacity for innovation	Marketing expertise	
	Product designs	Production processes	
	Value chain presence	Customer orientation	
Thailand	Breadth of international markets	Extent of branding	
	Customer orientation	Capacity for innovation	
	Marketing expertise	Professionalism of senior management recruitment	
Turkey	Production processes	Product designs	
	Breadth of international markets	Capacity for innovation	
	Marketing expertise	Extent of regional sales	
Ukraine	Product designs	Professionalism of senior management recruitment	
	Extent of branding	Production processes	
	Capacity for innovation	Marketing expertise	
Vietnam	Control of international distribution	Breadth of international markets	
	Extent of branding	Production processes	
	Extent of regional sales	Nature of competitive advantage	
Zimbabwe	Professionalism of senior management recruitment	Customer orientation	
	Attention to staff training	Extent of branding	
	Extent of regional sales	Control of international distribution	

*National business environment**Competitive advantages*

Negotiation of cross-border ventures
 Email usage
 International direct dial communications costs
 Financial market sophistication
 Intellectual property protection
 Domestic supplier quality

Quality of scientists & engineers
 Bureaucratic "red tape"
 Quality of science research institutions
 University / industry research collaboration
 Intensity of local competition
 Decentralization of corporate activity

Quality of business schools
 Extent of irregular payments (bribery)
 Financial disclosure requirements

Computer utilization
 Email usage
 Adequacy of average years of schooling
 International direct dial communications costs
 Extent of locally based competitors
 Ease of access to loans

Ease of financing start-ups
 Safeguarding of personal security
 Overall infrastructure quality

Intensity of local competition
 Tariff liberalization
 International direct dial communications costs
 Domestic supplier quantity
 Adequacy of private sector legal recourse
 Stock market access

Road infrastructure quality
 Overall infrastructure quality
 Telephone / fax infrastructure quality

Safeguarding of personal security
 Extent of irregular payments (bribery)
 Overall infrastructure quality

Effectiveness of anti-trust policy
 Negotiation of cross-border ventures
 Tariff liberalization

Quality of business schools
 Financial market sophistication
 Adequacy of average years of schooling

Quality of science research institutions
 Railroad infrastructure development
 Quality of scientists & engineers

Air transport infrastructure quality
 Road infrastructure quality
 Domestic supplier quality

Tariff liberalization
 Domestic supplier quality
 Telephone / fax infrastructure quality

Financial disclosure requirements
 Quality of science research institutions
 Adequacy of average years of schooling

Buyer sophistication
 Public investment in non-military R&D
 Decentralization of corporate activity

Adequacy of private sector legal recourse
 Judicial independence
 Venture capital availability

Competitive disadvantages

Domestic supplier quantity
 Adequacy of private sector legal recourse
 Bureaucratic "red tape"
 Adequacy of average years of schooling
 Safeguarding of personal security
 Telephone / fax infrastructure quality

Intensity of local competition
 Business information availability
 Telephone / fax infrastructure quality

Computer utilization
 Quality of business schools
 Legal barriers to entry

Overall infrastructure quality
 Port infrastructure quality
 Demanding regulatory standards

Road infrastructure quality
 Overall infrastructure quality
 Port infrastructure quality

Telephone / fax infrastructure quality
 Business information availability
 Demanding regulatory standards

Quality of business schools
 Bureaucratic "red tape"
 Computer utilization

Quality of science research institutions
 Quality of scientists & engineers
 Demanding regulatory standards

Negotiation of cross-border ventures
 International direct dial communications costs
 Road infrastructure quality

Extent of irregular payments (bribery)
 Effectiveness of anti-trust policy
 Decentralization of corporate activity

Railroad infrastructure development
 Quality of business schools
 Tariff liberalization*

Judicial independence
 Buyer sophistication
 Air transport infrastructure quality

Air transport infrastructure quality
 Extent of irregular payments (bribery)
 Telephone / fax infrastructure quality

Telephone / fax infrastructure quality
 Intensity of local competition
 Effectiveness of anti-trust policy

Extent of irregular payments (bribery)
 Adequacy of average years of schooling
 Computer utilization

Venture capital availability
 Ease of access to loans
 Bureaucratic "red tape"

Email usage
 Telephone / fax infrastructure quality
 Bureaucratic "red tape"

Adequacy of private sector legal recourse
 International direct dial communications costs
 Negotiation of cross-border ventures

Telephone / fax infrastructure quality
 Negotiation of cross-border ventures
 Tariff liberalization