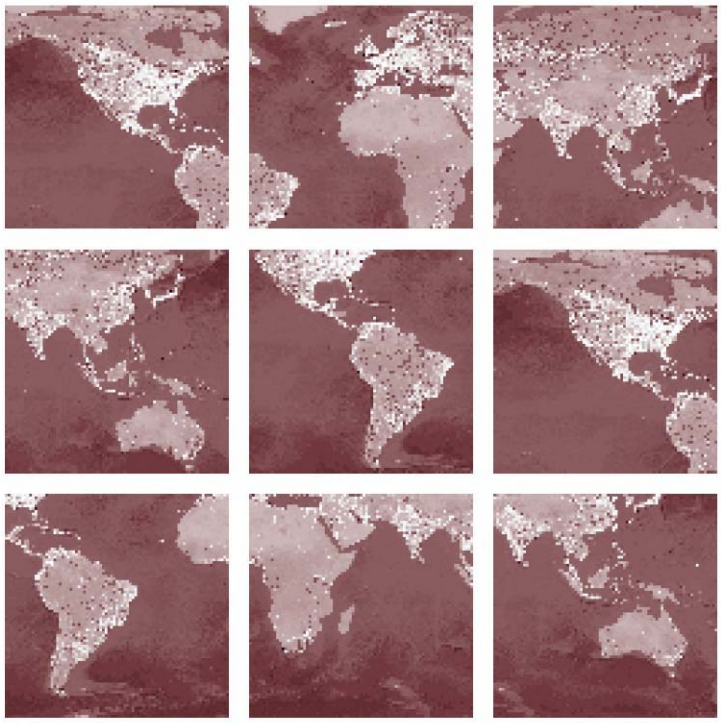
CHAPTER SIX

YOU REAP WHAT YOU SOW: OUR GROWTH ENVIRONMENT SCORES

November 2006



YOU REAP WHAT YOU SOW: OUR 2006 GROWTH ENVIRONMENT SCORES

Maintaining the right set of conditions for growth is a critical ingredient in any country's search to achieve its potential. And a key task for investors in assessing growth potential is to judge how well countries are doing in keeping those essential conditions in place.

Last year, we introduced our Growth Environment Scores (or GES), as an objective summary measure of a broad set of conditions that help to achieve growth potential. We used these GES measures to compare growth conditions across a broad range of countries and to assess the likelihood that our projections for the BRICs (Brazil, Russia, India and China) and the N-11 (the next 11 largest developing economies) might become reality.

One year on, with a full set of more updated information on all of the constituents, we release our 2006 GES. These new rankings provide the very latest view of the GES across 170 countries and reflect how they are changing. In this paper, we provide the details of the 2006 scores and what they mean for the growth potential of the world's economies. In particular:

- We present highlights from the 2006 GES rankings.
- We look at what the GES tells us about the scope for improvement in growth conditions across countries.
- We estimate the growth bonus for each country that would come from improving their GES.

The 2006 GES show important changes for some countries but very little change for many others, highlighting the difficulties many face in trying to raise their potential growth rates. The very poorest countries have generally made progress, but results elsewhere are more mixed. This year's winners include the oil-producing countries (even though resources are not a component of the GES), while others, such as the US, have slipped backwards. The key question that the GES continue to pose is how countries might be able to improve their growth potential. Expecting poor countries to emulate the conditions (education, technologies) of much richer ones is clearly unreasonable. But, as we show here, much can be done—even in terms of achieving 'Best in Class' levels for key growth conditions relative to peers at comparable income levels. The 2006 GES provide some perspective on where the greatest scope for improvement lies.

A key message is that poor countries have more to gain than rich ones from improving growth conditions. The growth bonus from reaching 'Best in Class' levels—even for the highest-scoring developing economies—could be two full percentage points or more, and as high as four percentage points or more for some other important economies. Over a period of 10 or 20 years, such growth bonuses could make very large differences to income levels. They highlight the importance of the challenge of improving growth conditions around the world. Benign global conditions continue to present a window of opportunity to make progress on these measures.

Highlights of Our 2006 GES

We introduced our Growth Environment Scores (GES) in 2005 as a composite measure of growth conditions for 170 countries, aimed at summarising the overall growth environment. We used the GES to rank countries according to their ability to achieve their growth potential and to guide our growth projections for the BRICs (Brazil, Russia, India and China) and the N-11 (the next 11 largest developing economies).

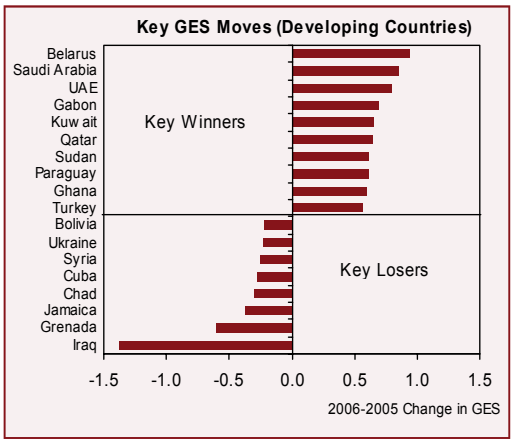
The GES consists of 13 components grouped in five broad categories (see the box on the next page):

- **Macroeconomic stability:** inflation, government deficit and external debt.
- **Macroeconomic conditions:** investment rates and openness.
- **Technological capabilities:** penetration of PCs, phones and the internet.
- **Human capital:** education and life expectancy.
- **Political conditions:** political stability, rule of law and corruption.

One year on, we have a full new set of information. The new 2006 rankings provide a snapshot of how growth conditions have changed and the progress made since last year.

Overall, we see some improvement in developing countries

- Of the 170 countries in our rankings, 124 raised their GES in 2006 compared with 2005. **The largest positive moves were much more pronounced than the falls** registered by the 46 losers.
- We see **no systematic improvement across the major developed economies**, while **developing countries have on average raised their GES**. Progress on inflation, external debt, investment, life expectancy, technology, political stability and corruption have all contributed to that improvement.



How the GES Is Compiled

The GES is designed to capture the main factors known to affect an economy's ability to grow. In the component selection process, we referred to the extensive literature on the determinants of economic growth, in particular Robert Barro's influential research. Each of the variables we include has been found to have a significant and relatively robust effect on growth in various cross-country growth regressions. We also favoured the variables that are available for a large number of countries and are updated on a regular basis. Our main source is the World Bank's World Development Indicators database, although some data (such as schooling, political environment indices and, partially, government deficit) come from other sources.

The 13 variables are:

- **Inflation:** High inflation discourages investment and erodes growth performance.
- **Government deficit** (as % of GDP): High budget deficits can hurt economic stability and push up borrowing costs.
- **External debt** (as % of GDP): Large foreign borrowing raises the risk of external crises and tends to push up real interest rates.
- **Investment rates** (GFCF as % of GDP): High investment rates encourage capital accumulation and growth, though investment should be productive.
- **Openness of the economy:** Proxied by the share of trade as a proportion of GDP (adjusted for population and geographical area). A wide range of studies find that more open economies show a greater tendency for 'convergence'.
- **Penetration of phones:** Proxied by mainlines per 1,000 people. Telephone penetration is a basic proxy for technology adoption. Communications technology may help the transfer of broader technology and techniques that aid growth. Mobile phones are bypassing fixed lines in some poorer countries, but data availability remains patchy.
- **Penetration of PCs:** Estimates of personal computers per 1,000 people are another dimension of communications technology.
- **Penetration of internet:** Estimates of internet usage per 1,000 people, like PC usage, provide another important measure of technology adoption and interconnectedness.
- **Average years of secondary education:** Higher levels of education aid the growth process, with secondary education most consistently identified.
- **Life expectancy:** As a basic measure of health conditions, higher life expectancy has been shown to be powerfully associated with growth performance.
- **Political stability:** One of the World Bank's six governance indicators, measuring perceptions of the likelihood that the government will be destabilised or overthrown by unconstitutional or violent means. In our GES context, stable political regimes promote confidence and therefore entail higher investment and growth.

How the GES Is Compiled *(continued)*

- **Rule of law:** One of the World Bank's six governance indicators, measuring the extent to which agents have confidence in and abide by the rules of society. Well-defined property rights and generally well-functioning institutions are generally thought to be conducive to higher investment and growth.

- **Corruption:** One of the World Bank's six governance indicators, measuring the extent to which public power is exercised for private gain and the 'capture' of the state of elites and private interests. Increased corruption is likely to have an adverse effect on growth via distorting incentives.

The latest available data (mostly for 2004 and 2005) are converted to a scale from 0 to 10 (0=bad for growth, 10=good for growth) as follows:

Sub-index = 10 * (actual observation – sample minimum) / (sample maximum – sample minimum)

Those variables where higher values are *bad* for growth (external debt, inflation) are also inverted, so that the scales work in the opposite direction (high observations give lower scores). In addition, to prevent extreme outliers from skewing the distribution of some variables, we chose cut-off points to replace the sample maxima and/or minima, as necessary (for instance, we used a maximum of 120% for external debt as a percentage of GDP; a 0% to 40% range for inflation; a -10% to +10% range for government deficit and a 100% of GDP cut-off for openness). The total score is then calculated by finding a simple average of all 13 sub-indices of the components.

- Even more encouraging, **the very poorest countries have almost universally raised their scores**. Of the lowest 30 economies, only three have lower scores than before, as both economic and political outcomes have improved in most countries.

- **Developed countries continue to dominate the top echelons of the GES rankings**, unsurprisingly. The highest-rated developing economy (Qatar) sits in 24th place and almost all the developed economies are in the top 50 on GES.

- **Canada still ranks highest of the current G7** (up to sixth from eighth place), now followed by Germany. Within the major economies, Italy remains the lowest of the group. Many of its components—from political to fiscal and to external debt—are lower than in other comparable countries, and Italy continues to fall significantly short of the other major European economies.

- As in 2005, '**small is beautiful**', with a pronounced tendency for smaller economies to score highly. The best-scoring economies in the developed country group are smaller countries. Sweden ranks first this year, overtaking Switzerland and Luxembourg. But smaller countries in the Pacific, Caribbean and Asia also make a strong showing in the developing country rankings. It may be that smaller, more open economies are more easily managed, or that the penalties for poor policy are higher.

Oil dominates this year's winners, while US slips

2006 has also seen some important changes in scores and rankings in some places:

- The most striking theme is that **oil-producing countries** in general have shown significant improvement in GES and rankings, as the impact of higher oil prices boosted fiscal positions and improved macro conditions more generally. Within the developing country group, the oil-producing **Gulf states continue to rank particularly highly**, largely as a result of outstanding performance on inflation, debt and government budget positions. All six GCC states are in the top 10 developing countries, with Qatar now highest-ranked (from third place last year).

- The **benefits to oil producers go well beyond the Gulf** and many of this year's largest gainers, such as Gabon and Venezuela, have oil. A big question is whether these improvements will survive a fall in oil prices. As we discuss below, that depends on whether they can convert the gains in a narrow range of areas into broader progress, an area of mixed success so far.

- Even outside the oil producers, the scores reflect some **significant moves in the developing world**. Across the world, the biggest drop in the GES this year was in Iraq—as political and macro conditions deteriorated further. Most of the other big 'losers' this year are in Africa, although the region does have some important success stories too.

- Although the changes in developed countries have generally been modest, the **US has taken the largest step back of the G7 countries—**largely on the back of lower scores on fiscal and political attributes.

Regional differences are striking, as Africa dominates the bottom

- Europe, unsurprisingly, scores highly. But even in developed Europe, there are important differences. **The North-South divide in Europe is alive and well.** Southern European economies (Greece, Italy, Portugal) tend to be lower-scoring, held back by fiscal and political issues, while the Scandinavians—with high education and technology use—tend to lead the pack. In Eastern and Central Europe, the Baltic states continue to score better than other former Communist countries, not only due to their high degree of political and economic stability but also to their very high technology uptake.

- The GES casts interesting light on **European political dynamics**. For instance, of the newest group of EU members, most have comparable GES to the lowest-ranked members of the original group. Romania and Bulgaria (due to join in 2007) are somewhat lower. And while Turkey (the most controversial of the candidate countries) still looks significantly different (its GES is lower than other actual and potential EU members), successful macroeconomic stabilisation has seen its score rise rapidly in 2006, so the gap has closed substantially.

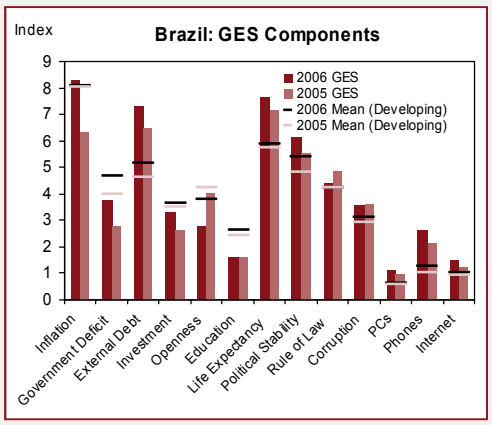
- **Asian economies also continue to rate highly**, helped by a combination of high education scores, and macro and political stability. Korea remains in 17th place, scoring higher than most of the G7 countries and behind only two other Asian countries (Singapore and Hong Kong, at fourth and eighth, respectively).

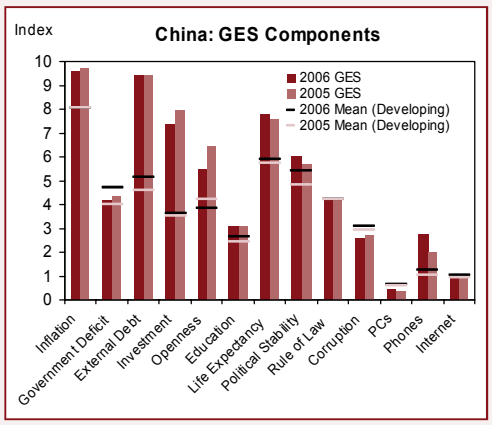
Growth Benefits: Focus on the BRICs and N-11

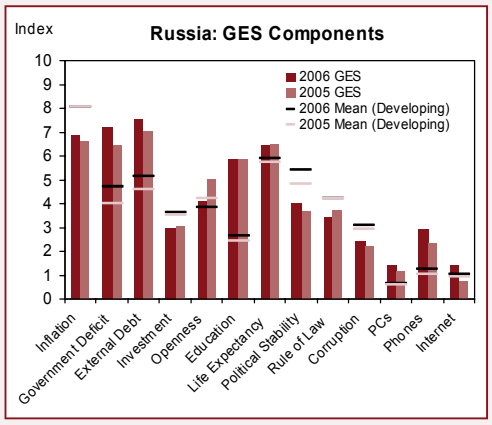
Given our ongoing focus on the BRICs and N-11 economies, we offer a more detailed examination of the shifts in GES for some countries in these groups. The average BRICs GES has moved up by 0.1 to 4.3, while the average N-11 score has remained unchanged at 4.0. In general, the updated GES suggests that the BRICs, and some of the N-11, have made reasonable progress in keeping favourable growth conditions in place and working on their weaknesses, particularly in Brazil, India and Turkey.

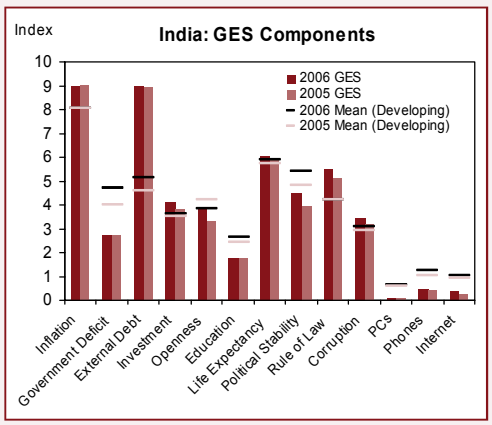
Within the developing country space, an analysis at the **subcomponent level** reveals the variables that accounted for the moves in the BRICs and the two biggest movers in the N-11 (Egypt and Turkey).

- The positive developments that accounted for **Brazil's** seven-place improvement were mainly due to good progress on the macroeconomic stability and technology fronts, as well as higher investment and improved life expectancy. Political conditions, however, deteriorated significantly, limiting further potential gains in the GES.
- **China**'s five-place slippage was mainly down to a slight deterioration in macroeconomic and political conditions. Increased phone penetration provided some support to the index.



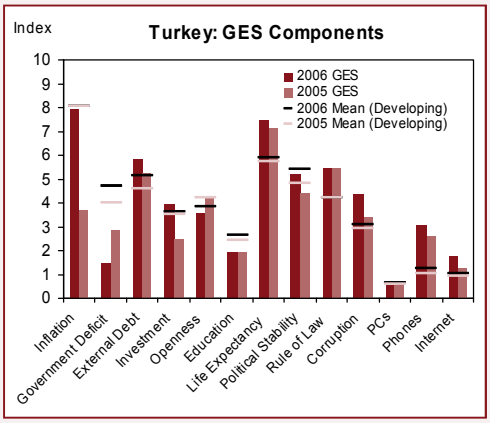


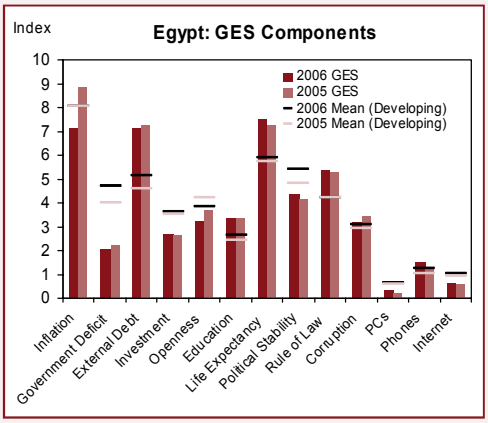




Growth Benefits: Focus on the BRICs and N-11 *(continued)*

- Although **India** lost two places in the ranking, its GES rose on the back of lower external debt, higher investment, greater openness (adjusted for area and population), improved technology (phones and internet) and better political conditions (on all measures).
- **Russia**'s improvement in the GES (reflected in a one-place gain in the ranking) was mainly due to significant progress in macroeconomic stability and technology, as well as some marginal gains on the political front (the rule of law and corruption). Its GES was held down by mild declines in the openness and political stability measures.
- **Turkey**'s 18-place rise was facilitated by lower inflation and external debt, higher investment, improved life expectancy, technology (namely, better phones and internet penetration) and political conditions.





The GES Across BRICs and N-11

BRICs and N-11	GES		Ranking	
	2006	2005	2006	2005
Korea, Rep.	6.9	6.9	1	1
China	4.9	5.0	2	2
Mexico	4.6	4.6	3	3
Vietnam	4.5	4.6	4	4
Iran, Islamic Rep.	4.4	4.1	5	6
Russian Federation	4.4	4.2	6	5
Brazil	4.2	3.8	7	8
Turkey	4.0	3.5	8	11
India	3.9	3.7	9	10
Egypt, Arab Rep.	3.7	3.9	10	7
Philippines	3.6	3.8	11	9
Indonesia	3.4	3.4	12	12
Bangladesh	3.2	3.1	13	14
Pakistan	3.1	3.2	14	13
Nigeria	2.7	2.6	15	15

- The **lowest-scoring group continues to be dominated by African countries**. Afghanistan (now fifth from the bottom) and Iraq (which now has the lowest GES globally) are still the only two countries outside Africa that appear in the 25 worst-ranked countries. Encouragingly, though, there have been some big improvements in several African economies too, including Ghana, Gabon and Cape Verde, as macroeconomic conditions have stabilised.

- We find **big differences within regions as well as across them**. The differences between Bolivia and Chile, or between Indonesia and Malaysia (with the latter having almost double the GES of the former) highlight the potential for large differences even among neighbours.

Encouraging signs in some of the BRICs and N-11

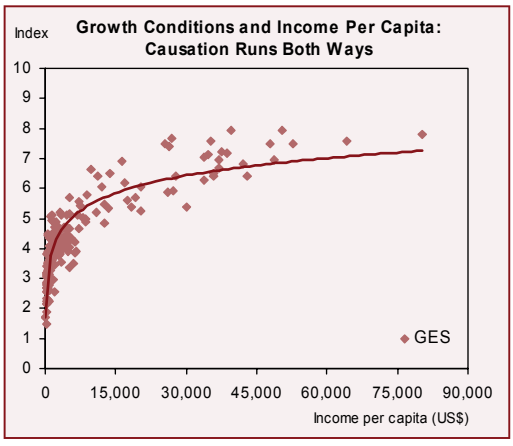
- The **BRICs all remain in the top half of the developing country rankings** and above the developing country mean. The relative ranking of the four countries remained the same, with China ranked most highly (although it moved down five places to 21st), followed by Russia (which gained one place and is now 43rd). Brazil showed the largest gain in its GES, having moved up by seven places to number 51. It was followed by India, whose higher score did not prevent it from falling two spots to 62nd place. The box on the preceding two pages provides details on the drivers for each.

- Among **the N-11**, the most significant moves were seen in Turkey (up 18 places) and Iran (up 11 places), the Philippines (down 17 places) and Egypt (down 20 places). Mexico and Vietnam, despite losing some ground, are still at the top of the spectrum (after South Korea), closely followed by Iran. Nigeria remains at the bottom of the ranking, ceding ground to other African countries, such as Kenya, Mozambique, Ethiopia and Uganda.

Benchmarking the Scope for Improvement

A key question (perhaps *the* key question) is, what can countries do to improve their growth conditions and boost growth? We look now at what the 2006 GES tell us about the scope for improvement.

The principle behind the GES is that progress in the five key areas constituting the GES puts the economy in a better position to stay on the projected growth path. But making changes is easier in some areas than others. In practice, scoring well with some growth conditions is partly contingent on achieving certain income levels, so the causation runs both ways. It is simply not realistic to expect levels of technological connectedness, education and political conditions to be as high in poor countries as they are in rich ones.



Simple scatter plots of each of the GES components against income per capita

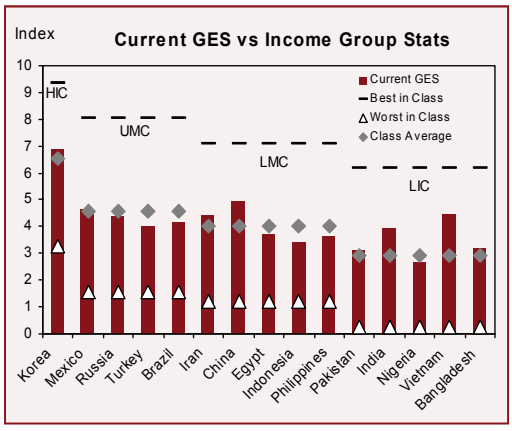
provide a clear illustration of this point. They suggest that conditions such as schooling, technology and political conditions are harder to improve until a country actually becomes richer, since there are few examples of poor countries with very high achievement on these measures. However, other areas—macro conditions, macro stability and life expectancy, for example—show no strong correlation with income, suggesting that these areas in principle can be improved regardless of income levels.

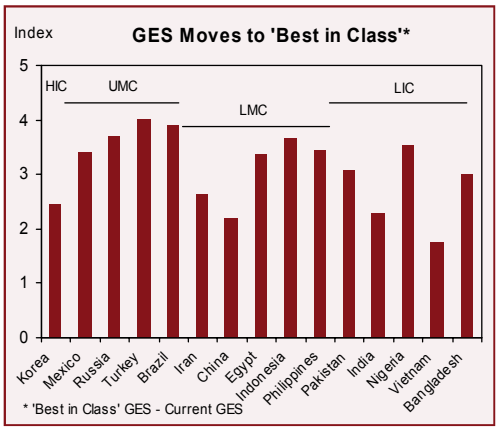
The fact that income levels are a constraint on success in some areas implies that a realistic benchmark of the scope for improvement should compare countries directly to their peers. Using the standard World Bank classification, we split our universe of countries into four groups. We then compared the scores for each country on every one of the 13 GES components to the maximum achieved by countries *in that same income grouping* and calculated the potential moves in the GES for each country to reach the 'Best in Class' (maximum) level. Because no country is, in practice, the highest-scorer on *all* categories, this method points to room for improvement everywhere, although the scope varies widely.

The charts below show the results of this exercise for the BRICs and N-11. For example, if Korea achieved a maximum value on every component within the 'high income group' to which it belongs, its GES would be 9.3, a 2.4-point move from its current value of 6.9. Of the BRICs/N-11 grouping, Vietnam and China are closest to their groups' 'Best in Class' levels (around two points below the best possible GES within their income groups), while Turkey and Brazil have the most scope for improvement.

This kind of benchmarking gives a sense not just of *how much* the GES conditions might be improved but also of *how*. As an example, the same GES improvements that Brazil and Turkey would need to make to reach 'Best in Class' levels appear to come from quite different sources. For Brazil, the main areas for improvement are in macroeconomic conditions, schooling, rule of law, corruption and some technological variables. Turkey, on the other hand, is more likely to achieve GES improvement from greater macroeconomic and political stability, higher life expectancy and technological capabilities, especially PC penetration.

Looking across the countries, it is striking how much the scope for improvement varies. Comparing Libya, Cuba and Lebanon to Malaysia; Angola to Thailand; or Vietnam to Zambia: each shows that countries with similar income levels can have substantially different scope to improve their growth conditions.





- **The scope for improvement is higher in Africa than anywhere else**. Africa's GES lag developing Asia substantially, even though average income levels are similar. While Asia scores more highly on a wide range of areas, foreign debt levels, openness to trade and life expectancy (health conditions) are the source of the largest differences. Encouragingly, many of these are responsive to policy.

- The biggest potential for improvement in developing Asia lies in the macroeconomic conditions category, as well as fiscal outcomes and political stability.

- Similar comparisons suggest that **for Latin America the main weaknesses fall into the macroeconomic conditions and stability categories**, and that progress here might bring substantial growth benefits.

- Despite the rise in GES in 2006, **the oil producers generally show more room for improvement than those with similar income levels**, particularly outside the Gulf. This suggests that many of these economies have not yet converted oil wealth into strong performance in broader conditions for growth—education and technology, in particular—and that their current success is relatively narrowly-based. The latest boost to oil prices, of course, is relatively recent, so there is still time to capitalise on it.

The GES benchmarking also suggests that the **areas where improvement is most needed** differ across income levels.

- For the **richest economies**, the gap between current GES and 'Best in Class' levels is most often largest in fiscal management, openness and technology and much less in terms of basic macro or political stability and health outcomes.

- For **middle-income economies**, the scope for improvement is generally greatest in policy-related areas—fiscal position, openness and debt—as well as in the use of technology.

- For the very **poorest economies**, there is scope to do better across a wide range of dimensions, but life expectancy—and the state of health—stands out as the area where gaps between what most countries *do* achieve and what they *might* achieve is widest. It is here—and also in outcomes for foreign debt, openness and education—where some poor countries have managed very much better outcomes than others. The weakness of basic health conditions—one of Africa's biggest issues—suggests that for this group, very basic conditions continue to hold back growth.

- More encouragingly, looking across the world, the GES imply that **inflation is now an area where substantial widespread improvement has been made**, across a very broad range of countries. Fiscal policy too offers less scope for improvement in general than other factors, again because even poorer countries have generally done quite well on this front.

While the individual scores provide a richer picture than this brief summary, the general lesson is that the source of policy focus is likely to be different over time and across countries. None of this implies that these shifts are easy, but they do imply that other countries at comparable levels of development have achieved the relevant outcomes, and may provide lessons on how to imitate that success.

The Growth Bonus From Raising the GES

The GES benchmarking exercise gives a sense of the scope for various countries to improve growth conditions. As we show here, the growth benefits of improving conditions, and the GES to 'Best in Class' levels, could be substantial.

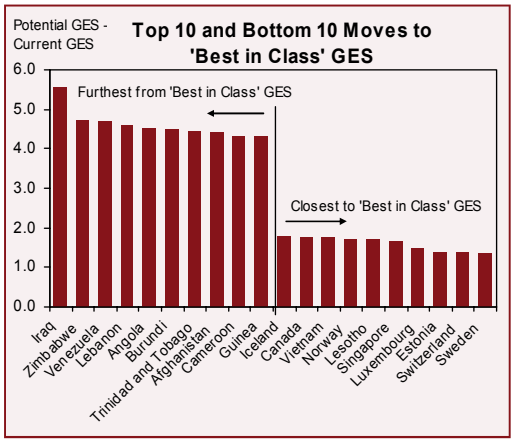
In order to illustrate this point, we looked at a more systematic mapping of the GES into growth outcomes, using a simple econometric analysis of the links between the GES and GDP growth. This evidence supports the notion that a higher GES is associated with higher growth, and with more rapid 'catch-up' on the income levels of the richest countries.

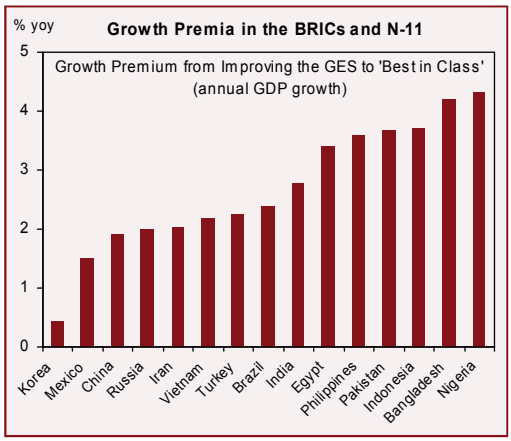
A key finding is that improving the GES helps to increase the speed at which countries close the 'productivity gap' with the most technologically advanced countries in the world (what economists call 'convergence'). As a result, improvements in the GES are more valuable in growth terms for poor than for rich countries. For instance, a one-point improvement in the GES is associated with roughly 1.3 percentage points higher growth for a country with income levels of $500 per capita, but only 0.6 percentage points for a country with income levels of $5,000 per capita.

We can combine our GES benchmarking exercise from the previous section with these models to estimate what the growth bonus for each country would be, if they were able to raise their GES to 'Best in Class' levels for their income group. The growth bonus is a combination of: a) how far the GES can be improved and b) a country's income level, which determines how much improving growth conditions matter. While the econometrics should not be leaned on too heavily, they do give a sense of the potential magnitude of growth benefits from raising GES.

These estimates confirm that the potential growth impact is *much* larger for poor countries than for richer ones. This fits with the notion that a key role of a high GES is to increase the speed of catch-up with the advanced economy group.

A literal interpretation of these estimates suggests that more than half of the high-income group members, or roughly the top 25 countries, would derive no meaningful growth gain from improving their GES. While that almost certainly underestimates the potential gains, it *does* suggest that for rich countries with high GES, further improvements in growth may come more from advancing the technological frontier than from faster 'catch-up' to that frontier.





But at lower levels of income, the improvements are likely to be substantial.

For much of the developing world, the growth bonuses from achieving 'Best in Class' GES are at least two percentage points in *annual GDP growth*. Even for the upper-middle-income group, the growth bonus for some countries runs to nearly three percentage points. It is as high as five percentage points for the lower-middle-income group, and for the poorest countries (particularly in Africa) bonuses of more than five percentage points are common. In fact, because they are usually poor economies, those with the lowest GES generally have *both* the greatest potential to improve their GES *and* the most to gain from doing so.

Again we can use the BRICs and the N-11 as an example. Our estimates suggest Nigeria and Bangladesh would be the two biggest beneficiaries from improving their GES to 'Best in Class' levels, with a growth bonus of over four percentage points in each case. Korea, on the other hand, already being part of the highest income group, would only gain an estimated 0.4 percentage points in growth at the margin. This is both because Korea's GES is already high and because—as a relatively developed country—the impact of improving conditions on growth is lower.

These numbers may not look large in every case, but they are increases in the *annual* growth rate. Through the magic of compounding, small differences in growth can lead to very large differences in income levels over time. For instance, if a country can raise its growth rate by two percentage points a year, within 20 years its income levels will be a full 50% higher. A four percentage-point increase would see incomes well over twice as high over that period.

Looking Ahead: An Opportunity to Do More

The kinds of improvements that these exercises show are not easy to deliver. But they suggest that the task of identifying and addressing obstacles to growth still offers enormous opportunities for progress.

The process of looking at medium- and long-term growth potential across the world's economies remains at the heart of our current research. In particular, we believe the shift in the economic balance of power and the impact on markets if the major developing economies (the BRICs and beyond) can continue to grow still lie at the centre of a wide range of issues. A key part of our task is to determine the odds of success across a range of countries.

Measuring conditions for growth in an objective way—as the GES does—is an inherently difficult task. Issues such as the sustainability of growth—particularly as it relates to the environment—continue to move onto the radar screen as an important additional consideration in judging long-term growth paths. Other nuances of the growth process are hard to capture with a simple scoring method. While we acknowledge these differences, we find the process of benchmarking a useful and transparent starting point for discussing growth potential and policy settings.

While we will continue to investigate ways to improve the GES and our assessment of growth potential, the **key conclusions** from our latest GES are straightforward:

- The GES continue to highlight the substantial differences in the success of the world's economies in keeping solid growth conditions in place.
- While developing countries cannot achieve 'developed country' conditions on many dimensions, there is substantial potential for improvement just to catch up with best practice at any given income level.
- Although there are no easy solutions to improving conditions, the GES benchmarking by income group does provide a clear view of where countries lag behind what other countries in their income groups have managed to achieve. The basic message is that different problems appear to be critical at different levels of development and a country's own priorities—and the highest 'bang for the buck' for policy focus—are likely to vary.
- The evidence strongly supports the fact that higher GES are associated with growth and that the importance of getting conditions right is much more meaningful for poor countries than for rich ones. The potential growth bonuses from improving growth conditions seem to be substantial, without even considering the broader benefits in terms of global political stability.
- Perhaps most of all, the GES offers a perspective on the performance of various economies—free of the rhetoric or subjectivity that can influence those judgments. While the GES will never capture all of the determinants of growth, it has the advantage of simplicity and objectivity.

At the heart of the 2006 GES, we see a relatively optimistic message. There is much that can be done to improve growth conditions, plenty of examples where countries have achieved that goal, and plenty of areas—such as basic macro stability and life expectancy—where sharp improvements seem possible regardless of levels of development. It would be encouraging to see the progress in the poorest countries repeated when we revisit the GES in 2007.

A critical question—highlighted by the recent improvement in oil-producing countries—is whether countries will be able to maintain and improve growth conditions if the global economic environment becomes more challenging. If the backdrop for 2007 remains basically benign, as we currently forecast, it would be good to see countries use this helpful cyclical environment to make deeper changes to their growth environment.

We will continue to use the GES to track progress and to inform our own views on long-term growth prospects, in the BRICs, N-11 and beyond.

Dominic Wilson and Anna Stupnytska
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What's Missing From the GES?

The GES has the advantages—and some of the drawbacks—of any attempt to quantify growth conditions. Any objective index is bound to raise substantial issues. Four stand out.

- By focusing on a particular set of variables, we have implicitly ignored others. As we discussed last year, we looked at a somewhat broader range of variables (including tariff measures and various other infrastructure-related variables), but were not sufficiently comfortable with either the data quality or their links with growth to include them.
- We have chosen to equally 'weight' our components in the GES. This assumes that all are equally important for growth—which in practice may not be true. We experimented with weighting the components according to their importance to growth as gauged by the cross-country empirical literature. That exercise did not appear to make a substantial difference (although this may be because it was too crudely specified).
- Attempting to quantify a complex environment with a set of quantitative scores tends to result in a bias towards easily available, hard data. The reality is bound to be more nuanced. For instance, the quality of political and policy regimes is probably only partially proxied by the various measures we use, and levels of education can only be crudely captured by years of schooling.
- In practice, the various components of growth are unlikely to be truly independent from each other. Without institutional and political stability, for instance, increasing investment or education may be hard to achieve.

While all of these—and surely many other—criticisms of these kinds of 'scoring' exercises have some validity, we do not think they undermine the value of a systematic approach. Nor are these issues specific to the GES. Other comparable indicators generally raise the same set of issues. Perhaps the closest comparator to the GES is the World Economic Forum's Growth Competitiveness Index (GCI). The all-country correlation between the updated GES and 2006 GCI is as high as 91%, though for just the BRICs and N-11 it is lower, at 78%.

We also continue to consider what might be missing from our core indicators. Rising concerns about climate change and the impact of global warming are attracting attention to the issue of environmental sustainability. A number of international environmental organisations have recently started to introduce quantitative indices to reflect environmental challenges by measuring the depletion of natural resources, ecosystems, the degree of pollution, human health, etc. One of these measures, the Environmental Performance Index, centres on broad environmental protection objectives, linked to the UN's Millennium Development Goals. Interestingly, its correlation with the GES is 81%.

For now, we judge that concerns for the environment and sustainable growth are probably sufficiently different to the notion behind the GES that they may be better addressed separately. The GES uses only objective measures with proven relationships to growth performance. Environmental issues, important as they are, do not fall neatly into that category. Like democracy, they are things that probably capture separate objectives and that at times may be in competition with growth. Paying attention to environmental issues might even be growth-reducing, though the pressures to deal with these issues are rising.

APPENDIX: GES ACROSS COUNTRIES

The GES Across All Countries

All Countries	GES		Ranking		All Countries	GES		Ranking	
	2006	2005	2006	2005		2006	2005	2006	2005
Sweden	7.9	7.7	1	3	Azerbaijan	5.1	4.6	51	61
Switzerland	7.9	7.9	2	2	Latvia	5.1	5.3	52	40
Luxembourg	7.8	8.0	3	1	Bhutan	5.0	5.0	53	51
Singapore	7.7	7.6	4	7	Poland	5.0	5.0	54	52
Norway	7.6	7.6	5	5	Croatia	5.0	5.1	55	48
Canada	7.6	7.6	6	8	Vanuatu	4.9	4.4	56	67
Iceland	7.5	7.6	7	6	Maldives	4.9	4.7	57	56
Hong Kong, China	7.5	7.7	8	4	China	4.9	5.0	58	53
Denmark	7.5	7.4	9	10	Seychelles	4.9	4.8	59	55
New Zealand	7.4	7.4	10	11	Trinidad and Tobago	4.9	4.9	60	54
Finland	7.2	7.3	11	12	Suriname	4.8	4.1	61	84
Netherlands	7.2	7.2	12	13	Cape Verde	4.7	4.2	62	74
Australia	7.1	7.6	13	9	Jordan	4.7	4.5	63	65
Germany	7.0	7.0	14	16	Romania	4.7	4.6	64	62
Ireland	7.0	6.7	15	18	Thailand	4.7	4.7	65	57
Austria	6.9	7.1	16	14	Dominica	4.7	4.2	66	77
Korea, Rep.	6.9	6.9	17	17	Uruguay	4.6	4.2	67	79
United States	6.8	7.0	18	15	Mexico	4.6	4.6	68	59
United Kingdom	6.7	6.4	19	21	Fiji	4.6	4.6	69	64
Estonia	6.7	6.2	20	23	Grenada	4.6	5.2	70	44
Malta	6.5	6.3	21	22	Morocco	4.5	4.3	71	72
Belgium	6.5	6.5	22	19	Lesotho	4.5	4.0	72	87
Japan	6.4	6.2	23	24	Vietnam	4.5	4.6	73	63
Qatar	6.4	5.8	24	31	Macedonia	4.4	4.1	74	83
United Arab Emirates	6.4	5.6	25	33	Iran	4.4	4.1	75	86
Barbados	6.4	5.9	26	28	Panama	4.4	4.6	76	60
France	6.3	6.2	27	25	Bosnia and Herzegovina	4.4	4.1	77	85
Slovenia	6.2	6.1	28	26	Belize	4.4	4.4	78	68
Cyprus	6.1	6.4	29	20	Mongolia	4.4	4.2	79	75
Czech Republic	6.0	5.9	30	27	Russia	4.4	4.2	80	81
Spain	5.9	5.8	31	29	Armenia	4.3	4.1	81	82
Kuwait	5.9	5.2	32	45	Tonga	4.3	4.2	82	78
Slovak Republic	5.8	5.3	33	39	South Africa	4.3	4.2	83	80
Israel	5.7	5.3	34	41	Tunisia	4.3	4.4	84	69
Malaysia	5.7	5.6	35	34	Botswana	4.2	4.2	85	76
Portugal	5.6	5.7	36	32	Dominican Republic	4.2	3.6	86	106
Macao, China	5.6	5.8	37	30	Kazakhstan	4.2	3.9	87	90
Chile	5.6	5.5	38	36	Brazil	4.2	3.8	88	95
Oman	5.5	5.6	39	35	Georgia	4.1	3.7	89	100
Lithuania	5.4	5.3	40	38	Ukraine	4.1	4.3	90	71
Italy	5.4	5.4	41	37	Moldova	4.1	3.5	91	109
Bahrain	5.4	5.1	42	47	Albania	4.1	4.0	92	88
Saudi Arabia	5.3	4.5	43	66	Algeria	4.0	3.8	93	93
Greece	5.2	5.2	44	46	Turkey	4.0	3.5	94	112
French Polynesia	5.2	5.0	45	50	Sri Lanka	4.0	4.0	95	89
Belarus	5.2	4.3	46	73	Jamaica	4.0	4.3	96	70
Hungary	5.2	5.3	47	42	Peru	3.9	3.7	97	101
Mauritius	5.1	4.7	48	58	Argentina	3.9	3.4	98	113
Costa Rica	5.1	5.3	49	43	India	3.9	3.7	99	97
Bulgaria	5.1	5.0	50	49	Guyana	3.9	3.4	100	116

The GES Across All Countries *(continued)*

All Countries	GES		Ranking		All Countries	GES		Ranking	
	2006	2005	2006	2005		2006	2005	2006	2005
Colombia	3.9	3.6	101	103	Kyrgyz Republic	3.1	3.1	137	132
Libya	3.9	3.7	102	99	Tanzania	3.1	3.0	138	138
Gabon	3.9	3.2	103	127	Gambia	3.0	2.8	139	140
Sao Tome and Principe	3.8	3.4	104	115	Bolivia	3.0	3.2	140	123
El Salvador	3.8	3.7	105	98	Congo, Rep.	3.0	2.7	141	143
Ecuador	3.8	3.6	106	104	Lao PDR	2.9	2.5	142	150
Tajikistan	3.8	3.2	107	125	Togo	2.9	2.8	143	142
Namibia	3.8	3.7	108	102	Nepal	2.8	2.8	144	141
Swaziland	3.8	3.6	109	105	Haiti	2.8	2.4	145	153
Serbia and Montenegro	3.8	3.3	110	122	Kenya	2.8	2.6	146	148
Egypt	3.7	3.9	111	91	Cameroon	2.8	2.7	147	146
Paraguay	3.7	3.1	112	131	Mozambique	2.8	2.4	148	151
Philippines	3.6	3.8	113	96	Comoros	2.8	1.6	149	166
Senegal	3.6	3.3	114	119	Uganda	2.7	2.4	150	152
Syrian Arab Republic	3.6	3.8	115	92	Ethiopia	2.7	2.1	151	156
Cambodia	3.5	3.5	116	111	Nigeria	2.7	2.6	152	147
Turkmenistan	3.5	3.6	117	108	Mauritania	2.6	3.3	153	120
Ghana	3.5	2.9	118	139	Cote d'Ivoire	2.6	2.2	154	155
Chad	3.5	3.8	119	94	Angola	2.6	2.1	155	158
Lebanon	3.5	3.1	120	130	Guinea-Bissau	2.6	2.7	156	144
Guatemala	3.5	3.3	121	117	Niger	2.5	2.6	157	149
Indonesia	3.4	3.4	122	114	Rwanda	2.3	2.3	158	154
Burkina Faso	3.4	3.2	123	128	Zambia	2.3	2.1	159	157
Nicaragua	3.4	3.3	124	118	Sudan	2.2	1.6	160	163
Venezuela	3.4	3.0	125	136	Malawi	2.2	2.1	161	160
Honduras	3.3	3.3	126	121	Central African Republic	2.2	1.8	162	162
Cuba	3.3	3.6	127	107	Congo, Dem. Rep.	2.1	1.6	163	165
Uzbekistan	3.3	3.1	128	133	Sierra Leone	2.1	2.1	164	159
Papua New Guinea	3.3	3.0	129	137	Guinea	1.9	1.6	165	164
Eritrea	3.2	2.7	130	145	Afghanistan	1.8	1.5	166	167
Bangladesh	3.2	3.1	131	134	Burundi	1.7	1.2	167	169
Mali	3.2	3.1	132	135	Liberia	1.6	1.4	168	168
Madagascar	3.2	3.5	133	110	Zimbabwe	1.5	1.1	169	170
Benin	3.1	3.1	134	129	Iraq	0.6	2.0	170	161
Pakistan	3.1	3.2	135	126	**Mean**	**6.4**	**6.2**	--	--
Yemen	3.1	3.2	136	124	**St Dev**	**0.9**	**1.0**	--	--