



Growth Promise Indicators

2018 report

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Foreword



Bill Michael
UK Chairman

Welcome to KPMG's new Growth Promise Indicators (GPI) report. Consider the 2018 edition an evolution of our annual Variables for Sustained Growth (VSG) report, which was first developed in 2014. The name may be new, but now – as then – we are seeking to explore how individual countries can grow sustainably and fulfil their true promise.

If you're an investor, the GPI report will help you to make more informed decisions about your long-term location decisions. For governments, it will shine a light on who is leading the pack and provide insight into how they are doing it.

For both groups, these questions are becoming more important. Today, a number of countries are confounding old notions and are turbocharging their development through smarter investments in technology or infrastructure. Meanwhile, others risk sliding back – succumbing to the temptation of populism or failing to equip future generations with skills they need to thrive in 10 or 20 years' time.

Countries have dilemmas in deciding where to allocate scarce resources obviously. Our report shows that lower-income countries are prioritising infrastructure investment over technological. The question is whether they can afford to neglect technological change much longer as artificial intelligence and robotics start to rewrite the rules of the global economy.

The common thread here – and it's one that stretches throughout this report – is the importance of strong and enlightened leadership, both in politics and in business. Take the issue of open trade. The GPI clearly shows the majority of countries including 13 of the G20 have become relatively less, rather than more, open to trade in the last five years. Yet the analysis also highlights the rewards for those pursuing a more open path.

And despite suggestions that technology is today making governments mere bystanders, this report shows that those states with robust and transparent public institutions are generally those which still possess the greatest potential. The GPI shows how countries like Rwanda, Senegal and Bhutan are putting themselves on the fast track by getting the basics right.

I hope the report provides fresh insights, proves to be a useful aid in your decision making and sparks some healthy debate!

Best wishes,

Bill Michael

“... if there's one theme that stretches through this report, it is the importance of strong and enlightened leadership in the modern world – both in politics and in business.”

About this report

What is a Growth Promise Indicator?

The variables that influence a nation's potential for future productivity and growth are many and varied. How effective are business rights laws? How much exposure do local businesses have to international best practice? How strong is the education programme? The transport system? Mobile data coverage?

Establishing a coherent framework that can effectively track all these factors – and more – for every country on the planet is no mean feat. But that's exactly what KPMG did four years ago when our macroeconomics team sat down with external expert advisers to hammer out a new set of indicators. The goal was to create an authoritative framework that would give investors and policymakers practical insights into which countries offer most potential for sustained growth – and which have challenges that need addressing.

The result is what we call Growth Promise Indicators (GPI). Our raw materials are a series of independent global data sources from which we derive a series of individual category GPIs evaluating factors that range from life expectancy to technology-readiness. From judicial independence to national debt.

These, in turn, are grouped into five key indicators:

-  Macroeconomic stability
-  Openness to catch-up
-  Infrastructure
-  Human capital
-  Institutional strength

These five are then weighted again and combined to create a single unique GPI for each country. And because we've been able to apply this framework retrospectively, we now have granular GPI data for each country going back to 1997.

Our hope is that these GPIs prove to be an invaluable resource for decision-makers in business and government the world over. Anyone who needs independent insights into a country's investment potential or scope for improvement.

For a detailed explanation of the GPI methodology, see Appendix 1.

Our Growth Promise Indicator ratings are an updated incarnation of the Variables for Sustained Growth, a set of figures that have been published annually since 2014. The change is designed to capture the active nature of the factors behind the figures. The GPI concept is still about growth, of course, but it's more about an active and dynamic indication of a country's deeper sense of long-term promise.

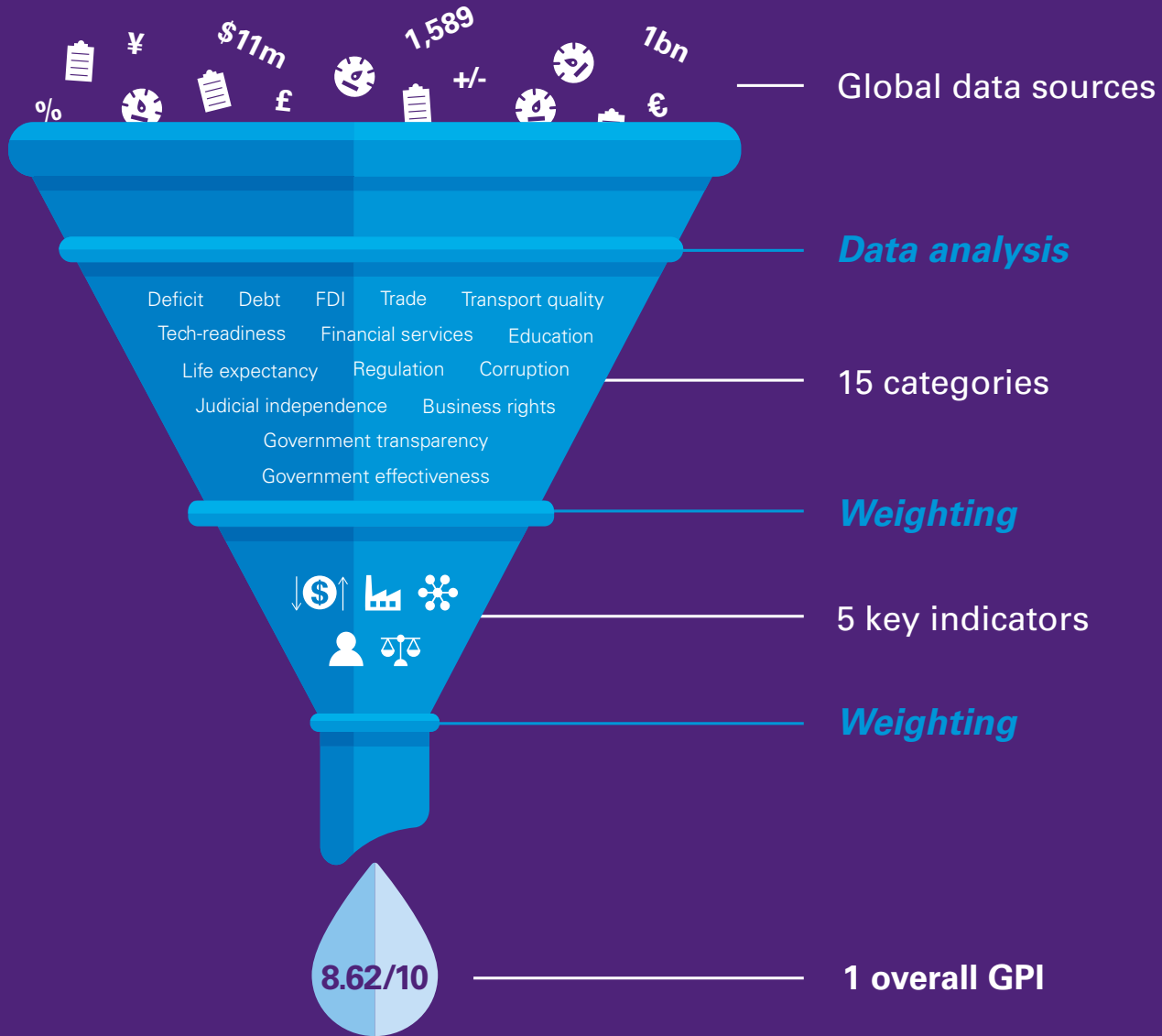
For investors

- GPIs represent an unbiased view of a country's true potential, based on factors that go far beyond GDP. So if you're a business looking to break into a new market or an institutional investor looking to spread your portfolio, check your target country's headline GPI or dig a little deeper using the table at the back of the report.

For policymakers

- Your country's GPI profile is a benchmark that represents its standing on the world's economic stage. Track your own performance to inform new policies. Track other countries to see what lessons you can learn from your peers.

A country's GPI is based on a mix of hard data – authoritative figures published from around the world – and a mathematical model honed by our macroeconomic specialists.



180

countries¹

20

years of data

1. Hong Kong (S.A.R) jurisdiction was included in the report as an additional comparator.

This year's results

The Netherlands once again has the edge over Switzerland at the top of the GPI "league table" and there have been big gains for the likes of Hungary, Indonesia and Azerbaijan. See Appendix 2 for a full listing and additional underlying scores.

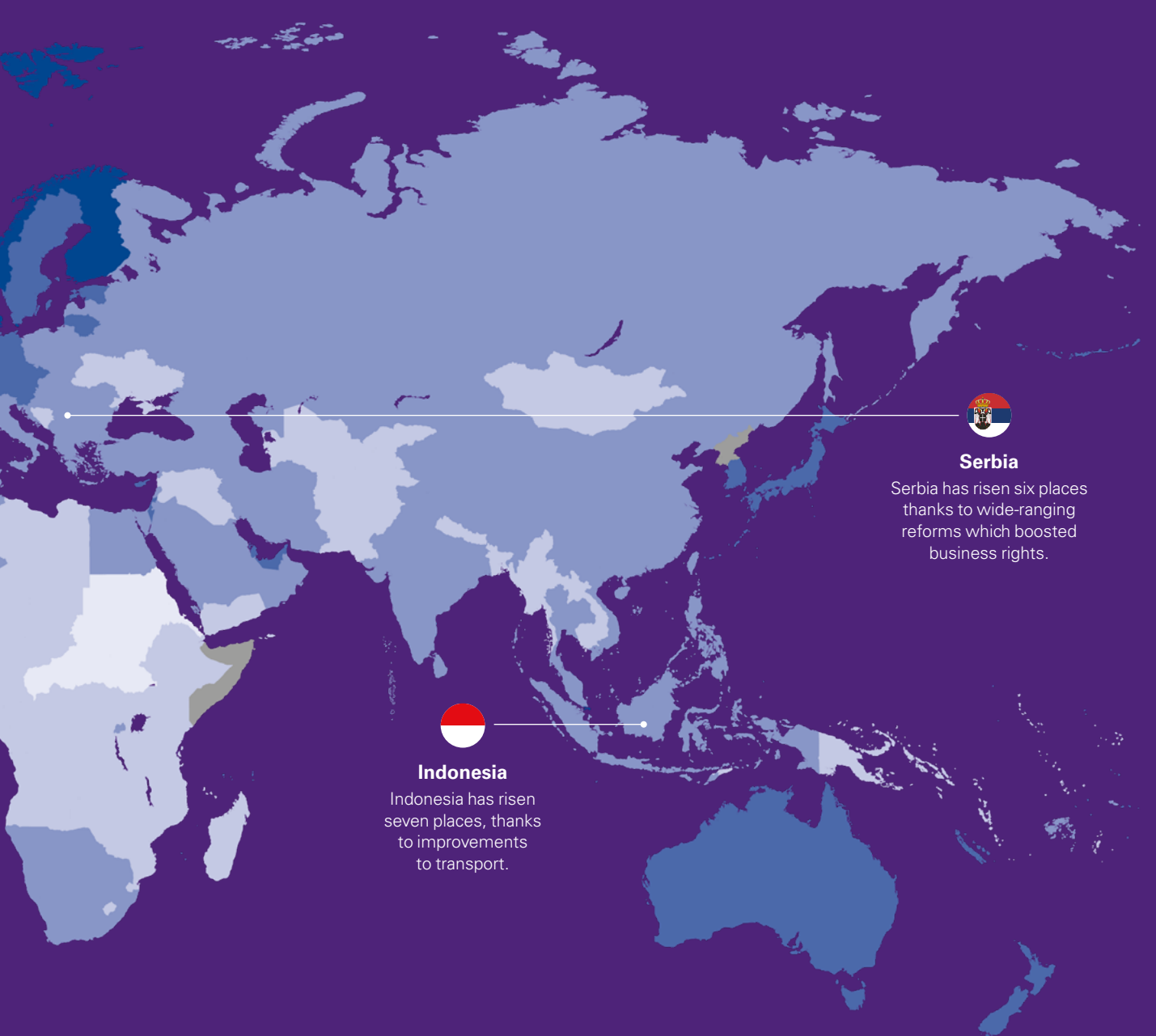


Top 20

	1	—	The Netherlands	8.62
	2	—	Switzerland	8.62
	3	—	Luxembourg	8.29
	4	—	Hong Kong (S.A.R.)	8.25
	5	—	Norway	8.11
	6	—	Finland	8.07

	7	▲ 1	Singapore	7.98
	8	▲ 1	Denmark	7.98
	9	▼ 2	Sweden	7.90
	10	—	Iceland	7.82
	11	—	New Zealand	7.77
	12	▲ 2	Canada	7.58
	13	—	United Kingdom	7.57

	14	▼ 2	Germany	7.55
	15	—	Ireland	7.43
	16	—	Belgium	7.42
	17	—	Australia	7.32
	18	—	Estonia	7.31
	19	▲ 1	Austria	7.20
	20	▼ 1	Japan	7.16



Indonesia

Indonesia has risen seven places, thanks to improvements to transport.



Serbia

Serbia has risen six places thanks to wide-ranging reforms which boosted business rights.

Key

	1-1.99		2-3.99		4-5.99		6-7.99		8-9.99		Unlisted
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Open for business

Which countries are successfully balancing domestic interests and international cooperation?

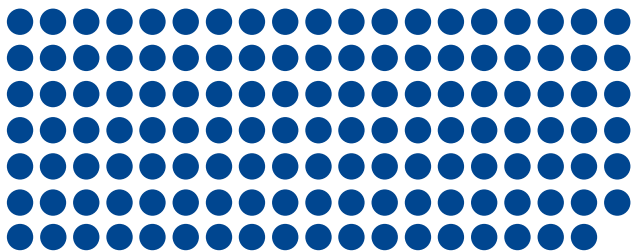
At his inauguration on 20 January 2017, Donald Trump reaffirmed the commitment that had defined his election campaign. True to his promise to “make America great again”, he immediately set about renegotiating (and in some cases dismantling) major trade agreements that he felt were not aligned to US interests. In the UK, meanwhile, the conversation is all Brexit. Decades-long European trade and political relationships are facing an uncertain future.

Are these events part of a wider trend towards firmer borders around the world? And if so what does that mean for overseas investment strategies?

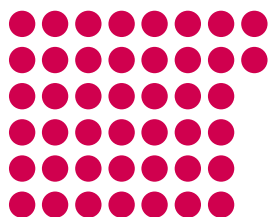
Our evidence would certainly suggest that the world is becoming a relatively less open place to trade. Crucially, though, this trend began way before Trump and Brexit made the headlines in 2016. Tracking changes in our openness measure – a figure based on a combination of overseas trade and foreign direct investment (as a proportion of GDP) – shows a marked shift since the global financial crisis.

In the period from 2002 to 2007, openness increased in some 75% of countries. Since 2012, by contrast, 66% have shown a decrease. A possible interpretation of this – one that chimes with the “protectionist” narrative – is that we’re seeing a clear slowdown in globalisation.

2002–07

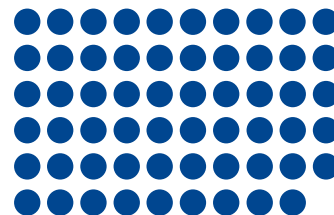


132 countries become more open

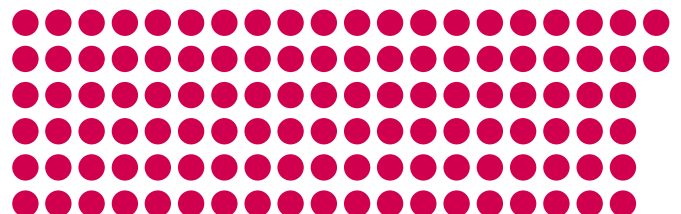


44 countries become less open

2012–17



59 countries become more open



116 countries become less open

Underlying these changes is a disappointing trade performance after the Great Recession, particularly in emerging markets. Before the crisis, global trade was typically growing faster than GDP. Export growth in emerging countries was running as high as 10%, compared to 3.9% in advanced economies between 2001 and 2007. Since 2010, the figures have been 3.8% and 2.9% respectively.

This failure to re-establish strong growth in trade drags down the GPI's measure of openness.

A further hindrance to advances in openness may be the maturity of outsourcing and supply chain models. Manufacturers, for instance, have long drawn on specialist overseas suppliers to optimise costs and processes. There comes a point, though, when it simply doesn't make commercial sense to break down supply chains any further.

Figure 1: The growth in global trade has struggled to reach the levels seen before the Great Recession.



Source: CPB World Trade Monitor, KPMG analysis.

Our figures also show that, whilst overseas trade may have been a mixed bag, FDI was generally buoyant.

Out of the 180 countries covered in our index, 72% experienced a rise in FDI as a proportion of their GDP over the past decade. (See Figures 2 to 6 for specific FDI and trade trends).

With FDI momentum holding broadly steady, and trade driving the apparent downturn in openness, what does this mean for investors and policymakers?



“As global trade continues to recover I believe more and more countries will return to a more open stance where they are more prepared to learn from – and deal with – each other. There are huge opportunities out there for those prepared to work cooperatively together.”

Bill Thomas
Chairman of KPMG International

Figure 2: Africa experienced a significant increase in openness between 2007 and 2017, with countries like Ghana, Mozambique, Niger, and Mauritania leading the rise. Countries like Nigeria and Kenya experienced a reversal of fortunes in their openness ranking due to poorer trade performance.

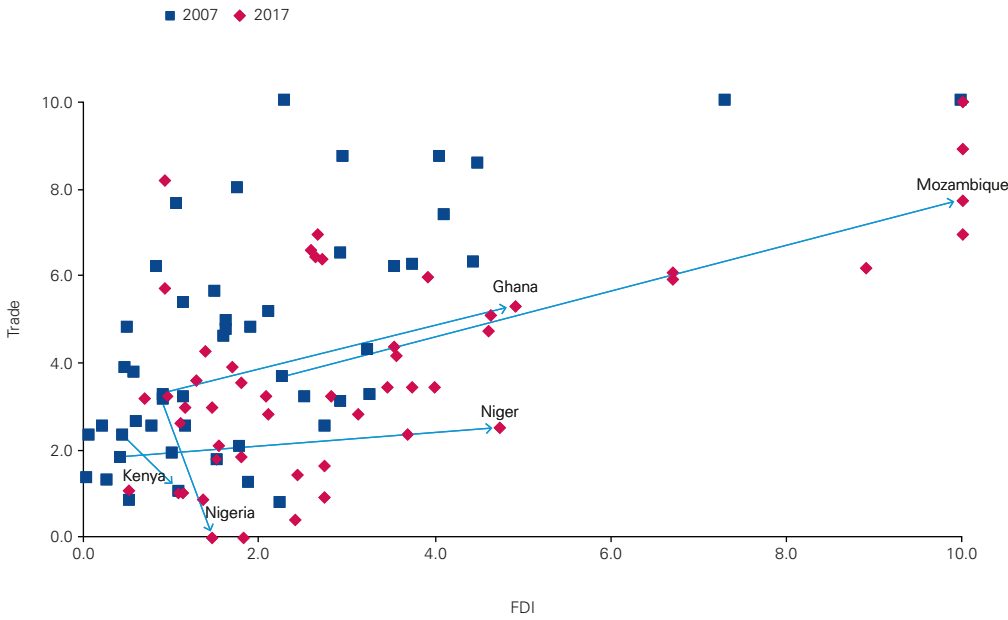


Figure 3: Performance in the APAC region was mixed, with Mongolia and Georgia boosted by a rise in FDI, while Malaysia and the Philippines scored less well on trade.

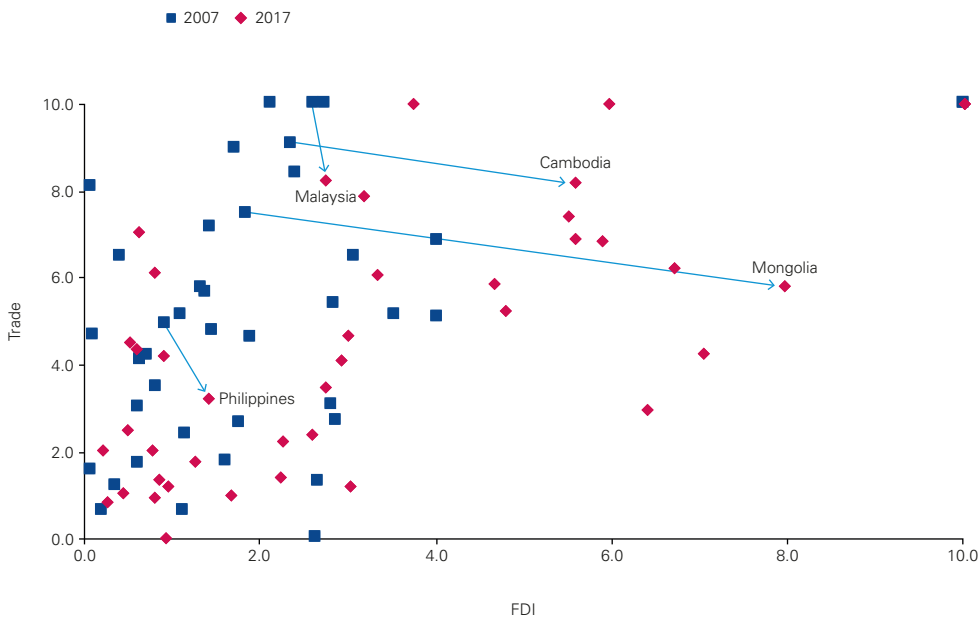


Figure 4: The Americas saw minimal progress on average in openness over the decade, with Mexico and Nicaragua among the best performers. Meanwhile Panama and Bolivia saw some of the largest setbacks, mainly due to lower scores on trade.

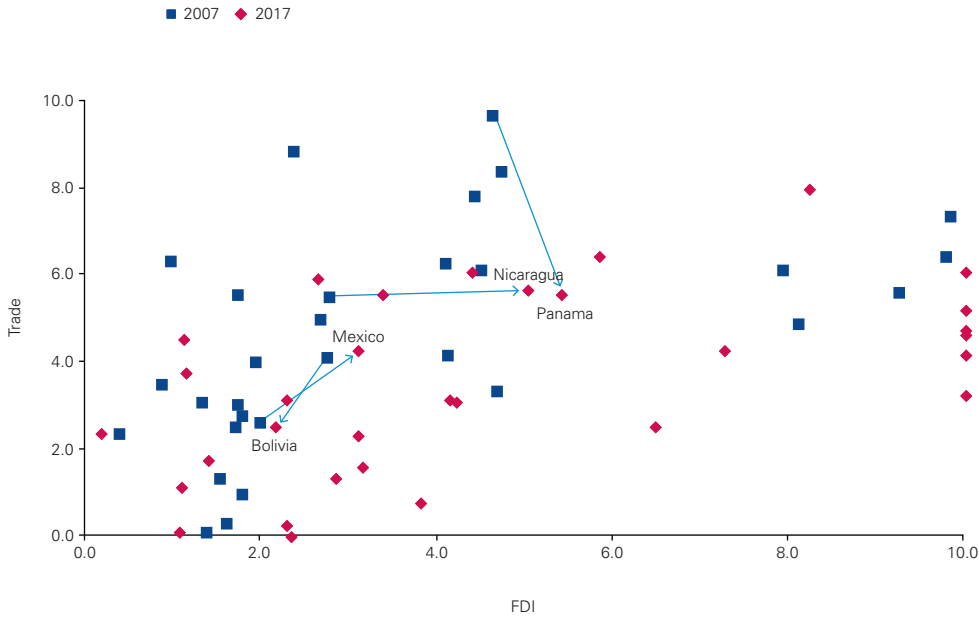


Figure 5: Europe has performed well on openness over the past ten years, with Ireland making significant gains in FDI while many of the Eastern European economies saw a pick up in trade. Belgium and Iceland, meanwhile, saw falls in their FDI score.

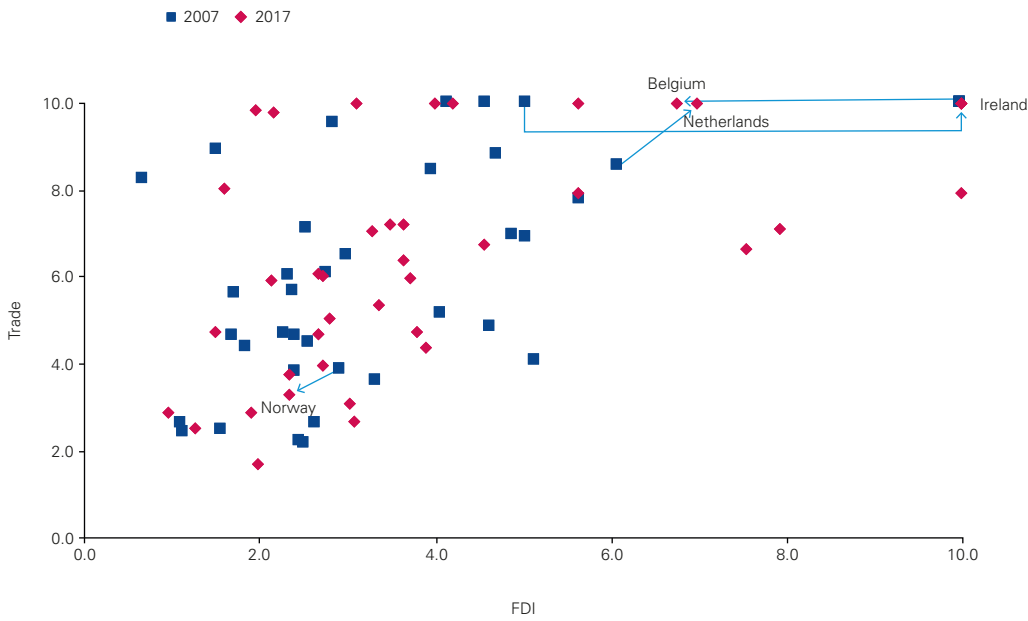
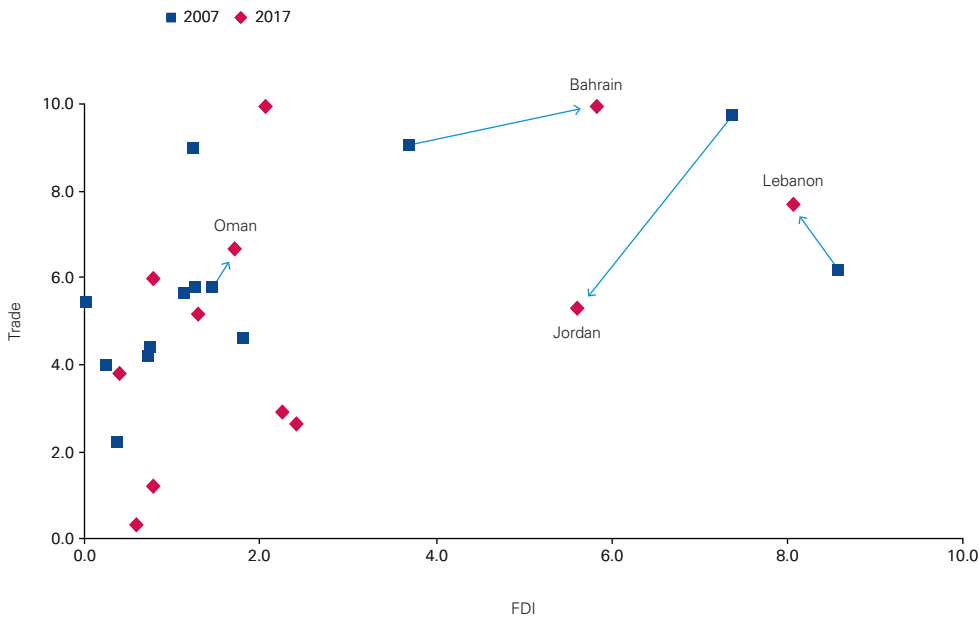


Figure 6: The Middle East saw a small decline on average openness scores between 2007 and 2017. Jordan and Yemen saw the largest declines, primarily on account of poorer trade scores, while Bahrain and the UAE saw the largest rise in their openness scores.



For investors

- FDI trends are always a sound indicator of market sentiment. Have other investors seen something you've missed?
- Weaker growth in export-led economies suggests that investors may need to refocus on large established markets.
- Export-oriented businesses may have to rely more on domestic demand in the future – and therefore to adapt to local consumer needs.

For policymakers

- Openness remains a clear path to best-practice know how and increased productivity.
- Strike the right balance between protecting your domestic industry and being open for business to the rest of the world.
- Remember globalisation is not an inevitable process – we may yet see reversal.

Digital watch

Which economies are ready for the AI revolution?

The world is gearing up for an exciting new industrial revolution. IBM has been calling it the “cognitive era”. Others are embracing a more established term: artificial intelligence (AI). Whatever terminology you favour, though, it’s clear that we’ve only really had a taste of the way data will be used to transform businesses, customer experiences and lives.

So how are countries preparing for Big Data and AI opportunities? It’s a mixed picture.

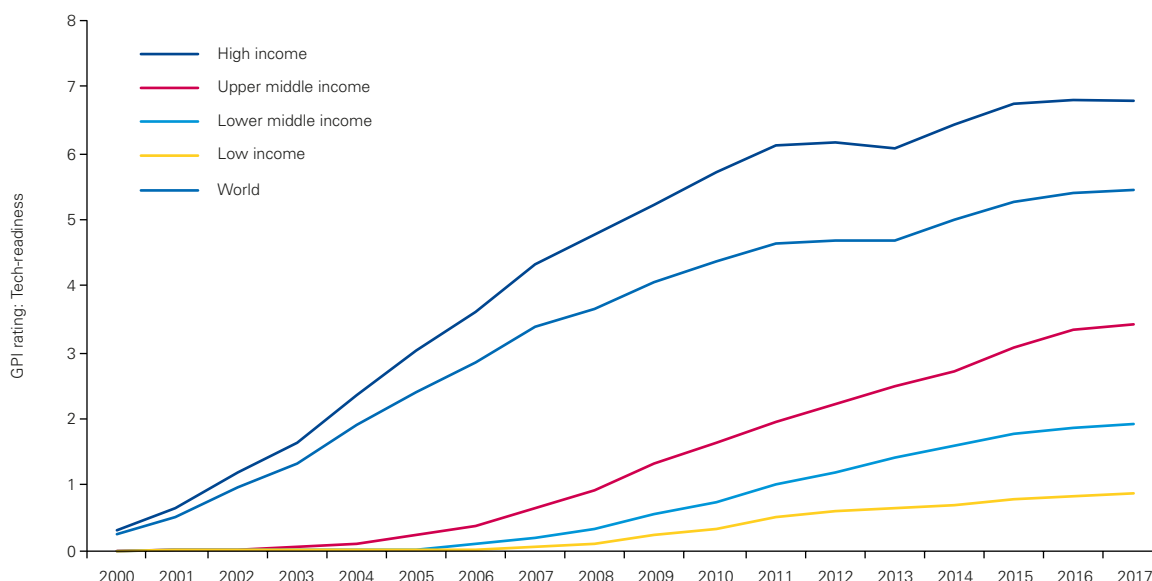
The UK has thrown its weight squarely behind AI¹. Anticipating that AI will make a net contribution of US\$814 billion (£630 billion) to the UK economy by 2035, the government has announced

a series of funding initiatives over the past 12 months. Crucially, it has specifically acknowledged the need to invest in education and long-term expertise, making the case for embedding understanding of AI across STEM education at all levels.

Nevertheless, in many countries it appears investment in IT infrastructure may be lagging behind areas such as transport.

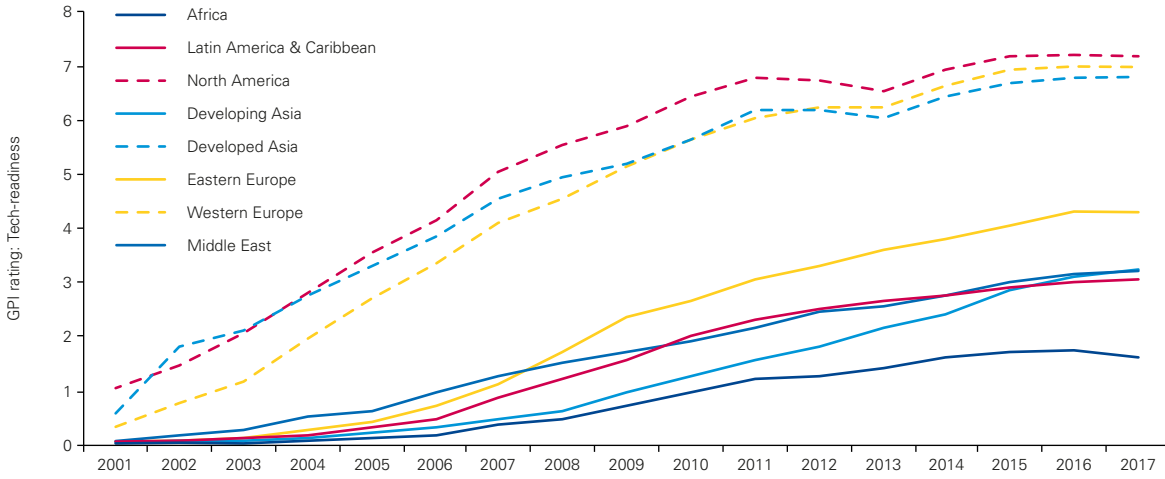
Our scoring in the area of tech-readiness is based on three key factors. Two of these – mobile coverage and broadband penetration – reflect how ready consumers are to adopt new tech-based experiences. The third – the number of secure servers per head – is a measure of the country’s ICT business maturity.

Figure 7: Trends in technology adoption since 2000 show a clear correlation with income group.



1. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/652097/Growing_the_artificial_intelligence_industry_in_the_UK.pdf

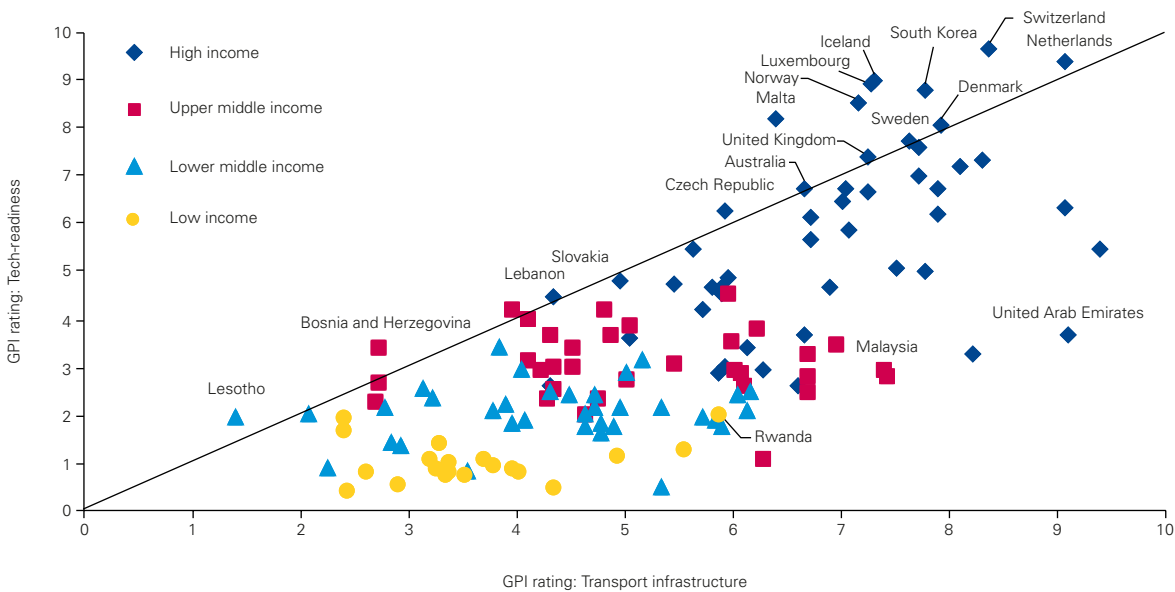
Figure 8: Tech adoption trends by region show encouraging growth in less developed parts of Asia.



There are few surprises in the overall trend since 2000. In general, the higher a country's income, the better its IT preparedness. Time will tell whether the plateau experienced by high-income countries in 2012 is part of an S curve that all countries experience, or whether it represented a pause in technological innovation.

Digging a little deeper, the contrast between investment in transport and tech infrastructure reveals a clear priority among lower income countries.

Figure 9: Lower income countries tend to prioritise investment in transport over technology.



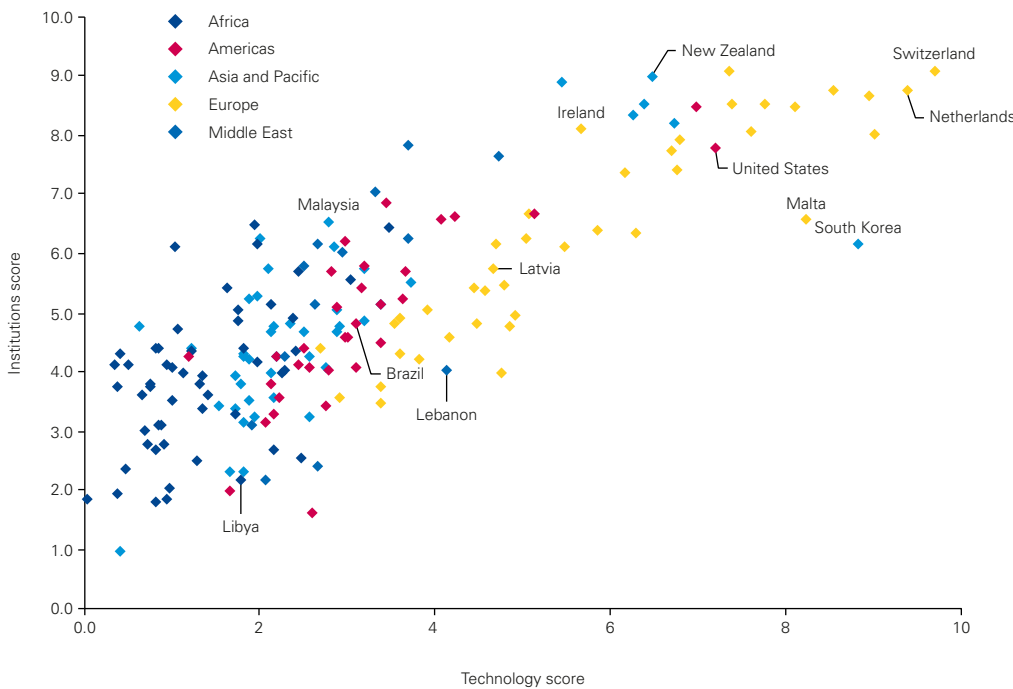
There are many understandable reasons why a country may prioritise infrastructure investment over technology. However, if they are to capitalise on trends like AI and the Internet of Things, they will need to invest as much in bytes as they do in bricks.

The signs are that this message is getting through. Malaysia, for instance, a country whose tech-readiness score currently falls behind its transport infrastructure rating, recently earmarked a significant budget for STEM education and introduced a number of tax breaks for ICT investment². The UAE, another country

where spending has been heavily skewed towards physical infrastructure, has also launched a series of tech-based initiatives over the past three years³.

Technological change can cause disruption as well as growth. The robustness and stability of a country's institutions is a key factor in coping with this disruption. Major shifts in automation, for instance, can have telling impacts on employment. Business rights protection is another focus area for markets looking to welcome major technology brands for the first time.

Figure 10: Countries with stronger institutions are better able to cope with the disruption that can come with technological innovation.



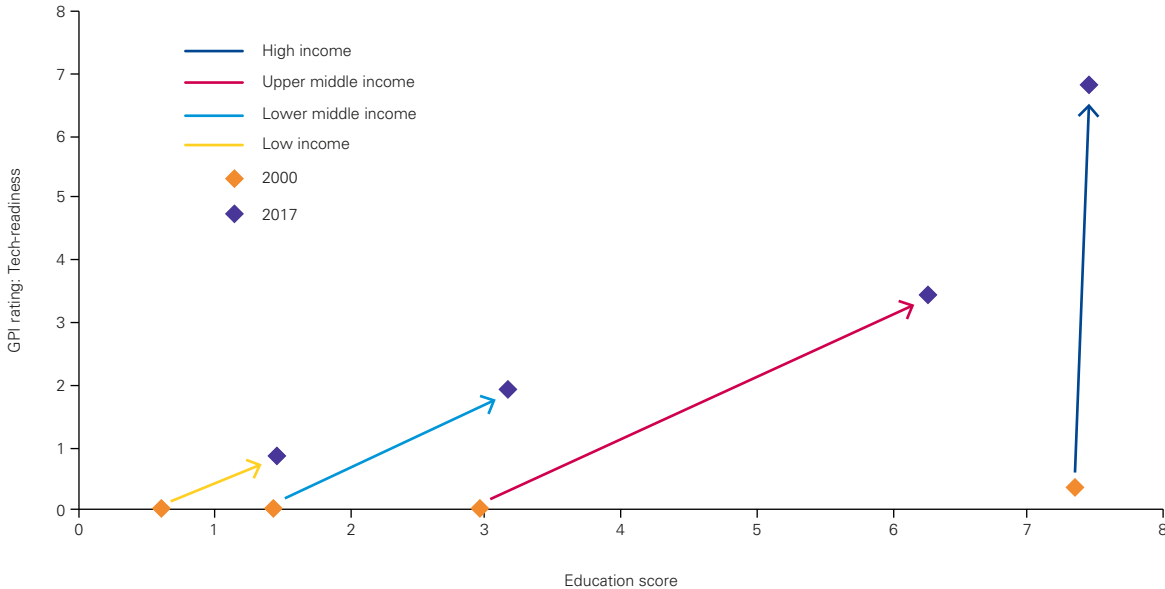
“ We advise businesses to offer their people lifelong training on new technologies so they feel comfortable with them, not threatened by them. Policymakers need to think in the same way if their countries are to reap the full benefits of tech innovation. ”

Mark Goodburn
Global Head of Advisory, KPMG International

2. <http://www.treasury.gov.my/pdf/budget/speech/bs18.pdf>

3. <https://government.ae/en/about-the-uae/leaving-no-one-behind/9industryinnovationandinfrastructure>

Figure 11: Educational improvements are helping middle-income countries prepare themselves for the next wave of technological innovation.



Another lesson for countries hoping to capitalise on technology is the correlation between investment in education and advances in tech-readiness. Middle-income countries are leading the way. Some developing countries have historically focused less on ICT education, reasoning that few jobs in their economies⁴ rely on such skills, but progress in both education and tech-readiness is clear here too.

The need to accommodate – and train for – emerging technology has parallels in large businesses like KPMG. As Susan Ferrier, KPMG International’s Global Head of People, Performance and Culture, said in our International Annual Review⁵ recently, “Technology is causing the shelf life of skills to decline rapidly and driving people to learn new skills faster. By 2020, it is predicted that more than a third of core skill sets for most jobs will be made up of skills that are not crucial to the job today.”

For investors

- As more countries look to capitalise on technology there remain significant investment opportunities across the board.
- Businesses that can support underlying data infrastructure may fare particularly well.
- The success of tech-based initiatives is heavily reliant on the talent and skills of the local workforce so consider prioritising markets prepared to invest in training and education.

For policymakers

- 3D printing and automation may undermine the role of export-led industrialisation as an engine for development. Policymakers need to make strategic investments to make sure their countries are able to benefit from new technologies.
- Policymakers need to remain agile to meet the regulatory challenges brought by disruptive technologies.
- Rapid technological change can leave large swathes of society feeling “left-out”. Governments and business leaders have to work hard on broadening engagement to avoid the harmful effects of technological change on their citizens.

4. <http://unesdoc.unesco.org/images/0024/002456/245622E.pdf>

5. <https://home.kpmg.com/xx/en/home/campaigns/2017/12/international-annual-review.html>

Solid foundations

What is the true value of institutional strength?

It's no accident that the institutions pillar is the most important component of the GPI score and has the highest weighting in the overall index. High-quality public institutions able to enforce robust civil and business legislation create an environment where entrepreneurs and businesses are happy to invest. Employment and higher productivity follow. Without a basic framework of business and property rights it is difficult for a modern economy to prosper. A more effective public service can also do more with given resources, generating higher economic growth.

Put simply, robust and stable institutions are a strong contributor to growth.

The contrasting fortunes of Bhutan and Sudan are a case in point. Bhutan, the leading lower-middle-income country in terms of institutional strength, has seen consistent GDP growth over the past decade, albeit not currently at the rates it was 10 years ago. GDP in Sudan, the lowest-ranking comparable country, has been far more erratic, even slipping into negative growth between 2010 and when the country was still coming to terms with the end of more than 20 years of civil war. A similar contrast can be seen between Rwanda and Guinea-Bissau, two low-income countries with very different institutional profiles. Note that both Bhutan and Rwanda outscore many far wealthier nations when it comes to the robustness of their institutions.

Figure 12: Countries like Rwanda and Bhutan demonstrate that institutional strength is not dependent on high income levels.

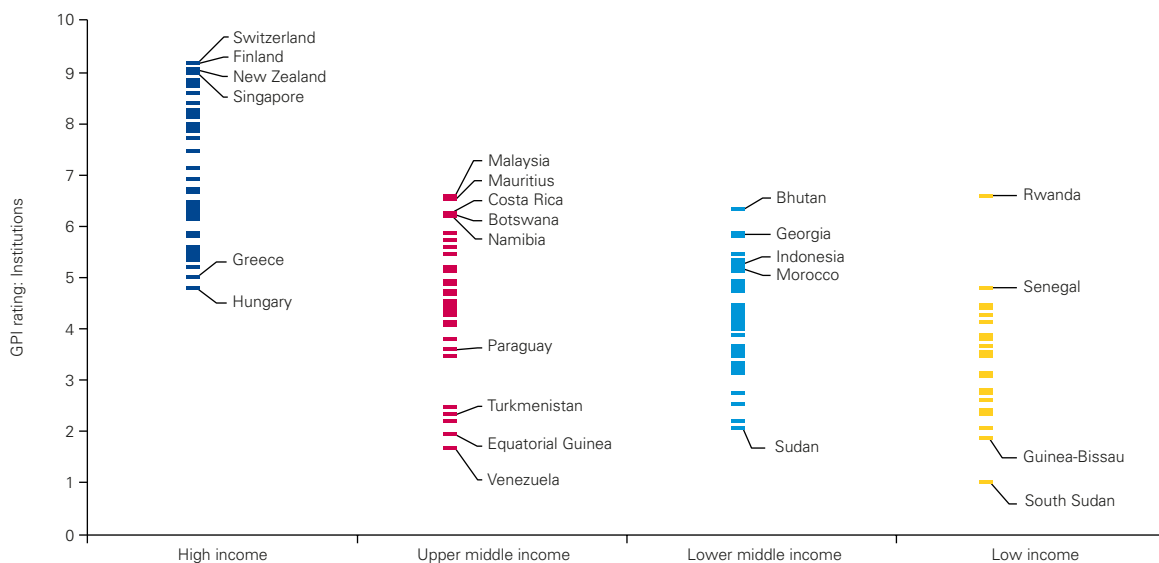
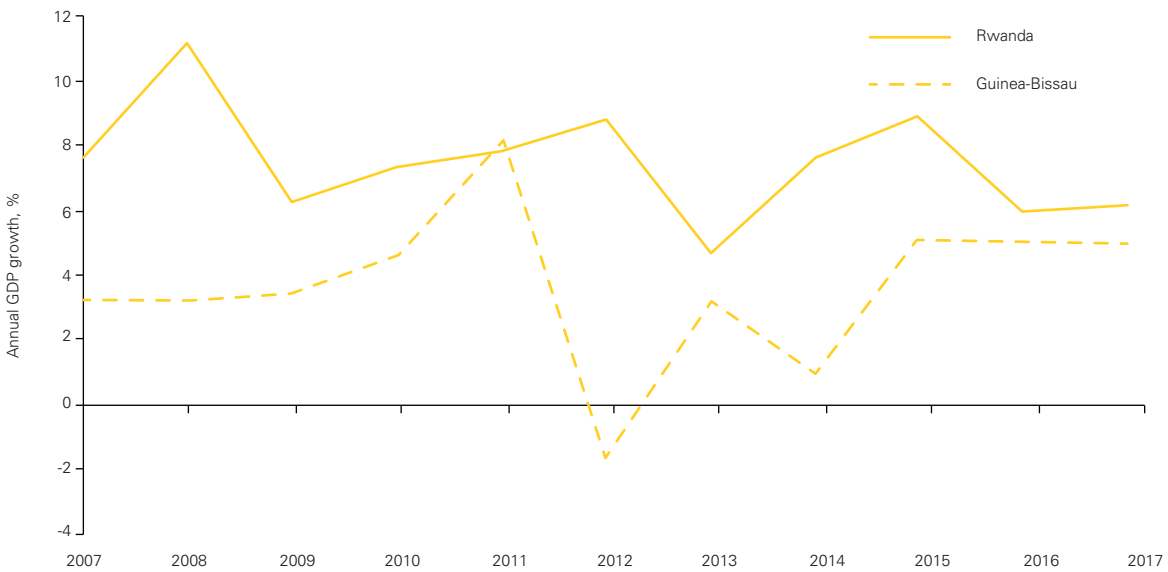
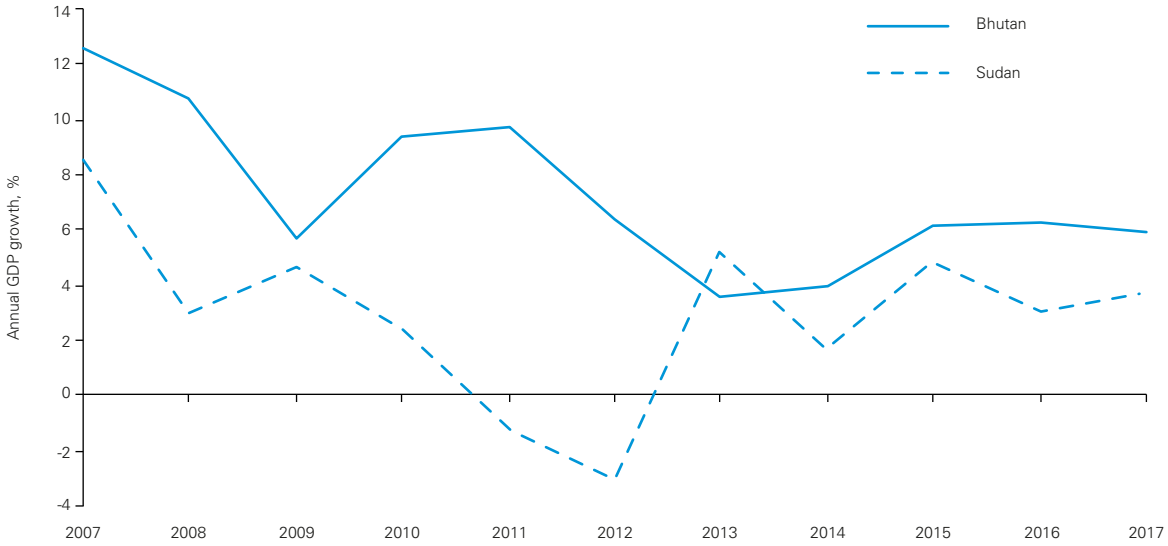


Figure 13: Rwanda and Bhutan top their income group when it comes to their GPI ratings for institutional strength. They have both experienced steady GDP growth for more than 10 years. Emerging from a lengthy civil war, Sudan has struggled to maintain steady GDP growth.



We base our institutions score on a number of factors, including levels of corruption, government effectiveness, IP and property rights, judicial and regulatory frameworks and policymaking transparency.

Many of the poorly performing countries in this category have suffered periods of conflict. Some have faced natural disasters. Clearly, the smooth running of institutions can suffer against such a backdrop. Other countries, though, can and should be making institutional reform a priority.

Among high-income countries, for instance, Greece and Hungary are underperforming from an institutional point of view. In Greece's case, a lack of government efficiency is evident. A survey of civil service effectiveness¹ last year ranked Greece third from bottom of the 31 countries covered. Hungary's dramatic decline (from an institutions score of 6.43 to 4.79 in the decade since 2007) was linked to the political environment.

Other countries faring poorly in this category include Turkmenistan, Equatorial Guinea, Venezuela and Paraguay.

More positively, countries like Rwanda and Malaysia have been demonstrating the value of institutional strength.

In an October 2017 credit rating report², Moody's said that Rwanda having "a more robust institutional framework than most of its Sub-Saharan African peers" was a key strength. It appears that Rwanda's efforts to control corruption may have been particularly effective.

Malaysia, meanwhile, the highest-ranking country in our upper middle income bracket, has enjoyed a sustained period of growth thanks, in part, to the strength and effectiveness of its regulatory environment.

For investors

- Stronger institutions facilitate and reduce the costs of operating in a country significantly.
- Institutional strength fosters the kind stability and predictability businesses need if they're looking to make a move overseas.

For policymakers

- Institutional reforms that tackle issues like corruption and transparency needn't involve significant investment – but they can pay huge dividends.
- Greater transparency and openness in policymaking can both improve engagement on policy issues and help to tackle corruption.



“Some countries are letting themselves down by failing to throw adequate weight behind institutional checks and balances that should be a given in a modern economy. Institutions of public benefit embed law and the spirit of law into practices to protect and enhance true freedoms. It's clear, too, from other countries – even in emerging markets – that income is not a prerequisite for a robust framework for growth. Social capital, freedom of speech and belief and human rights are equally essential.”

Lord Hastings

Global Head of Citizenship, KPMG International

1. <https://www.instituteforgovernment.org.uk/sites/default/files/publications/International-civil-service-effectiveness-index-July-17.pdf>

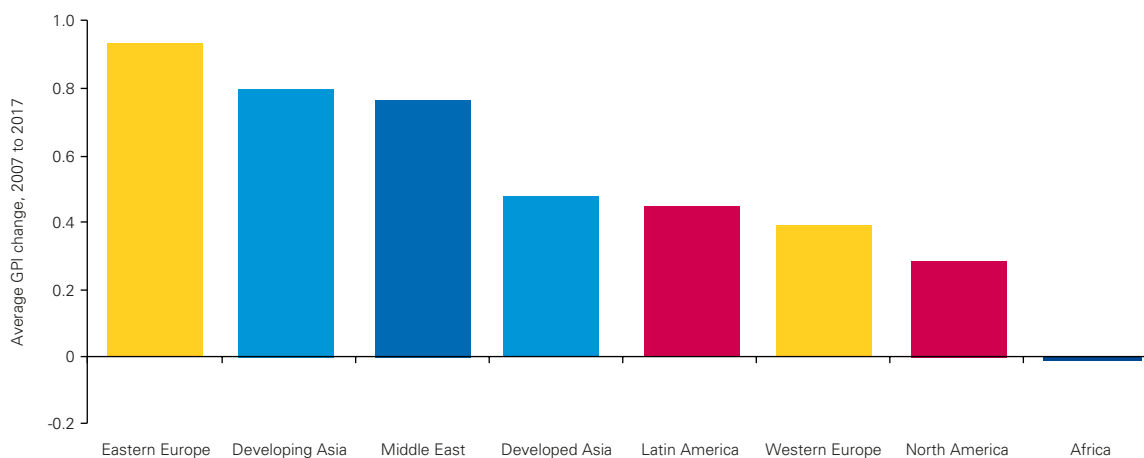
2. https://www.moody.com/research/Moodys-Rwandas-credit-profile-reflects-institutional-strength-and-growth-potential-PR_373485

Tomorrow's world

What are the underlying trends shaping future GPI rankings?

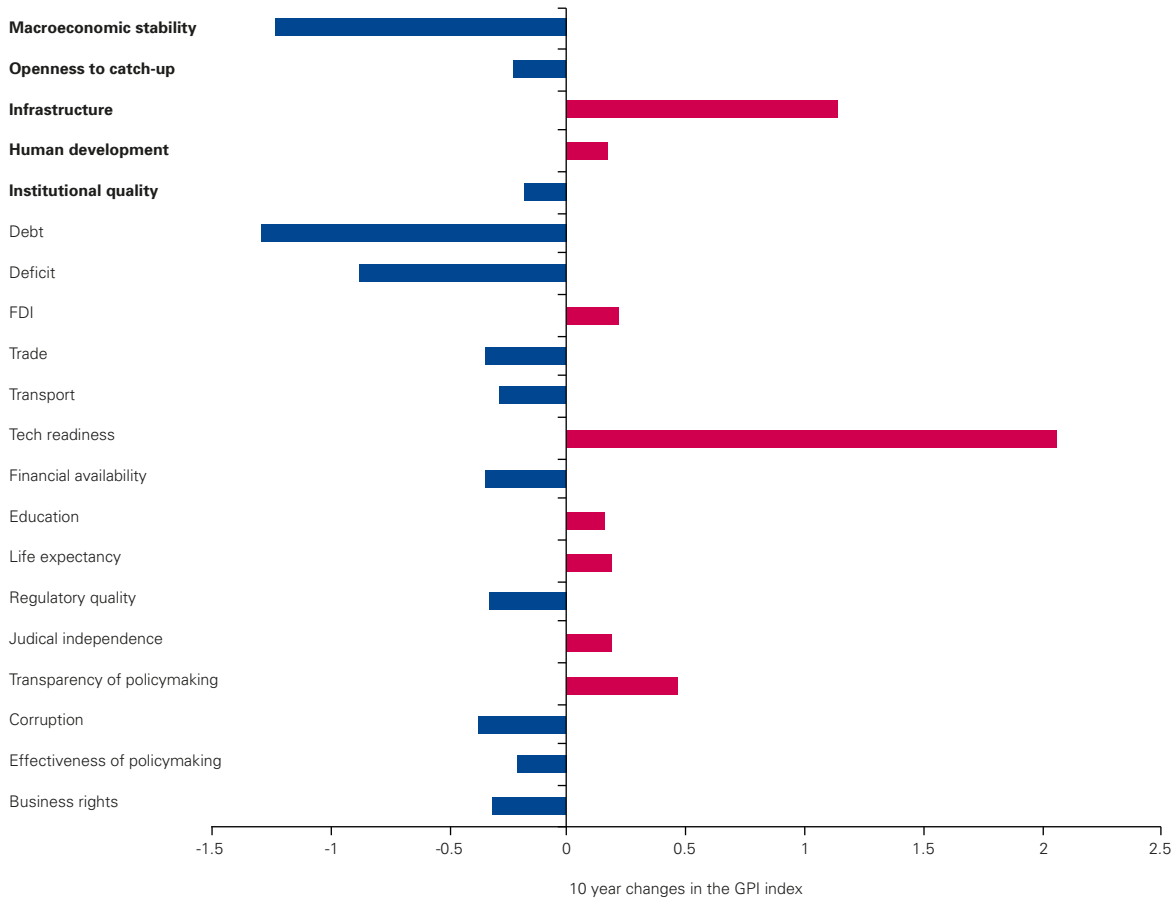
With two decades of indicator data available, we're in a good position to identify some of the longer-term trends that have shaped economic performance and from that infer what to expect over the coming years.

Figure 14: Region-by-region changes in overall GPI since 2007.



The last decade has seen near universal improvements in GPI. Only Africa, on average, failed to improve its overall rating. We've seen marked improvements in Eastern Europe, developing Asian countries and the Middle East.

Figure 15: Ten-year changes in category GPI ratings (global averages, weighted by GDP).



Unpicking trends in the sub-indicators suggests that the real strides have been made via improvements in infrastructure, and in particular in tech-readiness.

Significant drops in GPI scoring in macroeconomic stability are a reflection of the Great Recession and its turbulent aftermath, as well as other factors such as the decline in commodity prices.

Most regions fared poorly in this category, cancelling out positive gains in areas such as human development and infrastructure.

The long-term drop in global regulatory quality and business rights is a concern, although both sub-indicators have improved in the last five years.

But what might the next decade have in store?

Technology

IT – in all its guises – is likely to continue to be a key driver for GPI over the next 10 years. Just as the internet has transformed retail and social interaction, so new disruptive technologies will challenge not just new industries but entire economic models. The IT wave that has touched so many of our lives is set to reach a broader range of countries in the years to come.

Transparency

Technology is already having a positive impact on other underlying GPI trends. Transparency of policymaking, for instance, is on the up, in part fuelled by governments using online platforms to share data and insights with citizens. This, in turn, improves accountability and the overall quality of governance. I expect to see more and more connected citizens in the future further increasing this scrutiny.

Debt and macrostability

A decade after the Great Recession, and with a positive global growth momentum, countries will be in a good position to further repair their finances, assuming there are no major new economic shocks on the horizon.

Over to you...

These, though, are just my own hypotheses. The data hides a multitude of other stories.

What opportunities can investors identify, for instance, in Eastern Europe, whose GPI rating has performed so positively over the past decade?

And what can African policymakers learn from their peers in developing parts of Asia, which have scored relatively highly in areas like judicial independence and transport infrastructure?

I hope these indicators provide a useful yardstick and offer investors a new way to find your next big opportunity. Happy hunting!



“ I hope these indicators provide a useful yardstick and offer investors a new way to find your next big opportunity. Happy hunting! ”

Yael Selfin
Chief Economist, KPMG in the UK



Appendix 1. Methodology

A GPI rating is based on 15 individual categories selected to assess countries' productivity potential. These categories are based on academic studies and trusted business survey results. We cover a total of 180 countries and have been tracking their performance since 1997.

For each category, a higher value (from zero to 10) denotes a strictly better outcome for the country. To reduce the influence of outlying values we cap scores at sensible floor and ceiling values for each rating. If a category doesn't have a defined range we set maximum and minimum values. Scores for values below the floor or above the ceiling were truncated at zero and 10 respectively.

Weights are used to aggregate the categories, sub-categories and indicators. These weightings were derived from econometric analysis and the results of previous studies and business survey outputs. The weights are fixed between different countries and over time.

While 14 of our categories came directly from a range of sources (see Figure 18), we calculated a bespoke education series to feed into the Human Capital indicator. This incorporates data on enrolment rates in primary, secondary and tertiary education with the results from the Program for International Student Assessment (PISA). Enrolment rates are weighted according

to their importance in terms of educational returns, based on estimates by Caselli (2005) and Psacharopoulos (1994)^{1,2}.

Where a single measurement was unavailable we allowed the weighting of the rating to take this into account and aggregated only over the remaining available data. Our aggregate ratings are weighted by a country's GDP, so scores of larger economies weight more heavily.

As a way of validating our GPI framework, we have compared GPI values against historical Total Factor Productivity (TFP) from the World Penn Table database (9.0). The statistically significant correlation is illustrated in the following chart.

The data sources used to compile GPI ratings are listed in Figure 18. Great care has been taken to verify the accuracy and measurement reliability of the sources in all the series selected for GPI ratings. We cannot, however, guarantee the absolute correctness of the underlying data.

Not all the data sources that make up our index go back as far as 1997. In such cases, we calculated our own estimates for the series, based on alternative proxy series and correlation between the two series.

1. Francesco Caselli, 2005. "Accounting for Cross-Country Income Differences," CEP Discussion Papers dp0667, Centre for Economic Performance, LSE.
2. G. Psacharopoulos, 1994. "Returns to Investment in Education: A Global Update." World Development 22(9) : 1325-43.

Figure 16: Correlation between GPI ratings and historical TFP figures.

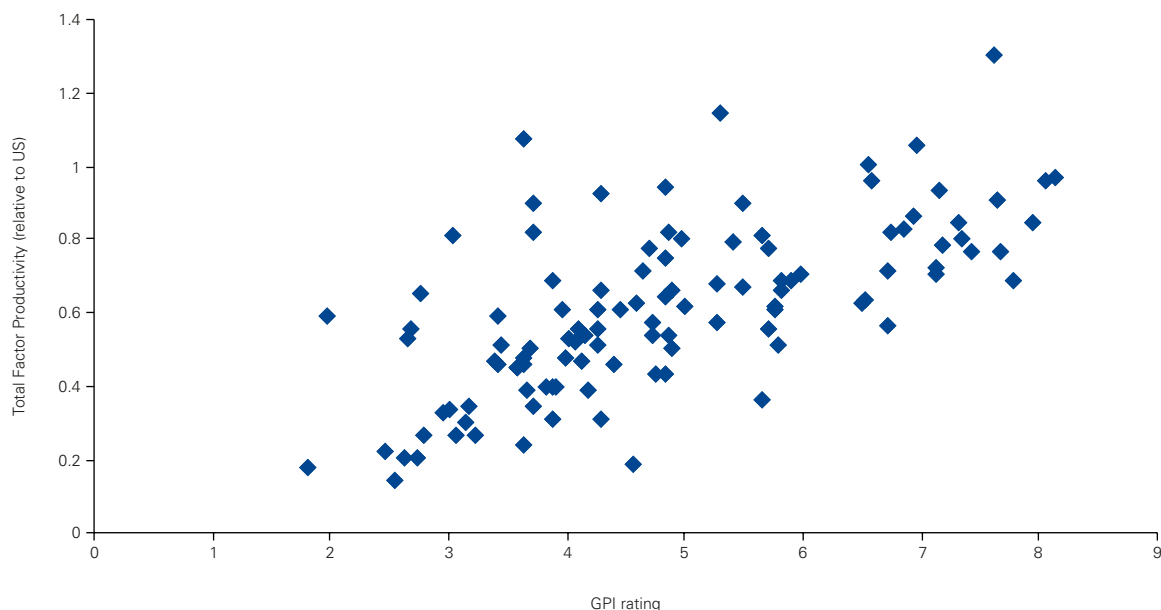


Figure 17: Full breakdown of constituent parts in each GPI indicator.

Indicator	Category	Sub-category
Macroeconomic stability	<ul style="list-style-type: none"> ■ Government deficit ■ Government debt 	
Openness to catch-up	<ul style="list-style-type: none"> ■ FDI stock ■ Total trade 	
Infrastructure	<ul style="list-style-type: none"> ■ Quality of transport ■ Technology readiness ■ Financial institutions – availability of financial services 	<ul style="list-style-type: none"> ■ Roads ■ Rail ■ Ports ■ Air ■ 3G network coverage ■ Broadband penetration ■ Secure internet servers
Human capital	<ul style="list-style-type: none"> ■ Education ■ Life expectancy 	<ul style="list-style-type: none"> ■ Primary education enrollment, % ■ Secondary education enrollment, % ■ Tertiary education enrollment, % ■ Maths attainment (PISA) ■ Science attainment (PISA) ■ Reading attainment (PISA)
Institutional strength	<ul style="list-style-type: none"> ■ Regulatory quality ■ Judicial independence ■ Transparency of government policymaking ■ Government effectiveness ■ Corruption ■ Business rights 	<ul style="list-style-type: none"> ■ Property rights ■ Intellectual property rights

Figure 18: GPI data sources.

Category	Data source
Government deficit	International Monetary Fund
Government debt	International Monetary Fund
FDI stock	UNCTADStat
Total trade	The World Bank
Quality of transport – Roads	World Economic Forum, Executive Opinion Survey IRF Geneva, World Road Statistics WRS
Quality of transport – Rail	World Economic Forum, Executive Opinion Survey The World Bank
Quality of transport – Air	World Economic Forum, Executive Opinion Survey The World Bank
Quality of transport – Ports	World Economic Forum, Executive Opinion Survey UNCTADStat
Technology readiness – Mobile: 3G Network coverage, % of population	© GSMA Intelligence (2016)
Technology readiness – Broadband: Fixed broadband subscriptions (per 100 people)	The World Bank
Technology readiness – Servers: Secure Internet servers (per 1 million people)	World Development Indicators, The World Bank
Financial institutions – availability of financial services	World Economic Forum, Executive Opinion Survey World Development Indicators, The World Bank
Life expectancy	World Development Indicators, The World Bank
Primary education enrollment, %	UNESCO Institute for Statistics (UIS)
Secondary education enrollment, %	UNESCO Institute for Statistics (UIS)
Tertiary education enrollment, %	UNESCO Institute for Statistics (UIS)
Maths attainment (PISA)	UNESCO Institute for Statistics (UIS)
Science attainment (PISA)	UNESCO Institute for Statistics (UIS)
Reading attainment (PISA)	UNESCO Institute for Statistics (UIS)
Regulatory quality	Worldwide Governance Indicators (www.govindicators.org)
Judicial Independence	World Economic Forum, Executive Opinion Survey Worldwide Governance Indicators (www.govindicators.org)
Transparency of government policymaking	World Economic Forum, Executive Opinion Survey Worldwide Governance Indicators (www.govindicators.org)
Government effectiveness	Worldwide Governance Indicators (www.govindicators.org)
Corruption	Worldwide Governance Indicators (www.govindicators.org)
Business rights – Property rights	World Economic Forum, Executive Opinion Survey Worldwide Governance Indicators (www.govindicators.org)
Business rights – Intellectual property rights	World Economic Forum, Executive Opinion Survey W.G Park, 2005, International Patent Protection, Research Policy 37 (2008)

Appendix 2.

Key indicator ratings

■ Africa
 ■ Americas
 ■ APAC
 ■ Europe
 ■ Middle East

Rank	12-month change	Country/ jurisdiction	Headline Index	Macroeconomic stability	Openness	Human development	Quality of infrastructure	Quality of institutions
1	—	The Netherlands	8.62	5.76	9.39	8.08	9.14	8.76
2	—	Switzerland	8.62	6.55	7.29	7.60	9.22	9.11
3	—	Luxembourg	8.29	7.96	10.00	6.98	8.42	8.68
4	—	Hong Kong (S.A.R)	8.25	9.14	10.00	8.26	7.40	8.55
5	—	Norway	8.11	7.41	3.11	8.18	8.11	8.79
6	—	Finland	8.07	5.28	3.47	8.35	7.73	9.11
7	▲ 1	Singapore	7.98	2.79	10.00	8.42	6.94	8.94
8	▲ 1	Denmark	7.98	6.74	5.18	7.98	7.94	8.51
9	▼ 2	Sweden	7.90	6.85	4.55	8.04	7.69	8.55
10	—	Iceland	7.82	6.70	4.93	7.86	8.16	8.05
11	—	New Zealand	7.77	7.51	2.44	8.15	6.78	9.02
12	▲ 2	Canada	7.58	3.74	3.35	8.24	7.22	8.53
13	—	United Kingdom	7.57	3.69	2.73	7.96	7.44	8.56
14	▼ 2	Germany	7.55	5.33	4.10	7.81	7.62	8.08
15	—	Ireland	7.43	5.00	10.00	8.02	6.05	8.14
16	—	Belgium	7.42	2.92	9.35	8.02	6.97	7.78
17	—	Australia	7.32	6.46	1.56	7.95	6.78	8.23
18	—	Estonia	7.31	8.50	9.12	7.69	6.41	7.41
19	▲ 1	Austria	7.20	4.36	5.38	7.29	6.91	7.95
20	▼ 1	Japan	7.16	0.72	0.73	8.49	6.83	8.35
21	—	Korea, South	7.11	6.91	3.55	8.38	8.10	6.20
22	▲ 1	Malta	7.05	5.84	10.00	6.68	7.58	6.63
23	▲ 1	United States	7.04	2.53	0.65	7.38	7.60	7.82
24	▼ 2	France	7.04	3.26	2.66	8.03	7.20	7.44
25	—	United Arab Emirates	6.81	7.57	8.41	5.80	5.71	7.86
26	—	Israel	6.65	5.20	2.55	7.63	5.58	7.65
27	—	Czech Republic	6.58	7.06	8.80	6.91	6.21	6.36
28	▲ 1	Cyprus	6.43	3.03	8.37	7.05	6.30	6.40
29	▼ 1	Slovenia	6.33	4.66	8.29	8.06	5.39	6.13
30	▲ 2	Portugal	6.32	1.72	4.26	7.79	5.93	6.70
31	▼ 1	Lithuania	6.29	6.86	8.29	7.22	5.37	6.18
32	▼ 1	Spain	6.26	3.15	3.05	8.20	5.97	6.30
33	—	Chile	6.07	7.37	3.29	6.95	4.64	6.89
34	▲ 1	Qatar	6.04	5.82	4.36	5.69	5.25	7.05
35	▼ 1	Latvia	5.95	6.92	6.48	7.16	5.16	5.75
36	▲ 1	Malaysia	5.89	5.64	7.14	6.12	4.68	6.56
37	▼ 1	Poland	5.83	5.72	5.38	7.61	5.15	5.51
38	—	Barbados	5.72	3.26	5.72	5.23	5.12	6.72

■ Africa
 ■ Americas
 ■ APAC
 ■ Europe
 ■ Middle East

Rank	12-month change	Country/ jurisdiction	Headline Index	Macroeconomic stability	Openness	Human development	Quality of infrastructure	Quality of institutions
39	▲ 1	Uruguay	5.70	5.38	1.63	6.25	4.79	6.66
40	▼ 1	Bahrain	5.68	2.95	9.17	5.34	4.98	6.27
41	—	Mauritius	5.51	5.35	5.83	5.00	4.57	6.46
42	▲ 2	China	5.42	6.03	0.93	7.21	4.68	5.56
43	▲ 6	Hungary	5.41	4.66	8.84	6.62	4.97	4.79
44	▼ 1	Italy	5.40	1.25	2.27	7.82	5.03	5.38
45	▼ 3	Bahamas	5.40	4.47	5.80	5.17	4.04	6.59
46	▲ 6	Costa Rica	5.35	5.78	3.31	6.43	3.69	6.25
47	▼ 2	Oman	5.33	5.59	5.69	5.19	4.21	6.17
48	▼ 2	Georgia	5.32	6.55	6.30	5.83	3.99	5.78
49	▼ 2	Croatia	5.29	4.23	5.52	6.77	5.01	4.86
50	▼ 2	Saudi Arabia	5.29	7.45	2.74	5.35	4.28	6.06
51	▼ 1	Greece	5.26	0.89	2.49	7.60	5.24	5.00
52	—	Bulgaria	5.22	7.57	7.47	6.42	4.47	4.62
53	—	Panama	5.16	6.61	5.52	5.48	4.72	5.11
54	—	Thailand	5.14	6.58	6.92	5.79	4.26	5.09
55	▲ 2	Brunei	5.14	7.88	4.34	4.33	4.07	6.12
56	▲ 8	Seychelles	5.13	5.26	10.00	4.60	4.04	5.58
57	▼ 2	Turkey	5.09	7.19	1.66	6.51	4.63	4.90
58	—	Slovakia	5.04	6.01	8.62	3.66	4.65	5.46
59	—	Trinidad and Tobago	5.04	5.44	5.25	5.60	4.26	5.27
60	▼ 4	Jordan	5.04	3.37	5.35	5.40	3.96	5.83
61	▲ 14	Azerbaijan	5.02	6.33	5.12	4.96	4.61	5.17
62	—	Romania	4.98	6.57	4.29	5.86	4.11	5.09
63	▼ 2	Montenegro	4.96	4.66	6.81	5.86	4.14	4.92
64	▼ 4	Vietnam	4.93	5.10	8.75	6.92	3.27	4.68
65	▲ 2	Russia	4.86	7.87	1.75	6.86	4.36	4.25
66	▲ 2	Saint Vincent and the Grenadines	4.84	4.56	5.31	4.81	3.65	5.71
67	▲ 6	Serbia	4.80	4.48	6.30	6.72	3.95	4.34
68	▼ 5	Botswana	4.80	8.11	5.70	3.42	3.14	6.20
69	—	Rwanda	4.75	6.57	1.84	3.37	3.48	6.53
70	—	Belarus	4.73	5.27	6.74	5.50	4.73	4.03
71	▲ 5	Jamaica	4.70	2.86	4.87	3.98	4.11	5.72
72	▼ 1	Kazakhstan	4.70	7.57	3.63	5.92	3.60	4.70
73	▼ 1	Mexico	4.70	5.86	4.02	5.82	3.98	4.61
74	▲ 3	Antigua and Barbuda	4.68	4.10	6.17	4.47	3.18	5.80
75	▼ 1	Kuwait	4.68	7.55	4.94	4.78	3.42	5.17
76	▲ 2	Namibia	4.64	6.30	6.10	3.19	3.12	6.12
77	▼ 11	Macedonia FYR	4.64	6.50	6.29	4.82	3.70	4.82
78	▲ 2	Grenada	4.62	5.10	4.60	5.33	3.37	5.14
79	—	Morocco	4.60	5.17	4.21	4.75	3.71	5.16
80	▲ 7	Indonesia	4.56	7.18	1.12	4.80	3.56	5.30
81	▲ 3	Armenia	4.55	5.59	3.88	5.11	3.80	4.78
82	▼ 1	Albania	4.55	4.87	3.70	6.38	3.58	4.43
83	▲ 6	Argentina	4.54	5.51	0.29	6.61	3.73	4.53
84	▲ 2	Saint Lucia	4.51	5.10	6.86	3.94	3.14	5.46
85	▼ 3	Tunisia	4.48	4.65	5.22	5.30	3.18	4.92
86	▼ 3	Colombia	4.46	6.01	1.38	5.64	3.71	4.63
87	▼ 22	South Africa	4.45	5.67	2.90	2.19	4.32	5.71
88	▲ 5	Bhutan	4.43	2.26	3.72	3.58	3.05	6.26
89	▲ 2	Brazil	4.42	3.63	0.47	5.68	3.80	4.84
90	—	Samoa	4.40	5.89	3.59	4.94	2.07	5.79

■ Africa
 ■ Americas
 ■ APAC
 ■ Europe
 ■ Middle East

Rank	12-month change	Country/ jurisdiction	Headline Index	Macroeconomic stability	Openness	Human development	Quality of infrastructure	Quality of institutions
91	▼ 3	Peru	4.38	7.35	1.90	5.59	3.43	4.43
92	—	Cabo Verde	4.33	1.38	6.21	4.62	2.86	5.43
93	▼ 8	Sri Lanka	4.31	4.10	1.79	5.10	3.62	4.79
94	▲ 2	Philippines	4.20	7.00	2.84	4.37	3.02	4.82
95	▼ 1	Lebanon	4.20	0.34	7.76	4.53	4.23	4.04
96	▲ 3	India	4.20	4.65	1.13	3.96	3.40	5.25
97	▼ 2	Dominican Republic	4.20	6.66	2.48	4.45	4.01	4.11
98	▲ 6	Iran	4.13	7.02	1.05	5.36	3.11	4.29
99	▼ 1	Fiji	4.11	6.11	6.62	4.82	2.11	4.69
100	▲ 2	Moldova	4.11	6.43	6.51	4.84	3.63	3.51
101	—	Maldives	4.06	4.50	9.19	4.54	2.75	4.11
102	▲ 4	Egypt	4.06	2.58	0.80	4.86	3.87	4.39
103	▼ 6	Ecuador	4.03	6.38	1.11	4.95	4.26	3.46
104	▲ 8	Algeria	4.02	7.77	2.34	4.97	3.00	4.05
105	▲ 2	Ghana	4.01	4.67	5.00	3.08	2.93	5.08
106	▼ 6	Honduras	4.00	6.44	5.73	4.14	3.45	3.83
107	▲ 4	Ukraine	3.99	3.88	5.83	5.18	3.45	3.58
108	▲ 2	Suriname	3.98	4.97	5.11	4.25	3.29	4.11
109	▼ 4	Tajikistan	3.98	5.57	2.23	4.79	3.00	4.32
110	▼ 2	Belize	3.97	3.56	8.05	4.41	2.95	4.06
111	▼ 8	El Salvador	3.94	5.29	2.97	4.35	3.35	4.13
112	▲ 2	Kenya	3.92	5.23	1.04	3.09	3.44	4.88
113	—	Mongolia	3.90	2.11	6.24	4.43	2.95	4.28
114	▼ 5	Guatemala	3.86	7.50	1.68	3.67	3.19	4.26
115	▲ 4	Nicaragua	3.82	7.03	5.55	4.56	3.15	3.33
116	—	Bosnia and Herzegovina	3.77	6.56	4.60	3.56	3.31	3.76
117	▼ 2	Cambodia	3.75	6.59	7.64	3.79	2.85	3.56
118	—	Nepal	3.72	7.29	1.64	4.15	2.51	4.22
119	▼ 2	Tonga	3.70	4.60	4.81	4.27	2.18	4.30
120	—	Kyrgyzstan	3.70	5.55	6.61	4.38	2.57	3.61
121	▲ 3	Bangladesh	3.66	6.77	0.92	3.97	2.91	4.02
122	▼ 1	Paraguay	3.65	7.44	3.84	4.21	2.70	3.60
123	▲ 4	Sao Tome and Principe	3.63	3.86	7.69	3.96	2.22	3.99
124	▼ 2	Laos	3.63	5.11	3.33	3.66	2.53	4.29
125	—	Senegal	3.57	5.26	3.47	2.27	2.58	4.76
126	▲ 3	Kiribati	3.53	6.94	5.74	3.80	1.19	4.45
127	▲ 1	Guyana	3.52	5.61	6.33	3.40	1.75	4.30
128	▼ 5	Zambia	3.49	5.29	4.72	2.84	2.15	4.43
129	▲ 1	Uzbekistan	3.46	8.23	1.26	4.62	2.54	3.24
130	▲ 3	Benin	3.38	5.55	3.15	3.30	2.11	4.12
131	▲ 3	Micronesia	3.37	8.19	4.98	3.11	0.60	4.78
132	—	Vanuatu	3.37	5.89	5.60	3.63	1.77	3.83
133	▲ 12	Swaziland	3.36	6.68	4.79	1.91	2.47	4.15
134	▲ 1	Uganda	3.30	6.58	1.85	3.00	2.10	4.13
135	▲ 4	Tanzania	3.29	6.63	1.30	2.44	2.13	4.43
136	▲ 13	Timor-Leste	3.27	5.52	5.05	4.02	2.13	3.26

■ Africa
 ■ Americas
 ■ APAC
 ■ Europe
 ■ Middle East

Rank	12-month change	Country/ jurisdiction	Headline Index	Macroeconomic stability	Openness	Human development	Quality of infrastructure	Quality of institutions
137	▲ 1	Cameroon	3.26	6.72	1.99	2.87	2.22	3.97
138	▲ 6	Gambia	3.25	2.39	3.03	1.81	2.89	4.37
139	▼ 9	Lesotho	3.25	6.06	6.75	1.75	1.95	4.18
140	▲ 1	Pakistan	3.23	4.74	0.18	2.45	3.03	3.97
141	▼ 5	Bolivia	3.23	5.95	2.46	4.03	2.42	3.19
142	▼ 2	Malawi	3.19	5.52	3.70	3.30	1.37	4.13
143	▼ 17	Cote d'Ivoire	3.17	5.92	2.67	1.60	2.20	4.40
144	▼ 2	Ethiopia	3.12	5.43	0.96	2.77	1.72	4.34
145	▲ 1	Sierra Leone	3.11	5.16	4.07	3.08	2.23	3.42
146	▼ 9	Liberia	3.10	5.58	8.19	1.95	2.03	3.53
147	—	Solomon Islands	3.05	8.14	5.50	2.49	1.69	3.41
148	▲ 2	Mozambique	3.04	3.47	7.56	2.35	1.91	3.61
149	▼ 1	Myanmar	3.00	6.60	1.58	3.66	1.96	3.18
150	▼ 7	Gabon	2.95	4.96	3.45	2.32	1.55	4.00
151	—	Congo	2.95	2.16	9.14	3.21	2.16	2.73
152	▲ 18	Guinea	2.92	6.52	3.22	1.83	1.79	3.82
153	▲ 4	Djibouti	2.89	7.24	6.27	1.91	1.70	3.30
154	—	Venezuela	2.88	6.69	1.91	4.78	2.81	1.63
155	▼ 3	Mali	2.88	6.79	1.74	1.62	2.07	3.77
156	—	Papua New Guinea	2.85	6.65	1.36	3.02	1.52	3.46
157	▼ 2	Burkina Faso	2.83	6.55	2.63	1.71	1.69	3.81
158	▼ 5	Nigeria	2.77	7.45	0.29	1.27	2.24	3.64
159	▲ 4	Comoros	2.75	7.12	2.68	2.50	2.47	2.55
160	▼ 1	Syria	2.72		3.28	3.01	1.90	3.13
161	▼ 3	Madagascar	2.71	6.27	3.56	2.27	1.84	3.03
162	▼ 2	Mauritania	2.70	4.54	6.74	2.15	1.51	3.13
163	▲ 2	Iraq	2.68	5.01	3.07	2.59	2.64	2.42
164	▼ 2	Turkmenistan	2.64	7.45	7.03	2.45	1.65	2.34
165	▼ 4	Togo	2.64	4.14	5.68	3.21	0.84	3.14
166	▼ 2	Zimbabwe	2.57	4.62	2.69	2.64	1.87	2.79
167	▼ 1	Afghanistan	2.50	8.59	2.07	2.49	1.80	2.33
168	▲ 1	Burundi	2.44	5.08	0.95	2.63	1.76	2.73
169	▼ 2	Congo, Dem. Rep	2.43	8.01	2.63	1.85	1.36	2.81
170	▼ 2	Niger	2.38	5.55	2.97	1.65	0.37	3.77
171	▲ 1	Haiti	2.37	7.05	3.23	2.13	2.05	2.03
172	▼ 1	Angola	2.32	4.83	3.17	2.33	1.48	2.52
173	—	Yemen	2.29	3.57	0.34	2.87	2.13	2.20
174	—	Libya	2.25	0.00	5.56	2.75	1.80	2.20
175	—	Chad	2.18	6.40	3.50	1.50	1.42	2.40
176	—	Sudan	1.84	5.78	0.37	2.16	0.95	2.05
177	▲ 1	Guinea-Bissau	1.78	6.40	2.78	1.55	0.91	1.86
178	▼ 1	Equatorial Guinea	1.78	5.49	6.10	1.59	0.36	1.95
179	—	Central African Republic	1.60	6.77	1.62	1.08	0.80	1.83
180	—	Eritrea	1.24	0.80	1.03	2.01	0.00	1.86
181	—	South Sudan	1.03		3.39	1.50	0.40	0.97



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