



## Rapid Growth in Emerging Markets and Developing Economies: Now and Forever?

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With economic growth in advanced economies still lackluster or elusive, much hope for world prosperity rests on projections of continued strength in developing and emerging economies. On average, the economic growth rate in these economies was roughly twice as high—on an unweighted per capita basis—as in the advanced economies during the past decade. According to the forecasts analyzed in this Policy Brief, this superior performance is projected to extend into the next two decades.

Generally, the emerging and developing economies are indeed likely to continue to be a major success story during the next two decades. On the other hand, most forecasts for these countries are overly rosy. This Policy Brief argues that these projections suffer from excessive optimism that is both statistically significant and economically relevant.<sup>1</sup> Moreover, the results show that the bias toward optimism grows as the horizon of the projection grows longer.

1. This Policy Brief draws from Ho and Mauro (2014), where more detailed results and robustness tests are provided. It also extends the analysis of long-run forecasts to a wider range of countries and forecasters.

Projections of economic growth during the next two decades are a crucial if often overlooked factor in economic policy and strategic business choices. Projecting a country's economic growth beyond the next year or so is notoriously difficult. Yet strategic decisions based on mistaken projections can not only damage the bottom line of multinational companies and international investors but can also distort macroeconomic policymaking.

An overestimation of future economic growth by government policymakers, for example, could in turn underestimate the rise in government debt-to-GDP ratios. A higher than expected debt ratio could then produce an unforeseen debt crisis or require an abrupt tightening of fiscal policy, with disruptive consequences. Like increases in debt ratios in advanced economies (Mauro and others, 2013), debt crises in developing and emerging economies (Easterly 2001) have been historically associated with unexpected, long-lasting declines in economic growth rates. Indeed, considering recent history, the increased public debt in advanced economies in the 1970s, the debt crises

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in Latin American and other middle income countries in the 1980s, the highly indebted poor country crises of the 1990s, and the sharp rise in debt ratios for the advanced economies during the global crisis that began in 2007–08, all resulted in part from unexpected growth slowdowns.<sup>2</sup>

Another danger of incorrect forecasts of medium- or long-term growth is that they could lead to inaccurate assessments of the prospective output gap and erroneous central bank mon-

2. The same is true of the failure of several fiscal adjustment attempts, which had to be aborted when economic growth was disappointing compared with expectations. Examples include Japan in 1997, Germany in 1976–79, and several advanced economies such as Japan and the United Kingdom with the onset of the global crisis in 2008. See Mauro (2011).

etary policies. What is misperceived as a temporary slowdown in output, for example, could lead to overly loose monetary policy. Indeed, some have argued that the inflation spike in the United States in the 1970s resulted partly because policymakers did not realize quickly enough that an unexpected decline in the long-run growth rate had shrunk the gap between actual and potential output—and therefore delayed hiking interest rates (Orphanides 2001, 2002).

Scholars increasingly recognize that forecasts of economic growth at horizons of five years and beyond may suffer from a systematic bias toward optimism. Easterly and others (1993) show that the empirical association between past and future growth is weak. This result calls into question the common practice of predicting continued rapid growth for countries that have recently experienced strong growth. Pritchett and Summers (2014) argue that longer term growth forecasts for China and India—where growth has been strong for more than a decade—fail to take into account the “reversion to the mean” effect, whereby exceptional performance tends to dissipate.<sup>3</sup> The evidence suggests further that forecasters have difficulty predicting turning points in the economic cycle (Juhn and Loungani, 2002; Ahir and Loungani, 2014). This Policy Brief goes beyond these findings by considering forecasts for horizons of up to 20 years in more than 100 countries and analyzing how the degree of bias depends on a forecast horizon’s length.

The policymaking community has become increasingly aware of excessive optimism in forecasts. The International Monetary Fund’s (IMF) *World Economic Outlook* (WEO) of October 2014 reported that Brazil, Russia, India, and China (or BRICs)—plus four Middle Eastern economies buffeted by political turmoil—accounted for most of the downward revisions in its forecasts between 2011 and 2014.<sup>4</sup> The WEO said the growth rate projections for the BRICs were lowered after it became clear that future growth had been overestimated based on strong performance before and immediately after the onset of the global crisis. Indeed, the evidence shows that this pattern of miscalculation applies to many other countries as well.

## DOES PAST GROWTH PREDICT FUTURE GROWTH?

Historical experience suggests that past growth is often a poor predictor of future growth. Data on economic growth for 188 countries during 1950–2010 establish the speed at which

3. Galton (1886) first documented this phenomenon by showing that children of tall parents tend to be shorter than their parents. We use the expression “reversion to the mean” to distinguish from the regression analysis undertaken in this paper.

4. See the IMF WEO, October 2014, pp. 39–43 (available at <http://www.imf.org/external/pubs/ft/weo/2014/02/>).

**Table 1 Average per capita income growth rates (percent per year)**

	1970s	1980s	1990s	2000s
Advanced economies	1.6	1.7	2.0	1.5
Emerging-market economies	2.7	1.0	1.9	3.0
Developing economies	2.0	0.7	1.2	3.1

Notes: Advanced economies correspond to the group of “high-income countries” in the World Bank’s classification, emerging-market economies to “middle-income countries,” and developing economies to “low-income countries.” Groups are categorized based on per capita income levels at the beginning of each decade. Averages are based on least-squares growth rates.

Sources: *World Economic Outlook*, International Monetary Fund, and Penn World Tables.

**Table 2 Correlations of growth rates across decades**

	1970s with 1980s	1980s with 1990s	1990s with 2000s
All countries	0.34	0.37	0.24
All countries, excluding fuel exporters <sup>1</sup>	0.43	0.48	0.31
Advanced economies	0.33	0.02	0.24
Emerging-market economies	0.27	0.53	0.36
Developing economies	–0.07	0.13	0.20

1. Using *World Economic Outlook* definition of fuel exporters.

Sources: *World Economic Outlook*, International Monetary Fund, and Penn World Tables.

economic growth “reverts to the mean,” or returns to average growth rates after a period of accelerated expansion. Table 1 indicates average per capita income growth rates for advanced, emerging-market, and low-income economies. Average growth rates did not differ consistently across income groups in recent decades. Without controlling for other factors, the data show no evidence that the developing and emerging economies’ per capita income growth rates are catching up with the advanced economies.<sup>5</sup>

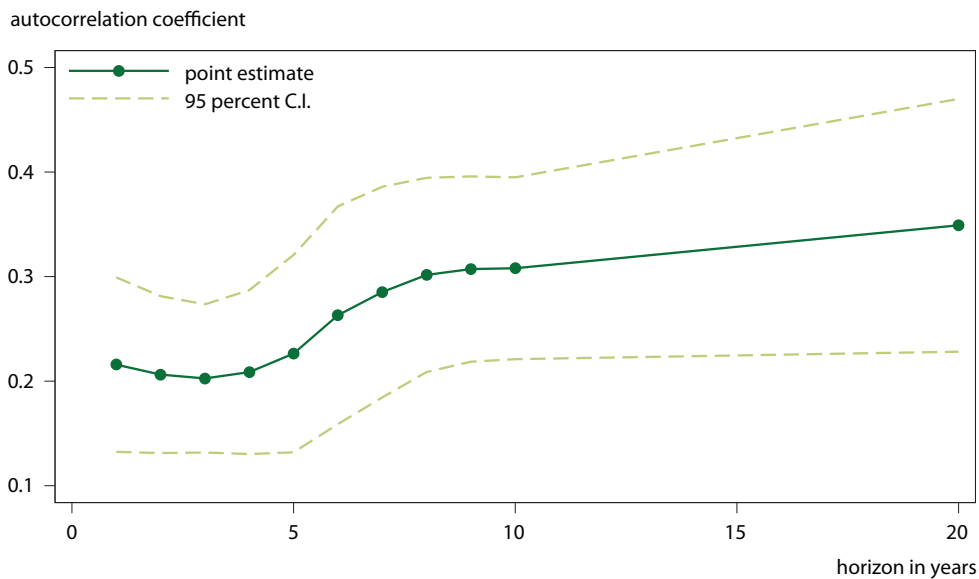
Table 2 shows past growth fails to predict future growth by comparing correlation coefficients between individual countries’ per capita real GDP growth rates in one decade with those experienced during the previous decade. These correlation coefficients are low, ranging between 0 and 0.5, depending on the sample and period under consideration.<sup>6</sup>

The persistence in countries’ growth rates can be estimated more precisely from the autocorrelation coefficient for per capita income growth in panel regressions using data drawn

5. In other words, consistent with Barro (1991), the data do not provide any evidence of so-called “unconditional convergence.”

6. This exercise was first conducted in a well-known study by Easterly and others (1993). Even with our larger sample and two additional decades of data, the results are similar to those found in the original study.

**Figure 1 Persistence of per capita income growth rates, 1950–2010**



C.I. = confidence interval

Notes: Estimation samples use overlapping observations and a Newey-West HAC estimator to correct for autocorrelation in errors.

All point estimates are significant at the 1 percent level.

Sources: Penn World Table 8.0 and authors' calculations.

from the Penn World Tables for 188 countries over 1950–2010 (subject to data availability). Estimates are made for different horizons, from 1 to 20 years. For example, for the 10-year horizon, a country’s average per capita income growth rate in one decade is regressed against its growth rate in the previous decade, controlling for a possible convergence effect whereby poorer countries might grow faster. The autocorrelation coefficient estimates whether the growth rate remains constant from one decade to the next. Results, which are robust to different samples and estimation techniques, show that this coefficient is low, ranging from 0.2 to 0.35 depending on the horizon (figure 1). In other words, the evidence shows growth rates tend to revert to the sample average.

### COMPARING LONG-TERM FORECASTS WITH RECENT DEVELOPMENTS

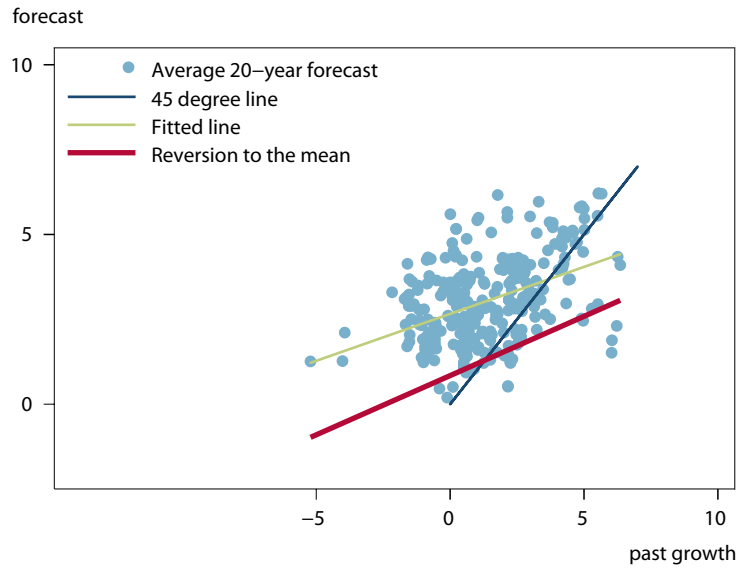
Do economists’ growth forecasts reflect the “reversion to the mean” found in historical data? Comparing long-term growth forecasts (10- or 20-year horizons) against those based on actual growth rates and the empirical findings above, indicates that excessive optimism is not unusual. The analysis focuses on the forecasts prepared by IMF and World Bank teams for the debt sustainability analyses (DSA) conducted for 70 low-income countries eligible for international development assistance (IDA). These projections are useful because of their 20-year horizons developed by individual country teams.

We construct what “reversion to the mean” forecasts would look like using the estimated persistence coefficient at the 20-year horizon (red line in figure 2). This line is then compared to all available 20-year-ahead DSA forecasts, represented by the data points, plotted against average growth rates in the previous 20 years and summarized by the fitted line (green). The fact that the fitted line lies significantly above the “reversion to the mean” line demonstrates that the IMF and World Bank country teams predict better growth performance than the “reversion to the mean” framework. Formal statistical tests reject the joint null hypothesis that the constant and slope coefficient of the line of best fit through the DSA forecasts are the same as for the “reversion to the mean” line.

The extent of the difference can be illustrated by examining the case of an average country in the sample of 70 developing economies—one with a per capita income growth over the previous 20 years at an average rate equal to the (unweighted) mean (1.4 percent). The typical DSA forecast predicts an average growth rate of 3.0 percent in the next 20 years for such a country, compared to only 1.3 percent predicted by the “reversion to mean” model. The bias toward optimism—the extent to which forecasts are overestimated compared with the model—is thus 1.7 percentage points in this example.

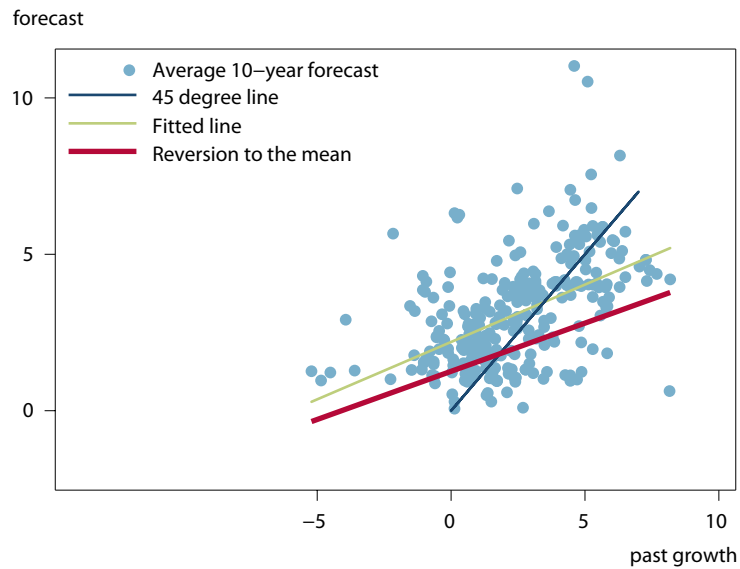
In the case of 10-year forecasts, such overoptimism is less but still significant (figure 3). The green fitted line summarizing the DSA forecasts is again above the red line representing the “reversion to the mean” benchmark. For a country with per

**Figure 2 Forecast versus past per capita growth, 20-year horizon (percent)**



Notes: Excludes top and bottom 1 percentiles to remove outliers. Growth forecasts are converted to per capita terms using UN population projections.  
Sources: IMF *World Economic Outlook*, IMF and World Bank debt sustainability analyses (vintages 2006–13), the United Nations, and authors' calculations.

**Figure 3 Forecast versus past per capita growth, 10-year horizon (percent)**



Notes: Excludes top and bottom 1 percentiles to remove outliers. Growth forecasts are converted to per capita terms using UN population projections.  
Sources: IMF *World Economic Outlook*, IMF and World Bank debt sustainability analyses (vintages 2006–13), the United Nations, and authors' calculations.

capita income growth over the past decade equal on average to the sample mean (2.4 percent), the typical DSA forecast would predict annual growth of 3.1 percent in the next decade. That rate is greater than the 2.0 percent predicted by the model used here, indicating excessive optimism bias adds 1.1 percentage points.<sup>7</sup>

Overestimating the growth rate by 1 percentage point or more has significant implications. Consider a country that, under current policies, would produce a stable government debt-to-GDP ratio equivalent to 50 percent of GDP over the next decade or two. Were growth to be 1 percentage point lower than previously assumed, the debt-to-GDP ratio would rise to more than 70 percent after 10 years and, as deficits become even larger, to more than 120 percent after 20 years.<sup>8</sup> Forecast errors of the magnitude implied by these estimates are large enough to plunge an otherwise stable country into a fiscal crisis.

Overoptimism of a similar magnitude is evident in the forecasts of other professional economists as well: in Consensus Economics' *Consensus Forecasts*, which are an average of the forecasts by selected professionals who follow countries and use a range of methodologies, and also in forecasts by the Organization for Economic Cooperation and Development (OECD), which examines the advanced economies and several emerging-market economies. *Consensus Forecasts* are available for 10-year horizons for the advanced economies and several emerging-market economies, including larger and richer economies in Eastern Europe and Asia, which are more likely to be tracked by financial analysts and international investors.<sup>9</sup> The OECD forecasts are available for even longer horizons (indeed, up to 2060) for the advanced economies and several large emerging economies. They are based on a single sophisticated, well-documented model common to all countries.<sup>10</sup> Thus, they do not benefit from inputs from dedicated individual country

7. The developing economies in our sample experienced far stronger growth, on average, during the most recent decade than in the previous one. Consistent with this observation, the unweighted mean growth in our sample is substantially higher during the past decade than during the past two decades.

8. This illustrative exercise assumes that government fiscal policy is not tightened in response to the decline in economic growth; rather, the automatic stabilizers are allowed to operate fully. The analysis also excludes a possible increase in interest cost of borrowing, which would magnify the effects further. The estimate assumes that a percentage point decline in GDP results in a higher deficit of 0.3 percentage point of GDP, consistent with a revenue-to-GDP ratio of 30 percent, which is not unusual for an emerging-market economy.

9. The appendix tables report the names of countries available from each forecaster (IMF and World Bank teams, *Consensus Forecasts*, OECD, and "reversion to the mean" methods) and the corresponding forecasts (where publicly available and not restricted by copyright).

10. The OECD projections, available at <http://www.oecd.org/eco/outlook/lookingto2060.htm>, are based on a model summarized in Johansson and others (2013).

teams; at the same time, they are less likely to be influenced by subjective factors. Nevertheless, as shown below, the OECD forecasts still result in projections that rely too heavily on recent growth performance.

As is apparent from figures 4 and 5, both *Consensus* and OECD forecasts are also subject to optimism bias. Interestingly, such bias rests with the emerging markets (purple dots), including China and India (cases already emphasized in Pritchett and Summers 2014), whereas the forecasts for the advanced economies (blue dots) are generally closer to the "reversion to the mean" line. The cross-country averages for countries available in both *Consensus* and OECD forecasts are almost identical. How *Consensus* and the OECD analysts view individual countries is also closely correlated. Both sets of forecasts are more optimistic than forecasts produced using the "reversion to the mean" method. However, the tendency toward optimism is less for advanced economies than for emerging markets.

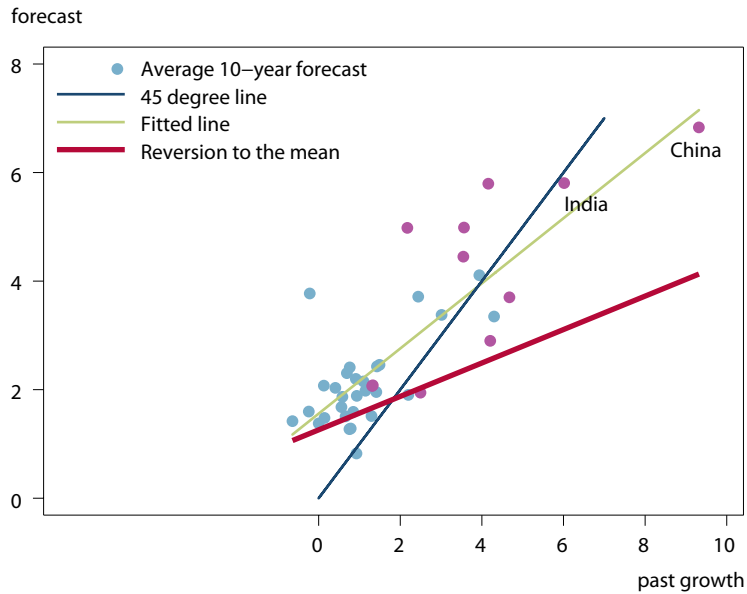
The lower level of optimism for advanced economies compared with the "reversion to the mean" approach is not surprising. Growth in the advanced economies in the last two decades has been similar to the 50-year average for all countries, which is after all the "mean" used in calculating the "reversion to the mean." By contrast, emerging-market economies grew strongly by historical standards in the same period and would thus be more susceptible to overly optimistic forecasts.<sup>11</sup>

## HOW WELL HAVE FORECASTERS DONE IN THE PAST?

The evidence of overly optimistic forecasts based on past growth performance is clear. But what if there are good reasons to expect that the future will be better than the past? The historical 5-year forecasts from the IMF's *World Economic Outlook* database (1990–2012) for 188 countries show that economists were consistently too optimistic. In particular, optimistic forecast errors (defined as forecast minus actual) exist for all time horizons and are larger as the horizon becomes longer (figure 6). This pattern is statistically significant even when country characteristics that may influence those errors are controlled for.

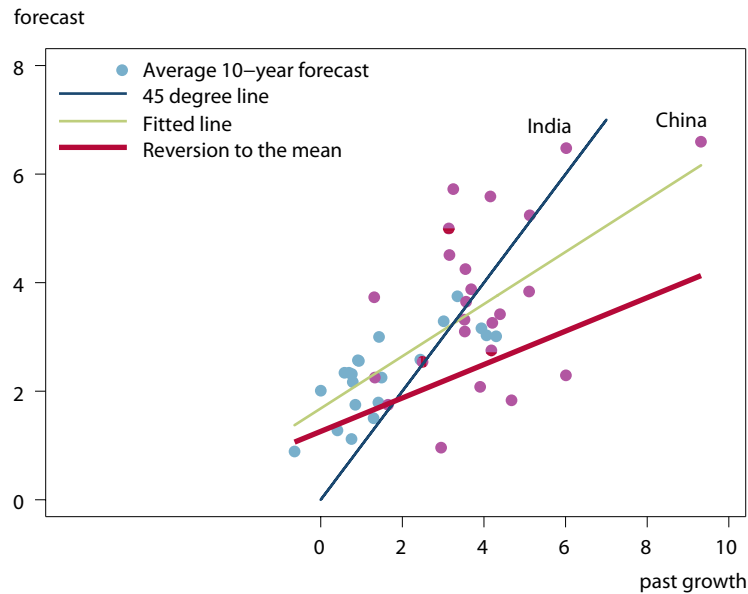
11. Forecasters defending the view that emerging and developing economies will continue to grow faster than advanced economies might at this point invoke convergence, the tendency for countries with lower initial per capita income levels to grow faster than richer economies. However, as documented earlier in this Policy Brief (table 1), there is no evidence of "absolute" convergence in historical data.

**Figure 4 OECD forecast versus past per capita growth, 10-year horizon (percent)**



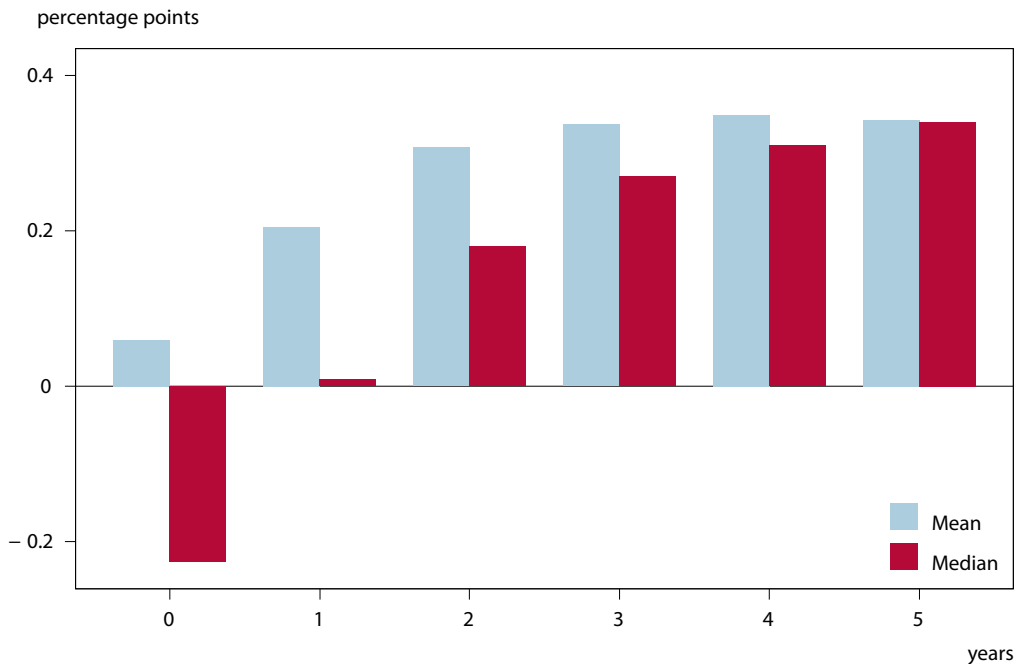
IMF = International Monetary Fund; OECD = Organization for Economic Cooperation and Development  
 Note: Blue markers denote advanced economies; purple denotes emerging markets.  
 Sources: IMF *World Economic Outlook*, OECD, and authors' calculations.

**Figure 5 Consensus Forecasts versus past per capita growth, 10-year horizon (percent)**



Note: Blue markers denote advanced economies; purple denotes emerging markets.  
 Sources: IMF *World Economic Outlook*, *Consensus Forecasts*, and authors' calculations.

**Figure 6 Mean and median forecast error by forecast horizon**



Note: forecast error = forecast – actual, actual as of December 2013.  
 Sources: IMF *World Economic Outlook* (1990–2012 vintages) and authors' calculations.

**WHAT COULD CAUSE OVEROPTIMISM AND WHAT SHOULD BE DONE ABOUT IT?**

Consciously or not, strategic decisions by policymakers, investors, and corporate leaders are based upon views about economic performance in the next decade or two, and excessive optimism can lead to policy errors. In this Policy Brief, we have provided evidence that long-term forecasts often reflect excessive optimism to an even greater extent than near-term forecasts. We have also shown that an adverse shock equal to the size of the optimistic forecast errors would be large enough to pose risks for macroeconomic policy management and debt sustainability, with the potential to plunge a stable country into debt crisis within one or two decades if left unchecked. The bias toward optimism does not depend on the forecaster but on the type of country in question. Overoptimism is currently greater for the emerging and developing economies than for the advanced economies.

For countries that have experienced rapid economic growth in recent years, forecasters overestimate the persistence of rapid economic growth. For countries that have experienced low or negative growth in recent years, overoptimism manifests itself in expectations that growth will not simply revert to the mean but rather will exceed it. One could view this as an asymmetry in the failure to consider reversion to the mean, giving rise to overall optimism.

What are the possible factors underlying such overoptimism? To begin with, optimism is part of human nature, perhaps ingrained by natural selection. For example, Thaler (2000) reports that on the first day of class all MBA students expect that their grades will be above the median. Sharot (2012) shows that most individuals are optimistic in estimating their chances of success in their personal lives; she also presents evidence that optimistic attitudes can lead to greater happiness and better outcomes on average. Optimism can also lead to excessive risk-taking. But some factors appear to apply more specifically to professional economists who prepare and defend their forecasts.

Consider first the case of a country that has been growing rapidly over the past decade. The seminal work of Easterly and others (1993) has shown that the economics profession assumes that institutional quality (actual and perceived), prudence of macroeconomic policies, educational attainment, and other determinants of growth are more persistent than economic growth itself. Faced with a country that has grown above the mean, and that has positive “fundamentals,” forecasters find it hard to assume a lower growth rate in the future than in the past. Forecasters could cite the experience cited here, in effect saying, “We don’t know why, we don’t know when, but economic growth eventually reverts to the international mean.”



But the argument against downgrading the forecast is likely to be powerful.

A country with a history of weak economic growth poses a different challenge. Often such weak growth is attributed to an economic or political crisis or even a war that a forecaster might not want to assume will recur. Forecasts are rarely constructed as a weighted average of scenarios in which there is or is not a war. Usually they assume no overwhelmingly negative shock, even though such shocks have occurred in the past and could happen again, even though no one knows what form they might take. Analysts more likely assume no such shock, because such shocks

**Less optimistic scenarios should be at the forefront of policymakers' and investors' deliberations, because they are probably more realistic than the existing baseline scenarios.**

are by their nature hard to predict or quantify. Forecasters make such assumptions even though such extreme or “tail” events do occur, often imposing major losses on output, and are more likely to recur in countries that have experienced turmoil in the past.<sup>12</sup> Hence the excessive optimism observed with large samples of countries, which will in most cases include some extreme events.

The implications of these findings for policymakers, international investors, and multinational companies are significant. First, those producing and interpreting the forecasts should correct their optimism bias by assigning greater weight to more pessimistic scenarios. Discussion of baseline forecasts should ask the question “Why will this country continue to defy the ‘reversion to the mean’ and keep growing faster than the worldwide average?” rather than the current “Why should this country slow down, given that nothing else has changed?” Moreover, adverse shock or low growth scenarios, which are already routinely

12. For example, a systematic analysis (Becker and Mauro 2006) of various types of shocks likely to affect economic output found that war events (using a standard definition in the literature) occurred in 3 percent of country-years in developing and emerging economies during 1970–2001; 10 to 20 percent of such events resulted in a decline in output for the country in question with a cumulative output loss of 5 percent and a minimum duration of two years; and for such output drops, the median cumulative output loss, depending on the country group and subperiod, amounted to 10 to 200 percent of initial per capita GDP. The same study provides similar estimates for other categories of shocks, including sociopolitical shocks, natural disasters, as well as global and country-specific financial and macroeconomic shocks.

included in the analyses by the IMF, the World Bank, and other institutions, should receive greater consideration. Less optimistic scenarios should be at the forefront of policymakers’ and investors’ deliberations, because they are probably more realistic than the existing baseline scenarios. More generally, as is already commonplace in some multinational companies, forecasters and policymakers should check their strategies in accordance with different scenarios, not just baseline forecasts.

Policymakers in all countries should also redouble their efforts to foster sustainable economic growth in developing and emerging economies—where overoptimism can produce greater downside risks—through greater openness to trade and international labor and capital flows that will ultimately benefit all countries involved. For optimistic scenarios to materialize requires implementing growth-promoting domestic policy measures and international agreements.

## REFERENCES

- Ahir, Hites, and Prakash Loungani. 2014. Fail Again? Fail Better? Forecasts by Economists During the Great Recession. George Washington University Research Program in Forecasting Seminar.
- Barro, Robert J. 1991. Economic Growth in a Cross Section of Countries. *Quarterly Journal of Economics* 106, no. 425: 407–43.
- Becker, Töbörjörn I., and Paolo Mauro. 2006. *Output Drops and the Shocks that Matter*. IMF Working Paper No. 06/172. Washington: International Monetary Fund.
- Easterly, William. 2001. Growth Implosions and Debt Explosions: Do Growth Slowdowns Explain Public Debt Crises? *Contributions to Macroeconomics*, Berkeley Electronic Press 1, no. 1.
- Easterly, William, Michael Kremer, Lant Pritchett, and Lawrence H. Summers. 1993. Good Policy or Good Luck? Country Growth Performance and Temporary Shocks. *Journal of Monetary Economics* 32, no. 3: 459–83.
- Galton, Francis. 1886. Regressions Towards Mediocrity in Hereditary Stature. *Journal of the Anthropological Institute of Great Britain and Ireland* 155: 246–63.
- Ho, Giang, and Paolo Mauro. 2014. *Growth: Now and Forever?* IMF Working Paper 14/117. Washington: International Monetary Fund.
- Johansson, Åsa, Yvan Guillemette, Fabrice Murtin, David Turner, Giuseppe Nicoletti, Christine de la Maisonneuve, Phillip Bagnoli, Guillaume Bousquet, and Francesca Spinelli. 2013. *Long-Term Growth Scenarios*. Economics Department Working Paper No. 1000. Paris: Organization for Economic Cooperation and Development.
- Juhn, Grace, and Prakash Loungani. 2002. Further Cross-Country Evidence on the Accuracy of the Private Sector’s Output Forecasts. *IMF Staff Papers* 49, no. 1: 49–64.
- Mauro, Paolo, ed. 2011. *Chipping Away at Public Debt: Sources of Failure and Keys to Success in Fiscal Adjustment*. Hoboken, NJ: Wiley.



- Mauro, Paolo, Rafael Romeu, Ariel Binder, and Asad Zaman. 2013. *A Modern History of Fiscal Prudence and Profligacy*. IMF Working paper 14/117. Washington: International Monetary Fund.
- Orphanides, Athanasios. 2002. Monetary-Policy Rules and the Great Inflation. *American Economic Review Papers and Proceedings* 92, no. 2: 115–20.
- Orphanides, Athanasios. 2001. Monetary Policy Rules Based on Real-Time Data. *American Economic Review*. 91, no. 4: 964–85.
- Pritchett, Lant, and Lawrence H. Summers. 2014. *Asiaphoria Meets Regression to the Mean*. NBER Working Paper No. 20573. Cambridge, MA: National Bureau of Economic Research.
- Sharot, Tali. 2012. *The Optimism Bias*. New York, NY: Vintage Books.
- Thaler, Richard H. 2000. From Homo Economicus to Homo Sapiens. *Journal of Economic Perspectives* 14, no. 1: 133–41.

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## APPENDIX

The following tables provide the most recent vintage of 10-year forecasts of average annual per capita GDP growth for each country and each forecast source (OECD, IMF and World Bank teams, and “reversion to the mean”).

**Table A.1 OECD, Consensus, and “reversion to the mean” forecasts (annual averages in percent)**

Country	OECD	Consensus	Reversion to the mean
Argentina	n.a.	available	3.11
Australia	2.43	available	1.70
Austria	1.98	n.a.	1.61
Belgium	1.51	n.a.	1.46
Brazil	1.94	available	2.03
Bulgaria	n.a.	available	2.55
Canada	1.29	available	1.50
Chile	4.99	available	2.36
China	6.83	available	4.13
Colombia	n.a.	available	2.23
Croatia	n.a.	available	1.77
Czech Republic	3.71	available	2.01
Denmark	1.48	n.a.	1.31
Estonia	4.11	available	2.47
Finland	2.15	available	1.60
France	2.04	available	1.39
Germany	1.51	available	1.66
Greece	3.77	n.a.	1.19
Hong Kong SAR, China	n.a.	available	2.51
Hungary	2.08	available	1.67
Iceland	0.82	n.a.	1.55
India	5.81	available	3.11
Indonesia	5.80	available	2.54
Ireland	2.08	n.a.	1.30
Israel	1.90	n.a.	1.94
Italy	1.42	available	1.06
Japan	1.27	available	1.49
Korea, Republic of	3.37	available	2.19
Latvia	n.a.	available	2.61
Lithuania	n.a.	available	2.83
Luxembourg	1.68	n.a.	1.43
Malaysia	n.a.	available	2.23
Mexico	2.07	available	1.66
Netherlands	2.31	available	1.47
New Zealand	1.89	available	1.55
Norway	1.87	available	1.44
Peru	n.a.	available	2.84
Philippines	n.a.	available	2.26

(table continues)

**Table A.1 OECD, Consensus, and “reversion to the mean” forecasts** (annual averages in percent) (*continued*)

Country	OECD	Consensus	Reversion to the mean
Poland	2.90	available	2.55
Portugal	1.60	n.a.	1.19
Romania	n.a.	available	2.35
Russian Federation	3.70	available	2.70
Singapore	n.a.	available	2.29
Slovak Republic	3.35	available	2.58
Slovenia	1.96	available	1.70
South Africa	4.98	n.a.	1.93
Spain	1.38	available	1.26
Sweden	2.46	available	1.72
Switzerland	1.59	available	1.52
Taiwan Province of China	n.a.	available	2.35
Thailand	n.a.	available	2.39
Turkey	4.45	available	2.35
Ukraine	n.a.	available	2.46
United Kingdom	2.41	available	1.49
United States	2.20	available	1.54
Venezuela	n.a.	available	2.17

n.a. = not available

OECD = Organization for Economic Cooperation and Development

Notes: The table uses the most recent available vintage as of the time of writing for upcoming 10-year horizons. The table also reports the countries for which *Consensus Forecasts* are available and have been used. The data from this source are proprietary and thus cannot be reproduced in this appendix.

Sources: OECD, *Consensus Forecasts*, and authors' own estimates from panel regressions based on data from Penn World Tables.

**Table A.2 IMF–World Bank and “reversion to the mean” forecasts** (annual averages in percent)

Country	IMF–World Bank	Reversion to the mean	Country	IMF–World Bank	Reversion to the mean
Afghanistan	3.64	2.89	Liberia	3.95	1.22
Armenia	4.37	3.63	Madagascar	0.96	1.42
Bangladesh	5.32	2.74	Malawi	3.00	2.02
Benin	1.94	1.41	Maldives	1.97	2.89
Bhutan	7.55	2.87	Mali	1.21	1.74
Bolivia	2.93	1.99	Mauritania	2.97	1.59
Burkina Faso	3.74	2.22	Moldova	5.11	3.23
Burundi	2.03	1.47	Mongolia	8.16	3.20
Cambodia	5.45	3.12	Mozambique	7.06	2.63
Cameroon	2.59	1.49	Nepal	2.86	1.98
Cape Verde	4.01	2.59	Nicaragua	2.82	1.77
Central African Republic	3.35	1.24	Niger	2.67	1.53
Chad	2.18	2.76	Nigeria	3.99	3.05
Comoros	1.58	1.06	Papua New Guinea	4.20	2.06
Congo, Republic of	2.30	1.77	Rwanda	4.08	2.93
Cote d'Ivoire	4.43	1.25	Samoa	1.70	1.74
Djibouti	4.39	2.10	Sao Tome and Principe	7.11	2.02
Dominica	0.92	2.00	Senegal	2.08	1.66
Eritrea	0.96	-0.24	Sierra Leone	5.01	2.59
Ethiopia	4.27	3.26	Solomon Islands	1.51	2.16
Gambia	3.18	1.40	St. Lucia	1.33	1.49
Georgia	5.72	3.26	St. Vincent and the Grenadines	2.56	1.98
Ghana	3.70	2.64	Sudan	0.58	1.90
Grenada	1.77	1.80	Tajikistan	3.04	2.98
Guinea	6.32	1.30	Tanzania	4.00	2.47
Guinea-Bissau	1.64	1.28	Timor-Leste	2.30	2.24
Guyana	3.65	1.91	Togo	1.97	1.12
Haiti	3.62	1.06	Tonga	0.93	1.45
Honduras	1.18	1.92	Uganda	2.88	2.33
Kenya	3.38	1.82	Vanuatu	1.95	1.78
Kiribati	0.52	1.27	Vietnam	5.86	3.00
Kyrgyz Republic	3.25	2.25	Yemen	1.85	1.22
Lao People's Democratic Republic	5.62	2.94	Zambia	4.07	2.15
Lesotho	3.63	2.22	Zimbabwe	1.22	-0.13

IMF = International Monetary Fund

Note: The table uses the most recent available vintage as of the time of writing for upcoming 10-year horizon.

Sources: IMF–World Bank team forecasts and authors' own estimates from panel regressions based on data from Penn World Tables.