An Analysis of the Forecasting Performance of the World Economic Outlook

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Abstract

We analyze the predictive accuracy of the World Economic Outlook forecasts of GDP growth over the sample 1990-2016. We document how forecasting performance varies with forecast horizons spanning current-year through five-year-ahead forecasts, and how it differs across different regions and economies. We also shed light on some of the key drivers of forecasting performance, including the output gap and terms of trade forecasts. Finally, we compare the accuracy of the World Economic Outlook forecasts to that of forecasts from Consensus Economics as well as forecasts from simple time-series models.

1 Introduction

The accuracy and ranking of economic forecasts can undergo significant change over time and so it is important to regularly review and evaluate economic forecasting performance.[1] Changes to forecasting performance could arise from shifts in the underlying economic environment caused by major supply shocks or financial crises or could reflect the introduction of new monetary or fiscal policies. Changes may also be caused by the introduction of new methodologies used to generate forecasts or by the emergence of new data sets which allow forecasters to better monitor and predict economic outcomes.

This study conducts an analysis of the accuracy of the World Economic Outlook (WEO) forecasts of GDP growth and inflation over the period from 1990 through 2016. WEO forecasts are reported biannually by the IMF and cover forecast horizons from three months (current-year forecasts available in the Fall issue of WEO) to five years. To get a sense of how close the WEO forecasts were to actual GDP growth and inflation outcomes, we compare predictions to outcomes using squared forecast errors as our measure of forecasting performance. We also evaluate the "relative" performance of the WEO forecasts by comparing

[1] See Rossi (2013) for a comprehensive review of how model instability impacts forecasting performance. Aiolfi and Timmermann (2000) find evidence of instability in the ranking of different forecasting methods.

them to forecasts from simple benchmarks such as the historical average or to economic forecasts reported by Consensus Economics.

Previous studies such as Artis (1988, 1997), Barrinuevo (1993), and Timmermann (2007) have also considered the performance of WEO forecasts. Our analysis updates the results reported in these earlier studies and allows us to draw somewhat sharper conclusions on forecasting performance from our access to an extended sample.

The outline of the report is as follows. Section 2 introduces our data set obtained from the WEO publications. Sections 3-6 consider the WEO forecasts of GDP growth. Specifically, Section 3 analyses the predictive accuracy of the WEO forecasts of GDP growth by comparing them to outcomes. We inspect how forecasting performance varies across different horizons (the term structure of forecasting performance) and also consider how predictive accuracy has varied over time. Section 4 conducts tests of bias and efficiency of the WEO forecasts using Mincer-Zarnowitz regressions and tests for serial correlation in forecast errors. Section 5 undertakes a set of regressions that aim at determining the sources of forecast errors, including errors in forecasting US GDP growth, the output gap, as well as errors in WEO predictions of individual countries' terms of trade or their commodity terms of trade. Section 6 compares the performance of the WEO forecasts of GDP growth to a similar set of forecasts produced by Consensus Economics. Sections 7-9 report results for inflation forecasts. In particular, Section 7 presents evidence on the forecasting accuracy of the WEO inflation forecasts and also conducts bias and efficiency tests. Section 8 analyzes possible drivers of errors in the WEO inflation forecasts, while Section 9 compares the accuracy of the WEO inflation forecasts to that of the inflation forecasts reported by Consensus Economics. Section 10 concludes.

2 Data

We start by briefly describing the data and forecasts obtained from the IMF's WEO publications.

2.1 Data and Forecasts of GDP growth and inflation

Twice every year the IMF reports forecasts of individual countries' economic performance in its World Economic Outlook (WEO) publication. The forecasts are reported in April (Spring) and October (Fall), although the forecasts are the result of a process stretching several weeks back in time prior to the publication date. WEO forecasts are reported for the current year as well as for horizons of one through five years. Hence, the forecasts are available for six different yearly horizons running from $h = 0$ to $h = 5$, where $h = 0$ corresponds to forecasts of current-year outcomes. In addition, within each year we have a short (Fall) and a long (Spring) horizon so that we observe forecasts across 12 different horizons.

Current-year fall $(h = 0, F)$ and spring $(h = 0, S)$ forecasts are different from the forecasts that use longer horizons in the sense that part of the year targeted

by these forecasts has been observed at the time the forecast is produced. For example, the current-year Fall forecasts has the advantage that preliminary data for at least half of the current year will have been observed. Hence, the current-year forecasts–particularly those reported in the Fall WEO issue–are really a hybrid of a nowcast and a more traditional forecast. As such, we would naturally expect current-year forecasts to be notably more accurate than the longer-term forecasts.

We use a data set on forecasts and actual values that goes back to 1990 and ends in 2016, giving us a sample of 27 yearly observations for the shortest current-year forecast horizon and 22 observations for the longest five-year horizon for which the earliest forecast is reported for 1995.

Both real GDP growth and consumer price inflation (CPI) data are subject to revisions and so a choice has to be made on how to measure the outcome or "actual" value against which the forecasts are being compared. We follow the convention of using the actual value for year t reported in the following year's $(t+1)$ Fall issue of the WEO.[2]

2.2 Groups of economies

We analyze forecasting performance both for different categories of economies as reported by the IMF as well as for individual countries in an appendix. The main categories or economic groups (denoted by $\mathcal{G}$) used in our study (along with the abbreviations used in the tables) are

1. The world, i.e., all countries in the sample (world);
2. Advanced economies (ae);
3. G7 economies (G7);
4. Emerging market and developing economics (emde);
5. Emerging market and developing economies: low income developing countries (lics);
6. Emerging and developing Europe (eeur);
7. Emerging and Developing Asia (dasia);
8. Latin America and the Caribbean (lac);
9. Middle East, North Africa, Afghanistan, and Pakistan (menap);
10. Commonwealth of Independent States (cis);
11. Sub-Sahara Africa (ssa).

[2] An alternative would be to use the revised data from the latest data vintage available at the end of our sample, but this practice would reduce our ability to conduct a real-time assessment of forecasting performance.

12. Fuel exporters

13. Program countries

In separate Appendix tables we also report results for forecasting performance at the level of individual countries.

2.3 Forecasting instruments

Our analysis of the sources of WEO forecast errors for real GDP growth and inflation uses WEO forecasts of the output gap for many of the economies in our sample. Once again, we have separate forecasts from the Spring and Fall WEO issues and forecasts covering horizons from $h = 0$ (current-year) through $h = 5$ (five-years ahead) which yields a total of 12 forecast horizons. The earliest observations for the current-year forecasts start in 1994, with forecasts for the longer-horizons beginning in $1994+h$, i.e., in 1999 for the five-year-ahead forecasts.

We also use forecasts of the terms of trade and commodity terms of trade. The forecasts of terms of trade are based on projections of import and export prices, while the commodity terms of trade is calculated using a basket of 40 commodities. This data set runs from 2003 to 2016 and so covers a sample that is notably shorter than that covered by the other variables.

3 Forecasting performance

This section reports measures of predictive accuracy for the WEO forecasts. We analyze forecasting performance across different horizons and also shed light on how forecasting performance has evolved through time.

3.1 Measures of predictive accuracy

A natural starting point for an assessment of the performance of the WEO forecasts is to analyze how accurate the forecasts were compared to the outcome or "actual" value. To this end, we use the most common measure of predictive accuracy, namely the root mean squared forecast error (RMSE).

To explain how the RMSE is computed, let y_{it} denote the outcome for country i in year t, e.g., GDP growth in country i in year t. Similarly, let $\hat{y}_{it|t-h}$ be the forecast of y_{it} produced at time $t-h$, where $h \in \{0, 1, 2, 3, 4, 5\}$ is the forecast horizon measured in years.[3] We define the h-step-ahead forecast error for country i as the difference between the outcome and the h-step-ahead forecast:

$$e_{it|t-h} = y_{it} - \hat{y}_{it|t-h}. \tag{1}$$

[3] For now, we ignore that the WEO forecasts are generated in the spring and fall which means that the forecast horizon effectively involves a fraction of a year.

For a sample of T observations $t = 1, ..., T$ and a forecast horizon of h, the RMSE for country i is computed as

$$RMSE_{i,h} = (T - h + 1)^{-1} \sum_{t=h}^{T} e^2_{it|t-h}. \tag{2}$$

Our main analysis focuses on forecasting performance for the 11 groups of economies listed in Section 2 and so we next explain how we aggregate across the individual countries to obtain results for the group level, $\mathcal{G}$. To this end, define $\omega_{i,\mathcal{G},t}$ as the weight of country i in group $\mathcal{G}$ at time t. The GDP-weighted outcome for group $\mathcal{G}$ in year t is computed as

$$y_{\mathcal{G},t} = \sum_{i \in \mathcal{G}} \omega_{i,\mathcal{G},t} y_{it}. \tag{3}$$

Similarly, the GDP-weighted forecast for group $\mathcal{G}$ is computed as[4]

$$\hat{y}_{\mathcal{G},t|t-h} = \sum_{i \in \mathcal{G}} \omega_{i,\mathcal{G},t} \hat{y}_{it|t-h}. \tag{4}$$

The h-step-ahead forecast errors for group $\mathcal{G}$ are computed as $e_{\mathcal{G},t|t-h} = y_{\mathcal{G},t} - \hat{y}_{\mathcal{G},t|t-h}$ while the associated mean squared error (MSE) values are given by $MSE_{\mathcal{G},h} = (T-h)^{-1} \sum_{t=h}^{T} e^2_{\mathcal{G},t|t-h}$.

The weight for country i in group $\mathcal{G}$ at time t are computed from a three-year trailing average of the GDP in that country. In particular, let $\overline{GDP}_{i,t} = \frac{1}{3}\left[GDP_{i,t-1} + GDP_{i,t-2} + GDP_{i,t-3}\right]$ be the average dollar-denominated GDP of country i over the three-year period preceding year t. The weight on country i in group $\mathcal{G}$ in year t is then computed as

$$\omega_{i,\mathcal{G},t} = \frac{\overline{GDP}_{i,t}}{\sum_{j \in \mathcal{G}} \overline{GDP}_{j,t}}. \tag{5}$$

3.2 Term structure of GDP growth forecast errors

Table 1 presents RMSE-values for the world economy ("World", in the top row) and the 10 economic groups considered in this study (rows 2-11). To be able to directly compare RMSE-values across the different horizons in Table 1, we modify equation (2) so that the sample used to compute forecasting performance is the same, namely 1995-2016:

$$\widetilde{MSE}_{\mathcal{G},h} = \frac{1}{22} \sum_{t=1995}^{2016} e^2_{\mathcal{G},t|t-h}. \tag{6}$$

Starting from the second column and moving from left to right in the table, we show root mean squared forecast errors (RMSE) in decreasing order of length

[4] In practice, the weight $\omega_{i,\mathcal{G},t}$ also depends on the forecast horizon, h, but we ignore this in the notations used throughout the analysis.

of the forecast horizon, namely current-year Fall ($h = 0, F$), current-year Spring ($h = 0, S$), next-year Fall ($h = 1, F$), and next-year Spring ($h = 1, S$) forecasts, followed by the 2-, 3-, 4-, and 5-year forecasts, all taken from the Fall WEO reports.

First, consider the accuracy of the forecasts compared for different groups of countries, i.e., across the different rows in Table 1. We see that the forecasts tend to be least accurate, corresponding to higher RMSE values, for the Commonwealth of Independent States followed by Latin America and the Caribbean, emerging and developing economies in Asia and Europe, fuel exporting economies and program countries. Conversely, the forecasts are more accurate, on average, for the advanced and G7 economies, as one might expect, but also, more surprisingly, for Sub-Sahara Africa and for low income developing countries.

Next, consider how the predictive accuracy depends on the forecast horizon. Starting with the world economy (top row), the RMSE increases from 0.30 and 0.54 at the two shortest (current-year) forecast horizons to 1.24 and 1.51 for the Fall and Spring forecasts at the one-year horizons, before stabilizing around 1.60 for the 2-5 year horizons. More broadly, the evidence allows us to draw a number of conclusions regarding the WEO forecasts of World GDP growth:

1. Current-year forecasts of world GDP growth ($h = 0, S$ and $h = 0, F$) are notably more accurate than forecasts that use a longer horizon; An obvious explanation for the notably higher predictive accuracy observed at the two shortest forecast horizons is that concurrent indicators for the outcome in the target year (the year being predicted) such as industrial production or payroll and employment reports, are observed by the IMF. For the current-year Fall forecast in particular, preliminary values of GDP growth will have been observed for a good part of the year. This should, almost mechanically, improve forecast accuracy.

2. One-year-ahead world GDP growth forecasts reported in the fall of the previous year are also more accurate–on the order of a 10-20% reduction in the RMSE–than the forecasts that use the longer 2-5 year horizons;

3. There is little evidence of improvements in the predictive accuracy of world GDP growth between the spring WEO issue of the previous year ($h = 1, S$) and the WEO forecast generated up to five years previously. This suggests that there is a limit to how far ahead in time the WEO forecasts can be used to produce more accurate forecasts of global economic growth than the long-run average forecast.

For the advanced economies and G7 countries, we continue to see notably greater precision for the current-year Spring and Fall forecasts and, to a lesser extent, next-year forecasts produced in the Fall and Spring WEO issues. Again, this is followed by a marked flattening of the term structure of forecast errors at the longer 2-5 year horizons.

Conversely, the RMSE values increase steadily in the forecast horizon for emerging market and developing economies, emerging and developing Asia and the Latin American and Caribbean economies. Finally, we actually observe a decline in RMSE values at the longest horizons ($h = 4, F$ or $h = 5, F$) for low income developing countries, Commonwealth of Independent States and for Sub-Sahara Africa.

To explore in more detail how the accuracy of the WEO forecasts changes as a function of the forecast horizon we calculate, for each country i, the ratio of the $RMSE$ value for a given forecast horizon h_L relative to the $RMSE$ value for the closest, but shorter, forecast horizon $h_S < h_L$. Using data on the five shortest horizons, this produces four $RMSE$ ratios, namely

$$\begin{aligned}
\Delta RMSE_{h=0,F\rightarrow h=0,S} &= \frac{RMSE_i(h=0,S) - RMSE_i(h=0,F)}{RMSE_i(h=0,F)}, \quad (7)\\
\Delta RMSE_{h=0,S\rightarrow h=1,F} &= \frac{RMSE_i(h=1,F) - RMSE_i(h=0,S)}{RMSE_i(h=0,S)},\\
\Delta RMSE_{h=1,F\rightarrow h=1,S} &= \frac{RMSE_i(h=1,S) - RMSE_i(h=1,F)}{RMSE_i(h=1,F)},\\
\Delta RMSE_{h=1,S\rightarrow h=2,F} &= \frac{RMSE_i(h=2,F) - RMSE_i(h=1,S)}{RMSE_i(h=1,S)}.
\end{aligned}$$

If predictive accuracy does not improve across two adjacent forecast horizons, this measure is expected to equal zero. In contrast, the larger this ratio is, the greater the improvement in predictive accuracy from a given WEO issue relative to the next one, keeping the target date fixed. Moreover, the amount by which the ratios in (7) exceed zero can be used as a gauge of the magnitude of the forecast improvement as the target date draws closer and the forecast horizon shrinks.

Figure 1 plots histograms of the RMSE ratios computed over the sample 1990-2016 for the individual countries in our data set.[5] The figure shows clear evidence of large improvements, sometimes over 100%, in predictive accuracy as we move from current-year Spring WEO forecasts ($h = 0, S$) to current-year Fall WEO forecasts ($h = 0, F$, top left corner) and from the prior-year Fall WEO forecasts ($h = 1, F$) to the current-year Spring WEO forecasts ($h = 0, S$, top right corner).

Smaller gains, and in some cases large losses, in predictive accuracy are observed for the one-year-ahead forecasts ($h = 1, S$ versus $h = 1, F$ or $h = 1, S$ versus $h = 2, F$), although we note that there continues to be substantial gains in predictive accuracy for many countries even at these longer forecast horizons.

3.2.1 Do forecasts get more accurate as the forecast horizon shrinks?

To formally test if the apparent improvements in predictive accuracy at longer horizons observed for some groups is simply due to random sampling error, we

[5] To make the scale of the figure easier to interpret, Figure 1 is constructed after trimming 3% of the outlier ratios.

compute the monotonicity test proposed by Patton and Timmermann (2012). This is a test for a monotonic rise in MSE values as the forecast horizon grows. In particular, we test the null that

$$H_0 : E[e^2_{0,F}] \leq E[e^2_{0,S}] \leq E[e^2_{1,F}] \leq E[e^2_{1,S}] \leq E[e^2_{2,F}] \leq .... \leq E[e^2_{5,F}],$$

against the alternative that at least one of these inequalities is violated so that there exists a pair of forecast horizons, $h_S < h_L$, for which $E[e^2_S] > E[e^2_L]$.

The right-most column in Table 1 reports the $p-$value for this test with low p-values indicating a rejection of the null.[6] The null is rejected at the 10% level only for one group, namely Sub-Sahara Africa (p-value of 0.06). For this region, the RMSE values increase up to $h = 2, F$ but decline monotonically at longer horizons. This suggests that, on average, the five-year forecasts were in fact more accurate than the one-year forecasts generated in the spring of the preceding year.

These findings continue to hold for the individual countries in our sample. An Appendix table (Table A1) shows that there are only two handfuls of countries, including only one developed economy (Switzerland) for which the null of a monotonically increasing term structure of squared forecast errors is rejected for the GDP growth data.

3.3 Time variation in forecasting performance

Table 1 reports RMSE values for the full 22-year sample from 1995 to 2016, but it is also important to study how the predictive accuracy might have varied over this long span of time. To this end, Panel I of Table 2 reports RMSE values that were calculated for two sub-samples, 1990-2003 and 2004-2016.[7] The first subsample, 1990-2003, coincides with the sample studied by Timmermann (2007) and represents roughly half of the full sample. Comparing the predictive accuracy across the two subsamples allows us to determine if the WEO forecasts have become more or less accurate relative to the outcome in an *absolute* sense.

Because the volatility of the GDP growth rate series cannot be expected to be the same in the two subsamples, our findings should not necessarily be interpreted as evidence that the WEO forecasts have become better or worse over time. In particular, the second subsample includes the Global Financial Crisis–a period during which economic forecasting became particularly challenging.

For the World as a whole, at 0.29 versus 0.31 ($h = 0, F$) and 0.41 versus 0.60 ($h = 0, S$), the RMSE values are a bit lower for the current-year forecasts in the second subsample, 2004-2016, than in the first subsample, 1990-2003. In fact, we observe marked improvements in current-year forecast accuracy for most, though not all, of the economic groups. Large improvements are observed for low

[6] Here and in subsequent tables, three stars imply a p-value below 0.01, two stars imply a p-value below 0.05, while one star implies a p-value below 0.10.

[7] Note that the first sample only begins in 1990 for the shortest forecast horizon, $h = 0$. For the longer forecast horizons, $h \geq 1$, the forecast evaluation period begins in the year $1990+h$ and so the first sub-sample is a bit shorter for these horizons. Moreover, the forecast errors are serially correlated for $h \geq 2$ due overlapping sample periods.

income developing countries, emerging and developing Europe, Latin America and the Caribbean, Commonwealth of Independent States, Middle East, North Africa, Afghanistan, and Pakistan, Sub-Saharan Africa and fuel exporters. This is a notable finding given that the global financial crisis is included in the second subsample and so indicates improvements in the IMF's short-term forecasting capabilities in the second subsample compared to the earlier one.

Conversely, next-year forecasts ($h = 1, F$ and $h = 1, S$) for the world as a whole have become *less* accurate in the second subsample compared to the first subsample. To a large extent, this finding seems to be driven by the advanced and emerging market and developing economies as the predictive accuracy of the one-year-ahead forecasts is better in the second subsample than in the first subsample for many of the other economies. For example, the RMSE values in the second subsample (2004-2016) are smaller than in the first subsample (1990-2003) across all four forecast horizons for the low income developing countries, emerging and developing Europe and Asia, Latin American and the Caribbean, Commonwealth of Independent States, and Sub-Saharan Africa. These findings indicate that the larger next-year forecast errors observed for the world economy in the second subsample reflect the impact of the global financial crisis whose economic effect was felt most severely by the advanced economies while it had a heterogeneous effect on many other economies in our sample.

Table 3 performs the same exercise as in Table 2, but excludes 2009 in order to see the impact of this year on the subsample results. Excluding this year from the sample has a large effect on the RMSE values in the second sub-sample (2004-2016, excluding 2009) and we now see that the one-year-ahead forecasts in the second sub-sample are more accurate (produce lower RMSE values) in all cases than the corresponding forecasts in the first sub-sample. With few exceptions, the same holds at the two longest horizons reported here ($h = 2, F$ and $h = 5, F$).

3.3.1 Has predictive accuracy changed through time? Formal tests

To formally test whether the root mean squared error of the GDP forecasts has changed across the two subsamples, we conduct a simple bootstrap permutation test. Consider the case where $h = 0$ (current-year forecasts). For each group of economies we randomly sample, without replacement, 14 forecast errors from the 27 individual years $\left\{e_{t|t-h}\right\}_{t=1990}^{2016}$ and compute the associated RMSE value, labeled $RMSE_I^b$. The remaining 13 forecast errors are used to compute $RMSE_{II}^b$, where b refers to the bootstrap number. We then compute the difference in RMSE values, $\Delta RMSE^b = RMSE_I^b - RMSE_{II}^b$ and calculate, across 10,000 bootstraps, the proportion of bootstraps for which $\Delta RMSE^b$ is as large as the RMSE-differential observed in the actual data,

$\Delta RMSE^{data} = RMSE_I^{data} - RMSE_{II}^{data}$, where (for $h = 0$)

$$RMSE_I^{data} = \sqrt{\frac{1}{14}\sum_{t=1990}^{2003} e_{t|t-h}^2},$$

$$RMSE_{II}^{data} = \sqrt{\frac{1}{13}\sum_{t=2004}^{2016} e_{t|t-h}^2}.$$

Panel II in Table 2 shows the outcome of this test. In each case the top line reports $\Delta RMSE$ for the data with positive values indicating that $RMSE$ has come down between the first and the second subsample and negative values suggesting the opposite. There are no instances with significantly negative values of $\Delta RMSE$–in other words, there are no instances in which RMSE-values significantly increased between the first and second subsamples. In contrast, there are a number of instances in which we see significant improvements in predictive accuracy, notably for current-year Fall forecasts for emerging and developing Europe, Latin America and the Caribbean, Commonwealth of Independent states, and fuel exporting economies. We also see significant improvements in current-year Spring forecasts for the world, G7 and advanced economies, emerging and developing Europe, Latin America and the Caribbean, Commonwealth of Independent States, Middle East, North Africa, Afghanistan and Pakistan, Sub-Sahara Africa, and for fuel exporting countries. Moreover, we find significant improvements in RMSE accuracy at the one-year forecast horizon for low income developing countries and Sub-Sahara Africa (Spring).

In sum, we find evidence of small but notable improvements in the predictive accuracy of the WEO short-term GDP growth forecasts for a number of economic groups between 1990-2003 and 2004-2016.

This conclusion is further reinforced by the tests reported in Panel II in Table 3 based on the subsample comparison that excludes 2009. We observe many instances with significant reductions in RMSE values between the first and second subsample (excluding 2009). Notably, the forecasts for emerging and developing Europe and for Commonwealth of Independent states improve by more than two and three percent per year, respectively, at many of the forecast horizons. Moreover, we do not observe a single instance in which the predictive accuracy is significantly worse in the second subsample compared to the first.

3.3.2 Tracking forecasting performance in individual years

To further illustrate how the accuracy of the WEO forecasts evolves during the sample and see how it changes in individual years, we can compare them to forecasts generated using a simple benchmark such as the historical average for a group of economies, $\mathcal{G}$, $\overline{y}_{\mathcal{G},t|t-h} = (t - \max(h,1))^{-1} \sum_{\tau=1}^{t-\max(h,1)} y_{\mathcal{G},\tau}$, computed

using data available $\max(h,1)$ years prior to the outcome.[8] We can then inspect the cumulative sum of squared error difference for such benchmark forecasts relative to the WEO forecasts. In particular, define the h-year-ahead forecast error from the historical average for group $\mathcal{G}$ at time τ as $e^{bmk}_{\mathcal{G},\tau|\tau-h} = y_{\mathcal{G},\tau} - \bar{y}_{\mathcal{G},\tau,\tau-h}$ and let the corresponding WEO forecast error be denoted $e^{WEO}_{\mathcal{G},\tau|\tau-h}$. Then the cumulative sum of squared error differential for group $\mathcal{G}$ at time t, $CSSED_{\mathcal{G},t,h}$, is given by

$$CSSED_{\mathcal{G},t,h} = \sum_{\tau=1990}^{t} \left(e^{bmk}_{\mathcal{G},\tau|\tau-h}\right)^2 - \left(e^{WEO}_{\mathcal{G},\tau|\tau-h}\right)^2. \tag{8}$$

Positive and rising values of this measure indicate that the squared forecast errors from the benchmark on average (in the sample period up to time t) exceed the squared WEO forecast errors and thus that the WEO forecasts were more accurate. Negative and declining values lead to the opposite conclusion.

Figure 2 graphs the $CSSED$ measure in (8) for world economy using the four shortest forecast horizons. For the current-year forecasts ($h = 0, S$ and $h = 0, F$) the WEO forecasts beat the benchmark historical average by a wide margin both on a cumulative basis as well as nearly every year. This can be explained by the informational advantage possessed by the current-year forecasts compared to the recursively computed historical mean estimate.

In contrast, at the one-year forecast horizon, the Spring WEO forecasts ($h = 1, S$) were less accurate than the historical average in most years and also on average as the $CSSED$ graph trends downwards in most years, an exception being the subsample from 2004-2009. While the one-year-ahead Fall WEO forecasts ($h = 1, F$) were slightly more accurate on average than the historical mean, this is entirely due to a period from 2003 to 2009 with relatively more accurate forecasts, whereas the WEO forecasts were less accurate than the historical mean in most years in the early part of the sample. After 2010, the one-year-ahead Fall WEO forecasts and the historical average are about equally accurate.

For the advanced economies (Figure 3), the current-year forecasts are again clearly more accurate than the historical mean for almost all years in the sample. The greater accuracy of the WEO current-year forecasts is particularly pronounced in 2009. The one-year-ahead forecast from the Fall WEO ($h = 1, F$) trails the predictive accuracy of the historical mean up to 2008, only for the WEO forecasts to be far more accurate in 2009. While the one-year-ahead spring forecast ($h = 1, S$) also is notably more accurate than the historical mean in 2009, the reverse is true the following year (2010) and for most of the remaining years in the sample. Overall, across the full sample, the one-year-ahead WEO Spring forecast on average underperforms the historical average in terms of MSE performance. In general, although the one-year-ahead WEO

[8] We use a lag of $\max(h,1)$ so as to avoid using the contemporaneous value of the outcome variable for current-year forecasts ($h = 0$) and to make sure that h-period forecasts do not use values of the actual GDP growth recorded for future years.

forecasts of GDP growth for the advanced economies fared very well in 2009, they were less accurate than the historical average forecast in most years.

3.4 Theil U-statistics

RMSE-values such as those in Tables 1 and 2 are estimates of "absolute" forecast accuracy and show by how many units (e.g., percentage points of GDP) the forecast on average differed from the outcome over some sample period. They do not, however, put this forecasting performance in the context of how difficult it was to predict the outcome in the first place. This is relevant because we would expect it to be easier to predict GDP growth for more stable, developed economies than for emerging markets with less predictable output growth.

One way to address this issue is by scaling the MSE of the WEO forecasts by the variance of the predicted variable. The variance is traditionally computed around the sample mean. However, this would not have been available in real time, so instead we compare the outcome to the recursively updated historical average (prevailing mean) $\bar{y}_{\mathcal{G},t|t-h} = (t - \max(h,1))^{-1} \sum_{\tau=1}^{t-\max(h,1)} y_{\mathcal{G}\tau}$. Moreover, following common practice we use the Theil U-statistic to report the relative accuracy of the WEO forecast and the historical mean as the ratio of the associated MSE-values:

$$U_{\mathcal{G},t,h} = \frac{\sum_{t=1990+h}^{2016} (y_{\mathcal{G}t} - \hat{y}^{WEO}_{\mathcal{G},t|t-h})^2}{\sum_{t=1990+h}^{2016} (y_{\mathcal{G}t} - \bar{y}_{\mathcal{G},t|t-h})^2}. \tag{9}$$

Values of $U_{\mathcal{G},t,h}$ in (9) show the proportion of the variance of the outcome that was predicted at a given horizon, with the modification that the variance estimate in the denominator is computed using a recursively updated mean estimate. Smaller values indicate that the WEO forecasts are relatively more accurate than the historical average, with values below unity suggesting that the WEO forecasts are better, while values above unity suggest that the historical average is more accurate than the WEO forecast.

Table 4 reports values of the Theil U-statistic computed over the sample 1990-2016 or the longest subsample available at a given forecast horizon.[9] At the shortest forecast horizon ($h = 0, F$), these values are very small–below 0.32 for all groups of economies and around 0.05 for the world as a whole as well as for the advanced and G7 economies. The Theil U-statistic rises to lie in a range between 0.13 and 0.82 for $h = 0, S$. This evidence is consistent with the WEO forecast incorporating valuable information during the current year that facilitates more accurate forecasting than simply using the historical average.

As the forecast horizon expands, we see a clear deterioration in the ability of the WEO forecasts to dominate the historical average. At the one-year horizon for the World economy, the Theil U-statistic is 0.87 ($h = 1, F$) and 1.27 ($h = 1, S$), suggesting that the prevailing mean forecast dominates the one-year-ahead forecast from the WEO Spring issue, whereas the opposite holds for the one-year-ahead Fall WEO issue. A similar ranking holds for most of the individual

[9] Recall that the earliest year covered by forecasts at horizon h is $1990 + h$.

economic groups. At longer forecast horizons, the U-statistic averages 1.4 for the world and also exceeds unity for advanced economies, G7 countries, emerging and developing Asia, Latin America and the Caribbean, Middle East, North Africa, Afghanistan, and Pakistan, and for Program countries.

Although the WEO forecasts of GDP growth continue to be more accurate than the historical average forecast at the longer horizons for developing and emerging Europe, Commonwealth of Independent States, Sub-Sahara Africa and for fuel exporters, we conclude that the WEO GDP growth forecasts fail to be more accurate than a simple historical average at the longer horizons for a majority of economies.

4 Bias and Efficiency Tests

To better understand the performance results in Tables 1-4, we next conduct a set of classical tests for biases and efficiency of the WEO forecasts of GDP growth.

4.1 Biases in the forecasts

For each group of economies, $\mathcal{G}$, the bias over some sample $[t_0; t_1]$ can be computed as the mean of the forecast error, i.e.,

$$bias_{\mathcal{G},t_0::t_1} = \frac{1}{t_1 - t_0 + 1} \sum_{t=t_0}^{t_1} e_{\mathcal{G},t|t-h}. \tag{10}$$

The closer to zero is the bias, the better, assuming a symmetric loss function such as squared forecast errors.

Table 5 reports the bias for the two sub-samples, 1990-2003 and 2004-2016, as well as for the full sample, 1990-2016. Panel I shows results for the two shortest (current-year) forecast horizons ($h = 0, F$ and $h = 0, S$) while Panel II presents results for the next-year forecasts ($h = 1, F$ and $h = 1, S$) and Panel III covers the longer 2-5 year forecast horizons. We evaluate the statistical significance of the bias using a two-sided test with heteroskedasticity and autocorrelation consistent standard errors to compute p-values.[10]

First consider the short-term (current-year) forecasts (Panel I). For the world as a whole, in the full sample we observe no bias in current-year forecasts for the Fall WEO and a slight negative bias (-0.05) in the Spring WEO forecast. None of these values is statistically significant, indicating no systematic bias in current-year forecasts of world GDP growth. Similar values are obtained for the two subsamples. Biases on the order of a few hundredths of one percent are economically small compared to the variation in the outcome variable.

[10] Here and elsewhere in the paper, we use Newey-West heteroskedasticity and autocorrelation consistent (hac) standard errors to compute t-statistics. We set the truncation of the Bartlett window equal to $\max(h-1, 1)$ where h is the forecast horizon.

Modest biases are also observed at the short horizons for the advanced and G7 economies with exception of the current-year spring G7 forecast during the most recent sample, 2004-2016.

Much larger and statistically significant biases are seen in the first subsample for low income developing countries and for the sub-Sahara Africa region. For the former, we find large negative and statistically significant biases of -0.45 ($h = 0, F$) and -1.07 ($h = 0, S$), while for the latter the biases amount to -0.61 ($h = 0, F$) and -1.34 ($h = 0, S$), indicating large overpredictions of GDP growth for these economies. In the early subsample, current-year forecasts are also significantly downward based for emerging and developing Asia and for fuel exporters ($h = 0, F$).

Biases are generally smaller in magnitude and, with a few exceptions, statistically insignificant in the second subsample, 2004-2016. This is consistent with the finding in Table 3 that current-year forecasts have become more accurate over time and suggests that, at least for some economies, this is related to a reduction in forecast bias. Interestingly, at the level of the individual countries (Appendix Table A4), the proportion of significant tests for a non-zero bias in the current-year forecasts is quite stable across the two sub-samples. For the $h = 0, F$ and $h = 0, S$ horizons, the rejection rates for a two-sided test conducted at the 5% level equal 0.16 and 0.20, respectively, for the 1990-2003 subsample, while these rejection rates are 0.21 and 0.19 in the 2004-2016 sub-sample.

Turning to the one-year forecast horizon (Panel II), we find evidence of larger biases in the forecasts. For example, for the world economy we now see pronounced and significant evidence of overpredictions of output growth with a bias of -0.65 for the $h = 1, S$ forecasts in the full sample (1990-2016). The magnitude of the one-year bias is notably larger than its current-year counterpart (-0.65 vs. -0.04). A similar bias in the one-year-ahead Spring forecast is seen among the G7 and Advanced Economies. For all three cases, the direction of the bias is the same (negative, indicating overpredictions) and the magnitude of the bias is very similar across the two sub-samples. With a few exceptions, findings of a significant bias in the short-term GDP forecasts are confined to the countries outside the group of advanced economies.

Continuing with the one-year forecast horizons, in the 1990-2016 sample we see large negative and significant biases (overprediction of GDP growth) for most of the economies, including the world economy, G7 and advanced economies, low income developing countries, Latin American and the Caribbean, sub-Sahara African economies, and program countries. These large biases are mostly due to the early part of the sample (1990-2003). Indeed, for almost all groups of economies, biases in the forecast errors are notably smaller and, with exception of Sub-Sahara Africa and program countries, no longer significant, in the second subsample 2004-2016. Thus, it is fair to conclude that the bias in the one-year-ahead WEO forecasts appears to have been notably reduced in the second subsample (2004-2016) compared to the first subsample (1990-2003).

Turning again to the results for the individual countries (Table A5), we find a substantial decrease in the proportion of countries for which the null of a zero bias in the forecast errors is rejected. In particular, for the $h = 1, F$ and $h = 1, S$

horizons, the proportion of rejections goes from 0.27 and 0.28 in the 1990-2003 sub-sample to 0.17 and 0.16 in the 2004-2016 subsample, which is a substantial decline.

Panel III in Table 5 shows that there is systematic evidence of large biases in the long-term forecasts spanning the two- through five-year horizons.[11] For the world as a whole, the average bias is quite stable at the two- and three-year forecast horizons, averaging around -1%, indicating that the WEO forecasts on average were too optimistic.

Very similar biases are found for the G7 and advanced economies. Interestingly, for all three groups of countries (World, advanced economies, and G7) the biases are slightly larger in absolute magnitude for the three-year forecast horizons than for the four- and five-year horizons. For the individual countries, we find evidence of a significant bias in the forecast errors of roughly one-third of the countries (Table A6), with the vast number of cases representing overpredictions of GDP growth, i.e., negative mean forecast errors.

Looking at the remaining groups of economies, far greater and systematic upward biases (overpredictions of GDP growth) of 1.5-2.0% are observed at the long forecast horizons for Latin American and Caribbean economies, the Commonwealth of Independent States and for program countries.

Table 6 repeats the exercise from Table 5, now excluding the peak year from the global financial crisis (2009) in the results computed for the second subsample (2004-2016) and for the full sample (1990-2016). The results for the current-year horizon (Panel I) are not strongly affected by omitting 2009 from the comparison, but biases are reduced somewhat for the longer horizons, e.g., by around 0.20 percent per year for the World economy at the 2-5-year horizons (Panel III).

4.1.1 Formal tests of shifts in the bias

As in the analysis of the RMSE performance results, we carry out a bootstrap permutation test that allows us to test the null of equal absolute biases in the two subsamples:

$$H_0 : E[|bias_{1990-2003}|] = E[|bias_{2004-2016}|]. \tag{11}$$

Table 7 shows results from such tests conducted at the four shortest horizons. Panel I shows the difference in current-year absolute biases across the two subsamples, i.e., $|bias_{1990-2003}| - |bias_{2004-2016}|$, with positive numbers suggesting that the absolute bias has come down, while negative numbers show that it has gone up between 1990-2003 and 2004-2016.

Although the sample sizes are small (14 and 13 observations in the two subsamples, respectively, for $h = 0$), we find a number of instances with significant reductions in the absolute value of the bias. Unsurprisingly, differences in absolute biases tend to be quite small at the shortest horizons ($h = 0, F$) for which

[11] Due to the small sample size, we do not perform a sub-sample analysis for the longer horizons.

we fail to find a single case where this difference is statistically significant. In contrast at the second-shortest horizon, $h = 0, S$, we find three instances with large and significant reductions in (absolute) bias, namely low income developing countries, Latin American and Caribbean economies, and Sub-Sahara Africa.

At the one-year forecast horizons, we find further evidence of significant bias reductions for low income developing countries, emerging and developing Europe and sub-Saharan Africa. At the longest forecast horizons, $h \geq 2$, we also see significant bias reductions of more than one percent per annum for low income developing countries, Latin American and Caribbean Economies and Sub-Sahara Africa.

Table 8 repeats the exercise from Table 7, but now excludes 2009 from the second sub-sample. We continue to see significant and economically large reductions (exceeding one percent per year) in the bias of the forecasts across multiple forecast horizons for low income countries, Latin American and Caribbean economies and Sub-Saharan Africa.

4.2 Biases in individual years

An alternative to conducting sub-sample analyses of the forecast biases is to plot the cumulative sum of forecast errors against time. For each group of economies, $\mathcal{G}$, this is computed as

$$CSE_{\mathcal{G}t|t-h} = \sum_{\tau=1990}^{t} e_{\mathcal{G},\tau|\tau-h}, \tag{12}$$

where $e_{\mathcal{G},t|t-h}$ is the h-period-ahead forecast error for the economies in group $\mathcal{G}$ in year t. Because a positive mean of $e_{\mathcal{G}t|t-h}$ induces an upward trend in CSE, a smoothly rising CSE-curve suggests a general tendency to underpredict the outcome in group $\mathcal{G}$. Conversely, periods where CSE trends down suggest that overpredictions are more common, as these give rise to negative forecast errors.

Using (12), Figure 4 plots CSE values for the World economy at the four shortest forecast horizons. The plot of current-year Spring forecast errors ($h = 0, S$) displayed in the top left panel has no obvious trend and so reveals only modest evidence of biases in individual years or on a cumulative basis. The Fall current-year forecast errors are large and negative in the first three years of the sample, but are mostly positive thereafter, with exception of large negative forecast errors in 2001 and 2007.

In contrast, we observe a systematic downward trend in the cumulative sums of the Spring and Fall one-year-ahead forecast errors shown in the bottom panels ($h = 1$), indicating that the WEO forecasts over-estimated GDP growth not only "on average" during the sample but for a clear majority of years.

To see if biases in GDP growth forecasts are persistently higher in some countries than in others, for each country, i, Figure 5 plots the estimated bias in the first subsample, 1990-2003, $\overline{bias}_i^{1990-2003}$, against the estimated bias in the second subsample, 2004-2016, $\overline{bias}_i^{2004-2016}$. Points on the 45 degree line (shown, for reference, in the plots) suggest that countries with the highest (smallest)

biases in the first subsample tend to repeat in the second subsample. Such biases could be indicative of problems with the forecasting model for certain countries. Conversely, points that are randomly scattered in the panels indicate no tendency for the same countries to continue to generate the largest (smallest) biases. This case can be represented by means of a flat line between past and future biases. To see which of these scenarios best characterizes the data, Figure 5 shows the best-fitting line, estimated through linear regression.[12]

The top two panels in Figure 5 show that the best-fitting lines connecting biases in the two subsamples for $h = 0, S$ and $h = 0, F$ are modestly upward-sloping (slopes of 0.041 and 0.095 for $h = 0, F$ and $h = 0, S$, respectively), revealing little systematic evidence that country-specific current-year biases in forecast errors repeat over the two subsamples. Evidence of a positive relation between sub-sample biases in the individual countries is notably stronger at the one-year forecast horizon (bottom panel), with estimated slopes of 0.19 and 0.21, respectively.

Figure 6 presents the same plot, now restricted to the advanced economies. For this set of countries, we find much stronger evidence that large forecast biases for a given country in the first subsample tend to carry over to large biases in the second subsample. In particular, the regression slopes of 0.37 and 0.36 for the two current-year forecasts ($h = 0$) show that large underpredictions of GDP growth for a particular advanced economy in the first subsample raises the probability of a large underprediction for the second subsample, and vice-versa for overpredictions.

The evidence that large forecast biases in the first subsample carry over to the second subsample for advanced economies is weaker at the one-year horizon ($h = 1$, lower panels in Figure 6), but still suggestive as we find slope coefficients of 0.29 and 0.18 for $h = 1, F$ and $h = 1, S$, respectively.

For the emerging market and developing economies, Figure 7 shows that the tendency for forecast biases in the first subsample to carry over to the second subsample is notably weaker in current-year forecasts than what we found for the advanced economies. In particular, the slope coefficient in the mapping from first-subsample current-year forecast biases to second-subsample current-year biases ranges from 0.025 to 0.062. There is much stronger evidence of persistence in the country-level biases in the one-year-ahead forecasts with slope coefficients of 0.23 for both the fall and spring forecasts.

4.3 Mincer-Zarnowitz efficiency tests

Unbiasedness (a zero mean of the forecast error) is not the only property that an efficient forecast should possess. Another requirement is that forecasts and outcomes move one-to-one. Specifically, under squared error loss, conditional unbiasedness of a forecast requires that $\alpha = 0$ and $\beta = 1$ in a Mincer-Zarnowitz

[12] The figure can also be used to uncover persistence in the direction of the biases which should show up as points in the first and third quadrants, representing underpredictions and overpredictions in both subsamples, respectively.

(MZ) regression of the outcome on an intercept and the forecast:

$$y_{\mathcal{G},t} = \alpha_{\mathcal{G},h} + \beta_{\mathcal{G},h}\hat{y}^{WEO}_{t|t-h} + \varepsilon_{\mathcal{G},t}. \tag{13}$$

We can test the joint null hypothesis that $\alpha_{\mathcal{G},h} = 0$ and $\beta_{\mathcal{G},h} = 1$ by means of an F-test.

Table 9 reports the p-value from such F-tests (left panel) in addition to the estimated slope coefficients, $\beta_{\mathcal{G},h}$, along with indications of whether the $\beta_{\mathcal{G},h}-$estimates are significantly different from unity, using a t-test. Results are presented for the four shortest forecast horizons $h = 0, 1$ for the Spring and Fall WEO issues.

For the World economy, actual GDP growth largely responds one-to-one to current-year Fall and Spring WEO forecasts, with $\beta_{\mathcal{G},h}$-estimates of 0.97 and 0.93, respectively. Moreover, the MZ F-test fails to reject the null of no bias for both current-year forecasts.

Conversely, the MZ regression identifies significant evidence of inefficiency for the one-year-ahead Spring and Fall WEO forecasts of World GDP growth.

For the advanced economies and G7 countries the null of $\alpha_{\mathcal{G},h} = 0, \beta_{\mathcal{G},h} = 1$ is rejected at the 10% level for the Spring current-year forecast and for both of the one-year-ahead forecast horizons. Once again, the $\beta_{\mathcal{G},h}$-estimates are quite close to unity for the three shortest horizons, but notably smaller for the longer horizon ($h = 1, S$).[13]

Significant evidence against forecast efficiency is also found for low income developing countries, Emerging and Developing Asia, Latin America and the Caribbean, Sub-Saharan Africa and for Program countries.

An inspection of the results for the individual countries (Table A7) shows that the proportion of rejections of the null of an efficient forecast rises smoothly from 29% for $h = 0, F$ to 43% for $h = 0, S$ and 48% and 59%, at the $h = 1, F$ and $h = 1, S$ horizons, respectively. Interestingly, there is very strong evidence against efficiency for the WEO short-term forecasts of GDP growth for major countries such as China, Germany and Italy.

4.4 Serial correlation in forecast errors

Under squared error loss forecast errors should be serially uncorrelated whenever forecast horizons are non-overlapping. For example, at the one-year forecast horizon $E[e_{t|t-1}, e_{t-1|t-2}] = 0$.[14]

Under the null of no bias, we can compute an estimate of the serial correlation in the forecast error of group $\mathcal{G}$ over the sample period $t_0 : t_1$ from a linear

[13] This is consistent with our earlier evidence that the WEO GDP growth forecast recorded at the $h = 1, S$ horizon fails to improve on the predictive accuracy of the simple historical average.

[14] At forecast horizons longer than one year, $h > 1$, the forecast errors can be serially correlated due to the overlap in the period over which the outcome is measured. In general, for an h-period forecast horizon, the forecast error should at most be a moving average of order $h - 1$. See Elliott and Timmermann (2016).

regression with no intercept:

$$e_{\mathcal{G},\tau|\tau-h} = \rho_{\mathcal{G}} e_{\mathcal{G},\tau-1|\tau-1-h} + \varepsilon_{\mathcal{G},\tau}. \tag{14}$$

This yields a coefficient estimate

$$\hat{\rho}_{\mathcal{G}} = \frac{\sum_{1990}^{2016} e_{\mathcal{G},\tau|\tau-h} e_{\mathcal{G},\tau-1|\tau-1-h}}{\sum_{1990}^{2016} e^2_{\mathcal{G},\tau-1|\tau-1-h}}. \tag{15}$$

We can then test the null $H_0 : \rho_{\mathcal{G}} = 0$ against a two-sided alternative, $\rho_{\mathcal{G}} \neq 0$. Positive values of $\hat{\rho}_{\mathcal{G}}$ indicate that forecast errors of the same sign are more likely to follow each other. This suggests a tendency for over- or under-predictions to persist through time. Conversely, negative values of $\hat{\rho}_{\mathcal{G}}$ suggest that the sign of the forecast errors tends to reverse in consecutive years.

The four left-most columns in Table 10 present estimates of the first-order autocorrelation $\rho_{\mathcal{G}}$ computed for the four shortest forecast horizons, so that overlapping data is not an issue. We also show, in the four right-most columns, the proportion of economies within a given group for which the null of zero autocorrelation in the forecast errors is rejected at the 5% significance level using a two-sided test. Again we focus on the four shortest forecast horizons.[15]

For the world economy, first-order autocorrelation estimates are either negative or zero, numerically small and statistically insignificant. This holds although there is evidence of significant serial correlation in forecast errors for up to 44% of the countries–well over the expected number of 5%.

Turning to the individual groups of economies, we find strong evidence of positive serial correlation in the forecast errors recorded at all four horizons for the low income and developing countries and sub-Sahara Africa with autocorrelation estimates around 0.6-0.8. The forecast errors are also significantly positively correlated for three of the four shortest horizons for Program countries. We find only weak serial correlation in forecast errors for most of the other groups of economies, a possible exception being emerging and developing Asia, for which the serial correlation test is significant at the 10% level or higher for the Spring forecasts.

While serial correlation for most groups of economies is quite weak at the aggregate level, the rejection rates shown in the right-most columns indicate that we find substantially stronger evidence of autocorrelation in the individual countries' forecast errors, as indicated by the rejection rates which are significantly higher than the 5% we would expect under the null of no serial correlation.

[15] Note that it is possible to find no evidence of serial correlation at the aggregate (world) level, even though individual countries' forecast errors could be serially correlated. This can happen because positive forecast errors in some countries could cancel out against negative forecast errors in other countries, or due to differences in the power of the test for serial correlation as a result of the aggregation involved in calculating the estimate for the world economy.

4.5 Periods with significant serial correlation

Table 10 summarizes evidence of autocorrelation in the individual countries' or groups of economies' forecast errors over the full sample. However, it is possible that forecast errors became serially correlated only during certain periods such as the Global Financial Crisis. Such events may have induced a sequence of over- or underpredictions if the underlying forecasting models did not adapt to the shock sufficiently fast. Analyzing evidence of persistence that is more "local" in time is difficult for individual countries for which we only have annual outcomes. However, we can pool estimates of serial correlation across the $N^{\mathcal{G}}$ countries in a particular group of economies so as to get more robust local estimates of "average" serial correlation within these economies. To this end, we consider the following "local" estimator:

$$\hat{\rho}_{\mathcal{G},t} = \frac{\frac{1}{4}\sum_{i=1}^{N^{\mathcal{G}}}\left(e_{i,t-2}e_{i,t-1} + e_{i,t-1}e_{i,t} + e_{i,t}e_{i,t+1} + e_{i,t+1}e_{i,t+2}\right)}{\frac{1}{5}\sum_{i=1}^{N^{\mathcal{G}}}\left(e_{i,t-2}^2 + e_{i,t-1}^2 + e_{i,t}^2 + e_{i,t+1}^2 + e_{i,t+2}^2\right)}. \tag{16}$$

By using the covariance between the forecast error at time t, $e_{i,t}$, and the past ($e_{i,t-1}$) and future ($e_{i,t+1}$) forecast errors, along with two adjacent cross-products of forecast errors, this estimator captures serial correlation that is "local in time". On its own, this estimator would be very noisy, using only four adjacent observations, but averaging over all countries within a group tends to smooth the resulting estimates. We scale this covariance by the average of the neighboring squared forecast errors so as to get a correlation-type measure that is easier to interpret.

Figure 8 plots the resulting local serial correlation estimates for the world economy so that the effect of cross-sectional averaging is strong since $N^{\mathcal{G}}$ is large. At the shortest current-year forecast horizons ($h = 0$), the serial correlation estimates generally hover between -0.1 and 0.3, but peak in 2005 at a level above 0.2. For the one-year forecast horizon ($h = 1$, bottom panels), the serial correlation estimate is between 0.1 and 0.3 in the first half of the sample. However, the local serial correlation estimate plunges to a negative value in 2011 as overpredictions of one-year-ahead GDP growth during the early phase of the Global Financial Crisis were followed by underpredictions during the recovery. At all four forecast horizons, the local serial correlation estimate increases towards the end of the sample.

Overall, these plots reveal evidence of some positive local serial correlation in forecast errors which was strongest around 2005 and declined to negative values in the aftermath of the Global Financial Crisis.

5 Sources of forecast errors

A good understanding of the sources of WEO forecast errors is critical. Economic forecasts hinge on numerous implementation choices, some of which may lead to worse forecasting performance, and so it is important to use diagnostics

that can point towards potential sources of suboptimal performance. If appropriately addressed, insights from this analysis can be used to improve forecasting performance.

In particular, to the extent that assumptions about certain key drivers– such as future commodity prices or the rate at which the output gap will be eliminated–are "hard wired" in the forecasting process, good or bad assumptions about these variables might help explain the level of forecasting performance achieved.

One way to gain insights into the sources of forecast performance is by regressing forecast errors on variables labeled "monitoring instruments" by Timmermann and Zhu (2017). We therefore undertake an analysis that projects forecast errors on a variety of candidate instruments.

5.1 Contemporaneous errors in forecasts of US, Chinese, and EU GDP growth

International linkages in financial, goods and labor markets mean that forecasts of GDP growth in major countries or economic areas are important also to forecasts of GDP growth in other countries or groups of economies. We focus on errors in forecasts of GDP growth in the US, China and the Euro area. To assess the importance of correlations between forecast errors in GDP growth in these three economies and errors in predicting growth in other economies, we regress the h-step-ahead forecast error in economy $\mathcal{G}$, $e_{\mathcal{G},t,h}$, on the same-period US, Chinese, and Euro Area GDP forecast error, $e_{US,t|t-h}$:

$$e_{\mathcal{G},t|t-h} = \alpha^h_{\mathcal{G}} + \beta^h_{\mathcal{G}} e_{US,t|t-h} + \varepsilon_{\mathcal{G},t,h}. \tag{17}$$

$$e_{\mathcal{G},t|t-h} = \alpha^h_{\mathcal{G}} + \beta^h_{\mathcal{G}} e_{China,t|t-h} + \varepsilon_{\mathcal{G},t,h}. \tag{18}$$

$$e_{\mathcal{G},t|t-h} = \alpha^h_{\mathcal{G}} + \beta^h_{\mathcal{G}} e_{EU,t|t-h} + \varepsilon_{\mathcal{G},t,h}. \tag{19}$$

Note that this is not a predictive regression as we are using the contemporaneous forecast error for the US economy. Hence, the results from this regression can only be used for attribution purposes, i.e., to show whether larger forecast errors for US GDP growth are associated with larger forecast errors for GDP growth in economy $\mathcal{G}$.

Results from this regression are reported in Panel I of Table 11. The first four columns report the estimated $\beta_{\mathcal{G}}$ for the four shortest forecast horizons ($h = 0, F$, $h = 0, S$, $h = 1, F$, and $h = 1, S$) along with stars indicating the statistical significance of the $\beta_{\mathcal{G}}$-estimate using a two-sided test conducted at the 5% level. The four right-most columns show the percentage of countries within each group of economy for which the null $\beta^h_{\mathcal{G}} = 0$ is rejected.

First, consider the evidence of contemporaneous correlation between US GDP growth forecast errors and errors in predicting GDP growth in a given group of economies as captured by equation (17). Panel I in Table 11 shows that there is strong evidence of a positive correlation between US GDP growth forecast errors and forecast errors in the G7 countries (with β-estimates ranging

from 0.49 and 0.51 at the shortest horizons to 0.69 and 0.67 at the one-year horizons) and for the advanced economies with $\beta_{\mathcal{G}}$-estimates ranging from 0.42 to 0.67. We also find strong evidence of significant correlation between US forecast errors and forecast errors for world GDP growth with $\beta_{\mathcal{G}}$-estimates ranging from 0.3 to 0.6. These point estimates are corroborated by looking at the proportion of countries within a group of economies for which the beta estimate is significant at the 5% level. These tend to be much higher than expected at the one-year horizon for both the advanced economies and the G7 countries, in most cases exceeding 50%.

Somewhat weaker, but still notable, evidence of a positive and significant correlation between one-year-ahead errors in predicting US GDP growth and errors in predicting economic growth for other economies is found also for Latin America and the Caribbean and emerging and developing Europe. We also find a larger-than-expected proportion of rejections for forecasts of one-year-ahead GDP growth in the individual countries in these regions.

These findings are consistent with unanticipated shocks to US GDP growth being more relevant to advanced economies and to European and Latin American countries with strong trade ties to the US.[16] Indeed, an inspection of the results for the individual countries (Appendix Table A9) shows that although the proportion of countries with a significant coefficient on the US GDP growth forecast error is only 0.11 for the current-year forecasts and 0.22 for the next-year forecasts, we do find a significant relation for the countries such as Australia, Canada, France, Germany, Mexico, and the United Kingdom whose shocks to GDP growth are most likely to be correlated with shocks to US GDP.

Panel II in Table 11 shows the results from the regressions of forecast errors on errors in predicting Chinese GDP growth, i.e., equation (18). Unsurprisingly, we now find very large and significant evidence that errors in predicting Chinese GDP growth matters most to developing and emerging Asia, with coefficients ranging between 0.40 and 0.62, but the results are also highly significant and large for emerging marked and developing economies ($h = 1$), Latin American and Caribbean economies ($h = 1$) and for the Commonwealth of Independent States ($h = 0$).

Finally, Panel III in Table 11 shows the outcome of regressions of GDP growth forecast errors on Euro Area GDP growth forecast errors using equation (19). As expected, we now see highly significant and large coefficients (exceeding unity) for Emerging and Developing Europe with results also being significant for the World economy, G7, advanced and emerging market and developing economies. More surprisingly, forecast errors for the Euro Area are highly significantly correlated with forecast errors also in developing Asia, Latin America and the Caribbean, Commonwealth of Independent States ($h = 1$) and for fuel exporting economies.

Forecast errors reflect the "surprise" component in the outcome. To the ex-

[16] We find little to no evidence of significant predictive content in past (one-year lagged) US GDP forecast errors over future forecast errors for the various economies–in fact, we only find one test statistic that is significant at the 10% level and the associated coefficient has the wrong sign (negative).

tent that large common supply or demand factors affect broad sets of economies, we would therefore expect forecast errors for major economies to be significantly correlated with forecast errors in other economies. This is indeed what we find in Table 11.

Conversely, we should not expect the forecasts themselves to possess predictive power over future forecast errors. At each point in time, the forecasts should simply reflect the information that is available in that period and this should already be efficiently incorporated into the individual country forecasts of GDP growth and other variables.

To see if this holds, Table 12 estimates a similar set of regressions as in (17)-(19), now using the forecasts for the three economies as predictors:

$$e_{\mathcal{G},t|t-h} = \alpha^h_{\mathcal{G}} + \beta^h_{\mathcal{G}} \hat{y}^{US}_{t|t-h} + \varepsilon_{\mathcal{G},t,h}. \quad (20)$$

$$e_{\mathcal{G},t|t-h} = \alpha^h_{\mathcal{G}} + \beta^h_{\mathcal{G}} \hat{y}^{CHINA}_{t|t-h} + \varepsilon_{\mathcal{G},t,h}. \quad (21)$$

$$e_{\mathcal{G},t|t-h} = \alpha^h_{\mathcal{G}} + \beta^h_{\mathcal{G}} \hat{y}^{EU}_{t|t-h} + \varepsilon_{\mathcal{G},t,h}. \quad (22)$$

As expected, we find much weaker evidence that the regression coefficients on the forecasts are statistically significant. Interestingly, however, the slope coefficient on the WEO next-year Fall forecasts ($h = 1, F$) of US GDP growth (Panel I) is statistically significant for seven of the economic groups, in all cases with a positive coefficient suggesting that higher forecasts of US GDP growth are associated with larger forecast errors, i.e., underpredictions of GDP growth elsewhere.

Forecasts of Chinese GDP growth (Panel II) are significantly correlated with forecast errors in a number of cases with the evidence being particularly strong at the one-year horizon and outside the group of advanced economies, including low-income countries, Middle East, North Africa, Afghanistan, and Pakistan, developing Asia, Commonwealth of Independent States, Sub-Saharan Africa and fuel exporters. In contrast with the results for the US forecasts, the estimated slope coefficients on Chinese GDP growth are significantly negative in many cases, indicating that forecasts of higher GDP growth in China are associated with smaller forecast errors, i.e., over-predictions of GDP growth for such economies.

Forecasts of Euro-Area GDP growth (Panel III) appear to be significantly negatively correlated with forecast errors for G7 and advanced economies, Commonwealth of Independent States and Sub-Sahara Africa, although the estimated slope coefficients tend to be quite small. This would suggest a tendency for high forecasts of Euro Area GDP growth to translate into overpredictions for these economies. Conversely, we find significantly positive coefficients in the regression of forecast errors for Middle East, North Africa, Afghanistan, and Pakistan ($h = 1$), Commonwealth of Independent States, and for fuel exporters.

5.2 Output Gap

As our third instrument we use the output gap in economy $\mathcal{G}$ for period t predicted at time $t-h$, $GAP_{\mathcal{G},t|t-h}$:

$$e_{\mathcal{G},t|t-h} = \alpha^h_{\mathcal{G}} + \beta^h_{\mathcal{G}} GAP_{\mathcal{G},t|t-h} + \varepsilon_{\mathcal{G},t}. \tag{23}$$

Panel I in Table 13 shows that the output gap possesses strong explanatory power over current-year ($h = 0$) forecast errors for the G7 countries, advanced economies, emerging and developing Europe, Latin America and the Caribbean, Commonwealth of Independent States, Sub-Sahara Africa, and for Program countries.

Interestingly, the lagged output gap is even more strongly correlated with the one-year-ahead error in predicting GDP growth, i.e., at the one-year forecast horizon ($h = 1$). For a clear majority of groups of economies, we find a negative and statistically significant coefficient on the output gap, suggesting that a larger output gap is associated with a larger negative forecast error, i.e., a stronger tendency to overpredict GDP growth, as one would expect.

We also note from the four right-most columns in Panel I of Table 13 that, at the 5% significance level, the null that the output gap is not correlated with the one-year-ahead forecast error is rejected for more than 30% of the countries for the current-year regressions ($h = 0$) while we see rejection rates close to 50% at the one-year-ahead predictive regressions ($h = 1$). Economies for which the lagged output gap is a significant predictor of the one-year-ahead error in predicting GDP growth for at least 50% of the countries include emerging and developing economies, low income developing economies, emerging and developing Europe and Asia, Latin America and the Caribbean economies, Commonwealth of Independent states, Sub-Sahara Africa, fuel exporters and Program countries. Inspecting the more granular country-level results (Table A10), we find that the proportion of countries for which the contemporaneous output gap is significantly correlated with GDP growth is 0.33 and 0.39 for the $h = 0, F$ and $h = 0, S$ forecasts and that this proportion rises to 0.50 and 0.51 for the $h = 1, F$ and $h = 1, S$ horizons. Notable examples of countries for which the output gap has predictive power at the one-year horizon includes France, Italy, and Korea.

Data limitations makes it difficult to present results at a similar level of granularity for forecast horizons exceeding one year. Only for the two-year-ahead Fall WEO forecasts ($h = 2, F$) do we have a sufficiently large set of observations for which to report results. At this horizon (Panel II), the output gap is significantly negatively correlated with subsequent two-year-ahead GDP growth for most of the groups of economies.

At horizons longer than two years, we can only estimate the regression in (23) for the World, G7, advanced economies and for program countries. For the first groups we fail to find evidence of a significant relationship between the lagged output gap and errors in predicting GDP growth. Interestingly, however for program countries we find some evidence that the output gap predicts forecast errors at long horizons.

5.3 Terms of trade and commodity terms of trade forecasts

Our next instruments are related to the WEO forecasts of individual countries' terms of trade and their commodity terms of trade. To this end, let the term of trade for country i in year t be denoted by tot_{it} while the h-year-ahead forecast of $tot_{i,t}$ is denoted by $\widehat{tot}_{it|t-h}$. Similarly, denote the commodity terms of trade of country i for year t by $ctot_{it}$ while the h-year-ahead forecast of $ctot_{it}$ is $\widehat{ctot}_{it|t-h}$. Data on both tot_{it} and $ctot_{it}$ is subject to revisions and so is in vintage format with 2000 being the base year. We define forecast errors as the actual value in the final vintage (Fall 2017) minus the forecast made h-periods previously for that year, i.e.,

$$e^{tot}_{it|t-h} = tot_{it} - \widehat{tot}_{it|t-h}, \quad (24)$$

$$e^{ctot}_{it|t-h} = ctot_{it} - \widehat{ctot}_{it|t-h}. \quad (25)$$

To explore if forecast errors for GDP growth in year t for country i, denoted $e_{i,t|t-h}$, are related to errors in forecasting the terms of trade or the commodity terms of trade for that country, we conduct a set of country-level regressions

$$e_{i,t|t-h} = \alpha_{i,h} + \beta_{i,h} e^{tot}_{i,t|t-h} + \varepsilon_{i,t,h}, \quad (26)$$

$$e_{i,t|t-h} = \alpha_{i,h} + \beta_{i,h} e^{ctot}_{i,t|t-h} + \varepsilon_{i,t,h}. \quad (27)$$

We estimate these regressions for the four shortest forecast horizons in addition to the Fall forecasts for the 2-5 year horizons.

First consider results for the terms of trade using the regression in equation (26). Table 14 reports the proportion of countries, within each economic group, that has a significantly positive (Panel I) or negative (panel II) estimate of $\beta_{i,h}$, using a 5% critical value and a two-sided test. We would expect to find positive estimates of $\beta_{i,h}$ as underpredictions of the terms of trade (a positive value of $e^{tot}_{it|t-h}$) are likely to translate into underpredictions of GDP growth (a positive value of $e_{it|t-h}$). This is mostly what we find. For example, for forecast horizons beyond the current year and for the world as a whole, the proportion of countries with significantly positive estimates of $\beta_{i,h}$ varies between 0.14 and 0.31. This is around twice as large as the proportion of countries with significantly negative values of $\beta_{i,h}$ which varies between 0.07 and 0.14. Note also that the proportion of significant values of $\beta_{i,h}$ tends to be smaller for the current-year forecasts. This makes sense as it takes time for movements in a country's terms of trade to affect its output growth.

The groups of economies for which the terms of trade are most important for explaining errors in forecasting GDP growth include Middle East, North Africa, Afghanistan, and Pakistan, Commonwealth of Independent States, Sub-Sahara Africa, and, as we would expect, fuel exporters. Conversely, errors in predicting GDP growth for the advanced economies and G7 countries are generally less impacted by terms of trade forecast errors.

At the level of the individual countries (Table A11), we find that short-term (current-year or one-year ahead) forecast errors in terms of trade are significantly

correlated with forecast errors for GDP growth for countries such as Australia, Brazil, Chile, United Kingdom, and many of the African economies.

Table 15 reports similar results, now using the forecast errors for the commodity terms of trade as the explanatory variable and, thus, estimating the regression specification in (27). For the world as a whole, the proportion of significantly positive $\beta_{i,h}$ estimates is around 10% for current-year forecasts. This proportion increases from about 14% at the one-year horizon to 29% at the four-year horizon. For the longer forecast horizons, this is again two or three times as large as the proportion of countries with significantly negative estimates of $\beta_{i,h}$. The proportion of countries within a particular area with significantly positive $\beta_{i,h}$-estimates varies quite a bit across forecast horizons, but is relatively similar across different groups of economies. However, it is clearly smaller for forecast horizons up to and including one year, for the G7 countries and advanced economies.

Errors in short-term forecasts of the commodity terms of trade are significantly correlated with GDP growth forecast errors (Table A11) for countries such as Argentina, Brazil, Saudi Arabia, United Arab Emirates and many economies that rely on commodity export.

These findings suggest that forecast errors in predicting individual countries' terms of trade and commodity terms of trade are closely related to errors in predicting GDP growth in these economies. Moreover, the relation between the two sets of forecast errors is even stronger at the longer horizons.

Once again, we also test for significance of the regressions of forecast errors on the WEO terms of trade forecasts as well as the predicted commodity terms of trade:

$$e_{i,t|t-h} = \alpha_{i,h} + \beta_{i,h}\widehat{tot}_{it|t-h} + \varepsilon_{i,t,h}, \tag{28}$$

$$e_{i,t|t-h} = \alpha_{i,h} + \beta_{i,h}\widehat{ctot}_{it|t-h} + \varepsilon_{i,t,h}. \tag{29}$$

Tables 16 and 17 show the results from these regressions. For both the predicted terms of trade (Table 16) and the predicted commodity terms of trade (Table 17), we find fewer cases with significantly positive slopes compared to when we use the error in predicting the terms of trade (equation (26)) and commodity terms of trade (equation (27)). Conversely, we actually see a larger overall proportion of countries for which the slope on the predicted terms of trade or commodity terms of trade is significantly negative as compared to the errors in forecasting these series. This finding is particularly strong among fuel exporting countries.

6 Comparison with Consensus Economics forecasts

No economic forecast can plausibly be expected to be perfect and so an important question is how accurate we should expect the WEO forecasts to be. To get a sense of the magnitude of an unpredictable component in GDP growth,

it is useful to compare the predictive accuracy of the WEO forecasts to that of the forecasts produced by Consensus Economics, a London-based organization that surveys the views of private-sector forecasters.

Much can be learned from comparing the performance of the WEO forecasts to the forecasts produced by Consensus Economics. Significant differences in forecasting performance could be indicative of differences in sources of information used by the two forecasters; for example, one forecaster may better account for persistent shocks to aggregate demand. Alternatively, differences in forecasting performance could reflect differences in the underlying forecasting methodologies.

Consensus Economics (CE) generates monthly updates to their next-year and current-year forecasts and so produce a sequence of 24 forecasts of the same outcome. For example, GDP growth in 2016 would be predicted from January, 2015 through December 2016. We label the monthly updates to the current-year forecasts $\{h = 0, m\}_{m=1}^{12}$ while the updates to the next-year forecasts are labeled $\{h = 1, m\}_{m=1}^{12}$, where $m = 1$ is the January forecast, while $m = 12$ is the December forecast.

To provide a meaningful comparison, the timing of the two sets of forecasts in the comparison should be as close as possible–otherwise one forecast may appear to be better than the other simply because it used more up-to-date information. In particular, we pair the current-year March $(h = 0, m = 3)$ and September $(h = 0, m = 9)$ CE forecasts with the WEO current-year Spring $(h = 0, S)$ and Fall $(h = 0, F)$ forecasts. Similarly, we pair next-year March $(h = 1, m = 3)$ and September $(h = 1, m = 9)$ CE forecasts with the WEO forecasts for $h = 1, S$ and $h = 1, F$, respectively.

Because CE reports forecasts for individual countries, our analysis compares country-level forecasts of GDP growth rather than analyzing forecasts at the more aggregate level used in the earlier analysis.

6.1 Relative forecasting performance

The first performance measure we use to compare the accuracy of the WEO and CE forecasts is the ratio of their RMSE values for a given forecast horizon, denoted by $RMSE(WEO_h)$ and $RMSE(CE_h)$, respectively. Specifically, for each of the four forecast horizons $h = 0, S$, $h = 0, F$, $h = 1, S$, and $h = 1, F$, we compute

$$U_h = \frac{RMSE(WEO_h)}{RMSE(CE_h)} - 1. \tag{30}$$

Values $U_h > 0$ show that the RMSE of the WEO forecasts exceeds the RMSE of the CE forecasts and so indicate that the CE forecasts, on average, were more accurate during the sample. Cases for which $U_h < 0$ show the opposite. Moreover, the amount by which U_h differs from zero quantifies the relative performance of one forecast versus the other.

Table 18 shows results for the RMSE ratios computed for the individual countries covered by CE as well as WEO. The top three rows present the 25th,

50th, and 75th percentiles of the cross-sectional distribution of RMSE ratios, calculated across these countries. For a small majority of countries, the WEO forecasts generate lower RMSE values than the CE forecasts, as evidenced by the negative RMSE ratios for the median (second row) which range from -0.05 at the longest current-year horizon ($h = 0, S$) to -0.00 at the one-year horizon ($h = 1, S$). The proportion of countries for which the RMSE value of the WEO forecasts is lower than that of the CE ranges from 52% and 69%. Moreover, for three of four horizons the 25th percentiles are equally or more negative than the corresponding 75th percentiles are positive, suggesting that the percentage improvements in the WEO forecasts' precision over the CE forecasts are slightly larger in magnitude than the percentage reductions in predictive accuracy in cases where the CE forecasts are more accurate than the WEO forecasts.

Highlighting the results for some of the individual countries, the WEO forecasts are worse than the CE forecasts for the majority of horizons for Argentina, Australia, Hungary, Korea, New Zealand, Thailand, and Turkmenistan. Conversely, the WEO forecasts are notably more accurate than the CE forecasts for the majority of horizons for the Euro area and for countries such as Ireland, Italy, Japan, South Africa, Spain, and the United States.

Table 19 reviews the evidence concerning biases in CE forecasts of GDP growth. To compare the bias estimates with those reported for the WEO forecasts, we use the same groupings as in the WEO analysis, weighting the countries in each group by the size of their GDP. For the current-year forecasts (Panel I), there is only few instances with significant biases, including a negative bias for the G7 and advanced economies in the second subsample (2004-2016), indicating that the CE forecasts were too high, on average, during this period which includes the global financial crisis.

Biases grow larger at the one-year forecast horizon (Panel II) for which we find significant evidence of biases for the World as a whole (first subsample and full sample), for the G7 and advanced economies, Sub-Saharan economies and Program countries.

6.2 Tests of equal predictive accuracy

The RMSE ratios tabulated in Table 18 give a sense of the magnitude of the relative accuracy of the WEO and CE forecasts. A limitation of such ratios is, however, that they do not give a sense of statistical significance of the differences in predictive accuracy.

To address this question, we next conduct formal tests of the null that the MSE values of the WEO and CE forecasts are identical in expectation. Our null of equal predictive accuracy takes the form

$$H_0 : E\left[\left(e^{WEO}_{i,t|t-h}\right)^2\right] = E\left[\left(e^{CE}_{i,t|t-h}\right)^2\right], \tag{31}$$

where $e^{WEO}_{i,t|t-h}$ is the $h-$step-ahead forecast error from the WEO forecast of GDP growth in country i at time t, while $e^{CE}_{i,t|t-h}$ is the corresponding forecast error

associated with the CE forecast. Defining the forecast error loss differential $dif_{i,t|t-h} = \left(e^{CE}_{i,t|t-h}\right)^2 - \left(e^{WEO}_{i,t|t-h}\right)^2$, we follow Diebold and Mariano (1995) and test this null hypothesis by regressing the loss differential on an intercept

$$dif_{i,t|t-h} = \alpha_{ih} + \varepsilon_{i,t|t-h}. \tag{32}$$

We next conduct a t-test on the significance of α_{ih}. Positive and significant estimates of α_{ih} suggest that the h-step-ahead forecast produced by CE generates higher MSE values than the WEO forecasts. Conversely, significantly negative estimates of α_{ih} suggest that the WEO forecasts are significantly less accurate than the CE forecasts.

Table 18 uses stars to indicate the outcome of the Diebold-Mariano (DM) test statistics for the four forecast horizons. There are relatively few cases in which the test statistic is significant. This is unsurprising given that the test is likely to have weak power for the relatively short sample sizes considered here. Although there are slightly more countries with significantly negative α estimates than countries with significantly positive α estimates, the proportion of countries with significant α estimates tends to be very small and close to the size (5%) of the test.

6.3 Forecast encompassing tests

The null hypothesis tested by the Diebold-Mariano test is one of equal predictive accuracy as measured by the mean squared error performance of the WEO and CE forecasts. Suppose we reject this null hypothesis and thus conclude that one forecast is more accurate than the other. It does not follow that one forecast dominates the other in the sense that the forecast with the highest MSE adds no valuable information once the other forecast is available. This kind of dominance is obviously a stronger requirement and so our expectation is that we are unlikely to find many instances where this holds.

To test if one forecast dominates–or encompasses–the other, we also run a set of forecast encompassing tests. Specifically, to see if the WEO forecast, $\hat{y}^{WEO}_{i,t|t-h}$, encompasses the CE forecast, $\hat{y}^{CE}_{i,t|t-h}$, we estimate the regression

$$e^{WEO}_{i,t|t-h} = \alpha_i + \beta_i \hat{y}^{CE}_{i,t|t-h} + \varepsilon_{it}. \tag{33}$$

Under the null that $\beta_i = 0$, the CE forecasts do not help explain any of the error of the WEO forecasts and, in this sense, fail to add value to the WEO forecasts. Conversely, if $\beta_i \neq 0$, the WEO forecasts fail to encompass the CE forecasts.

Similarly, we can test if the CE forecast, $\hat{y}^{CE}_{i,t|t-h}$, encompasses the WEO forecast, $\hat{y}^{WEO}_{i,t|t-h}$, through a regression

$$e^{CE}_{i,t|t-h} = \alpha_i + \beta_i \hat{y}^{WEO}_{i,t|t-h} + \varepsilon_{it}. \tag{34}$$

Here a significant coefficient of β_i suggests that the CE forecast does not encompass the WEO forecast.

Results from these encompassing regressions are reported in an appendix. We estimate the regressions (33) and (34) for the four shortest (common) forecast horizons, i.e., (1) $e^{WEO}_{0,S,t}$ versus $\hat{y}^{CE}_{0,M3,t}$ and $e^{CE}_{0,M3,t}$ versus $\hat{y}^{WEO}_{0,S,t}$, (2) $e^{WEO}_{0,F,t}$ versus $\hat{y}^{CE}_{0,M9,t}$ and $e^{CE}_{0,M9,t}$ versus $\hat{y}^{WEO}_{0,F,t}$, (3) $e^{WEO}_{1,S,t}$ versus $\hat{y}^{CE}_{1,M3,t}$ and $e^{CE}_{1,M3,t}$ versus $\hat{y}^{WEO}_{1,S,t}$, (4) $e^{WEO}_{1,F,t}$ versus $\hat{y}^{CE}_{1,M9,t}$ and $e^{CE}_{1,M9,t}$ versus $\hat{y}^{WEO}_{1,F,t}$.

Unsurprisingly in the light of the small sample sizes used here, the regressions do not have much power and so the null hypothesis often fails to be rejected. The current-year CE forecasts tend to be significant in encompassing current-year WEO forecast errors for a higher proportion of countries (18% and 25% versus 6% and 12%, for the Fall and Spring forecasts, respectively, as shown in Appendix Table A15).[17] However this pattern is reversed for the next-year forecasts for which the WEO forecasts predict CE forecast errors for a slightly higher proportion of countries (10% and 17% versus 8% and 8%, respectively).

Turning to the individual countries, we often find that if the null is rejected for one of the encompassing regressions, it also rejects it for the reverse regression. For example, for the current-year forecasts of GDP growth in Denmark, we find that both the null in (33) and (34) get rejected at the 5% level, suggesting that each of the WEO and CE forecasts contain separate information of value to predicting GDP growth in this country.

For some important economies we find that one forecast encompasses the other, but not vice versa. For example, the one-year-ahead WEO forecast errors for China can be predicted by the CE forecasts, while conversely the CE forecast errors are not predicted by the WEO forecasts. The opposite case arises for the UK where the WEO forecasts appear to encompass the CE forecasts for two of the forecast horizons.

To track the evolution in the relative predictive accuracy of the two sets of forecasts, we also plot the cumulative sum of squared forecast error differences of the CE forecasts versus the WEO forecasts:

$$\begin{aligned}
CSSED_{0,S,t} &= \sum_{\tau=1990}^{t} \left(e^{CE}_{0,M3,\tau}\right)^2 - \left(e^{WEO}_{0,S,\tau}\right)^2 \\
CSSED_{0,F,t} &= \sum_{\tau=1990}^{t} \left(e^{CE}_{0,M9,\tau}\right)^2 - \left(e^{WEO}_{0,F,\tau}\right)^2 \\
CSSED_{1,S,t} &= \sum_{\tau=1990}^{t} \left(e^{CE}_{1,M3,\tau}\right)^2 - \left(e^{WEO}_{1,S,\tau}\right)^2 \\
CSSED_{1,F,t} &= \sum_{\tau=1990}^{t} \left(e^{CE}_{1,M9,\tau}\right)^2 - \left(e^{WEO}_{1,S,\tau}\right)^2 \qquad (35)
\end{aligned}$$

[17] These numbers refer to the proportion of cases in which β_i is statistically significant in the regression of WEO forecast errors on the CE forecast (equation (33)) while β_i is insignificant in the regression of CE forecast errors on WEO forecasts (equation (34)), in which case the CE forecasts encompass the WEO forecasts but not vice versa. Conversely, the WEO forecasts encompass the CE forecasts (but not vice versa) if β_i is statistically significant in equation (34) but not in equation (33).

We plot these measures for four of the largest individual economies in Figures 9 - 12. A positive and rising graph indicates that the WEO forecasts are more accurate, in a squared error sense, than the CE forecasts, while a negative and declining graph suggests that the CE forecasts are the more accurate ones.

For the US economy (Figure 9), we find that the modestly better performance of current-year WEO forecasts over CE forecasts is quite stable throughout the sample and not due to a single instance of better performance. Conversely, in the one-year horizon plots, the improvement in the WEO forecasts over the CE forecasts is largely due to more accurate forecasts of US economic growth in 2009, followed by a smaller reversal in 2010.

A very different pattern emerges for Chinese economic growth (Figure 10). The current-year WEO forecasts (top panel) are generally less accurate than the CE forecasts, with the exception of a five year period from 2004-2008 for the Spring forecasts. At the one-year-ahead horizon, it is hard to distill any particular trend from the graphs as the relative performance of the WEO and CE forecasts switches sign over time.

For Japan (Figure 11), the WEO forecasts are systematically better than the CE forecasts for the current-year Fall vintage ($h = 0, F$). However, we see strong underperformance of the WEO one-year-ahead forecasts relative to the CE forecasts up to 1999, followed by a notable improvement in the WEO forecasts relative to the CE forecasts thereafter.

Finally, for the German economy (Figure 12), current-year WEO and CE forecasts are of broadly similar accuracy. At the one-year horizon, with exception of very good forecasting performance in 2008, the CE forecasts tend to be more accurate than the WEO forecasts for most years.

7 Inflation Forecasts: Accuracy and Efficiency

We next conduct an analysis of the WEO inflation forecasts. We follow a similar format to the analysis of GDP growth, undertaking the same sequence of tests. The WEO inflation forecasts are in the same format as the GDP growth forecasts and cover the same sample period. However, the rate of inflation was extremely large (on the order of several hundred percent) in some years for some countries, particularly during the early part of the sample. Such outliers tend to dominate the results of our analysis which makes the results difficult to interpret. For this reason we trim our data so that country-year values (forecasts or outcomes) that exceed 25% are excluded from the analysis of inflation for the main economic groups. To enable us to see the effect of using the "raw" unfiltered data, we do not apply any trimming in the analysis of individual country inflation which is available in the appendix.

7.1 Term structure of inflation forecast errors

Table 20 reports RMSE values across the 13 groups of economies and forecast horizons ranging from the current-year Fall WEO issue ($h = 0, F$ in the first

column) to the five-year horizon ($h = 5, F$ in the penultimate column.) As for the GDP growth forecasts, these results are based on the longest overlapping sample for which we have forecasts at all horizons, i.e., 1995-2016.

Predictive accuracy is notably higher for the advanced economies and the G7 countries. This is to be expected from the more stable inflation history experienced by these economies which means that inflation should be somewhat easier to predict. Inflation seems particularly hard to predict for Commonwealth of Independent States but also for low income developing countries and emerging and developing Europe.[18]

In the aggregate, i.e., for the world as a whole, the RMSE rises from values of 0.12 and 0.33 at the two shortest current-year horizons to 0.77 at the one-year horizons. Forecast accuracy at the two-through-five year horizons remain largely the same as that recorded for the one-year-ahead forecasts reported in the Fall and Spring WEO issues. A broadly similar conclusion holds for the G7 countries and the advanced economies, although the RMSE values for the five-year-ahead inflation forecasts are somewhat higher than the corresponding values recorded at the shorter forecast horizons for these two groupings.

Notably more accurate current-year forecasts followed by smoothly increasing RMSE values as the forecast horizon expands is observed for emerging and developing Europe, low income developing countries, Commonwealth of Independent States, and Sub-Sahara Africa. We see mild evidence of a decrease in the RMSE at the longest five-year horizon for emerging and developing Asia and Latin America and the Caribbean. However, this evidence is not particularly strong and, as demonstrated by the Patton-Timmermann p-values in the rightmost column, we cannot reject the null of a smoothly increasing term structure of squared forecast errors for any of the groups.

Based on equation (7), Figure 13 plots the ratio of $\Delta RMSE$ ratios for our inflation forecasts computed across all countries in our sample, using the five shortest horizons as in Figure 1.[19] We find marked improvements at the shortest end of the term structure of forecast errors, i.e., comparing $RMSE_i(h = 0, S)$ to $RMSE_i(h = 0, F)$ or comparing $RMSE_i(h = 1, F)$ to $RMSE_i(h = 0, S)$. Moving from the Spring to the Fall WEO improvements in predictive accuracy at the one-year forecast horizon (comparing $RMSE_i(h = 1, S)$ to $RMSE_i(h = 1, F)$), are smaller than what we found in the analysis of GDP growth forecasts. Similarly, there is little evidence of improvements in the accuracy of the inflation rate forecasts as we move from the two-year-ahead Fall WEO forecasts to the one-year-ahead Spring forecasts, i.e., in the comparison of $RMSE_i(h = 2, F)$ to $RMSE_i(h = 1, S)$ shown in the bottom right window in Figure 13. This is consistent with inflation forecasts only being a decreasing function of the forecast horizon at relatively short forecast horizons. This finding parallels our earlier evidence that gains in predictive accuracy for GDP growth forecasts are largest at forecast horizons ranging between a few months (current-year

[18] Recall that we are discarding country-year observations whose values exceed 25%. Without this filter, inflation errors would be far greater in regions such as Latin America and the Caribbean.

[19] As in Figure 1, we have trimmed the 3% extreme-most ratios from the figure.

forecasts) and 21 months (one-year-ahead forecasts computed in the Spring of the previous year). Compared to the GDP growth forecasts, if anything, the evidence here suggests that improvements to the accuracy of the WEO inflation forecasts occur at even shorter horizons as there is only modest evidence of improvements beyond the current-year forecasts.

7.2 Evolution in forecasting performance: sub-sample results

Table 21 presents sub-sample results that compare the WEO inflation forecasts recorded at the four shortest forecast horizons for the period 1990-2003 versus 2004-2016. For most groups of economies other than the G7 countries and advanced economies the current-year forecasts ($h = 0$) seem to have become more accurate in the second subsample compared to the earlier period.

In contrast, for the world as a whole the one-year-ahead inflation forecasts were notably less accurate, on average, in the second subsample compared to the first one. This reduction in forecast accuracy is driven by less accurate inflation forecasts for the advanced economies and G7 countries, while in contrast accuracy improved for the clear majority of the other economies, one exception being the group containing the Middle East, North Africa, Afghanistan, and Pakistan. The improvement in the accuracy of the inflation forecasts outside the group of advanced economies is notable also for occurring even after we have filtered out the outliers (inflation rates exceeding 25%) which mostly affects observations in the earlier subsample.

As in the earlier analysis of GDP growth, we again inspect the sensitivity of our results with respect to the forecasting performance in 2009 by excluding this year from the second sub-sample. Table 22 shows the outcome of this analysis. Once 2009 is removed from the second sub-sample (2004-2016), one-year-ahead RMSE values for the world economy decline from 0.95 to 0.80. However, these values remain much higher than the values seen in the first sub-sample (1990-2003) and so we conclude that one-year-ahead inflation forecasts have in fact, on average, become less accurate (in an absolute sense) in the second subsample and that this is not simply driven by a single outlier year. The reduction in predictive accuracy in the second subsample is largely driven by the larger RMSE values observed for the G7 and advanced economies, regardless of the treatment of 2009.

Table 23 reports Theil U-statistics for the inflation forecasts. Annual inflation rates tend to be more persistent than annual GDP growth rates and so we use as our benchmark a random walk forecast, i.e., $\hat{y}_{i,t|t-h} = y_{t-\max(h,1)}$. This means that we are comparing current-year and next-year inflation forecasts to the previous year's inflation rate, while two-through-five year inflation forecasts are compared to the inflation rate lagged by two, three, four and five years, respectively.

For the world as a whole, as well as in every single economic group, current-year forecasts are far more accurate than the random walk forecasts. Next-year forecasts of world inflation continue to be more accurate than simply using

the most recent lag of inflation with Theil U-statistics around 0.70. Theil U-statistics decline further to levels between 0.59 and 0.37 at the two-through-five year horizons suggesting that, at the multi-year horizons, the random walk forecast becomes easier to beat, the longer the forecast horizon. Similar conclusions hold for the G7 countries and advanced economies.

Conversely, for the emerging market and developing economies, low income developing countries, and sub-Sahara Africa, the WEO forecasts are less accurate than the random walk forecasts at horizons of two years or longer as well as for the one-year-ahead forecasts published in the Spring WEO issue. For the remaining groups the WEO forecasts dominate the random walk forecasts at almost every horizon.

7.3 Biases in inflation forecasts

Table 24 shows forecast error biases by forecast horizon and sub-sample. At the shortest, current-year, horizon (Panel I), the inflation forecasts produced in the Fall issue of WEO tend to be slightly upward biased, resulting in negative biases, the main exceptions being emerging and developing Europe and Latin America and the Caribbean as well as Program countries. Interestingly, there is stronger evidence of underpredictions of inflation in the Spring WEO issue (positive biases). Unsurprisingly, however, the biases are generally small in magnitude and mostly statistically insignificant for both the fall and spring current-year forecasts.

At the level of individual countries (Appendix Table A19), the proportion of countries with a significant bias in the WEO inflation forecasts for the sample 1990-2016 is 13%. However, this number masks somewhat higher proportions of countries with significant biases in the first sub-sample, 1990-2003, namely 18% and 21% for $h = 0, F$ and $h = 0, S$ forecasts as compared to proportions of 15% and 9% in the 2004-2016 subsample. This suggests that, as for the GDP growth forecasts analyzed earlier, biases in short-term inflation forecasts tend to have become smaller over time.

At the one-year horizon (Panel II of Table 24), stronger evidence of significant biases emerges. For example, one-year inflation forecasts were significantly downward biased (positive mean forecast errors) for the low income developing countries, Latin America and Caribbean, Sub-Saharan African economies, and for Program countries. This holds for the Spring and Fall WEO forecasts and across most of the subsamples. For the advanced economies and G7 countries, we find evidence of a significantly negative bias (overpredictions) in one-year-ahead inflation forecasts only in the first subsample.

Once again, evidence of significant biases in one-year-ahead inflation forecasts for the individual countries (Appendix Table A20) show signs of having declined over time. Specifically, while the proportions of countries with a statistically significant bias in the $h = 1, F$ and $h = 1, S$ forecasts were 0.22 and 0.25, respectively, for the 1990-2003 sub-sample, both proportions declined by more than 50% to a level of 0.11 in the 2004-2016 sub-sample.

Finally, at the longer multi-year horizon (Panel III), there is evidence of significant overpredictions of inflation (negative mean forecast errors) at the 3-5 year horizons for the advanced economies and G7 countries. Conversely, we find significant evidence of large underpredictions of inflation (positive mean forecast errors) at the 2-5 year horizons for the emerging market and developing economies, low income developing countries, emerging and developing Europe, Latin America and Caribbean, Middle East, North Africa, Afghanistan, and Pakistan, Commonwealth of Independent States, Sub-Saharan Africa, fuel exporting countries and Program countries. For the world as a whole the bias is close to zero and statistically insignificant, reflecting that the positive bias for developing and emerging economies tends to cancel out against the negative bias observed for the advanced economies.

This contrast between a tendency to overpredict inflation for the advanced economies, especially at the longer forecast horizons, while underpredicting inflation in emerging as well as low income developing economies, suggests that the drivers of errors in forecasting inflation either are different for these types of economies or, if common, affect the economies in very different ways.

Figure 14 shows only weak persistence in the tendency for the WEO forecasts to repeatedly (over) under-predict inflation in the same countries across the two sub-samples, 1990-2003 and 2004-2016.

Table 25 uses the permutation bootstrap described earlier to provide a more formal comparison of biases in inflation forecasts over the 1990-2003 and 2004-2016 subsamples. Again, the comparison is based on the absolute values of the bias in the two subsamples with positive values indicating that the magnitude of the bias has come down and negative values suggesting the reverse.

For the world economy, there is evidence of a significant reduction in the forecast bias at the two-through-five year horizons. A similar conclusion holds for the G7 economies and for the Commonwealth of Independent States, while significant reductions in inflation forecast bias at shorter horizons is observed for advanced economies, emerging and developing Europe, low income economies, Latin American and Caribbean economies, Commonwealth of Independent States, and for Program countries.

7.4 Efficiency tests for inflation forecasts

Table 26 reports the outcome of a set of Mincer-Zarnowitz regressions of actual inflation on an intercept and the inflation forecasts recorded at the four shortest horizons. Recall from the regression in (13) that the intercept should be zero while the slope coefficient should be unity for an efficient forecast. This is what we find holds, to a close approximation, for the world as a whole as well as for the G7 countries and advanced economies–a notable exception being the current-year Fall forecasts of world inflation. Conversely, we find significant evidence of inefficiency at many of the forecast horizons for low income developing countries, Latin America and Caribbean, sub-Saharan African economies and for Program countries. For these economies, the actual inflation rate is far less correlated with the short-term forecast than the predicted one-to-one relation would imply.

Inspecting the MZ-tests for the individual countries (available in Appendix Table A22), we find that the null hypothesis of efficiency is rejected for between 37% ($h = 1, F$) and 45% ($h = 1, S$) of the countries. Interestingly, the null is rejected for three of the four shortest horizons for the United States.

The groups of economies for which we find evidence of significant biases in inflation forecasts largely coincide with the economies for which there is evidence of significant first-order serial correlation in inflation forecast errors. In particular, Table 27 shows that there is strong evidence of serial correlation in individual countries' inflation forecast errors for a large fraction of low income developing countries, emerging market and developing economies, Latin America and Caribbean, Commonwealth of Independent States, Sub-Sahara Africa, and Program countries.

Turning to the evidence from the individual countries (Appendix Table A23), the rate at which the null of no serial correlation in the inflation forecast errors associated with the four shortest forecast horizons is rejected at a 5% significance level rises from 32% for $h = 0, F$ to 52% for $h = 1, S$.

Figure 15 plots the local serial correlation in the inflation forecast errors for the world economy, using the methodology from equation (16). For both current-year and next-year forecasts, the top panels reveal evidence of strong positive serial correlations in inflation forecast errors–at a level at or above 0.4–in 2000 and during some of the adjacent years. Serial correlation is generally smaller prior to 2000 and even turns negative for a while around 2005 at the short forecast horizons.

8 Sources of inflation forecast errors

Table 28 presents results from regressions of individual economies' inflation forecast errors on the contemporaneous US inflation forecast error (Panel I) and the output gap (Panel II), as specified in equations (17) and (23).

8.1 US inflation forecast errors

Unsurprisingly in light of the importance of the US to the world economy, errors in forecasting current-year and next-year US inflation are strongly and significantly positively correlated with contemporaneous inflation forecast errors for both the G7 countries and the advanced economies with coefficients ranging from 0.49 to 0.77. Correlations are also strong for next-year forecasts in the case of emerging and developing Asia and Middle East, North Africa, Afghanistan and Pakistan.[20]

For the individual countries (Appendix Table A24), the proportion of cases for which the error in forecasting US inflation is significantly correlated with the corresponding error in forecasting another country's inflation rate rises from 7% at the shortest horizon ($h = 0, F$) to 29% at the one-year horizons. Again,

[20] On the whole, there is very weak evidence that lagged US inflation forecast errors help predict future forecast errors for other economies.

the cases with significant correlations include developed economies with close resemblances (and trade links) to the US, including Canada, France, Germany, Italy, Japan, and the UK.

8.2 Output gap

Turning to the output gap, the left-most columns in Panel II of Table 28 show that this variable is not a particularly strong predictor of errors in short-term forecasts of inflation for most of the groups of economies considered in our study. The output gap is, however, a strong predictor of errors in inflation forecasts at three of the four shortest forecast horizons for the emerging and developing Asia economies and for Sub Saharan Africa, in all cases with a positive regression slope. The output gap also generates a positive and significant coefficient for two of four horizons for the fuel exporting economies and for Program countries. Hence, higher output gaps appear to be associated with larger inflation forecast errors, i.e., a tendency to underpredict inflation, for these economies.

A possible explanation for why the output gap is not a significant predictor of errors in short-term inflation forecasts for many of the aggregate economic groups is that the direction of its effect is heterogeneous. This could lead to some canceling-out effects at the aggregate level and would tend to mask the importance of the output gap for inflation forecast errors in individual countries. To see if this is the case, the four right columns in Panel II of Table 18 report the proportion of countries within each of the economic groups for which the output gap is significantly correlated with the inflation forecast error, both measured at the country level, using a two-sided test and a 5% significance level. For the world as a whole, the output gap is a significant predictor of one-year-ahead inflation forecast errors for around 25% of the individual countries. The output gap is a significant predictor of the one-year-ahead inflation forecast error for an even larger proportion of the emerging market and developing economies, emerging and developing Europe, and Latin America and the Caribbean.

For the individual countries (Appendix Table A25), the null that the output gap does not matter to the errors in forecasting a particular country's inflation rate is rejected for around one-third of all countries, including such large economies as China (for three of four horizons) and France (for two of four horizons).

8.3 Terms of trade

Table 29 shows the proportion of countries with significantly positive estimates of β_{ih} in regressions of inflation forecast errors in individual countries on the forecast error for the countries' terms of trade, using the regression specification in equation (26). As in the earlier analysis of GDP growth, panels I and II show the proportion of countries within an economic group that has significantly positive and significantly negative estimates of β_{ih}, respectively. In both cases, we use a 5% significance level and a two-sided test.

In contrast to the results for the GDP growth forecast errors, in the aggregate (i.e., for the world as a whole) and at forecast horizons of one year or longer we now find that the proportion of countries with significantly negative β_{ih}-estimates (ranging from 15 to 31%) is roughly twice as large as the proportion of countries with significantly positive β_{ih}-estimates (ranging from 8% to 15%). This makes sense as overpredictions of terms of trade are likely to be associated with underpredictions of inflation. Moreover, at close to 20%, on average, across forecast horizons one year or longer, the rejection rates associated with the negative β_{ih}-estimates are close to four times bigger than we would expect by chance.

Interestingly, and again in contrast with the results for GDP growth, we find a particularly high proportion of significantly negative β_{ih}-estimates for the G7 countries and advanced economies, although higher-than-average rejection rates are also found for the Latin American and Caribbean economies. Conversely, we find that the proportion of countries with significantly positive slope estimates is somewhat higher than the proportion of countries with significantly negative slope estimates for Middle East, North Africa, Afghanistan, and Pakistan and among fuel exporting economies.

At the level of the individual countries (Appendix Table A26), we find twice as many cases with significantly negative β_{ih}-estimates at the one-year forecast horizon (i.e., rejection rates of 0.15 and 0.20 for $h = 1, F$ and $h = 1, S$, respectively) as cases with significantly positive β_{ih} coefficients (rates of 0.08 and 0.09, respectively).

8.4 Commodity terms of trade

We next consider the importance of errors in forecasting commodity terms of trade for errors in forecasting inflation, using the regression specification in equation (27). Table 30 shows rejection rates for the commodity terms of trade that are far higher than what we saw in the analysis of GDP growth or in the relation between total terms of trade and inflation forecast errors (Table 29). In particular, at forecast horizons of one year or longer we find negative and statistically significant β_{ih}-estimates for between 38% and 56% of the world economies, as compared to only 8-14% of countries with significantly positive β_{ih}-estimates.

The many countries with negative β_{ih}-estimates suggest that countries for which the WEO overpredicted the commodity terms of trade also tended to be the same countries for which inflation was underpredicted. In other words, the commodity terms of trade coming in higher than expected is generally associated with realized inflation being lower than expected. Although rejection rates with negative β_{ih}-estimates are found across all groups, this relation is particularly strong for the advanced economies and G7 countries, but it is also very strong for emerging and developing Europe and Latin America and the Caribbean.

Again, the country-level evidence confirms the strong evidence of a significant negative correlation between commodity terms of trade forecast errors and inflation forecast errors. For example, at the one-year horizon, the proportions

of countries with significantly negative β_{ih}-coefficients equal 0.38 and 0.46 (for $h = 1, F$ and $h = 1, S$) versus proportions of 0.08 for countries with significantly positive β_{ih}-coefficients.

8.5 Global commodity, fuel and non-fuel prices

Table 31 presents the outcome of regressions in errors in WEO forecasts of country-level inflation on an intercept and the contemporaneous error in the WEO forecasts of global commodity prices for the same year. In all cases, the horizon for the inflation forecasts and the forecasts of global commodity prices are aligned, i.e., we regress the h-step-ahead inflation forecast error in economy $\mathcal{G}$, $e^{\pi}_{\mathcal{G},t|t-h}$, on the same-period forecast error of global commodity prices, $e^{\pi}_{GP,t|t-h}$:

$$e^{\pi}_{\mathcal{G},t|t-h} = \alpha^{h}_{\mathcal{G}} + \beta^{h}_{\mathcal{G}} e^{\pi}_{GP,t|t-h} + \varepsilon_{\mathcal{G},t,h}. \tag{36}$$

The upper and lower panels shows the proportion of countries with significantly positive and negative slope estimates, respectively. Focusing again on forecast horizon of one year or longer, for the world as a whole (top row), the proportion of economies with a significantly positive coefficient (Panel I) varies from 54% to 64%. This is much higher than the proportion of countries generating a significantly negative coefficient (Panel II) which fluctuates between 0% and 11% for the same horizons. Groups of economies for which the proportion of countries with significantly positive coefficients is particularly high includes advanced economies, and emerging and developing Europe and Asia.

These results show that over- and underpredictions of global commodity prices generally map into similar over- and under predictions of inflation in the same countries.

Table 32 undertakes the same exercise but uses WEO errors in forecasting global fuel prices rather than errors in forecasting global commodity prices. For the world economy as a whole, the proportion of countries with a significantly positive coefficient remains at a similar level to what we found in Table 31 for the global commodity prices. Moreover, as before, we continue to find very few countries for which the estimated slope coefficient is significant and negative. A similar finding holds when we use WEO errors in forecasting global non-fuel prices (Table 33).

8.6 GDP growth

Table 34 reports the proportion of countries with significantly positive (Panel I) and significantly negative (Panel II) slope coefficients in regressions of WEO inflation forecast errors in country $\mathcal{G}$, $e^{\pi}_{\mathcal{G},t,|t-h}$, on an intercept and WEO GDP growth forecast errors, $e_{GDP,t|t-h}$:

$$e^{\pi}_{\mathcal{G},t|t-h} = \alpha^{h}_{\mathcal{G}} + \beta^{h}_{\mathcal{G}} e_{GDP,t|t-h} + \varepsilon_{\mathcal{G},t,h}. \tag{37}$$

On average, i.e., across the world as a whole, the proportion of estimated slope coefficient that is significantly positive (Panel I) hovers around the size of

the test (5%). In contrast, the proportion of world economies for which we find a significantly negative slope estimate (Panel II) is substantially higher, close to 15% on average across forecast horizons. The proportion of countries with significantly negative coefficients is particularly high for low income countries and developing Asia but is marked lower among the G7 economies.

These findings suggest a tendency for overpredictions of GDP growth to be associated with underpredictions of inflation and vice versa.

As in the analysis of GDP growth forecasts, we also relate errors in forecasting inflation to the WEO forecasts of GDP growth:

$$e^{\pi}_{\mathcal{G},t|t-h} = \alpha^{h}_{\mathcal{G}} + \beta^{h}_{\mathcal{G}} \hat{y}_{GDP,t|t-h} + \varepsilon_{\mathcal{G},t,h}. \tag{38}$$

Table 35 shows the outcome of these regressions. At forecast horizons one year or longer, we find significantly positive coefficients from this regression for between 11% and 18% of the countries (Panel I), with results being particularly strong at many of the horizons for emerging Europe and Middle East, North Africa, Afghanistan, and Pakistan. The proportion of countries generating significantly negative coefficients in this regression is mostly hovering close to 10% on average (Panel II), although it is notably lower among G7 and the advanced economies.

9 Comparison with Consensus Economics inflation forecasts

We finally compare the accuracy of the WEO inflation forecasts to the corresponding inflation forecasts reported by Consensus Economics (CE). To this end, Table 36 shows the distribution of RMSE ratios so that, for each of the four shortest forecast horizons, we compute

$$U_h = \frac{RMSE(WEO_h)}{RMSE(CE_h)} - 1. \tag{39}$$

Again, negative values of this ratio indicate that the WEO forecasts were more accurate, on average, than their CE counterparts. Across all forecast horizons we find that the WEO inflation forecasts produce lower RMSE values than the CE for the majority of countries. Indeed, the "win rate", i.e., the proportion of countries for which the WEO inflation forecasts were more accurate than the CE forecasts (even if not significantly so), ranges from 53% ($h = 1, S$) to 72% ($h = 0, S$). Moreover, the proportion of countries for which the WEO inflation forecasts are significantly more accurate than the CE forecasts, though low, is higher than or equal to the proportion for which the reverse holds at all four horizons. Countries for which the WEO inflation forecasts are more accurate than the CE inflation forecasts for at least three out of four horizons include China, France, Germany, United Kingdom, and the United States.

Forecast encompassing tests (available in Appendix Table A30) reveal that the proportion of individual countries for which the CE inflation forecasts can

significantly predict the WEO inflation forecast errors but not vice versa is 25% and 32% for $h = 0, F$ and $h = 0, S$, respectively.[21] This is considerably higher than the proportion of countries for which the WEO forecasts can significantly predict the CE forecast errors (8% and 4%, respectively) but not vice versa. At the one-year-ahead forecast horizon, the proportion of countries for which the CE forecasts significantly predict WEO inflation forecast errors (11% and 19% for $h = 1, F$ and $h = 1, S$, respectively) is closer to the proportion of countries for which the WEO forecasts significantly predict CE inflation forecast errors (18% and 10%, respectively). Interestingly, the proportion of countries for which the CE forecasts can significantly predict the WEO inflation forecast errors (26% and 22% at the two shortest horizons, $h = 0, F$ and $h = 0, S$) is quite a bit lower than the proportion of countries for which the WEO forecasts significantly predict CE inflation forecast errors (44% and 50% at the two shortest horizons).

10 Conclusion

This study conducts an analysis of the performance of the World Economic Outlook forecasts of GDP growth and inflation. While the analysis concentrates on the sample since the most recent review (2004-2016), we also compare the accuracy of the WEO forecasts to their performance during an earlier period (1990-2003).

Several findings emerge from the analysis:

1. For most groups of economies, comparing the predictive accuracy in the two subsamples 1990-2003 and 2004-2016, there is some evidence that WEO short-term forecasts of GDP growth have become less biased and more accurate over time. The evidence is a bit more mixed for the inflation forecasts.

2. While the WEO current-year and next-year forecasts of GDP growth are notably more accurate than a simple naive (historical average) benchmark, there is little evidence suggesting that the WEO forecasts at longer horizons of 2-5 years contain much predictive content over outcomes, i.e., beat the accuracy associated with a simple forecast that uses the historical average GDP growth.

3. Errors in the WEO forecasts of GDP growth and inflation are closely related to errors in WEO forecasts of terms of trade and commodity terms of trade. A similar, if less strong, finding holds for countries' output gap which, in many cases, helps to predict future forecast errors at the one-year horizon.

[21] The encompassing probability (line 5) in Table A30 reports the proportion of countries for which the WEO forecast is a significant predictor of the CE forecast errors, but not vice versa (first four columns) or cases in which the CE forecast is a significant predictor of the WEO forecast errors, but not vice versa (columns 5-8).

4. For between 15% and 30% of the countries in our sample, errors in WEO forecasts of countries' terms of trade are positively correlated with WEO errors of GDP growth forecasts. Effects appear to be strongest at the multi-year forecast horizons. Similarly, errors in WEO forecasts of commodity terms of trade are significantly positively correlated with errors in multi-year WEO forecasts of GDP growth for close to 30% of the world economies. Again, these forecast errors matter less at shorter forecast horizons.

5. Errors in the WEO forecasts of inflation are, in turn, strongly negatively correlated with errors in forecasting terms of trade, particularly for the G7 countries and advanced economies. An even stronger correlation is found between errors in the WEO forecasts of commodity terms of trade and errors in the WEO inflation forecasts. For forecast horizons longer than one year we find a statistically significant and negative correlation between errors in forecasting inflation and errors in forecasting commodity terms of trade, so that countries for which the WEO overpredicted the commodity terms of trade tend to coincide with the countries for which the WEO underpredicted the inflation rate.

6. The accuracy of the Spring and Fall current-year and next-year WEO forecasts is broadly comparable to the accuracy of the corresponding Consensus Economics forecasts reported for March and September.

These findings suggest a number of points which, if properly addressed, could benefit the performance of future WEO forecasts:

1. Approaches that can enhance the predictive accuracy for the long-term, multi-year forecasts–in some cases even the one-year-ahead forecast reported in the Spring WEO issue–should be considered as there appears to be only weak evidence of gains in predictive accuracy that last beyond the next-year forecasts published in the Fall WEO issue. There may well be limits to how far ahead in time inflation and GDP growth can be predicted, but it seems worth exploring the possibility of producing more accurate multi-year forecasts. For example, the performance of direct versus iterative forecast methods could be considered as could a variety of forecast combination methods.

2. Changes to the way information on the output gap is incorporated into the forecasts could lead to improvements in predictive accuracy. Our analysis indicates that the current output gap has some predictive power over GDP growth and inflation, although the effect varies considerably across countries and forecast horizons.

3. Given the close and often significant relation between errors in forecasting GDP growth or inflation on the one hand and errors in predicting individual countries' terms of trade or their commodity terms of trade, strategies for improving the accuracy of forecasts of these terms of trade

measures could have positive spillover effects on forecasts of output growth and prices. At a minimum, an assessment of the uncertainty surrounding terms of trade and commodity terms of trade forecasts will be helpful in evaluating the uncertainty of GDP growth and inflation forecasts.

4. While the accuracy of the WEO and Consensus Economics forecasts of GDP growth are broadly similar, there are some major economies for which the Consensus Economics forecasts appear to dominate the WEO, including China. Inspecting the reasons for the slightly worse performance of the WEO GDP growth forecasts for China seems sensible.

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11 Appendix: Results for Individual Countries

Tables A1-A30 show statistics on the performance of the WEO and/or Consensus Economics forecasts of real GDP growth and inflation rates in the individual countries in our sample.

GDP Growth Forecasts

Table A1 shows full-sample (1990-2016) RMSE values for the four shortest forecast horizons ($h = 0, F$, $h = 0, S$, $h = 1, F$, $h = 1, S$) and the Fall forecasts for the two through five-year horizons ($h = 2, F$, $h = 3, F$, $h = 4, F$, and $h = 5, F$) along with p-values from the Patton-Timmermann (2010) test for a monotonically (weakly) rising term structure of MSE values against the alternative of a non-monotonic term structure of mean squared GDP growth forecast errors.

Table A2 provides a sub-sample comparison of RMSE values across the four shortest forecast horizons, using the 1990-2003 and 2004-2016 sample split adopted in the main analysis.

Table A3 reports Theil U-statistics comparing WEO forecasts to the historical average GDP growth forecasts for the four shortest forecast horizons and for the Fall forecasts of outcomes two through five years ahead in time.

Table A4 presents estimates of biases in individual countries' current-year ($h = 0, F$ and $h = 0, S$) forecast errors for the two sub-samples (1990-2003 and 2004-2016) as well as for the full sample (1990-2016). The top line ("Proportion Sign.") shows the proportion of individual countries for which the null of a zero bias in the forecast error is rejected at the 5% level, using a two-sided test.

Table A5 is structured the same way as Table A4, but adopts a one-year forecast horizon ($h = 1, F$ and $h = 1, S$). Similarly, Table A6 presents full-sample bias estimates for forecast horizons ranging from two years ($h = 2, S$ and $h = 2, F$) through five years ($h = 5, S$ and $h = 5, F$). Due to the shorter effective sample sizes available for the long-run forecasts, we do not report subsample results in this table.

Table A7 reports the results of efficiency tests using Mincer-Zarnowitz regressions for the four shortest current-year and next-year forecasts of GDP growth in the individual countries.

Table A8 reports estimates of first-order serial correlation in the errors in WEO forecasts of individual countries' GDP growth for the four shortest forecast horizons.

Tables A9-A12 report regression slopes from projections of individual countries' forecast errors on (i) the contemporaneous error in the US GDP growth forecast (Table A9); (ii) the output gap (Table A10); (iv) Errors in WEO forecasts of terms of trade (first four columns in Table A11) or their commodity terms of trade (columns 5-8 in Table A11).

Tables A12-A14 show the outcome of a set of tests applied to the Consensus Economics forecasts of GDP growth in individual countries. Specifically, Table A12 reports the estimated sample bias in the Consensus Economics forecasts of

GDP growth in individual countries forecasts for both the second sub-sample (2004-2016) and for the full sample (1990-2016). Table A13 reports estimates of first-order serial correlation in the errors associated with the Consensus Economics' GDP growth forecasts, again computed for the individual countries. Table A14 shows Mincer-Zarnowitz tests of forecast efficiency for Consensus Economics forecasts of GDP growth in individual countries.

Table A15 reports estimates from forecast encompassing regressions that compare the WEO forecasts to the Consensus Economics forecasts of GDP growth.

Inflation Rate Forecasts

Table A16 shows full-sample (1990-2016) RMSE values for the four shortest forecast horizons ($h = 0, F$, $h = 0, S$, $h = 1, F$, $h = 1, S$) and the Fall forecasts for the two through five-year horizons ($h = 2, F$, $h = 3, F$, $h = 4, F$, and $h = 5, F$) along with p-values from the Patton-Timmermann (2010) test for a monotonically rising term structure of MSE values.

Table A17 provides a sub-sample comparison of RMSE values across the four shortest forecast horizons, using the 1990-2003 and 2004-2016 sample split adopted in the main analysis.

Table A18 reports Theil U-statistics comparing WEO inflation forecasts to random walk inflation forecasts for the four shortest forecast horizons and for the Fall forecasts of outcomes two- through five years ahead in time.

Table A19 presents estimates of biases in individual countries' current-year ($h = 0, F$ and $h = 0, S$) forecast errors for the two sub-samples (1990-2003 and 2004-2016) as well as for the full sample (1990-2016).

Table A20 is structured the same way as Table A20, but adopts a one-year forecast horizon ($h = 1, F$ and $h = 1, S$). Similarly, Table A21 presents full-sample bias estimates for forecast horizons ranging from two years ($h = 2, S$ and $h = 2, F$) through five years ($h = 5, S$ and $h = 5, F$).

Table A22 reports efficiency tests for the WEO inflation forecasts using Mincer-Zarnowitz regressions for the four shortest current-year and next-year forecast horizons.

Table A23 reports estimates of first-order serial correlation in individual countries' inflation forecast errors for the four shortest forecast horizons.

Tables A24-A26 report regression slopes from projections of individual countries' inflation forecast errors on (i) the contemporaneous error in the US inflation rate forecast (Table A24); (ii) individual countries' contemporaneous output gap (Table A25); (iii) Errors in WEO forecasts of the countries' terms of trade (first four columns in Table A26) or their commodity terms of trade (columns 5-8 in Table A26).

Tables A27-A29 show the outcome of a set of tests applied to the Consensus Economics forecasts of inflation in individual countries. Specifically, Table A27 reports the bias in the Consensus Economics forecasts of inflation in individual countries in the second sub-sample (2004-2016) and for the full sample (1990-2016). Table A28 reports estimates of first-order serial correlation in Consensus

Economics' inflation forecast errors, again computed for the individual countries. Table A29 shows Mincer-Zarnowitz tests of forecast efficiency for Consensus Economics forecasts of inflation in individual countries.

Table A30 reports estimates from forecast encompassing regressions that compare the WEO inflation forecasts to the forecasts produced by Consensus Economics.

Tables and Figures

Table 1: **Full-sample (1995-2016) Root Mean Squared Error values for WEO GDP growth forecasts across regions and forecast horizons**

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F	PT
world	0.30	0.54	1.24	1.51	1.57	1.60	1.63	1.61	0.62
G7	0.32	0.52	1.14	1.44	1.59	1.67	1.67	1.62	0.24
ae	0.30	0.52	1.17	1.47	1.58	1.64	1.66	1.62	0.24
emde	0.49	0.85	1.67	1.98	1.98	2.01	2.06	2.12	0.88
lics	0.63	0.88	1.45	1.67	1.63	1.62	1.52	1.48	0.38
eeur	1.27	1.70	2.77	2.93	2.78	2.77	2.76	2.82	0.53
dasia	0.64	1.06	1.71	1.90	1.90	1.96	2.15	2.26	0.98
lac	0.67	1.29	2.43	2.90	2.92	3.16	3.19	3.22	0.97
menap	0.62	0.92	1.53	1.63	1.78	1.81	1.85	1.81	0.84
cis	1.09	3.07	4.40	4.80	5.02	4.82	4.38	4.40	0.28
ssa	0.64	0.96	1.71	1.93	1.97	1.90	1.75	1.70	0.06*
fuel exp	0.77	1.43	2.49	2.76	3.01	2.92	2.74	2.79	0.21
prgrm	0.62	1.02	1.71	2.02	2.28	2.47	2.46	2.41	0.66

Notes: This table shows full-sample estimates of RMSE values across a variety of forecast horizons h ordered in declining order from current year fall and spring WEO forecasts (h=0,F and h = 0,S) to next-year forecasts (h = 1,F and h = 1,S) and forecasts 2, 3, 4 and 5 years ahead from the fall WEO issues (h=2,F, h = 3,F, h = 4,F, and h = 5,F). The Patton-Timmermann (PT) monotonicity test listed in the right-most column provides the p-value for the null hypothesis of a weakly increasing term structure of RMSE values as the forecast horizon grows. Small p-values indicate that the null is rejected. ***: significant at the 1% level, **: significant at the 5% level, *: significant at the 10% level.

Table 2: **Sub-sample RMSE values for WEO GDP growth forecasts: 1990-2003 versus 2004-2016**

Panel I: RMSE values

	1990-2003						2004-2016					
	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=5,F	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=5,F
world	0.31	0.60	1.12	1.21	1.19	1.17	0.29	0.41	1.35	1.74	1.80	1.85
G7	0.32	0.58	1.14	1.24	1.17	0.99	0.33	0.42	1.26	1.68	1.87	1.95
ae	0.32	0.60	1.16	1.26	1.20	1.01	0.30	0.41	1.28	1.71	1.85	1.94
emde	0.44	0.85	1.40	1.62	1.70	2.15	0.48	0.74	1.70	2.03	1.99	2.10
lics	0.94	1.62	2.03	2.43	2.43	1.80	0.70	0.99	1.38	1.54	1.39	1.21
eeur	1.61	3.31	3.97	4.13	3.31	3.02	0.85	1.07	2.35	2.72	2.59	2.67
dasia	0.77	1.27	2.08	2.18	2.46	2.55	0.53	0.98	1.33	1.67	1.60	2.03
lac	0.95	1.54	2.36	2.79	2.93	3.82	0.48	1.01	2.15	2.65	2.66	2.72
menap	0.83	1.42	1.44	1.43	2.03	1.49	0.61	0.92	1.69	1.81	1.94	2.00
cis	1.87	4.50	5.89	5.74	5.54	3.82	0.62	1.22	4.05	4.56	4.64	4.64
ssa	1.09	1.79	2.26	2.72	2.67	1.82	0.70	1.03	1.73	1.85	1.88	1.60
fuel exp	1.09	2.06	2.61	2.67	3.06	2.28	0.63	1.07	2.76	3.00	3.21	3.09
prgrm	0.68	1.16	1.81	2.14	2.46	2.88	0.69	1.02	1.55	1.88	2.16	2.06

Panel II: RMSE differentials (1990-2003 vs. 2004-2016)

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=5,F
world	0.01	0.19*	-0.22	-0.53	-0.60	-0.67
	(0.48)	(0.09)	(0.57)	(0.73)	(0.53)	(0.64)
G7	-0.01	0.16*	-0.12	-0.43	-0.70	-0.95
	(0.54)	(0.09)	(0.55)	(0.70)	(0.58)	(0.54)
ae	0.01	0.19*	-0.11	-0.44	-0.64	-0.93
	(0.48)	(0.07)	(0.53)	(0.69)	(0.55)	(0.57)
emde	-0.03	0.11	-0.29	-0.41	-0.28	0.04
	(0.61)	(0.29)	(0.69)	(0.73)	(0.61)	(0.45)
lics	0.23	0.63	0.64**	0.89**	1.03**	0.59
	(0.20)	(0.14)	(0.04)	(0.02)	(0.02)	(0.11)
eeur	0.76***	2.24***	1.62	1.41	0.72	0.35
	(0.00)	(0.00)	(0.11)	(0.14)	(0.28)	(0.36)
dasia	0.23	0.29	0.74	0.51	0.86	0.52
	(0.11)	(0.14)	(0.12)	(0.33)	(0.11)	(0.24)
lac	0.47***	0.53*	0.21	0.14	0.27	1.09
	(0.00)	(0.07)	(0.36)	(0.41)	(0.35)	(0.12)
menap	0.21	0.49*	-0.24	-0.38	0.08	-0.50
	(0.14)	(0.08)	(0.62)	(0.66)	(0.44)	(0.86)
cis	1.24***	3.27***	1.83	1.18	0.90	-0.82
	(0.00)	(0.00)	(0.16)	(0.28)	(0.32)	(0.68)
ssa	0.39	0.76**	0.53	0.86*	0.78	0.22
	(0.11)	(0.04)	(0.14)	(0.08)	(0.12)	(0.35)
fuel exp	0.46**	0.98***	-0.14	-0.33	-0.15	-0.81
	(0.03)	(0.00)	(0.56)	(0.55)	(0.51)	(0.84)
prgrm	-0.00	0.13	0.25	0.26	0.30	0.81*
	(0.50)	(0.32)	(0.22)	(0.23)	(0.24)	(0.06)

Notes: Panel I shows sub-sample estimates of RMSE values for 1990-2003 (first four columns) and 2004-2016 (columns 5-8)computed for the four shortest forecast horizons (h) ordered in declining order from current year fall and spring forecasts (h=0,F and h = 0,S) to next-year forecasts (h = 1,F and h = 1,S). Panel II reports the RMSE difference computed as the 1990-2003 RMSE value minus the 2004-2016 RMSE so positive values indicate that the RMSE has come down between the first and second subsamples. The number in the bracket is the p-value obtained from bootstrapping under the null that the expected squared forecast errors are the same across the two subsamples. A small p-value indicates that the 2004-2016 RMSE value is significantly smaller than the 1990-2003 RMSE value. Stars indicate if the null of a zero bias is rejected against a two-sided alternative of a non-zero bias. ***: significant at the 1% level, **: significant at the 5% level, *: significant at the 10% level.

Table 3: **Sub-sample RMSE values for WEO GDP growth forecasts: 1990-2003 versus 2004-2016 excluding 2009**

Panel I: RMSE values

	1990-2003						2004-2016					
	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=5,F	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=5,F
world	0.31	0.60	1.12	1.21	1.19	1.17	0.30	0.40	0.81	1.19	0.89	1.09
G7	0.32	0.58	1.14	1.24	1.17	0.99	0.35	0.43	0.75	1.16	0.93	0.94
ae	0.32	0.60	1.16	1.26	1.20	1.01	0.32	0.41	0.75	1.15	0.89	0.96
emde	0.44	0.85	1.40	1.62	1.70	2.15	0.48	0.76	1.24	1.58	1.43	1.88
lics	0.94	1.62	2.03	2.43	2.43	1.80	0.58	0.93	1.37	1.50	1.36	1.26
eeur	1.61	3.31	3.97	4.13	3.31	3.02	0.81	1.11	1.46	1.80	1.26	1.52
dasia	0.77	1.27	2.08	2.18	2.46	2.55	0.53	0.83	1.35	1.68	1.57	2.11
lac	0.95	1.54	2.36	2.79	2.93	3.82	0.45	1.05	1.69	2.25	2.18	2.39
menap	0.83	1.42	1.44	1.43	2.03	1.49	0.63	0.94	1.24	1.30	1.44	1.83
cis	1.87	4.50	5.89	5.74	5.54	3.82	0.65	1.17	2.13	2.73	2.86	3.33
ssa	1.09	1.79	2.26	2.72	2.67	1.82	0.57	1.01	1.46	1.61	1.76	1.60
fuel exp	1.09	2.06	2.61	2.67	3.06	2.28	0.65	1.09	1.68	1.94	2.31	2.54
prgrm	0.68	1.16	1.81	2.14	2.46	2.88	0.71	1.06	1.62	1.95	2.22	2.14

Panel II: RMSE differentials (1990-2003 vs. 2004-2016)

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=5,F
world	0.01	0.19*	0.30	0.02	0.29	0.08
	(0.50)	(0.09)	(0.13)	(0.48)	(0.10)	(0.34)
G7	-0.02	0.15	0.38	0.08	0.24	0.04
	(0.57)	(0.11)	(0.11)	(0.40)	(0.20)	(0.41)
ae	0.00	0.19*	0.41*	0.10	0.31	0.04
	(0.49)	(0.08)	(0.08)	(0.39)	(0.13)	(0.41)
emde	-0.03	0.09	0.15	0.04	0.27	0.26
	(0.60)	(0.33)	(0.41)	(0.45)	(0.27)	(0.30)
lics	0.35	0.68	0.65*	0.93**	1.06**	0.54
	(0.12)	(0.13)	(0.05)	(0.03)	(0.02)	(0.15)
eeur	0.79***	2.19***	2.51**	2.33**	2.05**	1.50*
	(0.00)	(0.00)	(0.01)	(0.03)	(0.01)	(0.07)
dasia	0.24	0.44*	0.72	0.50	0.88	0.44
	(0.11)	(0.05)	(0.15)	(0.34)	(0.12)	(0.25)
lac	0.49***	0.49	0.66	0.54	0.75	1.43
	(0.00)	(0.10)	(0.13)	(0.20)	(0.13)	(0.10)
menap	0.19	0.48*	0.19	0.12	0.58*	-0.33
	(0.17)	(0.09)	(0.23)	(0.30)	(0.07)	(0.73)
cis	1.21***	3.32***	3.75***	3.01***	2.68**	0.48
	(0.00)	(0.00)	(0.00)	(0.00)	(0.02)	(0.44)
ssa	0.52*	0.78**	0.79**	1.11**	0.90	0.22
	(0.05)	(0.04)	(0.04)	(0.03)	(0.10)	(0.33)
fuel exp	0.44**	0.96**	0.93	0.73	0.74*	-0.26
	(0.04)	(0.01)	(0.14)	(0.11)	(0.08)	(0.63)
prgrm	-0.03	0.09	0.18	0.19	0.24	0.73*
	(0.55)	(0.37)	(0.28)	(0.29)	(0.30)	(0.08)

Notes: Panel I shows sub-sample estimates of RMSE values for 1990-2003 (first four columns) and 2004-2016 (columns 5-8)computed for the four shortest forecast horizons (h) ordered in declining order from current year fall and spring forecasts (h=0,F and h = 0,S) to next-year forecasts (h = 1,F and h = 1,S). Panel II reports the RMSE difference computed as the 1990-2003 RMSE value minus the 2004-2016 RMSE so positive values indicate that the RMSE has come down between the first and second subsamples. The number in the bracket is the p-value obtained from bootstrapping under the null that the expected squared forecast errors are the same across the two subsamples. A small p-value indicates that the 2004-2016 RMSE value is significantly smaller than the 1990-2003 RMSE value. Stars indicate if the null of a zero bias is rejected against a two-sided alternative of a non-zero bias. ***: significant at the 1% level, **: significant at the 5% level, *: significant at the 10% level.

Table 4: **Theil U-statistics: WEO forecasts of GDP growth versus the historical average**

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F
world	0.05	0.15	0.87	1.27	1.35	1.37	1.44	1.41
G7	0.05	0.13	0.71	1.08	1.27	1.32	1.34	1.23
ae	0.04	0.13	0.72	1.08	1.20	1.23	1.27	1.19
emde	0.07	0.21	0.78	1.10	0.99	1.00	1.04	1.09
lics	0.31	0.82	1.30	1.79	1.38	1.17	0.98	0.80
eeur	0.15	0.56	0.93	1.07	0.78	0.68	0.65	0.57
dasia	0.14	0.42	0.95	1.18	1.12	1.09	1.24	1.37
lac	0.09	0.28	0.82	1.19	1.22	1.41	1.40	1.58
menap	0.20	0.56	0.92	0.99	1.33	1.09	1.23	1.06
cis	0.02	0.16	0.38	0.41	0.31	0.24	0.17	0.15
ssa	0.27	0.70	1.28	1.73	1.46	1.23	0.98	0.85
fuel exp	0.08	0.28	0.72	0.81	0.79	0.61	0.53	0.49
prgrm	0.32	0.82	1.70	2.39	2.22	2.45	2.00	1.76

Notes: This table reports estimates of the Theil U-statistic computed as the ratio of the mean squared error (MSE) of the WEO forecasts relative to the MSE of the recursively updated historical average GDP growth. Values are shown for forecast horizons covering the current year (h=0,F and h = 0,S), next year (h=1,F and h = 1,S) as well as two through five years into the future. Values below unity indicate that the WEO forecasts are relatively more accurate than the historical average forecasts in an absolute and relative sense, while values above unity suggest that the historical average is most accurate.

Table 5: **Biases in WEO forecasts of GDP growth**

Panel I: Current-year forecasts

	1990-2003		2004-2016		1990-2016	
	h=0,F	h=0,S	h=0,F	h=0,S	h=0,F	h=0,S
world	0.00	-0.05	0.02	-0.02	0.01	-0.04
G7	-0.05	-0.04	-0.04	-0.16*	-0.04	-0.10
ae	-0.03	-0.04	-0.01	-0.08	-0.02	-0.06
emde	0.14	-0.08	0.19	0.20	0.17*	0.05
lics	-0.45*	-1.07***	0.36**	-0.06	-0.05	-0.59**
eeur	-0.08	-1.11	0.34	0.51*	0.12	-0.33
dasia	0.39**	0.40	0.22	0.42	0.31***	0.41*
lac	0.07	-0.21	0.18	0.02	0.12	-0.09
menap	0.09	0.05	0.02	0.04	0.06	0.04
cis	0.71	0.90	0.12	0.05	0.39	0.44
ssa	-0.61**	-1.34***	0.30	-0.26	-0.16	-0.82***
fuel exp	0.43*	0.48	0.15	0.03	0.30*	0.26
prgrm	-0.08	-0.43	-0.17	-0.71***	-0.12	-0.56***

Panel II: Next-year forecasts

	1990-2003		2004-2016		1990-2016	
	h=1,F	h=1,S	h=1,F	h=1,S	h=1,F	h=1,S
world	-0.53**	-0.75***	-0.41	-0.55	-0.47**	-0.65***
G7	-0.47*	-0.70**	-0.46	-0.63*	-0.47**	-0.67***
ae	-0.48*	-0.70**	-0.43	-0.60	-0.45**	-0.65***
emde	-0.72**	-0.91**	-0.18	-0.23	-0.45	-0.57
lics	-1.70***	-2.06***	-0.48	-0.44	-1.09***	-1.25***
eeur	-1.45	-1.78*	0.00	-0.11	-0.72	-0.95
dasia	0.36	0.28	0.39	0.35	0.38	0.31
lac	-1.33**	-1.74***	-0.40	-0.58	-0.87**	-1.16**
menap	-0.26	-0.10	-0.63	-0.64	-0.45	-0.37
cis	-1.17	-1.69	-1.10	-0.92	-1.13	-1.25
ssa	-1.90***	-2.31***	-0.89**	-0.83*	-1.40***	-1.57***
fuel exp	-0.69	-0.62	-0.89	-0.77	-0.79	-0.69
prgrm	-1.29***	-1.79***	-1.32***	-1.59***	-1.30***	-1.69***

Panel III: Forecasts 2-5 years ahead

	h=2,F	h=2,S	h=3,F	h=3,S	h=4,F	h=4,S	h=5,F	h=5,S
world	-0.87***	-0.97***	-1.01***	-1.04***	-0.97***	-0.96***	-0.96***	-0.95***
G7	-0.90***	-1.01***	-1.05***	-1.06***	-0.94***	-0.94***	-0.90***	-0.90***
ae	-0.88***	-0.98***	-1.02***	-1.03***	-0.93***	-0.93***	-0.92***	-0.91***
emde	-0.72*	-0.83**	-0.89**	-0.95**	-0.97**	-0.98**	-0.98*	-0.95*
lics	-1.30***	-1.24***	-1.10***	-1.03***	-0.88**	-0.88**	-0.70	-0.61
eeur	-0.90*	-1.02**	-1.01**	-1.00**	-1.17***	-1.13**	-0.99**	-0.95*
dasia	0.27	0.16	0.08	-0.00	-0.07	-0.08	-0.12	-0.12
lac	-1.52***	-1.64***	-1.71***	-1.77***	-1.83***	-1.87***	-1.94***	-1.99***
menap	-0.50	-0.51	-0.71	-0.72	-0.75	-0.71	-0.70	-0.55
cis	-1.58	-1.77	-1.66	-1.80	-1.60	-1.63	-1.63	-1.58
ssa	-1.60***	-1.56***	-1.33***	-1.25***	-1.07**	-1.04**	-0.86*	-0.78*
fuel exp	-0.92	-0.96	-1.17*	-1.16*	-1.10	-1.07	-1.00	-0.83
prgrm	-1.96***	-2.12***	-2.13***	-2.13***	-2.05***	-1.98***	-2.01***	-1.98***

Notes: This table reports estimates of forecast biases, i.e., the sample mean difference between the actual GDP growth and the predicted value, with positive values indicating underpredictions while negative values indicate overpredictions of the outcome. Panel I shows results for the current-year forecasts (h = 0, Spring and Fall) for the 1990-2003 and 2004-2016 subsamples as well as for the full sample, 1990-2016. Panel II repeats shows bias estimates for the one-year forecast horizons (h = 1, Spring and Fall), again for three different sample periods. Finally, Panel III shows results for the longer 2-5 year forecast horizons. Stars indicate if the null of a zero bias is rejected against a two-sided alternative of a non-zero bias. ***: significant at the 1% level, **: significant at the 5% level, *: significant at the 10% level.

Table 6: **Biases in WEO forecasts of GDP growth, exclude 2009**

Panel I: Current-year forecasts

	1990-2003		2004-2016		1990-2016	
	h=0,F	h=0,S	h=0,F	h=0,S	h=0,F	h=0,S
world	0.00	-0.05	0.00	-0.06	0.00	-0.06
G7	-0.05	-0.04	-0.05	-0.19***	-0.05	-0.11
ae	-0.03	-0.04	-0.03	-0.12**	-0.03	-0.08
emde	0.14	-0.08	0.16	0.18	0.15*	0.03
lics	-0.45*	-1.07***	0.27*	-0.19	-0.11	-0.67**
eeur	-0.08	-1.11	0.27	0.54**	0.07	-0.34
dasia	0.39**	0.40	0.19	0.29	0.30**	0.35
lac	0.07	-0.21	0.14	0.06	0.10	-0.08
menap	0.09	0.05	0.04	0.10	0.07	0.07
cis	0.71	0.90	0.14	0.20	0.41	0.53
ssa	-0.61**	-1.34***	0.19	-0.38	-0.23	-0.90***
fuel exp	0.43*	0.48	0.17	0.10	0.31*	0.30
prgrm	-0.08	-0.43	-0.17	-0.77***	-0.12	-0.59***

Panel II: Next-year forecasts

	1990-2003		2004-2016		1990-2016	
	h=1,F	h=1,S	h=1,F	h=1,S	h=1,F	h=1,S
world	-0.53**	-0.75***	-0.11	-0.20	-0.33**	-0.49**
G7	-0.47*	-0.70**	-0.19	-0.31	-0.33**	-0.51***
ae	-0.48*	-0.70**	-0.15	-0.26	-0.32*	-0.49**
emde	-0.72**	-0.91**	0.16	0.15	-0.29	-0.40
lics	-1.70***	-2.06***	-0.39	-0.32	-1.07***	-1.22***
eeur	-1.45	-1.78*	0.57	0.50	-0.48	-0.68
dasia	0.36	0.28	0.51	0.50	0.43	0.39
lac	-1.33**	-1.74***	-0.01	-0.17	-0.70	-0.99*
menap	-0.26	-0.10	-0.33	-0.30	-0.29	-0.20
cis	-1.17	-1.69	-0.14	0.12	-0.61	-0.70
ssa	-1.90***	-2.31***	-0.66	-0.59	-1.31***	-1.48***
fuel exp	-0.69	-0.62	-0.29	-0.13	-0.50	-0.38
prgrm	-1.29***	-1.79***	-1.43***	-1.68***	-1.35***	-1.74***

Panel III: Forecasts 2-5 years ahead

	h=2,F	h=2,S	h=3,F	h=3,S	h=4,F	h=4,S	h=5,F	h=5,S
world	-0.67***	-0.77***	-0.81***	-0.84***	-0.76***	-0.76***	-0.75***	-0.74***
G7	-0.69***	-0.79***	-0.83***	-0.84***	-0.70***	-0.70***	-0.65***	-0.65***
ae	-0.67***	-0.76***	-0.80***	-0.81***	-0.69***	-0.69***	-0.67***	-0.66***
emde	-0.54	-0.66*	-0.73	-0.81*	-0.84	-0.84	-0.84	-0.82
lics	-1.28***	-1.26***	-1.13***	-1.06***	-0.91**	-0.93**	-0.74	-0.64
eeur	-0.60	-0.72*	-0.71*	-0.71	-0.87**	-0.83*	-0.66	-0.63
dasia	0.37	0.22	0.14	0.01	-0.08	-0.08	-0.12	-0.12
lac	-1.33**	-1.47**	-1.55**	-1.62**	-1.68**	-1.71**	-1.78**	-1.83**
menap	-0.31	-0.33	-0.54	-0.56	-0.61	-0.58	-0.57	-0.43
cis	-1.01	-1.24	-1.09	-1.25	-1.05	-1.08	-1.04	-1.02
ssa	-1.55***	-1.53***	-1.30***	-1.22***	-1.05**	-1.02**	-0.82	-0.74
fuel exp	-0.61	-0.67	-0.88	-0.88	-0.83	-0.80	-0.72	-0.56
prgrm	-1.99***	-2.15***	-2.15***	-2.15***	-2.08***	-2.02***	-2.08***	-2.04***

Notes: This table reports estimates of forecast biases, i.e., the sample mean difference between the actual GDP growth and the predicted value, with positive values indicating underpredictions while negative values indicate overpredictions of the outcome. Panel I shows results for the current-year forecasts (h = 0, Spring and Fall) for the 1990-2003 and 2004-2016 subsamples as well as for the full sample, 1990-2016. Panel II repeats shows bias estimates for the one-year forecast horizons (h = 1, Spring and Fall), again for three different sample periods. Finally, Panel III shows results for the longer 2-5 year forecast horizons. Stars indicate if the null of a zero bias is rejected against a two-sided alternative of a non-zero bias. ***: significant at the 1% level, **: significant at the 5% level, *: significant at the 10% level.

Table 7: **Comparison of biases in forecasts of GDP growth across the 1990-2003 and 2004-2016 subsamples**

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F
world	-0.02	0.02	0.12	0.19	-0.05	-0.18	-0.24	-0.15
	(0.56)	(0.44)	(0.40)	(0.37)	(0.53)	(0.60)	(0.65)	(0.62)
G7	0.00	-0.12	0.01	0.06	-0.19	-0.39	-0.41	-0.31
	(0.48)	(0.72)	(0.49)	(0.44)	(0.59)	(0.67)	(0.65)	(0.57)
ae	0.01	-0.04	0.04	0.10	-0.17	-0.38	-0.45	-0.35
	(0.46)	(0.57)	(0.45)	(0.42)	(0.59)	(0.68)	(0.72)	(0.63)
emde	-0.04	-0.12	0.54	0.67	0.52	0.70	0.75	0.89
	(0.60)	(0.82)	(0.19)	(0.16)	(0.23)	(0.20)	(0.23)	(0.25)
lics	0.08	1.00**	1.21**	1.61***	1.53***	1.60**	1.32*	1.22*
	(0.39)	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)	(0.05)	(0.09)
eeur	-0.25	0.60	1.44**	1.66	0.62	0.34	0.33	-0.35
	(0.79)	(0.23)	(0.02)	(0.11)	(0.29)	(0.37)	(0.39)	(0.59)
dasia	0.17	-0.02	-0.02	-0.06	0.18	-0.06	0.18	0.39
	(0.22)	(0.52)	(0.52)	(0.53)	(0.41)	(0.63)	(0.44)	(0.31)
lac	-0.11	0.18**	0.93	1.15	1.34*	1.56*	1.78*	2.05*
	(0.65)	(0.03)	(0.13)	(0.12)	(0.07)	(0.08)	(0.06)	(0.08)
menap	0.07	0.00	-0.37	-0.54	-0.37	-0.06	-0.17	-0.29
	(0.41)	(0.50)	(0.72)	(0.79)	(0.68)	(0.54)	(0.56)	(0.57)
cis	0.58	0.84	0.07	0.77	0.03	-0.00	-0.37	-0.57
	(0.14)	(0.26)	(0.48)	(0.36)	(0.48)	(0.48)	(0.55)	(0.54)
ssa	0.30	1.07**	1.01**	1.47**	1.43**	1.38**	1.12	1.01
	(0.20)	(0.01)	(0.03)	(0.01)	(0.01)	(0.04)	(0.14)	(0.14)
fuel exp	0.28	0.45	-0.19	-0.15	-0.04	0.58	0.48	0.27
	(0.20)	(0.24)	(0.57)	(0.55)	(0.51)	(0.32)	(0.38)	(0.43)
prgrm	-0.09	-0.28	-0.03	0.20	0.43	0.52	0.65	0.97*
	(0.62)	(0.77)	(0.53)	(0.32)	(0.19)	(0.16)	(0.13)	(0.07)

Notes: This table compares the bias in the forecast of GDP growth in 1990-2003 versus 2004-2016. Specifically, the number in the top line is computed as the absolute value of the mean forecast error in 1990-2003 minus the absolute value of the mean forecast error in 2004-2016, with positive values indicating that the magnitude of the bias (measured in absolute terms) has come down over time, while negative values suggest the opposite. Numbers in brackets are p-values calculated from a permutation bootstrap. A small p-value indicates that the absolute value of the bias is smaller in the second subsample (2004-2016) compared to the first subsample (1990-2003). Stars indicate if the null of a zero bias is rejected against a two-sided alternative of a non-zero bias. ***: significant at the 1% level, **: significant at the 5% level, *: significant at the 10% level.

Table 8: **Comparison of biases in forecasts of GDP growth across the 1990-2003 and 2004-2016 subsamples (exclude 2009)**

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F
world	-0.00	-0.01	0.42	0.54	0.34	0.18	0.12	0.22
	(0.30)	(0.52)	(0.13)	(0.12)	(0.15)	(0.27)	(0.36)	(0.32)
G7	-0.00	-0.15	0.28	0.39	0.22	0.01	0.01	0.12
	(0.51)	(0.76)	(0.23)	(0.20)	(0.26)	(0.48)	(0.48)	(0.42)
ae	0.00	-0.08	0.33	0.44	0.23	0.01	-0.03	0.06
	(0.49)	(0.64)	(0.20)	(0.17)	(0.24)	(0.48)	(0.55)	(0.46)
emde	-0.01	-0.09	0.55	0.75*	0.91*	1.04	1.02	1.16
	(0.52)	(0.79)	(0.10)	(0.07)	(0.07)	(0.11)	(0.17)	(0.22)
lics	0.18	0.87**	1.30***	1.73***	1.62***	1.62**	1.31*	1.20
	(0.27)	(0.02)	(0.00)	(0.00)	(0.00)	(0.02)	(0.07)	(0.11)
eeur	-0.18	0.56	0.88	1.28	1.20*	0.93	0.90	0.22
	(0.75)	(0.25)	(0.25)	(0.12)	(0.05)	(0.16)	(0.18)	(0.41)
dasia	0.20	0.10	-0.14	-0.22	0.00	-0.16	0.19	0.37
	(0.19)	(0.39)	(0.57)	(0.60)	(0.49)	(0.56)	(0.42)	(0.29)
lac	-0.07	0.15*	1.32**	1.56**	1.76**	1.93*	2.14*	2.40
	(0.59)	(0.08)	(0.04)	(0.04)	(0.02)	(0.06)	(0.08)	(0.10)
menap	0.04	-0.05	-0.06	-0.20	-0.01	0.24	0.06	-0.06
	(0.45)	(0.55)	(0.54)	(0.63)	(0.50)	(0.38)	(0.46)	(0.48)
cis	0.57	0.69	1.03	1.57	1.03	0.93	0.50	0.28
	(0.15)	(0.31)	(0.29)	(0.16)	(0.29)	(0.33)	(0.44)	(0.40)
ssa	0.41	0.95**	1.24**	1.71***	1.60**	1.48**	1.20	1.11
	(0.11)	(0.01)	(0.01)	(0.00)	(0.01)	(0.04)	(0.11)	(0.17)
fuel exp	0.26	0.38	0.40	0.48	0.57	1.15	0.99	0.77
	(0.22)	(0.28)	(0.33)	(0.29)	(0.30)	(0.18)	(0.27)	(0.35)
prgrm	-0.09	-0.34	-0.14	0.11	0.38	0.50	0.60	0.88
	(0.63)	(0.81)	(0.62)	(0.39)	(0.22)	(0.19)	(0.16)	(0.10)

Notes: This table compares the bias in the forecast of GDP growth in 1990-2003 versus 2004-2016. Specifically, the number in the top line is computed as the absolute value of the mean forecast error in 1990-2003 minus the absolute value of the mean forecast error in 2004-2016, with positive values indicating that the magnitude of the bias (measured in absolute terms) has come down over time, while negative values suggest the opposite. Numbers in brackets are p-values calculated from a permutation bootstrap. A small p-value indicates that the absolute value of the bias is smaller in the second subsample (2004-2016) compared to the first subsample (1990-2003). Stars indicate if the null of a zero bias is rejected against a two-sided alternative of a non-zero bias. ***: significant at the 1% level, **: significant at the 5% level, *: significant at the 10% level.

Table 9: **Mincer-Zarnowitz tests of efficiency of WEO forecasts of GDP growth**

	MZ p-value				slope coefficient			
	h=0,F	h=0,S	h=1,F	h=1,S	h=0,F	h=0,S	h=1,F	h=1,S
world	0.58	0.31	0.02**	0.00***	0.97	0.93	0.91	-0.23***
G7	0.31	0.04**	0.05*	0.00***	0.97	0.94*	1.17	0.47
ae	0.34	0.07*	0.06*	0.00***	0.97	0.94**	1.12	0.40
emde	0.03**	0.88	0.27	0.14	0.98	0.98	0.86	0.25
lics	0.01**	0.10	0.00***	0.00***	1.29***	1.15	1.35	1.18
eeur	0.22	0.52	0.44	0.10	1.16	1.36	0.77	0.00*
dasia	0.00***	0.21	0.00***	0.00***	0.87***	0.94	0.42***	0.06***
lac	0.40	0.56	0.01**	0.00***	1.03	1.10	1.34	0.00
menap	0.25	0.19	0.13	0.25	0.87	0.69*	0.55*	0.40
cis	0.19	0.73	0.54	0.55	1.02	0.94	1.02	1.11
ssa	0.28	0.00***	0.00***	0.00***	1.22	1.17	1.33	1.31
fuel exp	0.17	0.64	0.35	0.47	0.98	0.94	0.99	1.06
prgrm	0.19	0.00***	0.00***	0.00***	0.81*	0.62***	0.54*	0.38

Notes: This table presents results from Mincer-Zarnowitz (MZ) regressions of the actual GDP growth on an intercept and the predicted value from different WEO issues. Under the null of forecast efficiency, the estimated intercept should be zero while the slope coefficient should equal one. For each of the four forecast horizons, the left-most columns report p-values from an F-test of this joint null. The four columns to the right report the estimated slope coefficient on the forecast, with stars indicating deviations from the null that this coefficient equals one. ***: significant at the 1% level, **: significant at the 5% level, *: significant at the 10% level.

Table 10: **Estimates of first-order serial correlation in GDP forecast errors**

	serial corr				fraction significant			
	h=0,F	h=0,S	h=1,F	h=1,S	h=0,F	h=0,S	h=1,F	h=1,S
world	-0.14	-0.21	-0.00	-0.01	0.20	0.32	0.39	0.44
G7	-0.04	-0.31**	0.01	0.03	0.00	0.00	0.00	0.00
ae	-0.09	-0.30**	0.00	0.01	0.16	0.19	0.08	0.19
emde	0.21	0.12	0.11	0.12	0.21	0.35	0.46	0.50
lics	0.63***	0.67***	0.71***	0.65***	0.29	0.41	0.48	0.53
eeur	-0.15	0.10	-0.03	0.00	0.25	0.50	0.41	0.75
dasia	0.24	0.42***	0.25	0.33*	0.14	0.32	0.40	0.48
lac	-0.36**	-0.06	0.15	0.20	0.15	0.31	0.50	0.46
menap	0.15	0.19	0.30**	0.24	0.22	0.39	0.56	0.52
cis	0.05	0.03	0.16	0.29	0.41	0.41	0.66	0.58
ssa	0.64***	0.77***	0.72***	0.69***	0.22	0.31	0.38	0.43
fuel exp	0.15	0.13	0.26*	0.24	0.25	0.37	0.55	0.44
prgrm	-0.00	0.36***	0.48***	0.63***	0.20	0.36	0.44	0.49

Notes: This table reports estimates of first-order serial correlation in the forecast errors. Under the null of an efficient forecast, the first-order serial correlation should equal zero. Using the four shortest forecast horizons, the left-most columns present the estimated first-order autocorrelation along with stars indicating statistical significance for a two-sided test statistic. The four columns on the right show the proportion of countries within a particular economic group that generate forecast errors with a first-order serial correlation that is significantly different from zero at the 5% level.

Table 11: **Sources of errors in WEO GDP forecasts: projection on errors in forecasts of GDP growth of major economies**

Panel I: Projection on errors in forecasts of US GDP growth

	beta				5% significant ratio			
	h=0,F	h=0,S	h=1,F	h=1,S	h=0,F	h=0,S	h=1,F	h=1,S
world	0.40***	0.32***	0.60***	0.61***	0.10	0.10	0.20	0.22
G7	0.51***	0.49***	0.67***	0.69***	0.33	0.16	0.66	0.50
ae	0.46***	0.42***	0.66***	0.67***	0.17	0.08	0.54	0.45
emde	0.18	-0.00	0.38	0.35	0.08	0.10	0.13	0.16
lics	-0.10	0.06	0.14	0.11	0.01	0.15	0.12	0.10
eeur	-0.03	0.25	1.20**	1.13**	0.16	0.00	0.25	0.50
dasia	0.26	0.00	0.14	0.10	0.03	0.07	0.14	0.21
lac	0.36	0.51	0.57*	0.60*	0.18	0.09	0.25	0.25
menap	-0.04	-0.51	0.13	0.09	0.04	0.13	0.04	0.08
cis	-0.04	-1.21	0.61	0.46	0.00	0.16	0.00	0.00
ssa	-0.04	0.00	0.27	0.17	0.06	0.13	0.09	0.06
fuel exp	-0.02	-0.86*	0.19	0.12	0.07	0.11	0.07	0.07
prgrm	-0.15	-0.00	-0.03	-0.15	0.08	0.09	0.12	0.15

Panel II: Projection on errors in forecasts of China GDP growth

	beta				5% significant ratio			
	h=0,F	h=0,S	h=1,F	h=1,S	h=0,F	h=0,S	h=1,F	h=1,S
world	0.03	0.02	0.08	0.09	0.25	0.31	0.19	0.26
G7	0.04	0.00	0.00	0.00	0.33	0.00	0.00	0.00
ae	0.03	-0.00	0.01	0.01	0.20	0.25	0.17	0.17
emde	0.05	0.12	0.31**	0.35**	0.26	0.33	0.20	0.28
lics	-0.15	-0.31**	-0.13	-0.11	0.12	0.36	0.15	0.17
eeur	-0.33**	-0.05	0.02	0.08	0.58	0.33	0.33	0.50
dasia	0.40***	0.47***	0.62***	0.58***	0.10	0.32	0.25	0.35
lac	-0.04	0.14	0.30**	0.37**	0.37	0.37	0.31	0.31
menap	-0.04	-0.25**	0.10	0.27**	0.34	0.47	0.34	0.52
cis	0.37*	0.66**	1.28	0.79	0.25	0.33	0.00	0.08
ssa	-0.21	-0.30*	-0.14	-0.12	0.15	0.22	0.04	0.09
fuel exp	0.02	-0.12	0.25	0.36*	0.29	0.25	0.14	0.33
prgrm	-0.17	-0.01	0.00	-0.06	0.25	0.34	0.19	0.25

Panel III:Projection on errors in forecasts of Euro Area GDP growth

	beta				5% significant ratio			
	h=0,F	h=0,S	h=1,F	h=1,S	h=0,F	h=0,S	h=1,F	h=1,S
world	0.66	0.50***	0.78***	0.78***	0.17	0.35	0.57	0.56
G7	0.42	0.28	0.67***	0.70***	0.50	0.50	1.00	1.00
ae	0.59	0.41***	0.74***	0.76***	0.40	0.60	0.94	0.94
emde	0.84	0.79***	0.91***	0.86***	0.12	0.29	0.49	0.47
lics	0.02	0.14	0.20	0.31	0.07	0.22	0.29	0.26
eeur	1.46*	1.30***	1.62***	1.36***	0.41	0.41	1.00	1.00
dasia	0.97*	0.54**	0.53***	0.55***	0.10	0.28	0.57	0.61
lac	0.49	1.46***	1.12***	1.10***	0.15	0.46	0.71	0.75
menap	0.48	0.10	0.43	0.41	0.09	0.13	0.27	0.31
cis	1.54*	0.04	1.62*	1.36*	0.16	0.16	0.33	0.25
ssa	0.27	0.20	0.48*	0.43**	0.04	0.25	0.29	0.18
fuel exp	0.72	0.06	0.95*	0.82*	0.14	0.18	0.25	0.14
prgrm	-0.81	-0.00	-0.17	-0.18	0.14	0.29	0.52	0.51

Notes: This table shows results from regressions of year$(t+h)$ errors in the WEO GDP growth forecasts made in year(t) on an intercept and the contemporaneous forecast error for US GDP growth (Panel I) , China GDP growth (Panel II) or Euro area GDP growth (Panel III). The four columns to the left report the estimated slope coefficient from these regressions with stars indicating significance of tests that the slope coefficient equals zero against a two-sided alternative. Columns to the left show the proportion of countries within each economic group for which the null of a zero slope coefficient is rejected at the 5% significance level. ***: significant at the 1% level, **: significant at the 5% level, *: significant at the 10% level.

Table 12: **Sources of errors in WEO GDP forecasts: projection on forecasts of GDP growth of major economies**

Panel I: Projection on forecasts of US GDP growth

	beta				5% significant ratio			
	h=0,F	h=0,S	h=1,F	h=1,S	h=0,F	h=0,S	h=1,F	h=1,S
world	0.02	0.06	0.57	0.01	0.10	0.22	0.32	0.09
G7	0.00	0.02	0.39	-0.12	0.16	0.33	0.33	0.00
ae	0.02	0.04	0.46	-0.08	0.20	0.45	0.60	0.08
emde	0.03	0.13	0.97***	0.46	0.08	0.16	0.26	0.09
lics	-0.07	-0.09	0.04	-0.23	0.06	0.06	0.13	0.03
eeur	0.08	0.51	1.57**	0.45	0.25	0.16	0.50	0.16
dasia	0.02	-0.02	0.73**	0.42	0.03	0.21	0.21	0.03
lac	0.02	0.24*	0.86*	0.12	0.12	0.31	0.34	0.12
menap	0.02	-0.00	0.83**	0.68*	0.08	0.13	0.17	0.08
cis	0.12	0.62**	2.54***	1.55	0.00	0.16	0.66	0.08
ssa	-0.03	0.01	0.40	0.08	0.06	0.04	0.11	0.09
fuel exp	0.08	0.16	1.42**	0.94	0.07	0.14	0.33	0.11
prgrm	0.07	0.11	-0.26	0.09	0.09	0.19	0.30	0.10

Panel II: Projection on forecasts of Chinese GDP growth

	beta				5% significant ratio			
	h=0,F	h=0,S	h=1,F	h=1,S	h=0,F	h=0,S	h=1,F	h=1,S
world	0.00	0.06	-0.04	-0.05	0.15	0.14	0.15	0.17
G7	0.01	0.03	0.00	0.00	0.00	0.16	0.00	0.00
ae	0.00	0.04	-0.02	-0.00	0.08	0.08	0.02	0.05
emde	-0.00	0.11	-0.14	-0.28	0.17	0.15	0.17	0.20
lics	-0.03	0.12	0.34***	0.44***	0.10	0.10	0.18	0.18
eeur	0.21**	0.74**	0.65	0.60	0.25	0.41	0.08	0.25
dasia	-0.07*	-0.04	-0.41**	-0.63***	0.32	0.17	0.28	0.35
lac	0.07	0.40***	0.24	0.08	0.09	0.12	0.18	0.12
menap	-0.14***	-0.11	-0.36**	-0.60***	0.26	0.17	0.17	0.26
cis	-0.09	-0.85*	-1.91**	-2.09**	0.08	0.00	0.25	0.16
ssa	0.01	0.23	0.39**	0.54***	0.09	0.13	0.11	0.13
fuel exp	-0.12*	-0.29	-0.66**	-0.76**	0.18	0.07	0.25	0.18
prgrm	0.07	0.16	0.05	0.15	0.13	0.14	0.13	0.16

Panel III:Projection on forecasts of Euro Area GDP growth

	beta				5% significant ratio			
	h=0,F	h=0,S	h=1,F	h=1,S	h=0,F	h=0,S	h=1,F	h=1,S
world	-0.04***	-0.08*	-0.00	-0.54	0.20	0.31	0.13	0.24
G7	-0.07*	-0.11***	-0.19	-0.63*	0.00	0.33	0.00	0.33
ae	-0.05**	-0.11***	-0.15	-0.64*	0.20	0.40	0.08	0.37
emde	-0.00	-0.00	0.38	-0.28	0.20	0.30	0.14	0.20
lics	-0.16***	-0.24***	-0.08	-0.49	0.22	0.21	0.14	0.12
eeur	-0.02	-0.04	-0.58	-1.04	0.25	0.50	0.08	0.25
dasia	-0.02	-0.12	0.21	-0.11	0.21	0.25	0.11	0.26
lac	-0.02	-0.02	0.02	-1.13	0.09	0.18	0.06	0.21
menap	0.06	0.08	1.13***	0.74*	0.27	0.40	0.13	0.18
cis	0.15*	0.74***	2.59***	1.57	0.08	0.41	0.50	0.25
ssa	-0.15*	-0.22***	0.21	-0.22	0.25	0.27	0.13	0.15
fuel exp	0.09*	0.27***	1.73***	0.92	0.14	0.33	0.18	0.22
prgrm	-0.00	-0.09*	-0.14	0.13	0.19	0.33	0.16	0.20

Notes: This table shows results from regressions of year$(t+h)$ errors in the WEO GDP growth forecasts made in year(t) on an intercept and the year(t) forecast of year$(t+h)$ US GDP growth (Panel I) , China GDP growth (Panel II) or Euro area GDP growth (Panel III). The four columns to the left report the estimated slope coefficient from these regressions with stars indicating significance of tests that the slope coefficient equals zero against a two-sided alternative. Columns to the left show the proportion of countries within each economic group for which the null of a zero slope coefficient is rejected at the 5% significance level. ***: significant at the 1% level, **: significant at the 5% level, *: significant at the 10% level.

Table 13: **Sources of errors in WEO GDP forecasts: projection on output gap forecast**

Panel I: h=0,1

	beta				5% significant ratio			
	h=0,F	h=0,S	h=1,F	h=1,S	h=0,F	h=0,S	h=1,F	h=1,S
world	-0.16***	-0.22***	-0.51**	-0.70***	0.32	0.39	0.47	0.49
G7	-0.14***	-0.15***	-0.37**	-0.55***	0.28	0.42	0.14	0.42
ae	-0.13***	-0.18***	-0.41**	-0.62***	0.19	0.33	0.34	0.37
emde	-0.10	-0.04	-0.88*	-1.29***	0.41	0.43	0.62	0.64
lics	0.20	0.37	-0.74***	-4.94***	0.75	0.66	1.00	0.50
eeur	-0.22*	-0.19	-0.73***	-1.16***	0.42	0.42	0.50	0.50
dasia	-0.01	0.27*	-0.10	-0.16	0.16	0.83	0.50	0.50
lac	-0.19***	-0.39**	-1.19***	-1.49***	0.46	0.42	0.69	0.70
menap	0.23	0.19	0.15***		0.00	0.00	1.00	
cis	0.00	-0.14	-1.12***	-1.40***	0.66	0.33	0.66	1.00
ssa	-0.24***	0.00	-0.40***	-0.60***	0.33	0.00	0.66	0.66
fuel exp	0.06	-0.01	-1.09***	-1.38***	0.00	0.00	1.00	1.00
prgrm	-0.10	-0.26**	-0.74***	-0.60**	0.38	0.44	0.58	0.60

Panel II: h=2-5

	beta				5% significant ratio			
	h=2,F	h=3,F	h=4,F	h=5,F	h=2,F	h=3,F	h=4,F	h=5,F
world	-0.85*	-0.15	0.58	0.66	0.31	0.29	0.37	0.24
G7	-0.57*	-0.30	0.00	0.03	0.14	0.28	0.14	0.14
ae	-0.69	-0.31	0.00	0.02	0.20	0.29	0.37	0.24
emde	-0.46				0.50			
eeur	-1.02***				0.60			
dasia	-0.37***				0.40			
lac	-1.33***				0.33			
cis	-2.09***				0.50			
ssa	-0.19***				1.00			
fuel exp	-2.22***				1.00			
prgrm	-0.38***	-0.08	0.97***	-0.35**	0.38	0.00	0.33	0.50

Notes: This table shows results from regressions of year$(t+h)$ errors in the WEO GDP growth forecasts made in year(t) on an intercept and the year(t) forecast of year$(t+h)$ output gap. The four columns to the left report the estimated slope coefficient from these regressions with stars indicating significance of tests that the slope coefficient equals zero against a two-sided alternative. Columns to the left show the proportion of countries within each economic group for which the null of a zero slope coefficient is rejected at the 5% significance level. ***: significant at the 1% level, **: significant at the 5% level, *: significant at the 10% level.

Table 14: **Sources of errors in WEO forecasts of GDP: projection on forecast error in terms of trade**

I: Proportion of countries with significantly positive slope

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F
world	0.09	0.11	0.14	0.16	0.18	0.20	0.26	0.31
G7	0.14	0.14	0.14	0.00	0.00	0.14	0.00	0.28
ae	0.05	0.05	0.08	0.03	0.03	0.09	0.21	0.36
emde	0.10	0.13	0.15	0.20	0.22	0.23	0.28	0.30
lics	0.03	0.09	0.11	0.16	0.14	0.20	0.27	0.22
eeur	0.09	0.09	0.00	0.18	0.09	0.20	0.11	0.22
dasia	0.15	0.20	0.10	0.10	0.15	0.10	0.31	0.26
lac	0.03	0.18	0.15	0.18	0.18	0.31	0.21	0.34
menap	0.21	0.05	0.26	0.26	0.31	0.26	0.31	0.33
cis	0.25	0.16	0.33	0.16	0.33	0.25	0.50	0.41
ssa	0.06	0.09	0.13	0.25	0.25	0.22	0.27	0.25
fuel exp	0.12	0.16	0.37	0.54	0.54	0.50	0.50	0.45
prgrm	0.08	0.10	0.13	0.17	0.19	0.21	0.26	0.31

II: Proportion of countries with significantly negative slope

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F
world	0.05	0.11	0.07	0.07	0.09	0.14	0.13	0.10
G7	0.00	0.00	0.14	0.14	0.00	0.00	0.00	0.00
ae	0.11	0.14	0.11	0.09	0.15	0.15	0.03	0.09
emde	0.03	0.10	0.06	0.06	0.08	0.14	0.16	0.11
lics	0.05	0.11	0.07	0.05	0.11	0.18	0.20	0.11
eeur	0.09	0.09	0.09	0.09	0.09	0.00	0.11	0.22
dasia	0.00	0.00	0.00	0.05	0.00	0.21	0.21	0.15
lac	0.00	0.12	0.09	0.09	0.09	0.12	0.12	0.06
menap	0.05	0.10	0.05	0.05	0.15	0.21	0.26	0.16
cis	0.08	0.25	0.08	0.08	0.08	0.08	0.16	0.08
ssa	0.04	0.11	0.06	0.04	0.09	0.15	0.13	0.09
fuel exp	0.04	0.12	0.04	0.04	0.04	0.08	0.04	0.04
prgrm	0.04	0.12	0.06	0.07	0.11	0.14	0.13	0.11

Notes: This table shows results from regressions of errors in WEO forecasts of country-level GDP growth on an intercept and the error in the WEO forecast of terms of trade in that country. Horizons for the GDP growth and terms of trade forecasts are aligned. For each economic group listed in a particular row, Panel I shows the proportion of countries within that group for which the null of a zero coefficient on the term of trade forecast error is rejected at the 5% level and the estimated coefficient is positive. Similarly, Panel II, shows the proportion of countries within that group for which the null of a zero coefficient on the term of trade forecast error is rejected at the 5% level and the estimated coefficient is negative.

Table 15: **Sources of errors in WEO forecasts of GDP: projection on errors in forecast of commodity terms of trade**

I: Proportion of countries with significantly positive slope

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F
world	0.10	0.11	0.14	0.14	0.22	0.20	0.29
G7	0.00	0.00	0.00	0.00	0.28	0.14	0.42
ae	0.03	0.06	0.00	0.03	0.24	0.17	0.37
emde	0.11	0.12	0.17	0.16	0.22	0.21	0.26
lics	0.14	0.12	0.16	0.08	0.14	0.14	0.22
eeur	0.20	0.00	0.00	0.00	0.20	0.20	0.20
dasia	0.08	0.25	0.12	0.04	0.12	0.16	0.29
lac	0.03	0.12	0.22	0.22	0.25	0.32	0.29
menap	0.14	0.09	0.23	0.33	0.38	0.20	0.30
ssa	0.17	0.07	0.15	0.12	0.17	0.15	0.23
fuel exp	0.23	0.14	0.52	0.61	0.71	0.47	0.61
prgrm	0.09	0.07	0.16	0.13	0.20	0.20	0.24

I: Proportion of countries with significantly negative slope

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F
world	0.12	0.10	0.08	0.11	0.08	0.11	0.11
G7	0.14	0.00	0.00	0.00	0.00	0.00	0.00
ae	0.20	0.10	0.06	0.06	0.00	0.06	0.03
emde	0.10	0.10	0.09	0.12	0.10	0.12	0.13
lics	0.14	0.10	0.08	0.14	0.16	0.16	0.16
eeur	0.20	0.00	0.20	0.00	0.00	0.00	0.00
dasia	0.20	0.08	0.04	0.12	0.04	0.08	0.04
lac	0.12	0.06	0.12	0.16	0.12	0.16	0.16
menap	0.00	0.09	0.04	0.04	0.09	0.05	0.15
ssa	0.07	0.15	0.10	0.15	0.15	0.17	0.17
fuel exp	0.00	0.00	0.00	0.00	0.00	0.00	0.00
prgrm	0.14	0.10	0.10	0.14	0.12	0.13	0.13

Notes: This table shows results from regressions of errors in WEO forecasts of country-level GDP growth on an intercept and the error in the WEO forecast of commodity terms of trade in that country. Horizons for the GDP growth and terms of trade forecasts are aligned. For each economic group listed in a particular row, Panel I shows the proportion of countries within that group for which the null of a zero coefficient on the term of trade forecast error is rejected at the 5% level and the estimated coefficient is positive. Similarly, Panel II, shows the proportion of countries within that group for which the null of a zero coefficient on the term of trade forecast error is rejected at the 5% level and the estimated coefficient is negative.

Table 16: **Sources of errors in WEO forecasts of GDP: projection on forecasts of terms of trade**

I: Proportion of countries with significantly positive slope

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F
world	0.08	0.11	0.08	0.07	0.08	0.16	0.17	0.10
G7	0.14	0.00	0.14	0.00	0.00	0.00	0.00	0.00
ae	0.23	0.17	0.14	0.06	0.03	0.09	0.09	0.03
emde	0.05	0.09	0.07	0.07	0.10	0.18	0.20	0.12
lics	0.07	0.11	0.11	0.09	0.09	0.20	0.24	0.07
eeur	0.00	0.00	0.00	0.00	0.00	0.10	0.11	0.11
dasia	0.05	0.00	0.00	0.05	0.05	0.21	0.26	0.15
lac	0.03	0.15	0.09	0.12	0.15	0.18	0.18	0.12
menap	0.05	0.05	0.05	0.05	0.15	0.21	0.26	0.22
cis	0.08	0.16	0.08	0.08	0.16	0.08	0.16	0.08
ssa	0.06	0.11	0.11	0.09	0.06	0.20	0.18	0.09
fuel exp	0.08	0.12	0.04	0.04	0.04	0.08	0.04	0.08
prgrm	0.08	0.12	0.08	0.09	0.11	0.17	0.20	0.13

II: Proportion of countries with significantly negative slope

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F
world	0.08	0.11	0.12	0.11	0.12	0.21	0.26	0.26
G7	0.00	0.00	0.00	0.00	0.14	0.14	0.00	0.14
ae	0.05	0.00	0.05	0.00	0.03	0.09	0.15	0.33
emde	0.08	0.14	0.14	0.13	0.15	0.24	0.29	0.24
lics	0.01	0.07	0.14	0.07	0.07	0.18	0.25	0.15
eeur	0.09	0.09	0.00	0.18	0.00	0.40	0.22	0.22
dasia	0.00	0.15	0.15	0.05	0.20	0.05	0.31	0.26
lac	0.03	0.15	0.06	0.09	0.06	0.18	0.28	0.28
menap	0.15	0.10	0.10	0.15	0.26	0.36	0.31	0.27
cis	0.41	0.41	0.50	0.41	0.41	0.41	0.50	0.41
ssa	0.04	0.09	0.15	0.11	0.11	0.22	0.25	0.16
fuel exp	0.25	0.29	0.25	0.33	0.33	0.58	0.45	0.37
prgrm	0.07	0.12	0.12	0.10	0.12	0.20	0.28	0.27

Notes: This table shows results from regressions of year$(t+h)$ errors in the WEO GDP growth forecasts made in year(t) on an intercept and the WEO year(t) forecast of year $(t+h)$ terms of trade in that country. Horizons for the GDP growth and terms of trade forecasts are aligned. For each economic group listed in a particular row, Panel I shows the proportion of countries within that group for which the null of a zero coefficient on the term of trade forecast error is rejected at the 5% level and the estimated coefficient is positive. Similarly, Panel II, shows the proportion of countries within that group for which the null of a zero coefficient on the term of trade forecast error is rejected at the 5% level and the estimated coefficient is negative.

Table 17: **Sources of errors in WEO forecasts of GDP: projection on forecast of commodity terms of trade**

I: Proportion of countries with significantly positive slope

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F
world	0.10	0.10	0.15	0.22	0.19	0.26	0.20
G7	0.00	0.28	0.00	0.00	0.00	0.00	0.00
ae	0.27	0.20	0.27	0.27	0.10	0.27	0.20
emde	0.06	0.08	0.12	0.20	0.21	0.26	0.20
lics	0.06	0.08	0.08	0.24	0.26	0.24	0.16
eeur	0.00	0.20	0.20	0.00	0.00	0.20	0.20
dasia	0.12	0.08	0.12	0.20	0.16	0.20	0.16
lac	0.06	0.03	0.16	0.22	0.29	0.32	0.19
menap	0.00	0.00	0.04	0.09	0.14	0.25	0.20
ssa	0.07	0.15	0.12	0.28	0.25	0.25	0.23
fuel exp	0.00	0.04	0.04	0.00	0.00	0.00	0.00
prgrm	0.08	0.09	0.15	0.23	0.23	0.29	0.21

I: Proportion of countries with significantly negative slope

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F
world	0.06	0.10	0.16	0.14	0.16	0.16	0.20
G7	0.00	0.00	0.00	0.00	0.00	0.14	0.28
ae	0.00	0.00	0.03	0.00	0.06	0.06	0.06
emde	0.08	0.13	0.19	0.18	0.18	0.19	0.24
lics	0.06	0.14	0.20	0.18	0.16	0.18	0.18
eeur	0.00	0.00	0.00	0.00	0.00	0.20	0.20
dasia	0.08	0.25	0.33	0.29	0.12	0.08	0.37
lac	0.06	0.09	0.19	0.16	0.22	0.25	0.22
menap	0.14	0.09	0.19	0.19	0.23	0.30	0.30
ssa	0.07	0.12	0.12	0.15	0.17	0.15	0.15
fuel exp	0.19	0.19	0.28	0.28	0.42	0.38	0.42
prgrm	0.06	0.10	0.14	0.13	0.13	0.16	0.18

Notes: This table shows results from regressions of year$(t+h)$ errors in the WEO GDP growth forecasts made in year(t) on an intercept and the WEO year(t) forecast of year $(t+h)$ commodity terms of trade in that country. Horizons for the GDP growth and terms of trade forecasts are aligned. For each economic group listed in a particular row, Panel I shows the proportion of countries within that group for which the null of a zero coefficient on the term of trade forecast error is rejected at the 5% level and the estimated coefficient is positive. Similarly, Panel II, shows the proportion of countries within that group for which the null of a zero coefficient on the term of trade forecast error is rejected at the 5% level and the estimated coefficient is negative.

Table 18: **RMSE performance of GDP growth forecasts: WEO versus Consensus Economics**

	h=0, F	h=0, S	h=1, F	h=1, S
25% quantile	-0.08	-0.15	-0.05	-0.04
50% quantile	-0.02	-0.05	-0.02	-0.00
75% quantile	0.10	0.02	0.02	0.04
Positive Significant	0.02	0.03	0.00	0.03
Negative Significant	0.05	0.05	0.02	0.06
Propoprtion of rejections	0.08	0.09	0.02	0.10
WEO Win	0.54	0.69	0.66	0.52
CE Win	0.45	0.30	0.33	0.47
Albania	0.35	0.79	-0.02	-0.24**
Argentina	0.08	0.12**	0.07	0.01
Armenia	-0.33**	-0.34	0.03	0.00
Australia	0.31	0.25**	-0.00	0.13**
Austria	0.18	-0.17	-0.04	0.00
Azerbaijan	-0.06	-0.16	-0.01	-0.16
Bangladesh	-0.20	-0.13	0.11	0.03
Belarus	0.08	-0.02	-0.03	0.00
Belgium	-0.01	-0.03	-0.08	-0.02
Bolivia	0.04	-0.27***	-0.10	-0.12
Bosnia Herzegovina	0.18***	-0.52	-0.02	-0.00
Brazil	0.23	-0.05	0.02	0.05
Bulgaria	0.10	-0.04	0.00	-0.02
Canada	0.02	-0.00	-0.03	0.08
Chile	0.22***	-0.23	0.01	-0.03
China	0.40	-0.02	0.00	-0.02
Colombia	-0.01	-0.07	-0.07	-0.05
Costa Rica	-0.05	0.05	0.08	0.06
Croatia	0.05	-0.28**	-0.05	-0.08
Cyprus	0.07	-0.16	-0.23*	-0.13**
Czech Republic	0.34	-0.00	-0.03	0.00
Denmark	0.10	-0.12	-0.01	-0.07
Dominican Republic	0.02	0.01	-0.00	-0.01
Ecuador	-0.25*	-0.04	-0.11	0.07
Egypt	-0.13	-0.05	-0.09*	-0.12*
El Salvador	-0.07	-0.07	0.33	0.35***
Estonia	-0.02	-0.13	-0.02	-0.04
Euro area	-0.05	-0.22	-0.07	-0.02
Finland	-0.24***	-0.10	-0.04	-0.00
France	-0.06	-0.08	-0.01	-0.01
Georgia	-0.61	-0.01	-0.14	0.07
Germany	-0.06	-0.01	0.02	0.05
Greece	0.00	0.00	-0.10	-0.01
Guatemala	-0.27	0.02	-0.01	-0.03
Honduras	-0.53**	0.25	-0.03	0.21
Hong Kong SAR	-0.02	0.01	-0.05	-0.00
Hungary	0.05	0.67	0.11	0.04
India	-0.13	-0.15**	0.00	-0.04
Indonesia	-0.11	0.06*	-0.01	0.01**
Ireland	-0.04	-0.05**	-0.06**	-0.02**
Israel	-0.12*	0.03	0.04	0.04
Italy	-0.03	-0.15	-0.06	-0.03
Japan	-0.14**	-0.00	-0.00	0.03
Kazakhstan	0.09	0.01	-0.00	0.02
Korea	0.25	0.06*	0.02	-0.05

Table 18: **(continued).**

	h=0, F	h=0, S	h=1, F	h=1, S
Latvia	-0.08	-0.13	-0.11	-0.17
Lithuania	0.05	-0.19	-0.11	-0.01**
Macedonia, FYR	-0.20	-0.35*	0.00	0.09
Malaysia	0.54	0.07	0.00	0.01
Mexico	-0.03	-0.10	-0.07	-0.04
Moldova	0.19	-0.18	0.07	0.06
Netherlands	-0.02	-0.08	-0.02	-0.05*
New Zealand	0.25	0.15**	0.21	0.01
Nicaragua	-0.11	-0.05	0.11	0.12
Nigeria	-0.10	-0.08	-0.06	-0.00
Norway	-0.14	0.04	-0.03	0.01
Pakistan	0.19	-0.02	0.13	0.12
Panama	0.05	-0.10	-0.05	-0.07**
Paraguay	-0.07	-0.17	-0.12	-0.04
Peru	-0.04	-0.35	-0.04	-0.08
Philippines	-0.06	0.00	-0.03	0.15
Poland	-0.21	0.41	-0.01	0.10
Portugal	-0.06	-0.07	-0.03	-0.00
Romania	0.10	-0.13	-0.01	-0.02
Russia	-0.07	0.11	0.07	0.09
Saudi Arabia	-0.16*	0.11	-0.08	0.03
Serbia	-0.20***	-0.18	-0.03	-0.01
Singapore	0.12	0.14	-0.01	0.06
Slovak Republic	-0.09	-0.28	-0.03	0.00
Slovenia	0.03	-0.21	-0.01	-0.06
South Africa	-0.04	-0.19	-0.13**	-0.17**
Spain	0.19	-0.11	-0.08	-0.00
Sri Lanka	0.10	0.05	0.04	0.09
Sweden	0.01	-0.07	0.01	-0.04
Switzerland	0.10	-0.08	-0.05*	0.00
Taiwan Province of China	-0.05	-0.02	-0.03	0.10
Thailand	0.06	0.02	0.08	0.07*
Turkey	0.11	-0.02	-0.05	-0.01
Turkmenistan	0.04	0.32*	0.13	0.01
Ukraine	-0.03	0.04	0.06	0.02
United Kingdom	0.01	-0.18*	-0.06	-0.01
United States	-0.07*	-0.05	-0.05	-0.06
Uruguay	-0.08	-0.13**	0.05	-0.01
Uzbekistan	-0.02	0.09	0.06	0.23*
Venezuela	0.22	-0.02	-0.03	-0.13
Vietnam	-0.32	-0.20	0.05	0.03

Notes: This table reports the ratio of the estimated RMSE for the WEO GDP growth forecasts versus the RMSE for the Consensus Economics (CE) forecasts. We have subtracted one, so that values greater than zero suggest that the WEO forecasts are less accurate than the CE forecasts, while values below zero suggest that the WEO forecasts are more accurate. The top three lines report quantiles for the distribution of MSE ratios computed across all countries included in the table. WEO win is the proportion of countries whose normalized RMSE ratio is negative, while CE Win is the proportion of countries for which the normalized rmse ratio is positive. Stars indicate statistical significance of a Diebold-Mariano test of equal predictive accuracy of the WEO and CE forecasts. This is based on a regression of the squared error loss difference (Consensus Economics minus WEO) on an intercept. ***: significant at the 1% level, **: significant at the 5% level, *: significant at the 10% level.

Table 19: **Biases in CE forecasts of GDP growth**

Panel I: Current-year forecasts

	1990-2003		2004-2016		1990-2016	
	h=0,F	h=0,S	h=0,F	h=0,S	h=0,F	h=0,S
world	-0.02	-0.02	-0.00	-0.12	-0.01	-0.06
G7	-0.05	-0.01	-0.08	-0.25**	-0.07	-0.13
ae	-0.04	-0.02	-0.05	-0.19*	-0.04	-0.10
emde	0.09	-0.03	0.18	0.17	0.13	0.06
lics	0.17	0.25	0.25	0.13	0.22	0.18
eeur	0.18	-0.09	0.27	0.39	0.23	0.14
dasia	0.14	0.05	0.27*	0.37	0.20**	0.21
lac	-0.04	-0.00	0.15	-0.03	0.11	-0.02
menap	0.04	0.04	0.07	0.50*	0.06	0.31
cis	0.82*	1.10	-0.08	-0.32	0.29	0.26
ssa	-0.15	-0.40	0.01	-0.33	-0.06	-0.36
fuel exp	0.47	-0.19	0.02	0.03	0.20	-0.06
prgrm	0.40**	0.28	0.29*	-0.12	0.35***	0.08

Panel II: Next-year forecasts

	1990-2003		2004-2016		1990-2016	
	h=1,F	h=1,S	h=1,F	h=1,S	h=1,F	h=1,S
world	-0.46*	-0.63**	-0.51	-0.67	-0.49**	-0.65**
G7	-0.40	-0.60*	-0.61*	-0.80*	-0.50**	-0.70***
ae	-0.42	-0.61*	-0.57	-0.76*	-0.49**	-0.68**
emde	-0.54	-0.48	-0.16	-0.21	-0.34	-0.34
lics	-0.01	-0.25	-0.06	0.08	-0.04	-0.04
eeur	-0.47	-0.73	-0.15	-0.48	-0.31	-0.60
dasia	-0.45	-0.49	0.35	0.40	-0.03	-0.02
lac	-2.54	0.04	-0.52	-0.70	-0.79	-0.60
menap	-0.40	-0.50	0.02	0.05	-0.13	-0.15
cis	0.98	0.55	-1.34	-1.34	-0.45	-0.61
ssa	-0.90**	-1.23**	-0.70	-0.76	-0.79*	-0.95**
fuel exp	-0.02	-0.71	-0.76	-0.71	-0.48	-0.71
prgrm	-0.59*	-0.99***	-0.93*	-1.12**	-0.76**	-1.05***

Notes: This table reports estimates of forecast biases, i.e., the sample mean difference between the actual GDP growth and the predicted value, with positive values indicating underpredictions while negative values indicate overpredictions of the outcome. Panel I shows results for the current-year forecasts (h = 0, Spring and Fall) for the 1990-2003 and 2004-2016 subsamples as well as for the full sample, 1990-2016. Panel II repeats shows bias estimates for the one-year forecast horizons (h = 1, Spring and Fall), again for three different sample periods. ***: significant at the 1% level, **: significant at the 5% level, *: significant at the 10% level.

Table 20: **Full-sample (1995-2016) Root Mean Squared Error values for WEO inflation forecasts across economic groups and forecast horizons**

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F	PT
world	0.12	0.33	0.77	0.77	0.79	0.71	0.74	0.76	0.52
G7	0.11	0.29	0.74	0.78	0.82	0.80	0.81	0.89	0.79
ae	0.11	0.29	0.73	0.77	0.80	0.78	0.81	0.89	0.78
emde	0.37	0.91	1.42	1.39	1.52	1.70	1.87	1.93	0.83
lics	1.28	1.63	2.36	2.69	2.94	3.42	3.55	4.02	0.97
eeur	0.33	0.85	1.52	2.66	3.05	3.45	4.22	4.61	0.64
dasia	0.62	0.94	2.07	2.13	2.14	2.27	2.40	2.24	0.72
lac	0.22	1.43	1.47	1.48	1.63	1.90	2.22	1.99	0.62
menap	0.82	1.24	2.20	2.12	2.39	2.34	2.69	2.93	0.79
cis	1.08	1.43	3.60	4.63	5.08	6.34	6.21	6.68	0.97
ssa	1.10	1.35	1.68	2.07	2.47	2.91	3.20	3.49	0.90
fuel exp	0.77	1.43	2.49	2.76	3.01	2.92	2.74	2.79	0.23
prgrm	0.62	1.02	1.71	2.02	2.28	2.47	2.46	2.41	0.63

Notes: This table shows full-sample estimates of RMSE values across a variety of forecast horizons h ordered in declining order from current year fall and spring WEO forecasts (h=0,F and h = 0,S) to next-year forecasts (h = 1,F and h = 1,S) and forecasts 2, 3, 4 and 5 years ahead from the fall WEO issues (h=2,F, h = 3,F, h = 4,F, and h = 5,F). The Patton-Timmermann (PT) monotonicity test listed in the right-most column provides the p-value for the null hypothesis of a weakly increasing term structure of RMSE values as the forecast horizon grows. Small p-values indicate that the null is rejected. ***: significant at the 1% level, **: significant at the 5% level, *: significant at the 10% level.

Table 21: **Sub-sample RMSE values for short-term WEO GDP growth forecasts: 1990-2003 versus 2004-2016**

	1990-2003				2004-2016			
	h=0,F	h=0,S	h=1,F	h=1,S	h=0,F	h=0,S	h=1,F	h=1,S
world	0.12	0.28	0.36	0.48	0.11	0.35	0.95	0.95
G7	0.10	0.28	0.37	0.52	0.13	0.33	0.92	0.93
ae	0.11	0.30	0.37	0.52	0.12	0.31	0.90	0.92
emde	1.09	1.58	1.74	1.99	0.21	0.59	1.36	1.41
lics	1.64	1.68	2.37	2.72	0.47	1.46	2.44	2.65
eeur	1.94	3.35	3.17	5.08	0.26	0.75	1.39	1.64
dasia	1.30	2.01	2.94	3.32	0.30	0.67	1.71	1.85
lac	0.71	2.18	2.61	3.14	0.08	0.42	0.88	1.02
menap	2.56	2.10	1.41	1.68	0.56	1.34	2.61	2.22
cis	1.68	1.73	4.31	6.12	0.39	1.22	3.08	3.41
ssa	1.41	1.57	1.87	3.13	0.34	1.11	1.75	2.10
fuel exp	3.02	2.36	1.69	2.28	0.40	1.10	2.24	2.19
prgrm	0.52	1.19	1.60	2.05	0.33	0.58	0.65	0.90

Notes: This table shows sub-sample estimates of RMSE values across a variety of forecast horizons ordered in declining order from current year fall and spring forecasts (h=0,F and h = 0,S) to next-year forecasts (h = 1,F and h = 1,S).

Table 22: **Sub-sample RMSE values for short-term WEO GDP growth forecasts: 1990-2003 versus 2004-2016, excluding 2009**

	1990-2003				2004-2016			
	h=0,F	h=0,S	h=1,F	h=1,S	h=0,F	h=0,S	h=1,F	h=1,S
world	0.12	0.28	0.36	0.48	0.12	0.37	0.80	0.90
G7	0.10	0.28	0.37	0.52	0.13	0.33	0.80	0.81
ae	0.11	0.30	0.37	0.52	0.12	0.31	0.77	0.81
emde	1.09	1.58	1.74	1.99	0.21	0.59	1.23	1.46
lics	1.64	1.68	2.37	2.72	0.49	1.46	2.52	2.74
eeur	1.94	3.35	3.17	5.08	0.28	0.78	1.40	1.71
dasia	1.30	2.01	2.94	3.32	0.31	0.70	1.52	1.86
lac	0.71	2.18	2.61	3.14	0.08	0.44	0.89	1.06
menap	2.56	2.10	1.41	1.68	0.49	1.09	1.97	2.24
cis	1.68	1.73	4.31	6.12	0.37	1.21	3.19	3.50
ssa	1.41	1.57	1.87	3.13	0.35	1.15	1.81	2.05
fuel exp	3.02	2.36	1.69	2.28	0.36	0.91	2.05	2.27
prgrm	0.52	1.19	1.60	2.05	0.34	0.60	0.67	0.93

Notes: This table shows sub-sample estimates of RMSE values across a variety of forecast horizons ordered in declining order from current year fall and spring forecasts (h=0,F and h = 0,S) to next-year forecasts (h = 1,F and h = 1,S).

Table 23: **Theil U-statistics comparing WEO inflation forecasts to a random walk forecast**

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F
world	0.02	0.14	0.70	0.74	0.59	0.54	0.44	0.37
G7	0.01	0.11	0.58	0.67	0.54	0.55	0.47	0.49
ae	0.01	0.11	0.58	0.69	0.52	0.51	0.44	0.46
emde	0.22	0.47	0.99	1.23	1.01	1.79	1.14	1.23
lics	0.23	0.38	0.85	1.04	0.89	1.52	1.45	1.53
eeur	0.09	0.29	0.29	0.74	0.37	0.33	0.45	0.37
dasia	0.19	0.44	1.32	1.64	0.84	0.69	0.53	0.28
lac	0.01	0.13	0.20	0.28	0.17	0.36	0.61	0.70
menap	0.76	0.62	1.06	0.83	0.75	0.91	0.83	0.77
cis	0.02	0.05	0.20	0.30	0.50	0.66	0.74	0.72
ssa	0.27	0.44	0.80	1.71	1.05	1.71	2.01	1.83
fuel exp	0.64	0.39	0.55	0.62	0.42	0.82	0.85	0.92
prgrm	0.03	0.17	0.25	0.43	0.38	0.77	0.65	0.62

Notes: This table reports sample estimates of the Theil U-statistic computed as the ratio of the mean squared error (MSE) of the WEO forecasts relative to the MSE from a random walk forecast that uses the most recently available inflation rate. Values are shown for four forecast horizons covering the current year (h=0,F and h = 0,S) and next year (h=1,F and h = 1,S). Smaller values indicate that the WEO forecasts are more accurate than the random walk forecasts, with values below unity suggesting that the WEO forecasts are better in an absolute and relative sense, while values above unity suggest that the historical average is most accurate.

Table 24: **Biases in WEO inflation forecasts**

Panel I: Current-year forecasts

	1990-2003		2004-2016		1990-2016	
	h=0,F	h=0,S	h=0,F	h=0,S	h=0,F	h=0,S
world	-0.05	-0.03	-0.06***	0.13	-0.05***	0.04
G7	-0.01	0.01	-0.00	0.21**	-0.01	0.10*
ae	-0.04*	-0.01	-0.02	0.17**	-0.03*	0.07
emde	-0.03	0.01	-0.15***	0.07	-0.09	0.04
lics	-0.16	0.40	0.03	0.51	-0.06	0.45
eeur	0.84	1.57*	-0.09	0.04	0.37	0.81*
dasia	-0.08	0.13	-0.22***	0.11	-0.15	0.12
lac	0.30	0.33	-0.02	0.16	0.14	0.25
menap	-0.33	-0.58	-0.33**	-0.13	-0.33	-0.36
cis	-0.89*	0.41	-0.02	-0.12	-0.35	0.08
ssa	-0.27	0.29	-0.00	0.41	-0.14	0.35
fuel exp	-0.42	-0.57	-0.21**	-0.11	-0.32	-0.35
prgrm	0.14	0.11	-0.12	-0.28*	0.01	-0.07

Panel II: next-year forecasts

	1990-2003		2004-2016		1990-2016	
	h=1,F	h=1,S	h=1,F	h=1,S	h=1,F	h=1,S
world	-0.13	-0.08	0.12	0.26	-0.00	0.08
G7	-0.18*	-0.25**	0.07	0.11	-0.05	-0.07
ae	-0.18**	-0.21*	0.02	0.06	-0.08	-0.07
emde	0.37	0.90	0.37	0.76**	0.37	0.83**
lics	1.19**	1.83***	1.42***	1.90***	1.31***	1.87***
eeur	1.12	1.82	0.30	0.67	0.70	1.22*
dasia	-0.12	0.38	0.25	0.70	0.06	0.54
lac	1.07	1.51*	0.58***	0.82***	0.82**	1.16***
menap	-0.25	0.41	-0.01	0.35	-0.13	0.38
cis	1.68	3.65**	0.78	1.40*	1.13	2.26***
ssa	0.92**	1.87***	1.08***	1.47***	1.00***	1.67***
fuel exp	0.22	1.15**	0.53	0.88*	0.38	1.02***
prgrm	1.01***	1.25**	0.00	0.45**	0.52**	0.86***

Panel III: Forecasts 2-5 years ahead

	h=2,F	h=2,S	h=3,F	h=3,S	h=4,F	h=4,S	h=5,F	h=5,S
world	-0.01	0.03	-0.01	0.02	-0.04	-0.01	-0.08	-0.05
G7	-0.23	-0.28*	-0.36**	-0.41***	-0.46***	-0.50***	-0.53***	-0.57***
ae	-0.24	-0.27*	-0.36**	-0.38***	-0.45***	-0.47***	-0.52***	-0.54***
emde	0.93**	1.24***	1.34***	1.59***	1.43***	1.63***	1.34***	1.52***
lics	2.22***	2.62***	2.63***	2.86***	3.01***	3.18***	3.18***	3.29***
eeur	1.40	2.56**	2.43**	2.94**	2.63**	3.07**	2.68**	2.73**
dasia	0.51	0.79	0.72	0.86	0.64	0.72	0.31	0.39
lac	1.10***	1.31***	1.48***	1.80***	1.41***	1.69***	1.44***	1.65***
menap	0.37	0.86*	0.94*	1.27**	1.34**	1.55**	1.50*	1.93***
cis	2.97***	3.81***	4.40***	4.92***	4.72***	5.17***	5.03***	5.30***
ssa	1.66***	1.90***	1.98***	2.03***	2.26***	2.17***	2.47***	2.29***
fuel exp	1.44***	1.96***	2.13***	2.49***	2.66***	2.92***	2.87***	3.22***
prgrm	1.16***	1.46***	1.67***	2.01***	1.96***	2.04***	1.82***	1.89***

Notes: This table reports estimates of forecast biases, i.e., the sample mean difference between the actual inflation rate and the predicted value, with positive values indicating underpredictions while negative values indicate overpredictions of the outcome. Panel I shows results for the current-year forecasts (h = 0, Spring and Fall) for the 1990-2003 and 2004-2016 subsamples as well as for the full sample, 1990-2016. Panel II repeats shows bias estimates for the one-year forecast horizons (h = 1, Spring and Fall), again for three different sample periods. Finally, Panel III shows results for the longer 2-5 year forecast horizons. Stars indicate if the null of a zero bias is rejected against a two-sided alternative of a non-zero bias. ***: significant at the 1% level, **: significant at the 5% level, *: significant at the 10% level.

Table 25: **Comparison of biases in forecasts of inflation across the 1990-2003 and 2004-2016 subsamples**

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F
world	-0.01	-0.10	0.00	-0.17	0.05*	0.07*	0.16**	0.32**
	(0.63)	(0.90)	(0.45)	(0.73)	(0.08)	(0.05)	(0.02)	(0.01)
G7	0.00	-0.20	0.10	0.14	0.40*	0.42*	0.46*	0.50*
	(0.43)	(0.96)	(0.29)	(0.15)	(0.09)	(0.09)	(0.08)	(0.07)
ae	0.02	-0.16	0.16**	0.15	0.34	0.37	0.42	0.49
	(0.31)	(0.95)	(0.02)	(0.25)	(0.13)	(0.12)	(0.10)	(0.10)
emde	-0.11	-0.05	0.00	0.13	0.15	0.16	-0.35	-0.92
	(0.64)	(0.54)	(0.50)	(0.40)	(0.39)	(0.41)	(0.68)	(0.82)
lics	0.12*	-0.10	-0.23	-0.06	-0.24	-0.32	-0.53	-0.90
	(0.05)	(0.56)	(0.61)	(0.52)	(0.61)	(0.63)	(0.69)	(0.73)
eeur	0.75*	1.53**	0.82	1.14	1.32	3.10	2.46	2.53
	(0.05)	(0.04)	(0.22)	(0.22)	(0.23)	(0.10)	(0.18)	(0.13)
dasia	-0.14	0.02	-0.12	-0.31	-0.11	-0.24	-0.73	-0.33
	(0.63)	(0.48)	(0.90)	(0.61)	(0.53)	(0.54)	(0.68)	(0.77)
lac	0.27**	0.16	0.49	0.69	0.15	0.07	-0.63	-0.84
	(0.04)	(0.42)	(0.25)	(0.23)	(0.39)	(0.45)	(0.75)	(0.85)
menap	0.00	0.44	0.24	0.05	-0.11	-0.58	-1.08	-1.87
	(0.49)	(0.27)	(0.39)	(0.48)	(0.54)	(0.70)	(0.77)	(0.84)
cis	0.87**	0.28	0.89	2.24	2.73*	5.11**	4.95**	5.40**
	(0.03)	(0.21)	(0.28)	(0.12)	(0.07)	(0.02)	(0.02)	(0.03)
ssa	0.26	-0.12	-0.16	0.39	-0.66	-1.16	-1.51	-1.88
	(0.25)	(0.59)	(0.60)	(0.32)	(0.81)	(0.89)	(0.88)	(0.88)
fuel exp	0.20	0.46	-0.31	0.27	0.55	0.72	0.61	0.09
	(0.39)	(0.29)	(0.65)	(0.36)	(0.21)	(0.20)	(0.29)	(0.48)
prgrm	0.02	-0.16	1.00***	0.79*	1.25**	1.04	0.61	0.34
	(0.38)	(0.84)	(0.00)	(0.06)	(0.02)	(0.14)	(0.30)	(0.37)

Notes: This table compares the bias in the forecast of inflation in 1990-2003 versus 2004-2016. Specifically, the number in the top line is computed as the absolute value of the mean forecast error in 1990-2003 minus the absolute value of the mean forecast error in 2004-2016, with positive values indicating that the magnitude of the bias (measured in absolute terms) has come down over time, while negative values suggest the opposite. Numbers in brackets are p-values calculated from a permutation bootstrap. A small p-value indicates that the absolute value of the bias is smaller in the second subsample (2004-2016) compared to the first subsample (1990-2003). Stars indicate if the null of a zero bias is rejected against a two-sided alternative of a non-zero bias. ***: significant at the 1% level, **: significant at the 5% level, *: significant at the 10% level.

Table 26: **Mincer-Zarnowitz tests of efficiency for WEO inflation forecasts**

	MZ pvalue				beta			
	h=0,F	h=0,S	h=1,F	h=1,S	h=0,F	h=0,S	h=1,F	h=1,S
world	0.00***	0.58	0.43	0.34	0.99	1.04	0.72	0.70
G7	0.72	0.15	0.16	0.28	0.97	0.99	0.75	0.68
ae	0.25	0.46	0.20	0.39	0.98	1.00	0.80	0.75
emde	0.00***	0.92	0.21	0.03**	1.06	0.98	0.87	0.95
lics	0.27	0.00***	0.00***	0.00***	0.76	0.68	-0.03***	0.15***
eeur	0.35	0.15	0.06*	0.15	0.98	1.07	1.14**	1.12
dasia	0.01**	0.61	0.91	0.37	1.03	1.15	0.91	0.84
lac	0.00***	0.36	0.01**	0.00***	1.10***	1.04	1.02	1.12
menap	0.62	0.35	0.63	0.29	0.79	0.72	0.69	0.73
cis	0.13	0.65	0.14	0.03**	0.92*	0.94	0.80	0.68
ssa	0.49	0.00***	0.00***	0.00***	0.80	0.63**	0.66	0.03***
fuel exp	0.15	0.27	0.11	0.00***	0.69*	0.72	0.72	0.64*
prgrm	0.05*	0.16	0.05*	0.00***	0.93**	0.82	1.04	1.15

Notes: This table presents results from Mincer-Zarnowitz (MZ) regressions of the inflation rate on an intercept and the predicted value from different WEO issues. Under the null of forecast efficiency, the estimated intercept should be zero while the slope coefficient should equal one. For each of the four forecast horizons, the left-most columns report p-values from an F-test of this joint null. The four columns to the right report the estimated slope coefficient on the forecast, with stars indicating deviations from the null that this coefficient equals one. ***: significant at the 1% level, **: significant at the 5% level, *: significant at the 10% level.

Table 27: **Tests for significant first-order serial correlation in inflation forecast errors**

	serial correlation estimate				fraction significant			
	h=0,F	h=0,S	h=1,F	h=1,S	h=0,F	h=0,S	h=1,F	h=1,S
world	0.13	0.34*	-0.14	0.01	0.32	0.35	0.39	0.53
G7	-0.21	0.29	-0.00	0.02	0.28	0.14	0.00	0.14
ae	-0.09	0.32*	-0.02	0.01	0.22	0.38	0.27	0.38
emde	0.24	0.33*	0.21	0.50**	0.35	0.35	0.42	0.56
lics	0.05	0.01	0.27	0.45***	0.32	0.43	0.55	0.62
eeur	0.25**	0.24	0.19	0.05	0.41	0.33	0.33	0.25
dasia	0.32	0.50**	0.31	0.47**	0.21	0.21	0.40	0.70
lac	0.55**	0.18	0.51***	0.26***	0.50	0.43	0.40	0.59
menap	-0.00	0.00	-0.13	0.27	0.08	0.26	0.17	0.52
cis	0.13	-0.21	-0.03	0.03	0.75	0.66		
ssa	-0.31***	0.06	0.21***	0.39*	0.34	0.34	0.43	0.45
fuel exp	-0.08	-0.06	-0.23**	0.09	0.29	0.22	0.29	0.59
prgrm	-0.17	0.23**	0.52**	0.59***	0.38	0.38	0.48	0.56

Notes: This table reports estimates of first-order serial correlation in the forecast errors. Under the null of an efficient forecast, the first-order serial correlation should equal zero. Using the four shortest forecast horizons, the left-most columns present the estimated first-order autocorrelation along with stars indicating statistical significance for a two-sided test statistic. The four columns on the right show the proportion of countries within a particular economic group that generate forecast errors with a first-order serial correlation that is significantly different from zero at the 5% level.

Table 28: **Sources of errors in WEO inflation forecasts**

Panel I: Projection on errors in forecasts of US inflation

	beta				5% significant ratio			
	h=0,F	h=0,S	h=1,F	h=1,S	h=0,F	h=0,S	h=1,F	h=1,S
world	0.25***	0.44***	0.65***	0.69***	0.05	0.13	0.27	0.27
G7	0.55***	0.56***	0.71***	0.77***	0.33	0.33	1.00	1.00
ae	0.49***	0.54***	0.68***	0.74***	0.17	0.37	0.68	0.71
emde	-1.03	-0.24	0.53*	0.44*	0.03	0.07	0.18	0.17
lics	0.40	0.46	0.84**	0.49	0.03	0.05	0.08	0.06
eeur	2.16	0.58	0.52*	0.20	0.08	0.16	0.33	0.33
dasia	-0.48	0.18	0.86***	0.95***	0.07	0.07	0.25	0.21
lac	-0.39	-0.68	-0.05	-0.02	0.03	0.09	0.25	0.25
menap	-2.81	-0.73	1.17**	0.76**	0.00	0.13	0.21	0.21
cis	0.63	0.87	-0.15	-0.63	0.00	0.00	0.00	0.00
ssa	0.82	0.75	0.38	-0.13	0.02	0.04	0.09	0.06
fuel exp	-2.86	-0.78	0.34	-0.02	0.00	0.11	0.07	0.14
prgrm	-0.57**	-0.30	0.03	-0.04	0.03	0.06	0.19	0.16

Panel II: Projection on output gap

	beta				5% significant ratio			
	h=0,F	h=0,S	h=1,F	h=1,S	h=0,F	h=0,S	h=1,F	h=1,S
world	-0.02	0.09	-0.01	-0.11	0.25	0.30	0.27	0.23
G7	-0.03**	0.04	-0.09	-0.12	0.00	0.14	0.14	0.00
ae	-0.03**	0.05	-0.04	-0.11	0.08	0.22	0.17	0.08
emde	-0.05**	0.10	-0.05	-0.27	0.43	0.39	0.42	0.45
lics	-0.07	0.00	-1.12***	-1.17	0.66	0.00	0.50	0.00
eeur	0.00	-0.10	-0.30*	-0.17	0.33	0.83	0.83	0.66
dasia	0.01	0.21***	0.47**	0.54**	0.16	0.33	0.20	0.40
lac	0.00	0.05**	-0.19***	-0.01	0.61	0.30	0.44	0.33
menap	0.05				0.00			
cis	0.04	0.18	0.76	0.70	0.33	0.00	0.00	0.00
ssa	-0.31**	-0.17	0.37***	0.36***	0.66	0.33	0.33	1.00
fuel exp	0.06	0.21*	0.90*	0.77	0.00	0.00	0.00	0.00
prgrm	0.04***	0.28	0.20**	0.28	0.38	0.37	0.39	0.32

Notes: This table shows results from regressions of year$(t+h)$ errors in the WEO inflation forecasts made in year(t) on an intercept and the contemporaneous forecast error for US inflation growth (Panel I) or the year(t) forecast of year$(t+h)$ output gap (Panel II). The four columns to the left report the estimated slope coefficient from these regressions with stars indicating significance of tests that the slope coefficient equals zero against a two-sided alternative. Columns to the left show the proportion of countries within each economic group for which the null of a zero slope coefficient is rejected at the 5% significance level. ***: significant at the 1% level, **: significant at the 5% level, *: significant at the 10% level.

Table 29: **Sources of errors in WEO forecasts of inflation: projection on errors in forecast of terms of trade**

I: Proportion of countries with significantly positive slope estimate

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F
world	0.06	0.11	0.08	0.09	0.13	0.15	0.14	0.15
G7	0.00	0.00	0.14	0.14	0.14	0.14	0.14	0.14
ae	0.08	0.20	0.14	0.12	0.21	0.12	0.09	0.06
emde	0.06	0.08	0.07	0.09	0.11	0.16	0.15	0.17
lics	0.05	0.09	0.11	0.14	0.16	0.20	0.11	0.11
eeur	0.18	0.09	0.00	0.00	0.00	0.10	0.11	0.00
dasia	0.05	0.00	0.15	0.10	0.15	0.21	0.15	0.10
lac	0.09	0.06	0.03	0.06	0.03	0.03	0.06	0.09
menap	0.00	0.10	0.10	0.05	0.15	0.15	0.31	0.50
cis	0.00	0.16	0.00	0.25	0.16	0.33	0.25	0.25
ssa	0.06	0.11	0.09	0.11	0.15	0.20	0.13	0.14
fuel exp	0.00	0.04	0.08	0.08	0.04	0.16	0.33	0.41
prgrm	0.08	0.11	0.06	0.10	0.12	0.14	0.11	0.12

II: Proportion of countries with significantly negative slope estimate

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F
world	0.08	0.11	0.15	0.20	0.19	0.22	0.26	0.31
G7	0.00	0.28	0.57	0.71	0.85	0.85	0.71	0.57
ae	0.08	0.17	0.23	0.36	0.33	0.39	0.36	0.39
emde	0.07	0.10	0.13	0.16	0.16	0.18	0.24	0.29
lics	0.07	0.07	0.09	0.12	0.11	0.14	0.18	0.28
eeur	0.18	0.27	0.18	0.18	0.09	0.30	0.33	0.44
dasia	0.10	0.10	0.20	0.25	0.15	0.10	0.31	0.36
lac	0.06	0.21	0.18	0.21	0.40	0.37	0.43	0.43
menap	0.00	0.00	0.15	0.21	0.05	0.05	0.10	0.11
cis	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.08
ssa	0.11	0.04	0.06	0.09	0.11	0.15	0.18	0.26
fuel exp	0.04	0.00	0.12	0.08	0.16	0.04	0.08	0.08
prgrm	0.09	0.11	0.15	0.20	0.19	0.20	0.26	0.31

Notes: This table shows results from regressions of errors in WEO forecasts of country-level inflation on an intercept and the error in the WEO forecast of terms of trade in that country. Horizons for the inflation and terms of trade forecasts are aligned. For each economic group listed in a particular row, Panel I shows the proportion of countries within that group for which the null of a zero coefficient on the term of trade forecast error is rejected at the 5% level and the estimated coefficient is positive. Similarly, Panel II, shows the proportion of countries within that group for which the null of a zero coefficient on the term of trade forecast error is rejected at the 5% level and the estimated coefficient is negative.

Table 30: **Sources of errors in WEO forecasts of inflation: projection on errors in forecast of commodity terms of trade**

I: Proportion of countries with significantly positive slope estimate

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F
world	0.11	0.08	0.08	0.08	0.12	0.14	0.12
G7	0.14	0.00	0.14	0.14	0.14	0.14	0.14
ae	0.13	0.06	0.10	0.10	0.10	0.10	0.06
emde	0.10	0.09	0.08	0.08	0.13	0.15	0.14
lics	0.12	0.14	0.06	0.04	0.10	0.14	0.14
eeur	0.20	0.00	0.00	0.00	0.00	0.00	0.00
dasia	0.08	0.20	0.12	0.12	0.20	0.12	0.16
lac	0.12	0.06	0.06	0.03	0.09	0.12	0.12
menap	0.09	0.00	0.14	0.23	0.23	0.20	0.15
ssa	0.10	0.10	0.05	0.02	0.07	0.17	0.15
fuel exp	0.00	0.00	0.23	0.23	0.33	0.47	0.38
prgrm	0.10	0.08	0.05	0.03	0.07	0.11	0.11

I: Proportion of countries with significantly negative slope estimate

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F
world	0.10	0.09	0.38	0.46	0.47	0.45	0.56
G7	0.00	0.14	0.85	0.85	0.85	0.71	0.71
ae	0.10	0.13	0.68	0.75	0.75	0.72	0.79
emde	0.10	0.08	0.31	0.40	0.40	0.39	0.50
lics	0.06	0.06	0.28	0.34	0.38	0.32	0.46
eeur	0.20	0.00	0.60	0.60	0.60	0.60	0.80
dasia	0.12	0.12	0.29	0.33	0.29	0.37	0.45
lac	0.12	0.12	0.41	0.54	0.54	0.51	0.61
menap	0.09	0.09	0.23	0.33	0.23	0.30	0.40
ssa	0.05	0.02	0.25	0.33	0.43	0.33	0.46
fuel exp	0.19	0.04	0.04	0.09	0.09	0.14	0.14
prgrm	0.10	0.08	0.38	0.47	0.49	0.44	0.57

Notes: This table shows results from regressions of errors in WEO forecasts of country-level inflation on an intercept and the error in the WEO forecast of commodity terms of trade in that country. Horizons for the inflation rate and terms of trade forecasts are aligned. For each economic group listed in a particular row, Panel I shows the proportion of countries within that group for which the null of a zero coefficient on the term of trade forecast error is rejected at the 5% level and the estimated coefficient is positive. Similarly, Panel II, shows the proportion of countries within that group for which the null of a zero coefficient on the term of trade forecast error is rejected at the 5% level and the estimated coefficient is negative.

Table 31: **Sources of errors in WEO forecasts of inflation: projection on errors in forecast of global commodity price**

I: Proportion of countries with significantly positive slope estimate

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F
world	0.13	0.11	0.61	0.54	0.63	0.64	0.63	0.60
G7	0.28	0.14	1.00	1.00	1.00	0.85	0.85	0.57
ae	0.22	0.11	0.94	0.94	0.94	0.88	0.83	0.72
emde	0.11	0.11	0.53	0.45	0.56	0.58	0.58	0.57
lics	0.08	0.08	0.49	0.33	0.52	0.52	0.52	0.53
eeur	0.41	0.08	0.75	0.83	0.83	1.00	0.88	1.00
dasia	0.10	0.07	0.57	0.50	0.64	0.64	0.76	0.68
lac	0.06	0.09	0.59	0.59	0.68	0.68	0.64	0.61
menap	0.04	0.09	0.63	0.45	0.50	0.52	0.52	0.50
cis	0.08	0.08	0.33	0.33	0.33	0.25	0.41	0.33
ssa	0.11	0.18	0.40	0.25	0.45	0.50	0.45	0.51
fuel exp	0.11	0.11	0.25	0.22	0.25	0.37	0.37	0.38
prgrm	0.13	0.07	0.59	0.50	0.62	0.62	0.61	0.60

II: Proportion of countries with significantly negative slope estimate

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F
world	0.09	0.02	0.00	0.02	0.03	0.04	0.02	0.11
G7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14
ae	0.00	0.02	0.00	0.00	0.02	0.00	0.00	0.05
emde	0.11	0.02	0.00	0.02	0.03	0.05	0.03	0.13
lics	0.08	0.01	0.00	0.03	0.03	0.08	0.03	0.14
eeur	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
dasia	0.17	0.03	0.00	0.00	0.00	0.04	0.04	0.04
lac	0.15	0.06	0.00	0.03	0.06	0.06	0.06	0.19
menap	0.13	0.00	0.04	0.04	0.00	0.04	0.04	0.10
cis	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.33
ssa	0.04	0.02	0.00	0.04	0.06	0.09	0.02	0.13
fuel exp	0.11	0.00	0.03	0.07	0.07	0.07	0.07	0.23
prgrm	0.10	0.03	0.00	0.03	0.03	0.04	0.03	0.12

Notes: This table shows results from regressions of errors in WEO forecasts of country-level inflation on an intercept and the contemperaneous error in the WEO forecast of global commodity price in the same year. Horizons for the inflation and terms of trade forecasts are aligned. For each economic group listed in a particular row, Panel I shows the proportion of countries within that group for which the null of a zero coefficient on the term of trade forecast error is rejected at the 5% level and the estimated coefficient is positive. Similarly, Panel II, shows the proportion of countries within that group for which the null of a zero coefficient on the term of trade forecast error is rejected at the 5% level and the estimated coefficient is negative.

Table 32: **Sources of errors in WEO forecasts of inflation: projection on errors in forecast of global fuel price**

I: Proportion of countries with significantly positive slope estimate

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F
world	0.06	0.06	0.43	0.41	0.60	0.64	0.63	0.60
G7	0.14	0.14	0.85	1.00	1.00	0.85	0.85	0.85
ae	0.11	0.16	0.77	0.83	0.94	0.88	0.86	0.86
emde	0.05	0.04	0.35	0.31	0.51	0.58	0.57	0.53
lics	0.05	0.00	0.29	0.21	0.47	0.54	0.56	0.50
eeur	0.25	0.16	0.50	0.58	0.91	0.90	0.88	1.00
dasia	0.03	0.07	0.38	0.38	0.56	0.64	0.68	0.56
lac	0.03	0.03	0.46	0.40	0.59	0.62	0.59	0.58
menap	0.04	0.00	0.18	0.22	0.36	0.47	0.47	0.42
cis	0.00	0.00	0.41	0.33	0.41	0.41	0.50	0.50
ssa	0.04	0.02	0.27	0.18	0.43	0.54	0.50	0.46
fuel exp	0.03	0.03	0.22	0.14	0.29	0.37	0.29	0.25
prgrm	0.06	0.03	0.40	0.36	0.56	0.61	0.60	0.57

II: Proportion of countries with significantly negative slope estimate

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F
world	0.06	0.06	0.01	0.02	0.01	0.03	0.06	0.07
G7	0.14	0.00	0.00	0.00	0.00	0.00	0.14	0.14
ae	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.05
emde	0.07	0.08	0.01	0.02	0.02	0.04	0.07	0.08
lics	0.05	0.12	0.01	0.05	0.01	0.05	0.08	0.08
eeur	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
dasia	0.14	0.17	0.00	0.00	0.00	0.04	0.04	0.04
lac	0.15	0.09	0.00	0.00	0.06	0.06	0.15	0.16
menap	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00
cis	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.25
ssa	0.04	0.11	0.02	0.06	0.02	0.04	0.06	0.06
fuel exp	0.03	0.00	0.03	0.07	0.03	0.07	0.07	0.11
prgrm	0.06	0.09	0.01	0.03	0.02	0.03	0.07	0.08

Notes: This table shows results from regressions of errors in WEO forecasts of country-level inflation on an intercept and the contemperaneous error in the WEO forecast of global fuel price in the same year. Horizons for the inflation and terms of trade forecasts are aligned. For each economic group listed in a particular row, Panel I shows the proportion of countries within that group for which the null of a zero coefficient on the term of trade forecast error is rejected at the 5% level and the estimated coefficient is positive. Similarly, Panel II, shows the proportion of countries within that group for which the null of a zero coefficient on the term of trade forecast error is rejected at the 5% level and the estimated coefficient is negative.

Table 33: **Sources of errors in WEO forecasts of inflation: projection on errors in forecast of global nonfuel price**

I: Proportion of countries with significantly positive slope estimate

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F
world	0.12	0.11	0.58	0.57	0.63	0.64	0.64	0.63
G7	0.14	0.14	1.00	1.00	1.00	1.00	0.85	0.71
ae	0.25	0.08	0.91	0.94	0.94	0.91	0.83	0.80
emde	0.10	0.12	0.50	0.47	0.55	0.57	0.60	0.58
lics	0.05	0.10	0.49	0.36	0.52	0.47	0.52	0.51
eeur	0.25	0.00	0.83	0.83	0.83	1.00	1.00	1.00
dasia	0.03	0.14	0.50	0.53	0.68	0.68	0.68	0.72
lac	0.12	0.09	0.56	0.65	0.68	0.68	0.65	0.64
menap	0.04	0.09	0.50	0.45	0.40	0.42	0.52	0.47
cis	0.08	0.08	0.16	0.33	0.33	0.25	0.50	0.16
ssa	0.11	0.18	0.45	0.27	0.45	0.47	0.50	0.55
fuel exp	0.03	0.11	0.18	0.22	0.29	0.40	0.40	0.44
prgrm	0.10	0.07	0.56	0.53	0.62	0.62	0.64	0.61

II: Proportion of countries with significantly negative slope estimate

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F
world	0.08	0.02	0.00	0.01	0.03	0.04	0.03	0.06
G7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14
ae	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.02
emde	0.08	0.02	0.00	0.02	0.04	0.06	0.04	0.07
lics	0.10	0.01	0.00	0.01	0.05	0.08	0.07	0.10
eeur	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
dasia	0.03	0.00	0.00	0.00	0.00	0.04	0.04	0.04
lac	0.12	0.03	0.00	0.03	0.06	0.06	0.06	0.09
menap	0.09	0.04	0.00	0.04	0.00	0.04	0.04	0.00
cis	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ssa	0.09	0.02	0.00	0.02	0.09	0.11	0.06	0.13
fuel exp	0.00	0.03	0.00	0.07	0.11	0.11	0.07	0.07
prgrm	0.08	0.01	0.00	0.02	0.04	0.05	0.04	0.07

Notes: This table shows results from regressions of errors in WEO forecasts of country-level inflation on an intercept and the contemperaneous error in the WEO forecast of global nonfuel price in the same year. Horizons for the inflation and terms of trade forecasts are aligned. For each economic group listed in a particular row, Panel I shows the proportion of countries within that group for which the null of a zero coefficient on the term of trade forecast error is rejected at the 5% level and the estimated coefficient is positive. Similarly, Panel II, shows the proportion of countries within that group for which the null of a zero coefficient on the term of trade forecast error is rejected at the 5% level and the estimated coefficient is negative.

Table 34: **Sources of errors in WEO forecasts of inflation: projection on errors in gdp forecast**

I: Proportion of countries with significantly positive slope estimate

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F
world	0.08	0.03	0.08	0.06	0.05	0.07	0.07	0.10
G7	0.28	0.00	0.28	0.14	0.14	0.00	0.00	0.14
ae	0.16	0.00	0.11	0.11	0.05	0.00	0.05	0.08
emde	0.05	0.04	0.07	0.05	0.06	0.09	0.08	0.11
lics	0.06	0.05	0.01	0.03	0.01	0.08	0.06	0.08
eeur	0.00	0.00	0.08	0.00	0.00	0.00	0.11	0.00
dasia	0.07	0.07	0.03	0.03	0.03	0.08	0.08	0.12
lac	0.03	0.03	0.06	0.06	0.12	0.18	0.09	0.12
menap	0.08	0.00	0.17	0.13	0.13	0.13	0.13	0.30
cis	0.08	0.00	0.00	0.00	0.00	0.00	0.08	0.08
ssa	0.06	0.09	0.06	0.04	0.02	0.06	0.04	0.02
fuel exp	0.07	0.03	0.14	0.03	0.07	0.07	0.07	0.14
prgrm	0.05	0.04	0.03	0.03	0.04	0.08	0.06	0.09

II: Proportion of countries with significantly negative slope estimate

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F
world	0.16	0.17	0.16	0.17	0.13	0.15	0.17	0.17
G7	0.14	0.14	0.00	0.00	0.00	0.00	0.14	0.14
ae	0.11	0.05	0.02	0.05	0.05	0.11	0.11	0.16
emde	0.17	0.19	0.19	0.19	0.16	0.16	0.19	0.17
lics	0.20	0.18	0.20	0.20	0.17	0.20	0.27	0.18
eeur	0.41	0.41	0.41	0.33	0.16	0.18	0.11	0.11
dasia	0.10	0.21	0.17	0.28	0.29	0.24	0.24	0.24
lac	0.12	0.09	0.12	0.09	0.15	0.12	0.09	0.15
menap	0.04	0.08	0.13	0.17	0.17	0.21	0.26	0.17
cis	0.41	0.50	0.58	0.58	0.16	0.25	0.25	0.16
ssa	0.20	0.18	0.11	0.09	0.06	0.09	0.20	0.15
fuel exp	0.18	0.14	0.22	0.22	0.22	0.18	0.18	0.11
prgrm	0.21	0.22	0.21	0.19	0.16	0.16	0.17	0.17

Notes: This table shows results from regressions of errors in WEO forecasts of country-level inflation on an intercept and the error in the WEO forecast of gdp growth in that country. Horizons for the inflation and terms of trade forecasts are aligned. For each economic group listed in a particular row, Panel I shows the proportion of countries within that group for which the null of a zero coefficient on the term of trade forecast error is rejected at the 5% level and the estimated coefficient is positive. Similarly, Panel II, shows the proportion of countries within that group for which the null of a zero coefficient on the term of trade forecast error is rejected at the 5% level and the estimated coefficient is negative.

Table 35: **Sources of errors in WEO forecasts of inflation: projection on gdp forecast**

I: Proportion of countries with significantly positive slope estimate

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F
world	0.05	0.09	0.11	0.12	0.12	0.16	0.12	0.18
G7	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00
ae	0.02	0.00	0.13	0.11	0.13	0.25	0.19	0.19
emde	0.05	0.11	0.11	0.13	0.12	0.14	0.11	0.17
lics	0.06	0.10	0.03	0.08	0.06	0.15	0.13	0.18
eeur	0.25	0.25	0.33	0.08	0.16	0.27	0.11	0.33
dasia	0.07	0.14	0.10	0.17	0.14	0.16	0.12	0.16
lac	0.00	0.09	0.12	0.21	0.15	0.12	0.12	0.18
menap	0.04	0.04	0.17	0.26	0.26	0.26	0.17	0.17
cis	0.00	0.00	0.08	0.00	0.08	0.16	0.16	0.16
ssa	0.06	0.15	0.02	0.02	0.02	0.06	0.04	0.15
fuel exp	0.07	0.03	0.07	0.18	0.14	0.18	0.14	0.14
prgrm	0.05	0.11	0.12	0.11	0.13	0.16	0.13	0.20

II: Proportion of countries with significantly negative slope estimate

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F
world	0.06	0.10	0.06	0.07	0.08	0.10	0.10	0.13
G7	0.14	0.14	0.00	0.14	0.00	0.00	0.00	0.00
ae	0.05	0.16	0.00	0.02	0.00	0.05	0.05	0.05
emde	0.07	0.09	0.07	0.08	0.10	0.12	0.11	0.15
lics	0.06	0.12	0.15	0.10	0.15	0.17	0.17	0.17
eeur	0.08	0.08	0.00	0.00	0.00	0.09	0.11	0.11
dasia	0.14	0.10	0.10	0.07	0.14	0.24	0.16	0.24
lac	0.03	0.00	0.03	0.09	0.03	0.03	0.03	0.21
menap	0.04	0.00	0.08	0.00	0.13	0.04	0.08	0.08
cis	0.25	0.33	0.08	0.33	0.08	0.00	0.16	0.00
ssa	0.02	0.13	0.11	0.09	0.15	0.20	0.15	0.15
fuel exp	0.03	0.03	0.07	0.07	0.11	0.11	0.07	0.07
prgrm	0.06	0.09	0.06	0.08	0.07	0.10	0.09	0.15

Notes: This table shows results from regressions of year$(t+h)$ errors in WEO forecasts made in year (t) of country-level inflation on an intercept and the year(t) forecast of year$(t+h)$ gdp growth. Horizons for the inflation and terms of trade forecasts are aligned. For each economic group listed in a particular row, Panel I shows the proportion of countries within that group for which the null of a zero coefficient on the term of trade forecast error is rejected at the 5% level and the estimated coefficient is positive. Similarly, Panel II, shows the proportion of countries within that group for which the null of a zero coefficient on the term of trade forecast error is rejected at the 5% level and the estimated coefficient is negative.

Table 36: **RMSE performance of inflation forecasts: WEO versus Consensus Economics)**

	h=0, F	h=0, S	h=1, F	h=1, S
25% quantile	-0.38	-0.28	-0.10	-0.08
50% quantile	-0.07	-0.13	-0.02	-0.01
75% quantile	0.20	0.04	0.05	0.10
Positive Significant	0.05	0.01	0.03	0.01
Negative Significant	0.13	0.11	0.03	0.05
Propoprtion of rejections	0.19	0.12	0.06	0.06
WEO Win	0.61	0.72	0.59	0.53
CE Win	0.38	0.27	0.40	0.46
Albania	0.21	0.14	0.10**	0.00
Argentina	-0.91	-0.69	0.07	0.34
Armenia	-0.33*	-0.27**	-0.19	-0.26***
Australia	0.15	0.25	0.05	-0.04
Austria	0.20	-0.15	-0.05	0.00
Azerbaijan	0.04	-0.47	-0.00	0.13
Bangladesh	0.02	0.04	0.21***	0.20
Belarus	-0.32*	-0.28	0.09	0.19
Belgium	-0.12	-0.25**	-0.01	-0.02
Bolivia	-0.42**	-0.46*	-0.23	0.26
Bosnia Herzegovina	0.86**	-0.13	0.05	-0.17*
Brazil	-0.63	-0.03	0.13	0.85
Bulgaria	-0.54	-0.28	0.01	0.01
Canada	0.10	0.07	-0.11	-0.05
Chile	-0.75**	-0.39**	0.03	0.01
China	-0.17	-0.32	-0.14	-0.32
Colombia	-0.41**	-0.30	-0.00	0.70
Costa Rica	-0.03	-0.39	-0.14*	-0.16*
Croatia	0.53***	0.09	0.04	-0.10
Cyprus	-0.18	-0.26**	-0.04	-0.03
Czech Republic	0.67*	0.30*	0.00	-0.03
Denmark	0.36*	0.09	-0.03	0.03
Dominican Republic	-0.54	-0.21	-0.07	0.06
Ecuador	-0.77	-0.25	-0.13	-0.41
Egypt	-0.59*	-0.48**	-0.12	-0.06
El Salvador	-0.38***	-0.33*	-0.07	-0.06
Estonia	-0.27*	-0.23	-0.06	0.00
Euro area	0.01	-0.06	-0.06	0.00
Finland	-0.24**	-0.13*	-0.04	-0.03
France	0.10	-0.09	-0.10	-0.07
Georgia	-0.50	-0.32	-0.10	0.02
Germany	-0.18	-0.11*	-0.04	0.02
Greece	-0.25	-0.02	-0.25	-0.17
Guatemala	-0.76**	-0.38*	0.01	-0.02
Honduras	-0.30**	-0.44***	0.12	0.14
Hong Kong SAR	2.64	0.08	0.18	0.03
Hungary	0.28	-0.02	-0.14	0.14
India	-0.04	-0.16	-0.03	0.15
Indonesia	-0.69	-0.37	0.00	-0.00
Ireland	-0.31	-0.19	-0.03	-0.00
Israel	0.29	-0.09	-0.04	-0.22
Italy	-0.06	0.07	0.03	0.08
Japan	0.09	-0.00	0.02	0.21*
Kazakhstan	-0.31	0.17	-0.11	0.10

Table 36: **(continued).**

	h=0, F	h=0, S	h=1, F	h=1, S
Korea	-0.07	-0.09	0.18	0.00
Latvia	-0.14	-0.18	-0.02	-0.02
Lithuania	-0.27**	-0.13	-0.02	-0.04
Macedonia, FYR	-0.53	-0.45	-0.15**	-0.11*
Malaysia	0.84***	0.24*	0.21**	0.10
Mexico	-0.66**	-0.57	0.10	-0.08
Moldova	-0.04	0.43	0.41	0.24
Netherlands	0.20	-0.07	0.36	-0.20***
New Zealand	-0.06	0.23**	0.10	-0.13
Nicaragua	-0.08	-0.20	0.13	0.05
Nigeria	-0.51**	-0.44*	-0.01	-0.11
Norway	0.47*	-0.06	-0.10	-0.06
Pakistan	-0.64	-0.55	-0.09	-0.01
Panama	-0.28	-0.36*	-0.10	0.02
Paraguay	0.11	0.01	0.56*	0.43**
Peru	-0.53*	-0.25	-0.00	-0.62
Philippines	0.29	-0.02	0.01	0.07
Poland	-0.02	0.13	1.67	0.84
Portugal	-0.06	-0.09	-0.14**	0.08
Romania	1.90	-0.41	0.14	0.11
Russia	-0.76	0.14	-0.47	-0.09
Saudi Arabia	0.02	-0.25***	-0.11	-0.11***
Serbia	-0.03	-0.14	-0.13	0.04
Singapore	0.53*	0.01	0.02	-0.04
Slovak Republic	-0.07	-0.21	0.04	0.03
Slovenia	0.30	0.88	0.28	0.68
South Africa	0.45**	-0.12	-0.00	-0.02
Spain	0.46*	-0.07	0.03	0.11
Sri Lanka	-0.42	-0.11	0.10	0.13
Sweden	-0.37	0.23*	-0.05	-0.07
Switzerland	0.34	-0.25***	-0.07	-0.15**
Taiwan Province of China	0.76***	0.13	-0.00	-0.11*
Thailand	-0.25**	0.06	-0.06	-0.02
Turkey	0.56	0.16	0.77*	0.46
Turkmenistan	-0.78*	-0.28**	-0.23**	-0.27*
Ukraine	0.83	-0.52*	-0.22	-0.41
United Kingdom	-0.51***	-0.28**	-0.04	-0.01
United States	0.07	-0.02	-0.07	-0.05
Uruguay	0.18	0.16	2.12	1.50
Uzbekistan	-0.14	-0.08	-0.16	-0.11
Venezuela	-0.33	2.62	-0.40	-0.08
Vietnam	-0.03	-0.28*	-0.10	-0.16**

Notes: This table reports the ratio of the estimated RMSE for the WEO inflation forecasts versus the RMSE for the Consensus Economics (CE) forecasts. We have subtracted one, so that values greater than zero suggest that the WEO forecasts are less accurate than the CE forecasts, while values below zero suggest that the WEO forecasts are more accurate. The top three lines report quantiles for the distribution of MSE ratios computed across all countries included in the table. WEO win is the proportion of countries whose normalized RMSE ratio is negative, while CE Win is the proportion of countries for which the normalized rmse ratio is positive. Propoprtion of rejections is the proportion of countries when the null of equal loss is rejected. Stars indicate statistical significance of a Diebold-Mariano test of equal predictive accuracy of the WEO and CE forecasts. This is based on a regression of the squared error loss difference (Consensus Economics minus WEO) on an intercept. ***: significant at the 1% level, **: significant at the 5% level, *: significant at the 10% level.

1 Figures

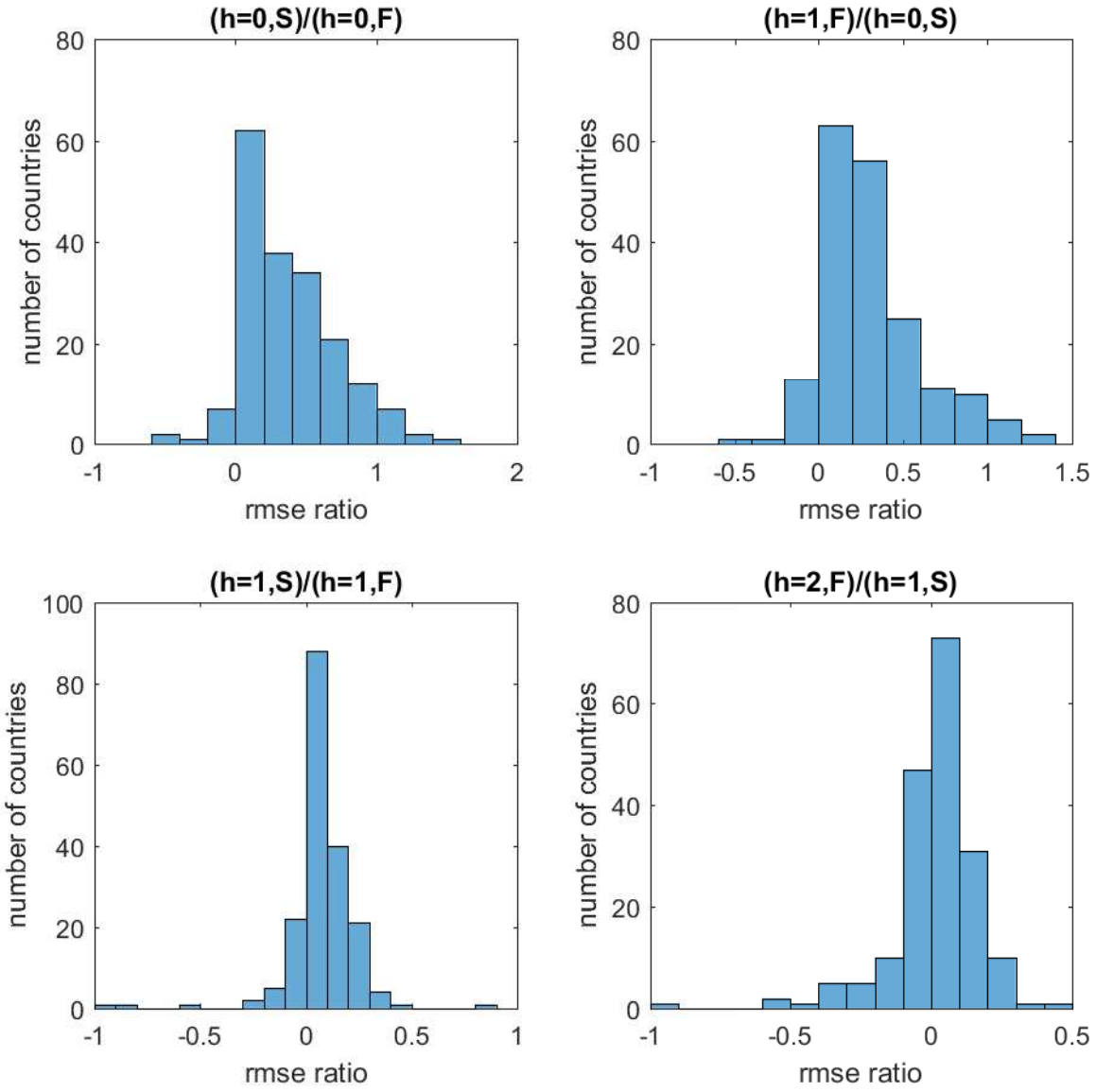

Figure 1: Histogram of GDP RMSE ratios, individual countries, 1990-2016

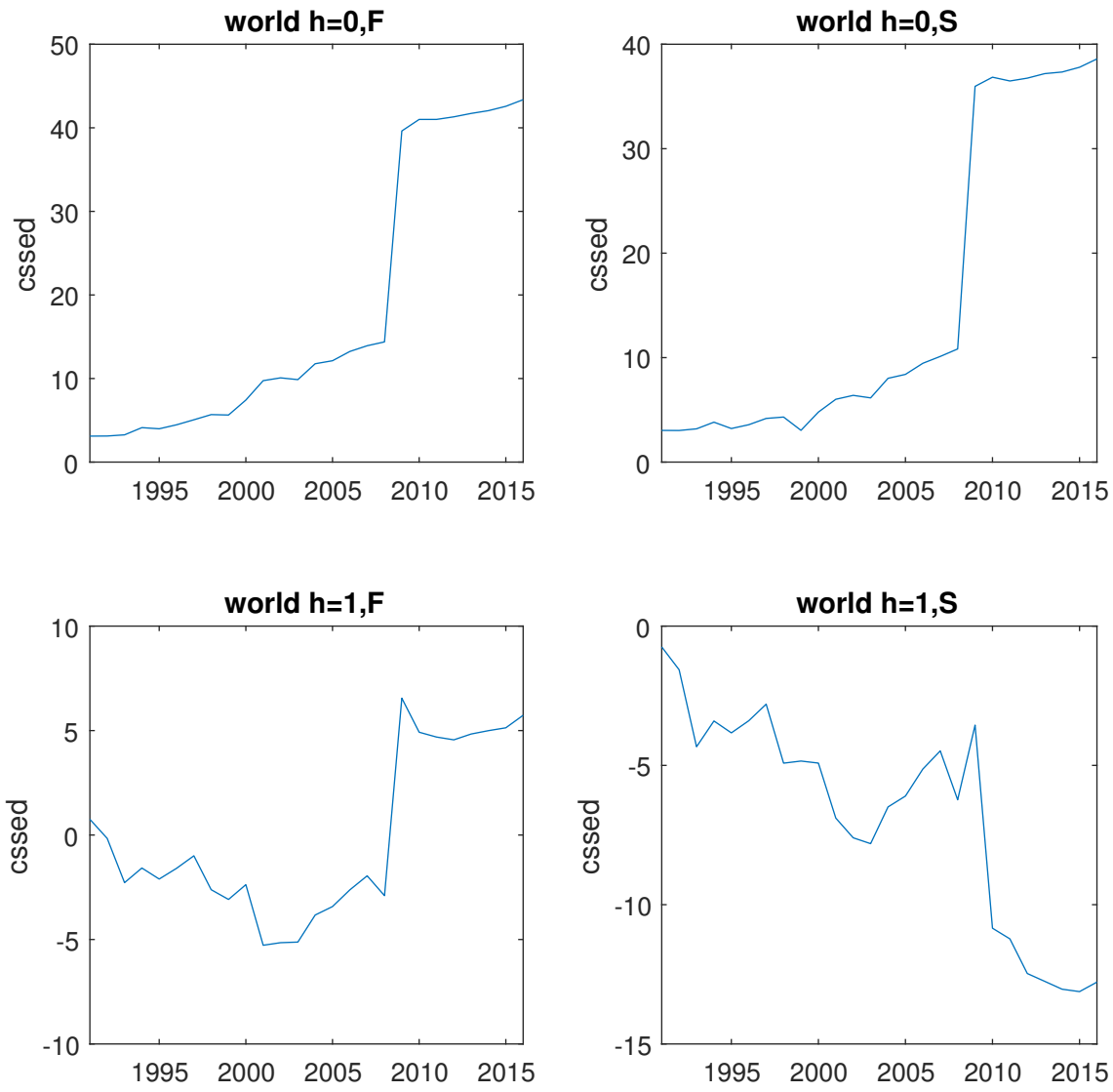

Figure 2: cumulative sum of GDP squared error differential of world economy, using historical mean as benchmark

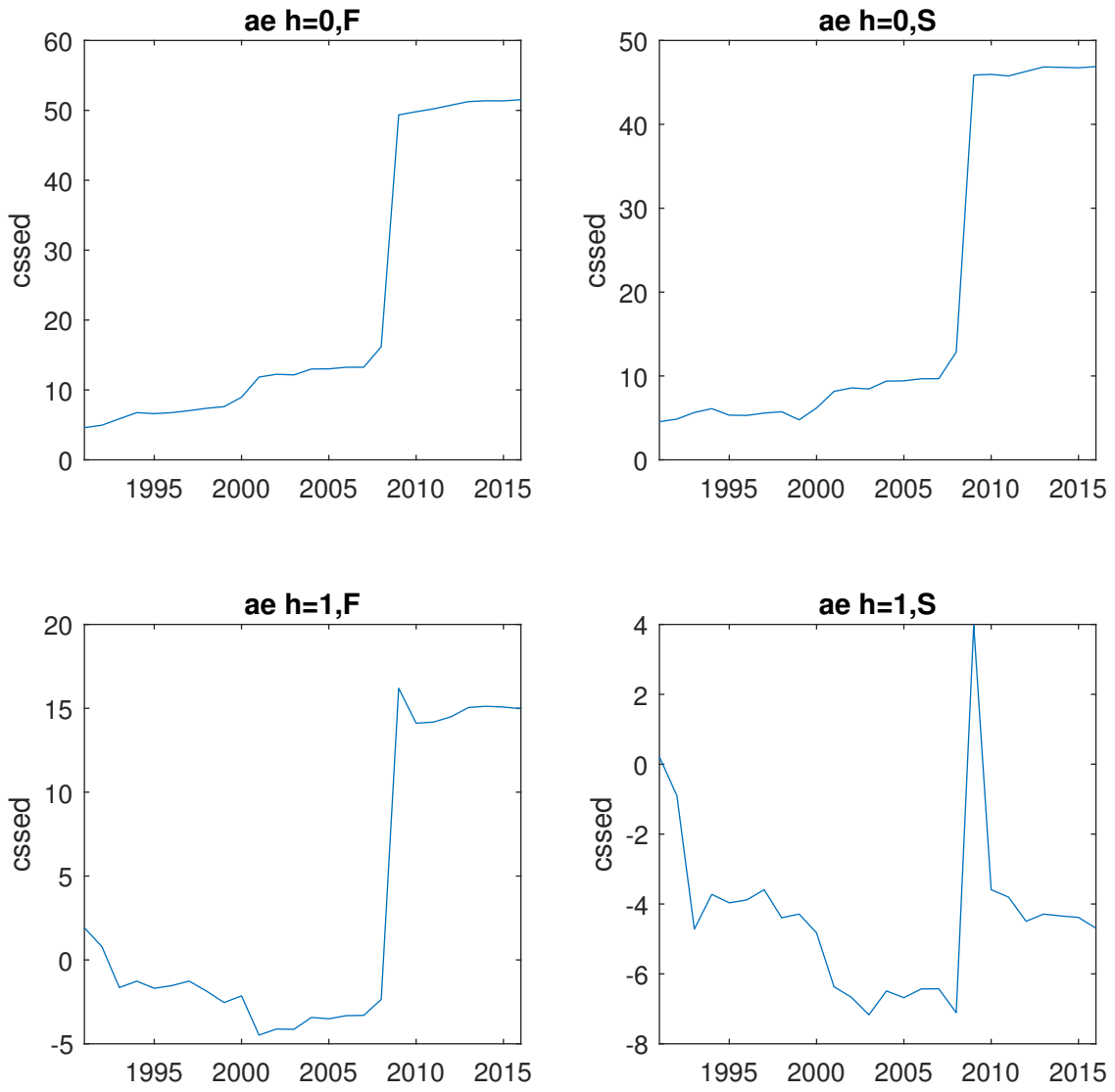

Figure 3: cumulative sum of GDP squared error differential of advanced economy, using historical mean as benchmark

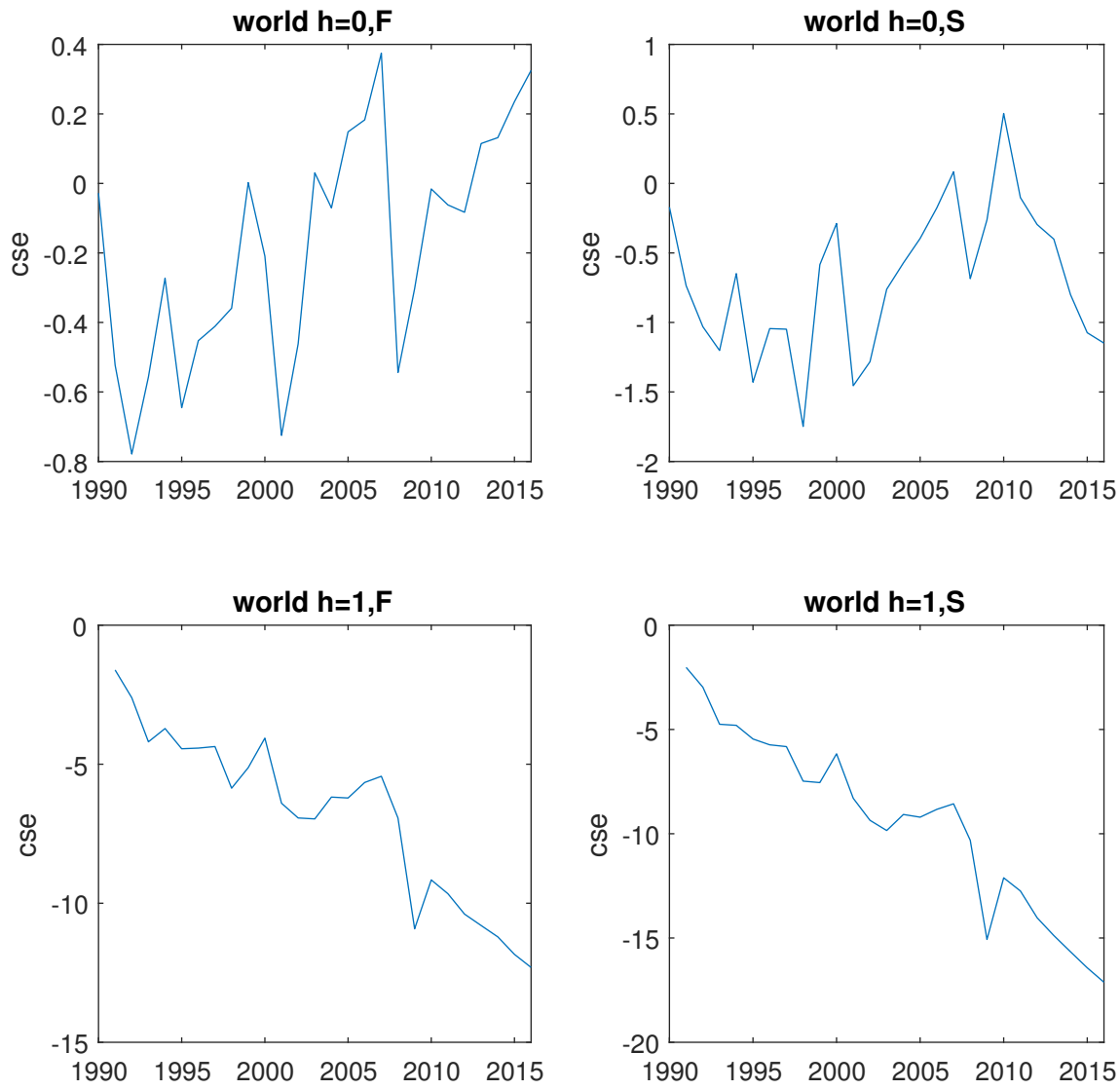

Figure 4: cumulative sum of GDP forecast error of world economy

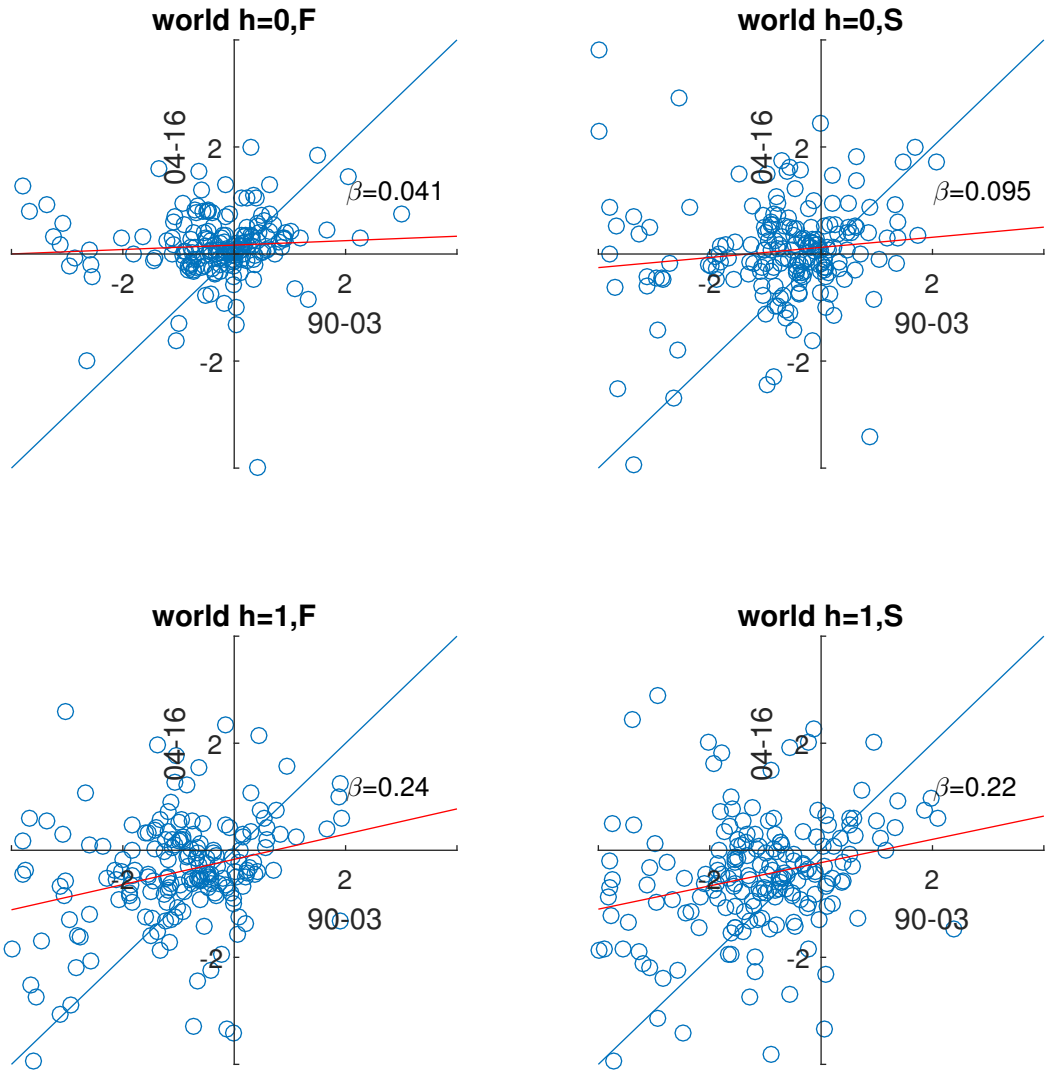

Figure 5: GDP forecast bias of world, 1990-2003 vs 2004-2016

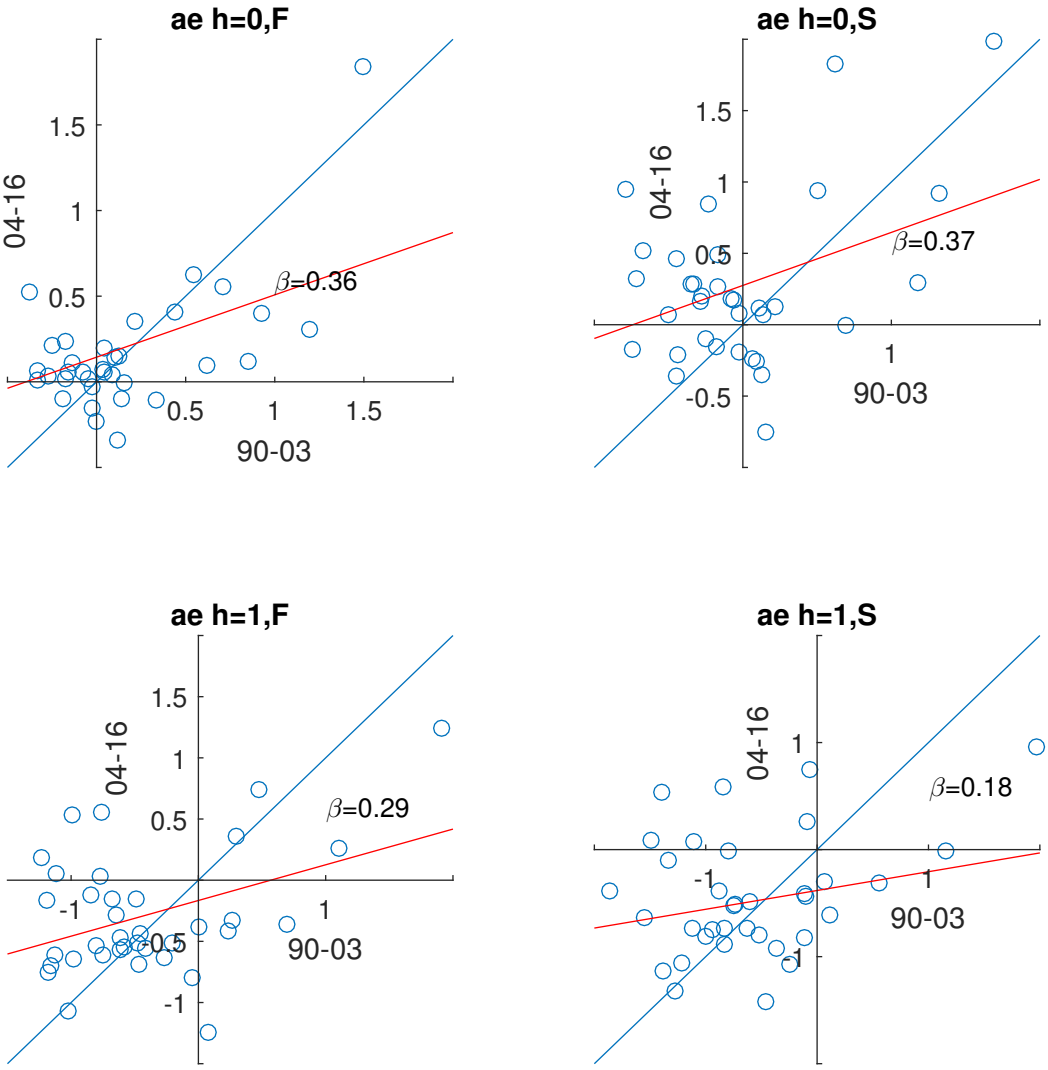

Figure 6: GDP forecast bias of advanced economies, 1990-2003 vs 2004-2016

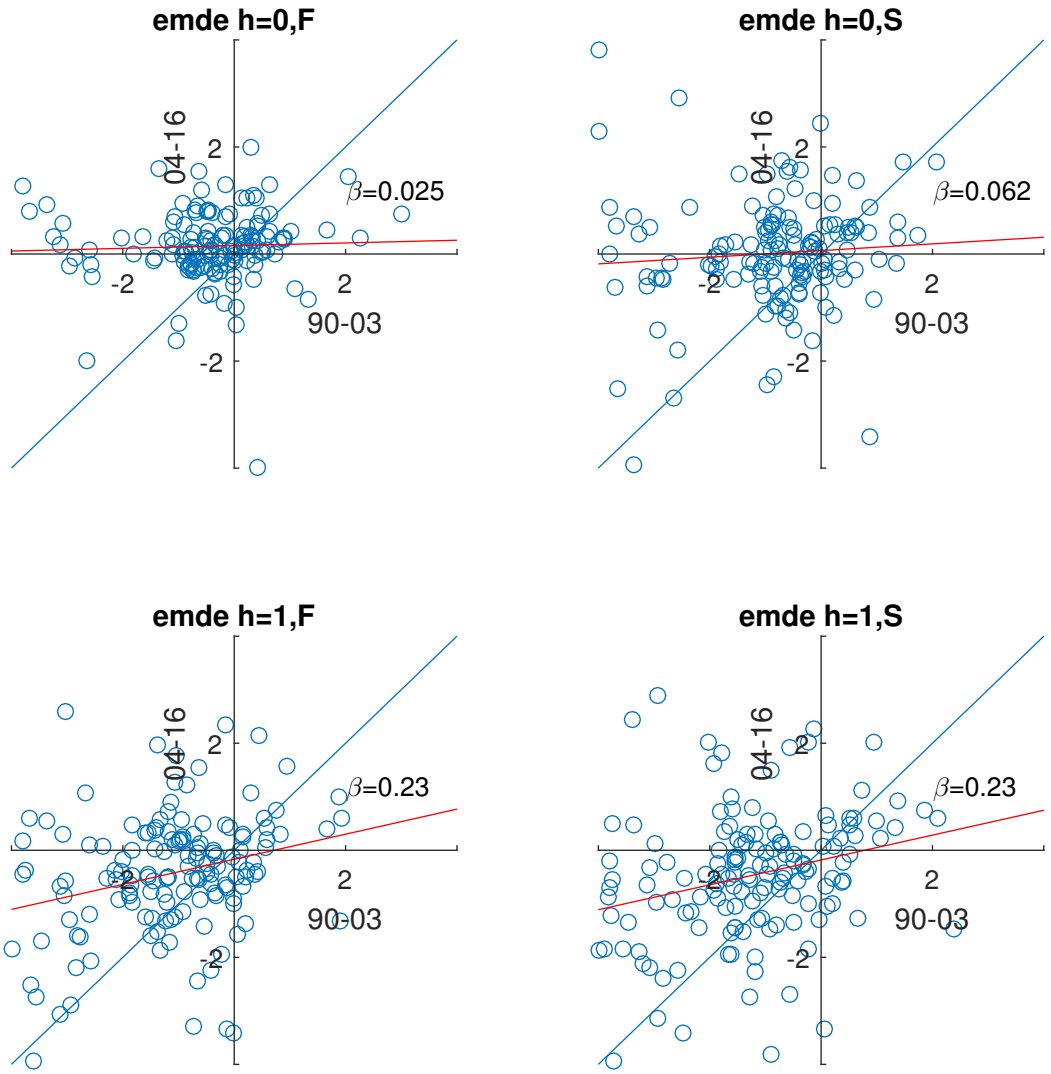

Figure 7: GDP forecast bias of emerging market and developing economies, 1990-2003 vs 2004-2016

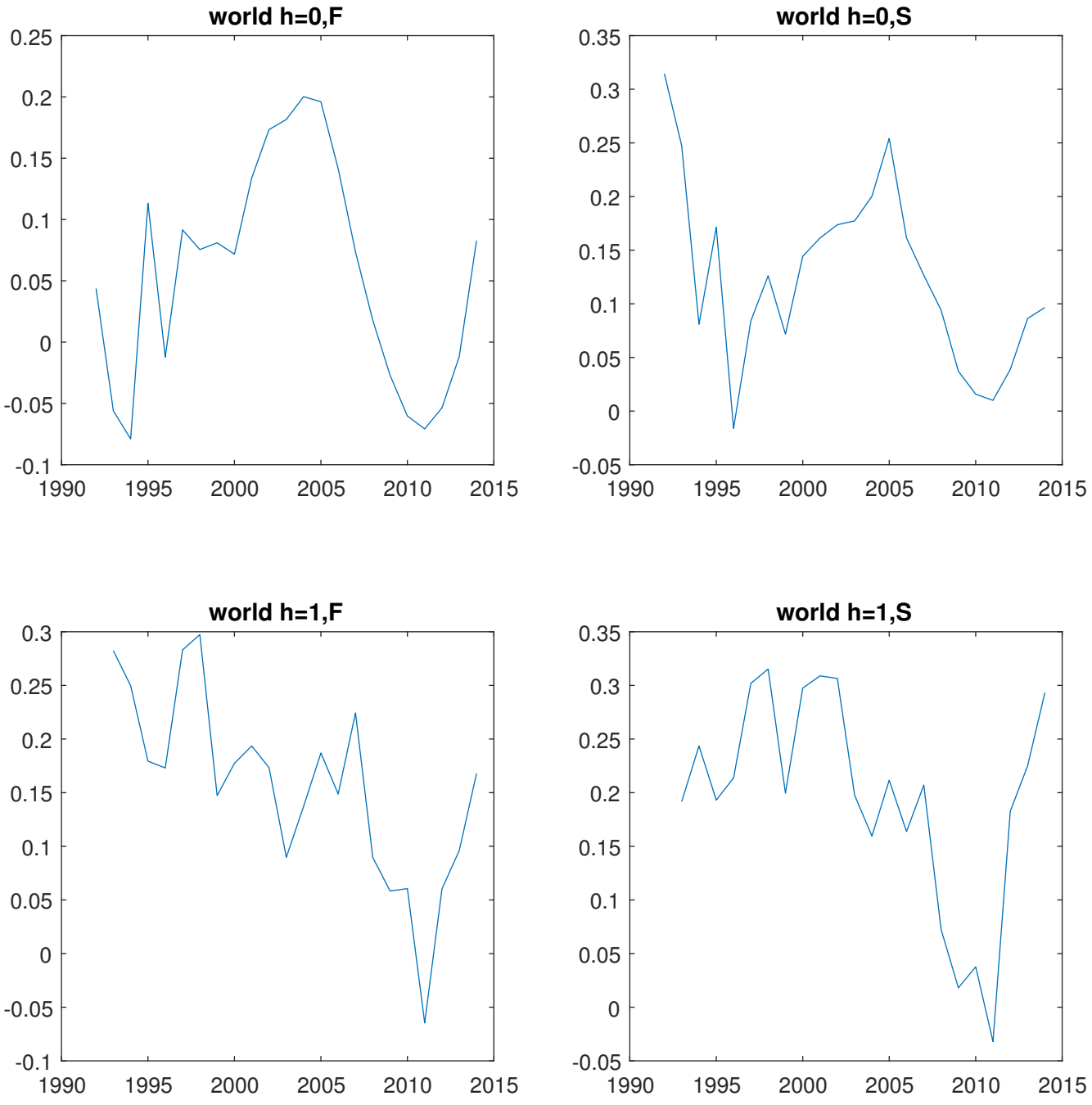

Figure 8: GDP forecast local serial correlation of forecast error of world economy

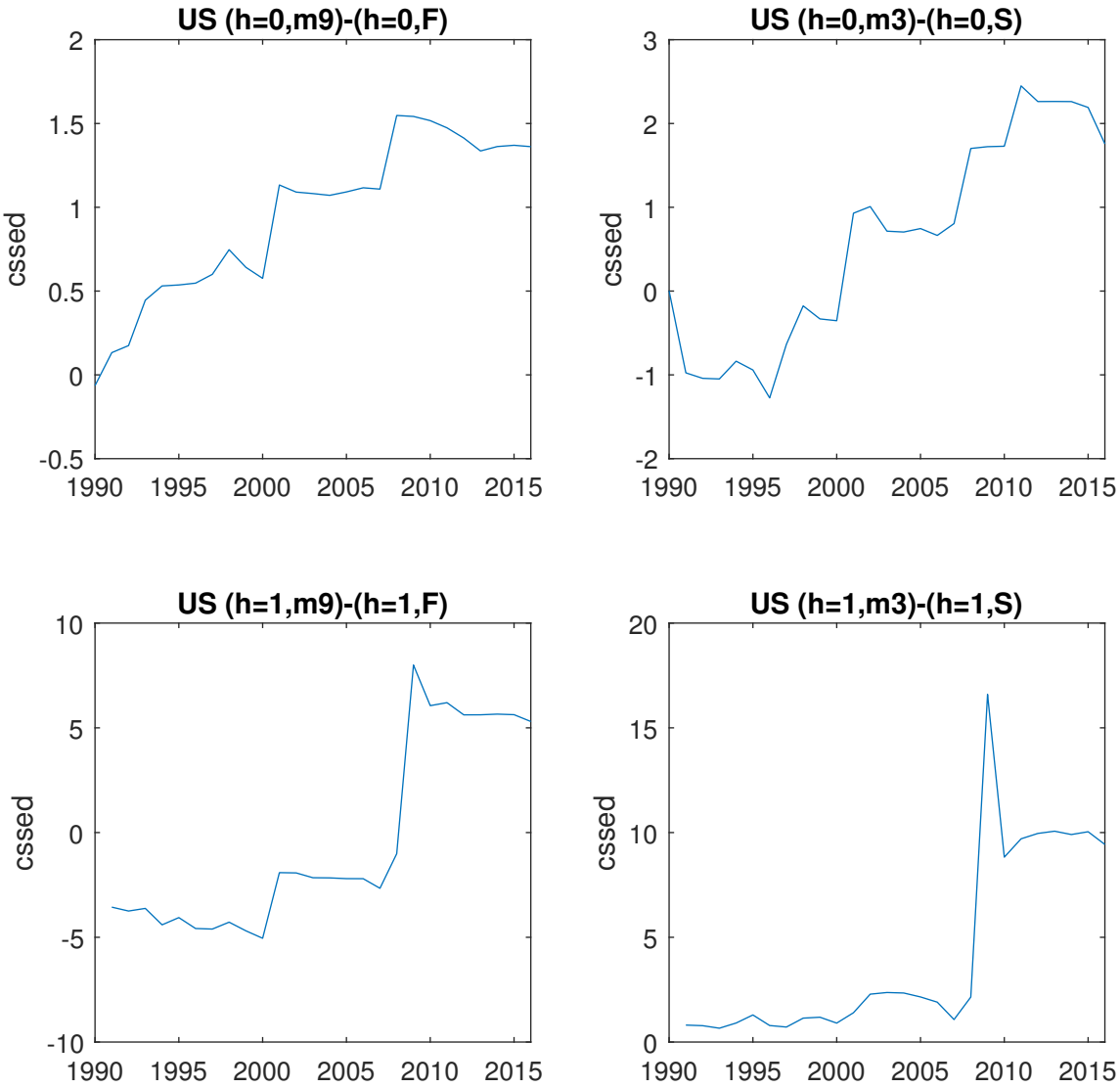

Figure 9: cumulative sum of squared GDP forecast error differential of US, using CE as benchmark

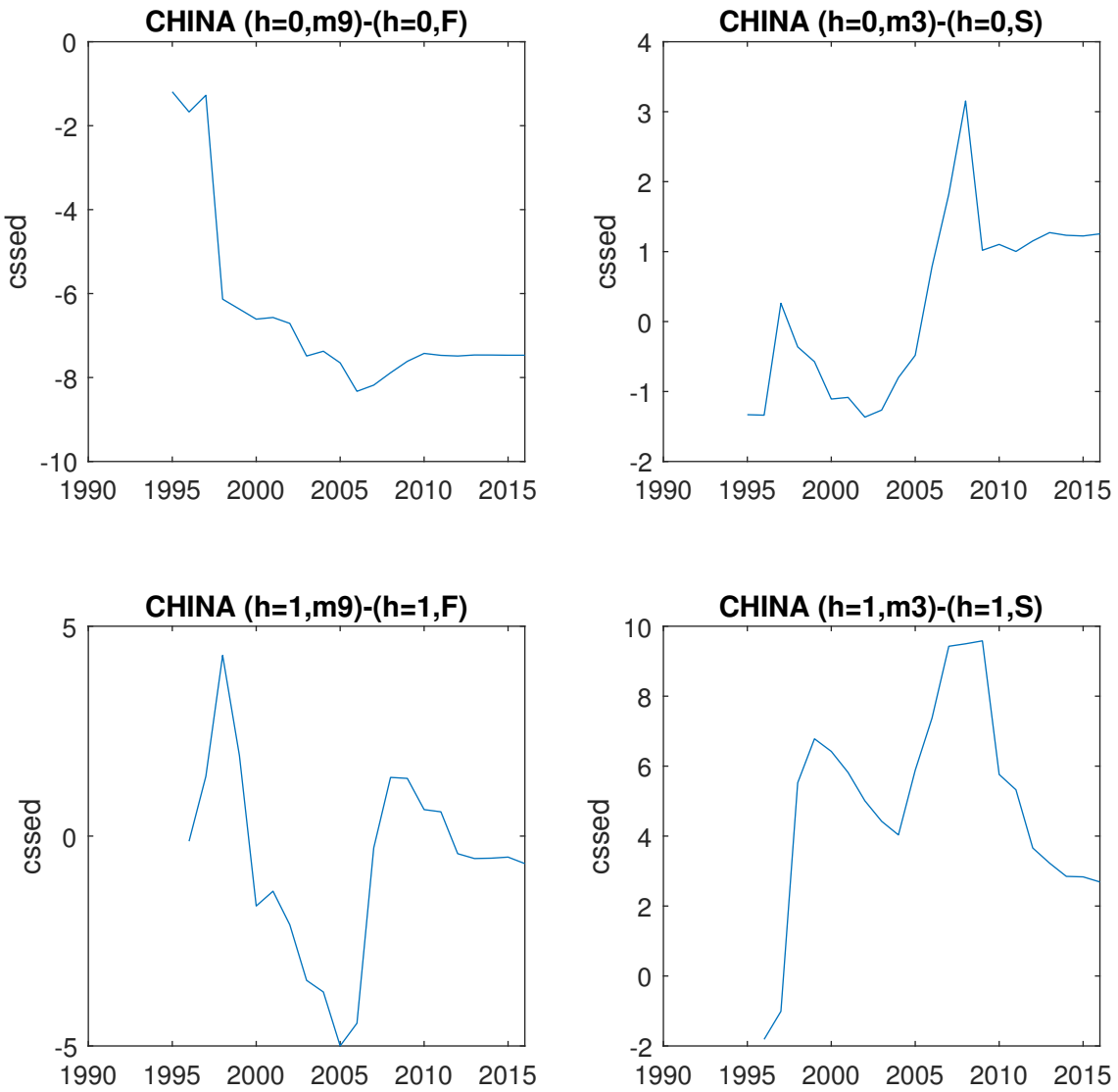

Figure 10: cumulative sum of squared GDP forecast error differential of China using CE as benchmark

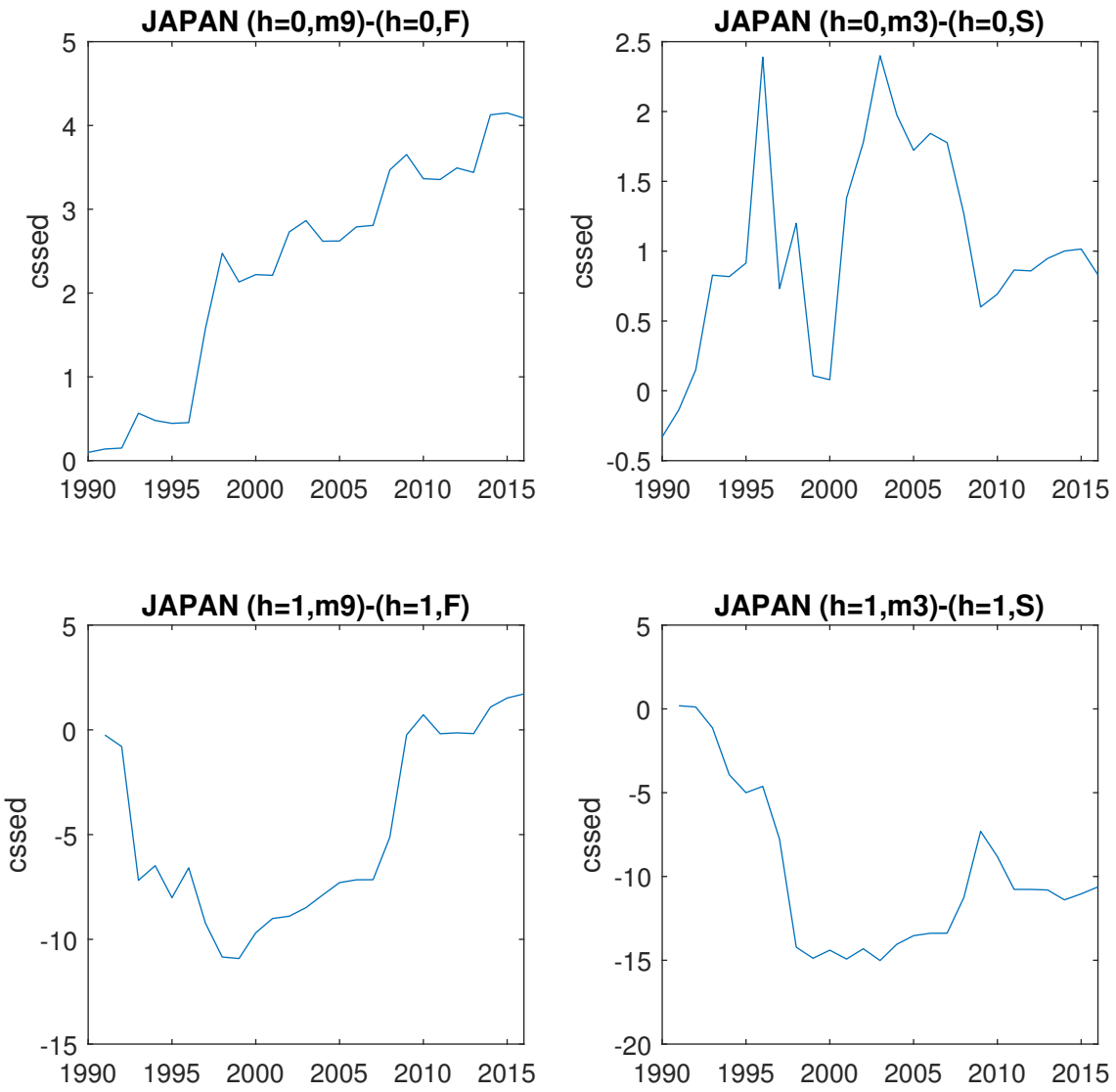

Figure 11: cumulative sum of squared GDP forecast error differential of Japan, using CE as benchmark

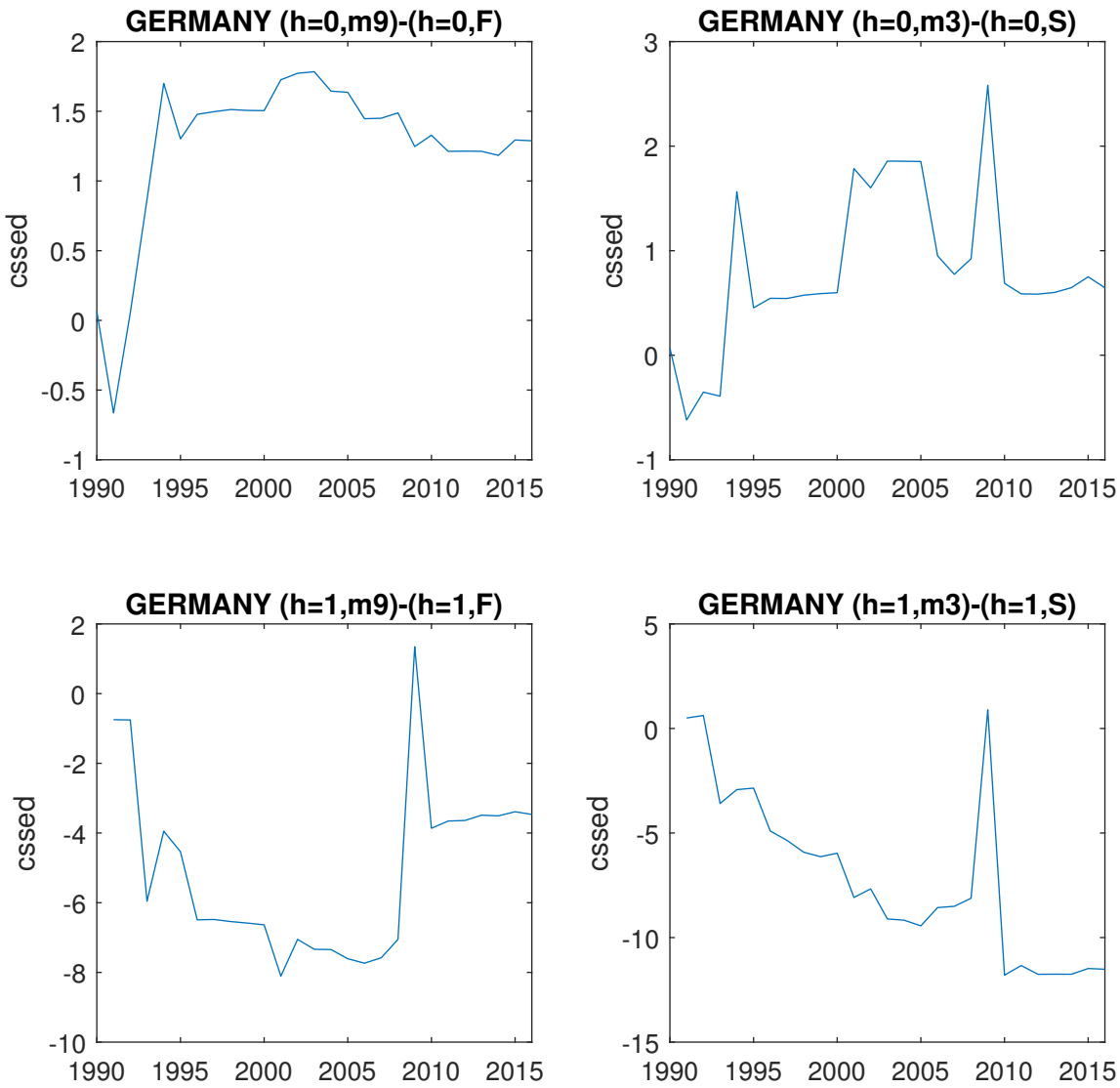

Figure 12: cumulative sum of squared GDP forecast error differential of Germany, using CE as benchmark

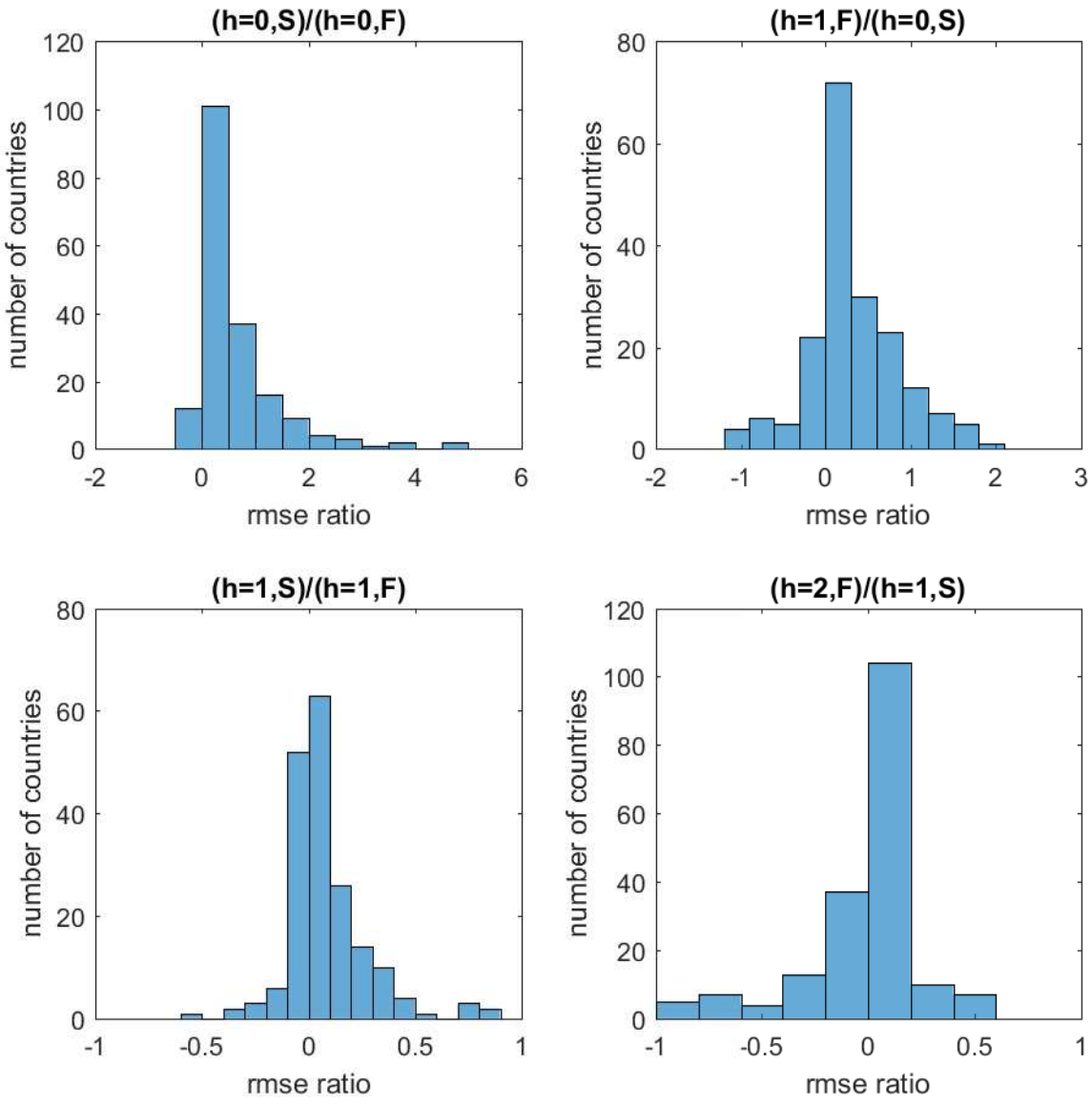

Figure 13: Histogram of Inflation RMSE ratios, individual countries, 1990-2016

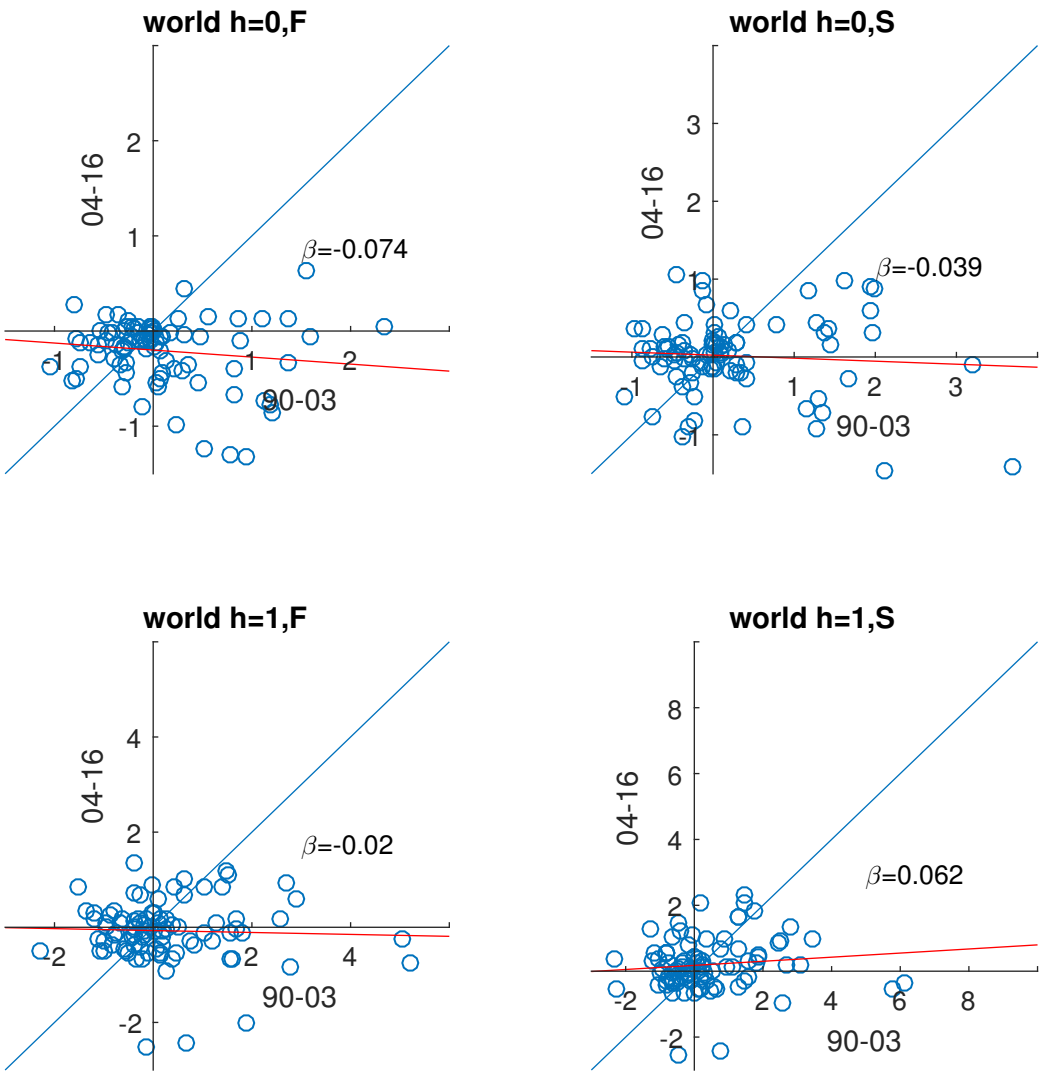

Figure 14: inflation forecast bias of world, 1990-2003 vs 2004-2016

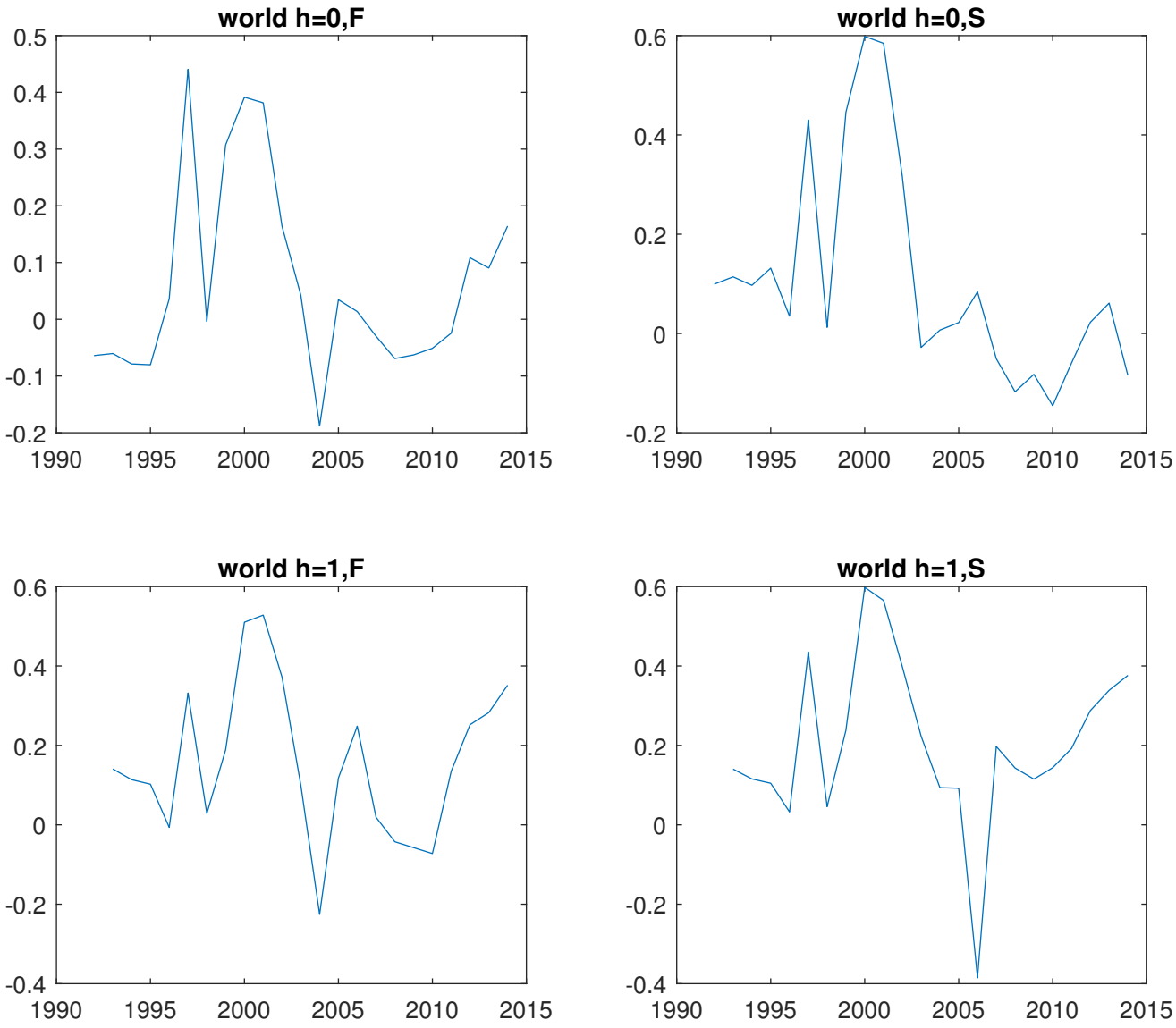

Figure 15: local serial correlation of inflation forecast error of world economy

A Tables for individual countries

Table A1: **Full-sample (1995-2016) RMSE values for WEO forecasts of GDP growth in individual countries**

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F	PT
Advanced Economies	0.33	0.55	1.18	1.48	1.56	1.61	1.64	1.59	0.27
Afghanistan	2.60	3.64	5.91	6.03	6.30	6.10	5.57	7.03	0.54
Albania	0.99	1.09	1.26	1.21	1.94	2.30	2.59	2.68	0.57
Algeria	1.20	1.45	1.77	1.62	1.75	2.26	1.79	1.84	0.24
Angola	2.39	4.79	6.69	5.31	6.53	5.75	4.70	5.27	0.12
Antigua and Barbuda	3.23	3.90	4.57	4.52	5.17	5.45	5.17	4.39	0.35
Argentina	2.27	3.36	5.43	5.74	5.74	5.82	5.81	5.73	0.76
Armenia	3.36	4.20	6.65	6.63	6.79	6.64	6.32	6.52	0.12
Australia	0.45	0.94	0.89	0.95	0.94	0.95	0.99	1.03	0.82
Austria	0.44	0.69	1.48	1.69	1.73	1.65	1.65	1.67	0.38
Azerbaijan	3.32	3.59	5.46	5.30	5.39	5.12	5.05	4.47	0.16
Bahamas, The	1.59	2.52	2.56	3.34	2.79	2.73	2.80	2.86	0.40
Bahrain	0.89	1.02	1.39	1.46	1.54	1.87	2.15	2.41	0.94
Bangladesh	0.53	0.69	0.66	0.72	0.76	0.79	0.90	0.97	0.76
Barbados	1.55	1.68	2.34	2.53	2.64	2.71	2.72	2.88	0.99
Belarus	2.34	3.24	4.53	4.69	4.88	5.29	5.56	6.06	0.98
Belgium	0.45	0.65	1.18	1.41	1.37	1.45	1.56	1.54	0.66
Belize	2.27	2.69	2.80	2.73	2.51	2.23	2.73	2.83	0.16
Benin	0.69	1.11	1.37	1.55	1.70	1.49	1.56	1.88	0.66
Bhutan	1.59	1.39	2.40	2.20	2.42	3.04	3.32	3.53	0.63
Bolivia	1.08	1.18	1.61	1.62	1.99	1.98	1.84	1.78	0.54
Bosnia Herzegovina	2.53	3.49	4.11	4.33	4.57	4.67	4.19	4.40	0.47
Botswana	1.98	2.36	2.48	2.92	2.70	3.21	2.69	3.86	0.51
Brazil	0.85	1.83	2.47	3.12	3.21	3.42	3.58	3.48	0.39
Bulgaria	2.44	3.18	4.21	4.20	4.44	4.80	5.21	5.43	0.76
Burkina Faso	1.92	1.98	1.90	2.10	1.84	1.76	1.83	1.73	0.00***
Burundi	3.47	5.68	5.88	4.77	4.86	4.98	4.75	4.82	0.48
Cabo Verde	1.39	1.57	1.96	2.39	2.29	2.60	2.70	2.87	0.83
Cambodia	2.64	3.26	3.77	3.99	3.56	3.13	3.03	3.06	0.02**
Cameroon	0.66	0.79	1.10	1.07	1.29	1.55	2.13	2.24	0.78
Canada	0.30	0.77	1.28	1.50	1.58	1.63	1.59	1.53	0.40
Central African Rep.	5.23	9.22	9.32	9.40	9.63	9.52	9.49	9.39	0.25
Chad	3.12	4.44	5.33	6.74	8.60	6.75	8.65	9.45	0.37
Chile	0.81	1.47	2.30	2.76	2.85	2.87	2.90	2.96	0.98
China	0.82	1.07	1.39	1.53	1.72	2.02	2.33	2.61	0.99
Colombia	1.40	1.76	2.25	2.74	2.69	2.89	2.94	3.02	0.73
Comoros	1.10	1.80	2.11	2.38	2.78	3.11	3.06	3.06	0.82
Congo, Democratic	2.75	4.33	6.40	7.72	7.62	7.07	6.16	6.15	0.15
Congo, Rep. of	2.32	4.01	4.28	3.91	4.65	5.61	3.98	3.06	0.07*
Costa Rica	1.79	2.20	2.66	2.79	2.78	2.64	2.71	2.61	0.52
Croatia	0.87	1.21	2.94	2.99	3.48	3.80	3.97	4.04	0.86
Cyprus	0.68	1.04	1.66	1.91	1.99	2.28	2.43	2.53	0.95
Czech Rep.	0.82	1.22	2.48	2.92	3.11	3.21	3.19	3.18	0.71
Cï¿œte d'Ivoire	1.64	2.25	3.54	3.69	4.25	4.72	4.76	4.67	0.78
Denmark	0.91	0.93	1.56	1.67	1.89	1.92	1.87	1.86	0.50
Djibouti	1.26	1.18	1.35	1.84	2.15	2.76	2.81	2.76	0.59
Dominica	2.02	2.08	2.05	2.52	2.56	2.59	2.55	2.76	0.81
Dominican Rep.	2.16	2.82	3.22	3.19	3.05	3.10	2.96	2.85	0.15
Ecuador	1.29	1.85	2.93	3.44	3.67	3.67	3.45	3.43	0.56
Egypt	0.50	0.76	1.27	1.56	1.84	2.30	2.55	2.87	0.97
El Salvador	0.78	1.47	1.99	2.23	2.41	2.54	2.78	2.72	0.83

Table A1: **(continued).**

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F	PT
EMDE	0.55	0.76	1.46	1.72	1.75	1.75	1.86	1.93	0.86
Equatorial Guinea	17.53	18.96	23.13	23.46	25.05	24.18	25.38	25.50	0.66
Eritrea	2.58	2.46	3.87	3.68	3.41	2.85	3.62	3.39	0.10
Estonia	1.58	2.91	4.94	5.62	5.93	5.79	5.56	5.41	0.22
Ethiopia	2.19	3.18	4.14	4.22	4.31	4.25	4.28	4.19	0.61
Euro area	0.28	0.44	1.62	2.09	2.25	2.30	2.42	2.46	0.90
Fiji	0.97	1.68	1.94	2.06	2.32	2.43	2.52	2.50	0.84
Finland	0.95	1.52	2.70	3.02	2.83	2.84	2.79	2.87	0.43
France	0.29	0.51	1.04	1.31	1.58	1.67	1.67	1.65	0.81
G7	0.34	0.51	1.13	1.42	1.57	1.65	1.64	1.59	0.19
Gabon	2.12	2.84	3.84	3.83	3.64	3.68	3.63	3.48	0.40
Gambia, The	3.27	3.31	3.69	4.03	3.55	3.67	3.49	3.43	0.19
Georgia	2.53	3.60	4.34	4.86	4.87	4.52	4.28	3.97	0.09*
Germany	0.34	0.80	1.63	2.02	1.97	1.94	1.96	1.92	0.40
Ghana	0.79	1.11	1.61	2.05	2.53	2.36	2.24	2.18	0.34
Greece	0.72	1.31	2.02	2.87	3.41	3.76	3.94	3.92	0.68
Grenada	2.80	3.30	4.04	4.26	4.16	4.16	4.14	4.24	0.63
Guatemala	0.63	0.66	1.22	1.31	1.62	1.82	2.01	2.09	0.99
Guinea	1.32	1.77	2.41	2.53	2.79	4.99	4.20	3.15	0.48
Guinea-Bissau	7.94	7.96	7.99	8.16	8.38	7.96	8.06	8.09	0.32
Guyana	1.58	1.85	2.29	2.45	2.71	2.98	3.04	3.22	0.98
Haiti	1.44	2.32	3.32	3.38	3.93	3.93	3.89	3.83	0.84
Honduras	1.57	1.81	2.17	2.35	2.32	2.76	2.65	2.37	0.31
Hong Kong SAR	1.00	2.60	3.68	3.99	3.80	3.64	3.57	3.54	0.15
Hungary	0.65	1.24	2.29	2.50	2.68	3.08	3.14	3.15	0.91
Iceland	1.29	1.98	1.84	2.41	2.77	3.36	3.36	3.26	0.30
India	0.98	1.42	1.89	2.04	1.95	1.85	2.07	2.14	0.50
Indonesia	0.69	2.28	4.37	4.69	4.80	4.73	4.72	4.67	0.50
Iran	2.18	2.40	2.93	3.18	3.49	3.18	3.50	3.29	0.31
Iraq	3.18	5.19	6.56	7.70	8.53	9.22	8.12	6.65	0.29
Ireland	4.86	5.30	5.81	6.35	6.53	6.70	6.75	6.80	0.96
Israel	0.95	1.64	2.20	2.49	2.23	2.23	2.31	2.19	0.41
Italy	0.32	0.74	1.63	1.95	2.18	2.26	2.28	2.38	0.96
Jamaica	1.21	1.45	2.20	2.49	2.72	2.98	3.06	3.07	0.99
Japan	0.68	1.35	2.02	2.41	2.58	2.81	2.92	2.86	0.72
Jordan	1.35	1.77	2.12	2.27	2.36	2.53	2.58	2.71	0.97
Kazakhstan	2.59	3.33	3.83	4.51	4.20	4.47	4.46	4.40	0.54
Kenya	1.02	1.41	2.27	2.49	2.77	2.85	2.87	2.85	0.79
Kiribati	1.75	1.80	1.95	1.86	1.81	1.83	2.02	1.98	0.47
Korea	1.07	2.53	3.97	3.63	3.63	3.42	3.46	3.52	0.53
Kuwait	2.24	3.06	3.97	3.76	3.89	4.05	3.93	3.99	0.60
Kyrgyz Rep.	2.27	3.12	3.46	3.63	3.99	3.40	3.81	3.33	0.20
Lao P.D.R.	0.87	0.95	1.05	1.17	1.41	1.88	1.90	2.03	0.91
Latvia	1.66	3.21	5.10	5.65	6.18	6.38	6.71	6.73	0.82
Lebanon	1.75	2.90	3.08	3.47	3.77	4.00	4.24	4.11	0.85
Lesotho	2.36	3.03	3.74	4.57	4.27	4.65	4.40	5.23	0.54
Liberia	1.69	2.63	3.61	3.96	4.96	4.42	4.38	4.35	0.54
Libya	2.55	2.83	3.67	8.77	3.51	2.90	3.00	2.82	0.09*
Lithuania	1.79	2.60	4.74	5.61	5.52	5.48	5.51	5.70	0.41
Luxembourg	1.64	1.86	2.89	3.09	3.06	2.90	2.83	2.89	0.27
Macedonia, FYR	2.37	2.70	3.15	3.09	3.25	3.43	3.34	3.51	0.47
Madagascar	1.79	3.97	4.76	4.87	5.29	5.34	5.18	5.24	0.69
Malawi	1.68	2.09	2.83	3.06	3.27	3.11	3.10	2.99	0.50

Table A1: **(continued).**

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F	PT
Malaysia	1.10	2.57	3.89	4.16	4.19	3.62	3.85	4.15	0.57
Maldives	2.64	3.75	4.23	3.84	4.31	4.78	4.69	4.38	0.31
Mali	2.48	2.81	2.37	2.58	2.56	2.54	2.62	2.63	0.49
Malta	1.85	2.16	2.69	2.62	2.64	2.50	2.52	2.71	0.43
Mauritania	1.54	2.28	4.61	8.45	3.80	5.54	6.11	4.53	0.42
Mauritius	0.70	0.88	1.48	1.47	1.39	1.26	1.41	1.38	0.37
Mexico	0.86	1.89	3.43	3.80	3.88	4.16	4.24	4.22	0.83
Moldova	3.45	3.81	5.66	5.82	5.38	5.63	5.46	4.85	0.04**
Mongolia	2.11	3.21	4.39	4.43	5.03	5.33	6.22	6.32	0.98
Morocco	1.02	2.16	3.31	3.66	3.90	3.67	4.19	4.13	0.32
Mozambique	2.14	2.04	2.13	2.93	2.89	2.67	3.16	3.21	0.58
Myanmar	2.69	3.08	3.41	3.40	3.68	4.04	4.17	4.05	0.72
Namibia	1.39	1.59	2.26	2.36	1.97	1.88	4.58	3.66	0.14
Nepal	0.67	1.36	1.90	2.15	2.17	2.40	2.39	2.45	0.83
Netherlands	0.53	0.76	1.60	1.84	1.92	1.87	2.06	2.01	0.51
New Zealand	0.67	1.22	1.55	1.58	1.62	1.74	1.70	1.69	0.45
Nicaragua	1.00	1.25	2.00	2.02	2.16	2.05	1.99	2.07	0.36
Niger	2.50	2.49	2.53	2.74	2.61	2.60	2.73	2.87	0.69
Nigeria	1.89	2.27	2.68	2.95	3.05	3.29	2.98	2.94	0.33
Norway	0.63	1.11	1.12	1.45	1.45	1.39	1.31	1.31	0.17
Oman	2.17	2.22	2.44	1.64	2.18	1.90	2.32	2.73	0.38
Pakistan	1.21	1.46	1.92	2.08	2.12	2.29	2.42	2.36	0.82
Panama	1.89	2.38	2.90	3.19	3.29	3.08	3.14	3.62	0.53
Papua New Guinea	2.76	3.94	4.56	4.58	4.77	5.18	5.24	4.78	0.78
Paraguay	2.44	3.22	4.08	4.46	4.45	4.59	4.52	4.51	0.71
Peru	1.09	2.03	2.96	3.05	3.05	3.24	3.31	3.13	0.65
Philippines	0.67	1.52	1.99	2.57	2.40	2.50	2.46	2.36	0.63
Poland	0.71	1.19	1.61	1.91	1.93	1.88	1.92	1.94	0.80
Portugal	0.39	0.75	1.30	1.82	2.19	2.33	2.50	2.63	0.82
Qatar	3.18	4.56	5.15	4.98	5.24	5.57	5.63	6.21	0.85
Romania	1.77	2.78	4.45	4.69	5.28	5.26	5.01	5.22	0.37
Russia	1.07	3.35	4.88	5.00	5.06	4.88	4.58	4.66	0.23
Rwanda	4.65	5.66	5.43	5.49	5.69	5.47	5.44	5.54	0.21
Samoa	2.39	3.20	3.08	3.21	3.26	2.93	2.99	3.00	0.31
Saudi Arabia	1.12	1.89	2.09	2.29	2.26	2.27	1.97	2.18	0.34
Senegal	1.02	1.31	1.57	1.60	1.72	1.83	1.78	1.81	0.74
Seychelles	3.39	3.81	4.01	3.67	3.45	3.21	3.84	4.54	0.25
Sierra Leone	5.69	7.33	12.22	9.20	9.35	8.06	7.76	8.10	0.13
Singapore	1.24	3.75	4.09	4.79	4.07	3.95	4.04	4.04	0.51
Slovak Rep.	0.76	1.08	2.86	3.02	3.32	3.26	3.23	3.02	0.37
Slovenia	1.24	1.71	3.28	3.15	3.47	3.64	3.57	3.66	0.39
SoTomPrncipe	0.98	1.38	1.49	1.70	6.96	11.46	17.98	17.69	0.81
Solomon Islands	3.08	3.77	3.97	3.89	4.24	4.59	4.35	4.09	0.35
Somalia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00***
South Africa	0.50	0.86	1.57	1.80	2.08	2.20	2.22	2.13	0.63
Spain	0.23	0.49	1.22	1.65	2.11	2.28	2.33	2.39	0.90
Sri Lanka	1.50	1.82	1.92	2.21	2.20	2.21	2.28	2.52	0.78
St. Kitts Nevis	2.33	2.59	2.78	2.75	2.91	3.00	3.21	3.34	0.72
St. Lucia	1.73	2.44	2.97	3.37	3.17	3.08	2.95	3.04	0.43
St. Vincent Grenadines	1.81	1.83	2.49	2.52	2.88	2.85	2.94	2.81	0.69
Sudan	2.17	2.51	2.94	3.95	3.61	3.84	4.17	3.92	0.28
Suriname	1.63	2.37	3.10	3.70	4.19	4.80	4.96	4.90	0.72
Swaziland	1.26	0.98	1.41	1.54	1.54	1.43	1.34	1.26	0.01**

Table A1: **(continued).**

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F	PT
Sweden	0.67	1.30	2.12	2.24	2.04	2.18	2.36	2.13	0.23
Switzerland	0.52	0.91	1.36	1.65	1.58	1.41	1.36	1.41	0.05*
Syria	1.23	1.54	1.77	1.63	1.69	1.87	2.04	2.00	0.23
Taiwan Prov. of China	1.23	2.38	2.94	3.64	3.13	3.17	3.38	3.51	0.57
Tajikistan	2.17	2.60	2.96	3.12	2.92	2.86	2.92	3.02	0.36
Tanzania	0.53	0.65	0.87	1.00	1.01	1.02	0.87	0.90	0.58
Thailand	1.37	2.72	4.32	5.04	4.78	4.82	4.97	5.26	0.56
Togo	1.58	2.26	2.41	2.62	2.81	2.89	2.87	3.01	0.84
Tonga	0.88	1.53	1.59	1.87	2.05	2.11	2.10	2.58	0.79
Trinidad and Tobago	2.66	2.85	3.45	3.51	3.73	4.17	4.56	4.14	0.25
Tunisia	0.89	1.47	2.29	2.49	2.61	3.10	3.22	3.24	0.87
Turkey	2.42	3.13	4.57	4.81	4.47	4.40	4.44	4.48	0.28
Turkmenistan	5.97	6.87	7.54	7.00	6.38	5.81	7.30	7.79	0.38
Uganda	1.11	1.41	1.59	1.72	2.11	2.10	2.15	2.20	0.86
Ukraine	2.23	3.82	5.73	6.36	6.13	6.26	6.39	6.39	0.35
United Arab Emirates	2.20	3.22	3.27	3.76	3.48	3.45	3.24	3.26	0.22
United Kingdom	0.34	0.60	1.27	1.70	1.82	1.91	1.87	1.82	0.35
United States	0.55	0.70	1.29	1.56	1.70	1.82	1.81	1.75	0.34
Uruguay	2.17	3.41	4.92	4.96	4.91	4.83	5.08	5.03	0.42
Uzbekistan	1.73	2.28	2.27	2.45	2.64	2.93	3.05	3.37	0.82
Vanuatu	1.94	2.38	2.62	2.70	2.81	2.74	2.63	2.63	0.59
Venezuela	3.05	4.40	5.77	6.20	7.91	8.07	8.02	8.09	0.78
Vietnam	0.49	0.87	1.60	1.77	2.35	2.59	2.83	2.72	0.74
World	0.37	0.54	1.24	1.47	1.54	1.50	1.53	1.56	0.74
Yemen	2.66	7.58	9.97	9.18	9.14	9.20	9.34	9.49	0.47
Zambia	2.35	2.77	2.97	3.16	3.09	2.49	3.03	3.49	0.39
Zimbabwe	2.07	3.51	5.61	7.69	8.56	9.15	9.27	9.50	0.89

Notes:: This table reports full-sample estimates of RMSE values across a variety of forecast horizons ordered in declining order from current year fall and spring forecasts (h=0,F and h = 0,S) to next-year forecasts (h = 1,F and h = 1,S) and forecasts 2, 3, 4 and 5 years ahead (h=2,F, h = 3,F, h = 4,F, and h = 5,F). The Patton-Timmermann (PT) test listed in the last column provides the p-value for the null hypothesis of a weakly increasing term structure of RMSE values as the forecast horizon grows. Small p-values indicate that the null is rejected.

Table A2: **Comparisons of sub-sample RMSE values for WEO forecasts of GDP growth in individual countries: 1990-2003 versus 2004-2016**

	1990-2003				2004-2016			
	h=0,F	h=0,S	h=1,F	h=1,S	h=0,F	h=0,S	h=1,F	h=1,S
Advanced Economies	0.35	0.65	1.18	1.14	0.31	0.43	1.26	1.71
Afghanistan	2.46	2.49	6.15	6.18	3.39	4.74	5.27	5.49
Albania	2.64	3.76	4.66	4.69	0.93	1.04	1.17	1.19
Algeria	2.01	2.19	3.14	2.57	0.79	0.96	1.20	1.09
Angola	2.30	3.20	5.13	4.11	2.43	5.49	7.14	5.58
Antigua and Barbuda	2.97	3.07	2.71	3.00	3.13	4.23	5.46	5.27
Argentina	2.51	3.72	6.21	6.43	1.60	2.57	3.92	4.28
Armenia	5.45	15.00	21.72	4.18	3.07	4.17	7.38	7.35
Australia	1.01	1.40	1.52	1.63	0.31	0.97	0.76	1.07
Austria	0.73	0.87	1.55	1.59	0.39	0.68	1.59	1.85
Azerbaijan	5.75	8.78	10.20	10.56	3.27	3.75	6.02	6.03
Bahamas, The	2.22	3.20	2.94	3.64	1.22	2.21	2.70	3.25
Bahrain	1.05	1.24	1.11	1.22	0.93	1.07	1.59	1.64
Bangladesh	0.55	0.75	0.85	0.85	0.42	0.49	0.38	0.50
Barbados	2.82	2.92	3.35	3.35	1.08	1.40	2.35	2.67
Belarus	4.07	5.61	6.98	7.21	1.89	3.19	4.52	4.82
Belgium	0.69	0.92	1.59	1.73	0.35	0.61	1.22	1.42
Belize	2.73	3.15	3.58	3.51	1.55	1.81	1.91	1.86
Benin	0.50	0.83	0.92	0.63	0.81	1.31	1.61	1.93
Bhutan	1.35	1.49	1.67	1.63	1.88	1.60	2.99	2.72
Bolivia	1.27	1.29	1.86	1.89	0.55	0.82	1.04	1.04
Bosnia Herzegovina	4.06	5.41	5.42	5.86	0.79	0.83	2.61	2.91
Botswana	1.40	2.02	1.35	1.66	2.40	2.51	3.02	3.49
Brazil	1.67	2.76	2.18	3.10	0.64	1.49	2.62	3.33
Brunei Darussalam	1.29	1.29	0.82	0.82	2.73	2.69	3.71	3.74
Bulgaria	3.85	6.78	9.00	9.06	0.64	1.12	2.80	2.92
Burkina Faso	2.19	1.96	2.15	2.27	1.84	2.21	2.07	2.32
Burundi	5.07	7.85	8.10	6.85	1.47	3.05	3.42	3.42
Cabo Verde	1.60	1.63	1.61	2.34	1.01	1.40	2.15	2.35
Cambodia	2.05	2.13	2.42	2.51	2.75	3.66	4.30	4.57
Cameroon	2.30	1.72	2.17	2.82	0.60	0.83	1.36	1.29
Canada	0.57	1.09	1.71	2.04	0.23	0.47	1.25	1.61
Central African Rep.	3.72	4.56	5.27	5.30	6.00	11.28	11.30	11.37
Chad	2.76	3.16	3.90	3.69	3.85	5.49	6.31	8.31
Chile	1.43	2.20	2.76	3.28	0.69	1.06	1.99	2.21
China	1.69	2.44	3.05	3.53	0.55	1.15	1.47	1.78
Colombia	1.55	1.86	2.35	2.91	0.98	1.34	1.84	2.13
Comoros	1.26	2.07	2.52	2.68	0.74	1.33	1.50	2.00
Congo, Democratic	4.94	9.37	9.94	12.05	1.54	1.46	2.76	3.25
Congo, Rep. of	2.07	4.28	4.55	4.13	2.49	3.44	4.14	4.00
Costa Rica	2.25	2.46	2.66	2.61	1.07	1.69	2.46	2.74
Croatia	1.59	1.34	2.00	2.35	0.71	1.21	3.16	3.25
Cyprus	1.45	1.51	2.08	2.09	1.11	1.31	2.15	2.79
Czech Rep.	1.35	2.00	2.40	3.12	0.84	1.28	2.73	3.24
Cï¿œte d'Ivoire	2.06	2.58	3.80	3.90	0.75	1.41	2.74	2.96
Denmark	0.71	0.98	1.27	1.11	1.05	0.97	1.87	2.01
Djibouti	2.48	2.95	3.32	3.67	0.50	0.54	0.96	1.10
Dominica	2.23	2.24	2.13	2.70	1.91	2.03	2.08	2.37
Dominican Rep.	2.37	2.61	3.15	3.28	2.58	3.23	3.43	3.32
EMDELOW					0.13	0.99	2.06	2.41
Ecuador	0.82	1.27	3.01	3.46	1.47	2.06	2.41	2.91

Table A2: **(continued).**

	1990-2003				2004-2016			
	h=0,F	h=0,S	h=1,F	h=1,S	h=0,F	h=0,S	h=1,F	h=1,S
Egypt	1.20	1.16	1.17	1.20	0.43	0.70	1.39	1.71
El Salvador	1.25	1.74	1.93	1.99	0.53	1.15	1.97	2.14
EMDE	1.17	1.77	1.36	1.51	0.54	0.78	1.58	1.91
Equatorial Guinea	20.97	22.59	26.52	26.86	7.35	8.17	14.70	14.96
Eritrea	5.73	5.94	8.01	8.43	1.92	1.95	3.00	2.89
Estonia	2.35	2.69	3.28	3.30	1.54	3.19	5.61	6.49
Ethiopia	4.45	5.69	6.34	6.25	1.97	3.28	3.17	3.50
Euro area	0.11	0.97	1.79	2.11	0.27	0.46	1.46	1.86
Fiji	0.79	0.83	1.02	1.08	1.23	2.15	2.46	2.57
Finland	1.41	2.76	3.14	3.33	1.02	1.46	3.20	3.52
France	0.41	0.73	1.52	1.53	0.29	0.49	1.05	1.40
G7	0.33	0.59	1.11	1.06	0.34	0.42	1.24	1.67
Gabon	2.70	3.49	3.91	4.30	0.90	1.18	3.24	2.66
Gambia, The	2.97	3.30	4.10	4.33	3.09	3.12	3.00	3.38
Georgia	13.32	14.23	12.60	12.68	1.26	3.35	4.13	4.93
Germany	0.67	0.94	1.77	1.94	0.37	0.86	1.74	2.19
Ghana	0.88	1.13	1.26	1.39	0.89	1.06	1.81	2.38
Greece	0.52	0.69	0.95	1.28	0.89	1.67	2.57	3.66
Grenada	2.08	2.59	3.25	3.38	3.52	4.04	4.78	4.96
Guatemala	0.79	0.77	1.29	1.46	0.55	0.64	1.35	1.37
Guinea	1.29	1.44	1.77	1.65	1.26	1.85	2.69	2.91
Guinea-Bissau	9.92	9.84	10.16	10.20	1.50	2.17	2.48	3.04
Guyana	2.31	2.73	3.23	3.42	0.92	1.16	1.58	1.93
Haiti	5.61	5.68	6.36	6.25	1.27	2.53	3.54	3.80
Honduras	2.34	2.36	2.53	2.73	0.55	1.24	1.90	2.10
Hong Kong SAR	1.50	3.13	3.89	3.83	0.82	1.62	2.96	3.55
Hungary	2.19	4.61	4.34	4.66	0.69	1.36	2.86	3.10
Iceland	1.87	2.14	1.86	2.34	1.39	2.20	2.03	2.63
India	1.00	1.05	1.37	1.26	1.01	1.57	2.22	2.49
Indonesia	0.91	2.81	5.67	6.02	0.26	0.64	0.66	1.10
Iran	2.06	2.67	2.79	2.41	2.60	2.90	3.36	3.90
Iraq	12.15	31.27	30.82	26.15	2.51	4.91	6.24	6.09
Ireland	2.15	2.46	2.89	3.36	5.99	6.46	7.06	7.61
Israel	1.20	1.81	2.59	2.87	0.68	1.29	1.33	1.86
Italy	0.46	0.84	1.35	1.68	0.32	0.68	1.84	2.17
Jamaica	1.53	1.51	2.41	2.45	0.79	1.34	1.73	2.26
Japan	0.45	1.29	2.13	2.50	0.81	1.27	1.99	2.43
Jordan	4.00	4.23	3.43	3.70	1.18	1.45	1.90	1.79
Kazakhstan	6.65	8.53	9.44	10.67	1.44	2.05	2.77	3.37
Kenya	1.08	1.70	2.61	3.24	1.04	1.43	2.17	1.89
Kiribati	1.78	1.51	1.58	1.26	1.83	1.90	2.15	2.15
Korea	1.43	3.10	5.04	4.36	0.66	1.49	1.57	2.07
Kosovo					0.73	0.84	1.26	1.49
Kuwait	16.32	29.59	21.90	24.41	2.35	2.82	4.01	4.09
Kyrgyz Rep.	6.81	8.37	8.52	9.75	2.05	3.22	3.48	3.67
Lao P.D.R.	1.58	1.61	2.14	2.17	0.94	1.01	0.98	1.20
Latvia	1.84	3.64	2.95	2.75	1.50	3.51	5.86	6.58
Lebanon	1.92	2.49	3.01	3.49	1.46	2.92	2.81	3.02
Lesotho	3.22	4.40	5.59	7.03	1.86	1.81	2.46	2.60
Liberia	0.19	0.15	0.16	0.27	2.19	3.42	4.70	5.15
Libya	1.93	2.64	2.74	9.04	6.27	14.07	26.33	26.78
Lithuania	3.21	5.27	3.90	4.32	1.15	2.05	4.78	5.98

Table A2: **(continued).**

	1990-2003				2004-2016			
	h=0,F	h=0,S	h=1,F	h=1,S	h=0,F	h=0,S	h=1,F	h=1,S
Luxembourg	1.56	1.52	2.32	2.45	1.47	1.82	2.89	3.11
Macao SAR					2.61	5.02		
Macedonia, FYR	4.27	3.92	4.28	4.70	0.85	1.00	2.07	2.07
Madagascar	3.54	5.88	6.37	6.49	1.87	1.41	3.35	3.40
Malawi	4.81	6.26	6.86	6.79	1.38	1.80	2.14	2.49
Malaysia	1.48	3.23	4.54	4.84	0.77	1.09	2.34	2.60
Maldives	1.61	2.13	0.84	0.83	3.03	4.37	5.44	4.94
Mali	3.16	3.03	2.66	2.54	1.75	2.62	2.45	2.88
Malta	1.98	2.20	2.68	2.63	1.29	1.64	2.26	2.25
Marshall Islands	2.49	2.61	1.29	2.76	1.38	1.38	1.25	1.25
Mauritania	1.56	1.60	1.29	1.46	1.88	2.89	5.90	10.92
Mauritius	0.98	1.20	1.43	1.38	0.31	0.50	1.45	1.48
Mexico	1.34	2.20	3.92	4.24	0.42	1.25	2.59	2.97
Micronesia	0.80	1.73	1.71	3.77	1.31	1.33	1.50	1.81
Moldova	8.02	8.52	10.21	10.99	2.49	2.83	4.91	5.28
Mongolia	1.16	1.83	1.89	2.10	2.46	3.68	5.16	5.15
Montenegro, Rep. of					1.60	1.87	4.39	4.46
Morocco	2.34	3.72	5.05	5.26	0.67	1.14	1.38	1.97
Mozambique	3.19	2.99	2.94	3.67	0.77	1.03	1.50	2.07
Myanmar	2.44	2.44	2.96	2.96	3.07	3.65	3.91	3.90
Namibia	1.82	2.06	2.58	2.09	1.09	1.38	2.07	2.47
Nepal	2.48	4.14	3.77	3.86	0.63	1.00	1.52	1.80
Netherlands	0.48	0.96	1.41	1.57	0.53	0.47	1.67	1.92
New Zealand	1.13	1.78	2.12	1.81	0.62	0.97	1.43	1.60
Nicaragua	2.06	2.10	2.61	2.53	0.83	1.20	1.95	2.10
Niger	3.01	3.10	3.33	3.41	2.82	2.78	2.72	3.09
Nigeria	1.81	1.72	2.60	2.88	1.70	2.55	2.63	2.89
Norway	0.96	1.34	1.37	1.61	0.47	0.93	1.08	1.22
Oman	3.67	3.71	3.83	3.17	1.20	1.10	1.31	1.13
Pakistan	1.62	1.81	2.43	2.30	1.22	1.34	1.57	1.81
Palau					3.77	5.07	5.10	0.76
Panama	1.90	2.09	2.31	2.62	1.76	2.48	3.16	3.54
Papua New Guinea	4.01	4.48	4.68	4.31	1.85	3.69	4.10	4.69
Paraguay	2.65	2.76	2.97	2.96	2.00	3.26	4.44	5.02
Peru	2.52	3.47	4.10	4.17	0.91	1.99	2.87	3.02
Philippines	1.04	1.56	2.64	3.01	0.74	1.68	1.95	2.62
Poland	1.30	3.51	3.14	3.76	0.49	1.04	1.37	1.73
Portugal	0.79	0.99	1.92	2.08	0.33	0.80	1.23	1.90
Puerto Rico					0.80	1.35		
Qatar	3.57	4.18	4.44	5.25	2.08	4.16	5.23	4.07
Romania	3.78	7.01	7.68	8.06	1.38	1.80	3.70	3.86
Russia	1.84	5.09	6.34	5.94	0.60	1.18	4.17	4.73
Rwanda	15.95	16.50	16.99	17.11	2.15	2.13	2.42	2.30
Samoa	4.41	4.36	4.11	3.90	1.78	3.39	3.20	3.45
San Marino					0.63	0.33	1.19	0.10
Saudi Arabia	1.16	3.04	2.29	3.25	0.99	1.68	1.97	2.27
Senegal	1.65	2.05	2.19	2.09	0.96	1.43	1.79	1.85
Serbia					0.81	1.55	3.68	4.27
Seychelles	3.00	3.26	3.78	3.70	3.54	4.00	3.84	3.29
Sierra Leone	6.77	6.98	7.87	6.98	2.74	6.55	13.97	9.97
Singapore	1.73	3.18	3.94	3.99	1.19	3.88	3.99	5.09
Slovak Rep.	1.86	1.93	2.32	2.68	0.81	1.26	3.26	3.41

Table A2: **(continued).**

	1990-2003				2004-2016			
	h=0,F	h=0,S	h=1,F	h=1,S	h=0,F	h=0,S	h=1,F	h=1,S
Slovenia	0.94	1.90	1.01	1.34	1.27	1.91	3.81	3.65
SoTomPrncipe	1.21	1.39	1.66	1.93	0.94	1.52	1.52	1.64
Solomon Islands	3.07	3.57	4.00	4.01	2.46	3.23	3.33	3.14
Somalia	6.75	6.75	12.41	12.18	0.00	0.00	0.00	0.00
South Africa	1.11	1.63	1.81	2.10	0.49	0.77	1.76	2.04
South Sudan					9.26	4.93	16.97	34.54
Spain	0.47	0.73	1.13	1.52	0.26	0.54	1.50	2.08
Sri Lanka	1.81	1.98	2.21	2.45	0.95	1.24	1.42	1.72
St. Kitts Nevis	2.38	2.60	1.98	2.06	1.98	2.38	3.12	3.06
St. Lucia	1.64	1.78	1.96	2.11	1.77	2.73	3.47	3.96
St. Vincent Grenadines	1.43	1.51	2.03	2.05	2.04	2.01	2.92	2.95
Sudan	2.02	3.00	3.12	3.74	2.62	2.96	3.58	4.85
Suriname	2.10	2.52	2.74	2.86	1.32	2.62	3.60	4.44
Swaziland	1.68	1.51	2.06	2.11	1.34	1.14	1.75	1.87
Sweden	0.62	0.88	1.44	1.58	0.77	1.53	2.62	2.79
Switzerland	0.79	1.13	1.79	2.07	0.46	0.72	1.14	1.36
Syria	1.43	2.07	2.45	2.53	0.98	0.98	0.93	0.65
Taiwan Prov. of China	0.62	1.78	2.36	2.43	1.50	2.52	3.03	4.10
Tajikistan	9.37	9.35	8.54	8.76	1.32	2.18	2.72	2.79
Tanzania	0.78	0.94	1.03	1.19	0.37	0.40	0.71	0.68
Thailand	1.28	3.01	4.75	5.34	1.27	1.83	3.05	3.81
Timor-Leste					4.18	5.57	6.74	6.81
Togo	4.99	5.30	5.81	6.00	1.08	1.35	1.34	1.64
Tonga	2.32	2.33	3.04	3.22	0.95	1.60	1.67	2.06
Trinidad and Tobago	3.01	2.69	2.86	2.94	1.91	2.71	3.75	3.82
Tunisia	1.27	1.91	2.30	2.40	0.75	1.34	2.26	2.65
Turkey	3.29	4.74	5.51	5.48	1.45	2.18	3.44	4.10
Turkmenistan	11.14	12.30	15.14	13.79	3.30	4.74	5.10	5.49
Tuvalu					0.67	0.81	0.80	0.66
Uganda	1.79	1.90	1.97	1.98	1.10	1.36	1.67	1.83
Ukraine	2.42	4.58	8.27	8.81	1.82	3.84	6.99	7.09
United Arab Emirates	2.23	3.40	2.86	3.68	1.94	2.53	3.42	3.51
United Kingdom	0.41	0.70	1.37	1.49	0.29	0.60	1.58	2.16
United States	0.62	0.88	1.55	1.65	0.46	0.51	1.11	1.55
Uruguay	2.81	4.01	5.65	5.52	1.58	2.29	3.41	3.68
Uzbekistan	2.63	2.48	3.02	3.18	1.87	2.15	2.57	2.69
Vanuatu	2.45	2.72	2.63	2.84	1.10	1.74	2.34	2.37
Venezuela	3.31	4.25	5.74	6.19	2.85	4.14	5.64	6.01
Vietnam	1.29	1.38	2.57	2.60	0.43	0.87	1.06	1.38
World	0.42	0.59	1.12	1.26	0.38	0.50	1.37	1.73
Yemen	1.18	1.24	1.07	1.01	3.03	8.87	11.71	10.79
Zambia	3.17	3.57	3.95	3.86	0.87	1.49	1.50	1.94
Zimbabwe	2.27	4.69	6.28	8.09	1.52	3.71	4.99	7.27

Notes:: This table shows sub-sample estimates of RMSE values associated with WEO forecasts of GDP growth in individual countries. We show results for current-year and next-year forecast horizons ordered in declining order from current year fall and spring forecasts (h=0,F and h = 0,S) to next-year forecasts (h = 1,F and h = 1,S).

Table A3: **Theil U-statistics comparing the MSE of WEO forecasts of GDP growth in individual countries to the MSFE values associated with using the historical average as the forecast**

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F
Advanced Economies	0.05	0.14	0.73	1.12	1.19	1.22	1.27	1.17
Afghanistan	0.20	0.33	0.75	0.78	0.87	0.78	0.63	0.96
Albania	0.12	0.24	0.66	0.67	0.81	0.94	1.52	0.99
Algeria	0.71	0.87	1.68	1.16	1.61	1.92	1.09	0.87
Angola	0.06	0.24	0.56	0.35	0.53	0.43	0.32	0.34
Antigua and Barbuda	0.49	0.72	0.95	0.94	1.17	1.26	1.16	0.81
Argentina	0.13	0.31	0.78	0.86	0.80	0.87	0.90	0.98
Armenia	0.10	0.64	1.51	0.24	0.24	0.23	0.20	0.20
Australia	0.20	0.52	0.60	0.79	0.69	0.64	0.77	0.72
Austria	0.12	0.21	0.83	1.00	0.95	0.84	0.90	0.89
Azerbaijan	0.11	0.22	0.34	0.36	0.19	0.09	0.07	0.05
Bahamas, The	0.61	1.42	1.46	2.19	1.38	1.22	1.25	1.24
Bahrain	0.27	0.37	0.50	0.56	0.55	0.76	1.12	1.35
Bangladesh	0.26	0.45	0.47	0.53	0.51	0.49	0.58	0.61
Barbados	0.51	0.58	0.93	1.01	0.90	0.71	0.65	0.77
Belarus	0.12	0.26	0.42	0.46	0.34	0.25	0.24	0.30
Belgium	0.11	0.22	0.71	0.89	0.77	0.81	1.01	0.95
Belize	0.71	0.95	1.13	1.08	0.91	0.67	0.89	0.99
Benin	0.28	0.75	1.05	1.26	1.32	0.96	0.97	1.27
Bhutan	0.33	0.29	0.71	0.61	0.65	0.99	1.13	1.27
Bolivia	0.63	0.76	1.48	1.51	2.08	1.94	1.62	1.52
Bosnia Herzegovina	0.05	0.15	0.19	0.36	0.40	0.43	0.60	0.93
Botswana	0.23	0.31	0.47	0.64	0.55	0.75	0.53	0.98
Brazil	0.15	0.46	0.67	1.19	1.15	1.04	1.18	1.27
Brunei Darussalam	1.17	1.14	2.15	2.19	2.45	3.24	1.49	1.50
Bulgaria	0.14	0.44	0.82	0.84	0.44	0.39	0.40	0.45
Burkina Faso	0.73	0.77	0.75	0.89	0.82	0.68	0.60	0.44
Burundi	0.81	2.07	2.12	1.61	1.46	1.36	1.17	1.20
Cabo Verde	0.54	0.69	1.03	1.58	1.42	1.72	1.85	2.04
Cambodia	0.60	0.91	1.21	1.35	1.06	0.78	0.73	0.78
Cameroon	0.18	0.12	0.21	0.30	0.28	0.21	0.25	0.17
Canada	0.06	0.23	0.74	1.11	0.86	0.81	0.79	0.78
Central African Rep.	0.38	1.13	1.18	1.19	1.24	1.23	1.22	1.20
Chad	0.22	0.40	0.53	0.80	1.23	0.77	1.26	1.56
Chile	0.12	0.30	0.73	0.99	1.01	0.95	0.92	0.94
China	0.27	0.63	0.93	1.27	1.18	1.14	1.28	1.42
Colombia	0.29	0.45	0.72	1.06	0.93	1.05	1.07	1.18
Comoros	0.59	1.67	2.26	2.93	3.26	3.64	3.25	3.04
Congo, Democratic	0.26	0.89	0.98	1.44	1.13	0.96	0.69	0.59
Congo, Rep. of	0.33	0.97	1.22	1.06	1.31	2.04	1.18	0.53
Costa Rica	0.54	0.77	1.08	1.18	1.11	1.06	1.23	1.28
Croatia	0.12	0.14	0.70	0.79	0.85	1.07	1.37	1.36
Cyprus	0.19	0.33	0.50	0.73	0.74	0.94	0.98	1.08
Czech Rep.	0.14	0.31	0.80	1.20	1.26	1.39	1.38	1.16
Cï¿œte d'Ivoire	0.13	0.23	0.57	0.62	0.74	0.85	0.79	0.75
Denmark	0.24	0.29	0.76	0.78	0.93	0.92	0.85	0.85
Djibouti	0.29	0.41	0.51	0.63	0.62	0.69	0.59	0.43
Dominica	0.68	0.72	0.72	1.05	0.94	0.92	0.80	0.96
Dominican Rep.	0.68	0.96	1.17	1.17	0.95	0.96	0.84	0.77
Ecuador	0.15	0.32	0.80	1.10	1.20	1.24	1.06	1.06
Egypt	0.17	0.19	0.32	0.43	0.53	0.72	0.82	0.93
El Salvador	0.25	0.60	1.02	1.14	1.23	1.36	1.60	1.62

Table A3: **(continued).**

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F
EMDE	0.24	0.54	0.63	0.85	0.71	0.68	0.75	0.84
Equatorial Guinea	0.50	0.59	0.88	0.91	0.95	0.87	0.93	0.88
Eritrea	0.82	0.77	1.49	1.46	1.27	0.98	2.19	1.40
Estonia	0.05	0.11	0.38	0.49	0.55	0.49	0.44	0.49
Ethiopia	0.35	0.63	0.74	0.76	0.65	0.53	0.50	0.46
Euro area	0.01	0.12	0.68	1.12	1.12	1.16	1.27	1.23
Fiji	0.19	0.47	0.65	0.72	0.84	0.86	0.91	0.88
Finland	0.10	0.33	0.69	0.81	0.62	0.54	0.52	0.55
France	0.06	0.19	0.80	1.01	1.30	1.36	1.45	1.35
G7	0.05	0.13	0.68	1.05	1.22	1.27	1.28	1.19
Gabon	0.38	0.64	1.21	1.19	1.04	1.07	1.02	0.94
Gambia, The	0.87	0.98	1.19	1.39	1.06	1.02	0.92	0.92
Georgia	0.28	0.33	0.25	0.27	0.04	0.04	0.04	0.03
Germany	0.08	0.23	0.86	1.20	1.14	1.08	1.24	1.12
Ghana	0.14	0.22	0.46	0.72	1.03	0.86	0.75	0.70
Greece	0.04	0.14	0.32	0.64	0.80	0.90	0.94	0.90
Grenada	0.70	0.97	1.40	1.51	1.38	1.33	1.27	1.37
Guatemala	0.35	0.37	1.26	1.44	2.01	2.32	2.46	2.46
Guinea	0.58	0.98	1.80	1.94	2.45	8.00	5.56	3.05
Guinea-Bissau	1.05	1.06	1.06	1.10	1.19	1.13	1.16	1.13
Guyana	0.38	0.53	0.74	0.89	0.91	0.98	0.88	0.84
Haiti	0.86	1.00	1.32	1.34	1.39	1.27	1.33	1.52
Honduras	0.60	0.73	0.98	1.16	1.16	1.67	1.59	1.32
Hong Kong SAR	0.13	0.55	1.06	1.21	1.08	1.05	0.99	0.96
Hungary	0.16	0.70	0.79	0.91	0.53	0.45	0.40	0.38
Iceland	0.23	0.41	0.34	0.56	0.61	0.78	0.78	0.77
India	0.23	0.41	0.77	0.87	0.69	0.58	0.66	0.69
Indonesia	0.02	0.25	0.91	1.05	1.02	0.99	0.98	0.96
Iran	0.47	0.67	0.83	0.91	0.92	0.70	0.81	0.76
Iraq	0.26	1.74	1.79	1.31	0.80	0.65	0.28	0.17
Ireland	0.54	0.64	0.78	0.92	0.93	0.95	0.94	0.94
Israel	0.17	0.46	0.83	1.15	0.89	0.89	0.89	0.80
Italy	0.05	0.18	0.78	1.12	1.33	1.41	1.40	1.45
Jamaica	0.38	0.51	1.06	1.34	1.38	1.55	1.50	1.39
Japan	0.07	0.28	0.71	1.02	1.02	1.15	1.22	1.13
Jordan	0.61	0.70	0.59	0.65	0.46	0.54	0.56	0.64
Kazakhstan	0.23	0.38	0.44	0.57	0.42	0.13	0.12	0.11
Kenya	0.24	0.54	1.21	1.47	1.57	1.65	1.67	1.61
Kiribati	1.05	0.92	1.12	0.97	1.03	1.01	1.11	1.05
Korea	0.10	0.50	1.13	0.94	0.95	0.86	0.87	0.89
Kosovo	0.43	0.60	1.38	1.74	1.36	1.27	1.12	1.44
Kuwait	0.10	0.34	0.19	0.23	0.59	0.19	0.13	0.13
Kyrgyz Rep.	0.21	0.34	0.34	0.44	0.10	0.06	0.08	0.07
Lao P.D.R.	0.85	0.91	1.32	1.47	1.73	2.03	1.92	1.94
Latvia	0.02	0.10	0.21	0.25	0.29	0.28	0.30	0.31
Lebanon	0.35	0.87	0.97	1.22	1.30	1.39	1.56	1.60
Lesotho	0.36	0.60	0.96	1.45	1.21	1.06	1.07	1.69
Liberia	0.23	0.56	1.06	1.28	1.89	1.43	1.37	1.31
Libya	0.04	0.20	1.57	1.80	1.05	1.00	0.99	1.01
Lithuania	0.04	0.12	0.17	0.24	0.21	0.22	0.21	0.23
Luxembourg	0.34	0.43	1.03	1.17	1.05	0.93	0.88	0.93
Macedonia, FYR	0.31	0.27	0.40	0.46	0.35	0.37	0.31	0.33
Madagascar	0.37	0.85	1.13	1.17	1.42	1.42	1.29	1.30

Table A3: **(continued).**

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F
Malawi	0.43	0.73	0.83	0.85	1.05	0.89	0.85	0.78
Malaysia	0.10	0.44	0.94	1.09	1.06	0.79	0.85	0.94
Maldives	0.29	0.59	0.75	0.62	0.82	1.00	0.99	0.83
Mali	0.64	0.78	0.84	0.95	1.04	0.95	1.02	1.20
Malta	0.54	0.72	1.12	1.09	1.04	0.88	0.86	0.95
Marshall Islands	0.46	0.50	0.14	0.46	0.36	0.41	0.40	0.33
Mauritania	0.42	0.75	2.65	8.82	1.72	3.49	4.20	2.37
Mauritius	0.35	0.56	1.30	1.29	1.19	0.99	1.20	1.13
Mexico	0.09	0.29	0.97	1.18	1.26	1.42	1.43	1.44
Micronesia	0.26	0.57	0.52	1.97	1.62	2.26	3.24	3.00
Moldova	0.36	0.41	0.63	0.74	0.33	0.29	0.20	0.15
Mongolia	0.12	0.28	0.53	0.54	0.62	0.73	0.95	0.95
Montenegro, Rep. of	0.10	0.13	0.67	0.69	0.73	0.58	0.35	0.28
Morocco	0.17	0.43	0.73	0.84	1.21	0.92	1.08	1.28
Mozambique	0.49	0.46	0.47	0.76	0.69	0.50	0.65	0.62
Myanmar	0.86	1.07	1.31	1.31	1.32	1.49	1.51	1.36
Namibia	0.39	0.54	1.76	1.80	1.30	1.06	5.59	3.54
Nepal	0.85	2.37	2.12	2.33	0.91	1.00	1.03	1.17
Netherlands	0.07	0.16	0.64	0.83	0.88	0.82	0.99	0.95
New Zealand	0.31	0.76	1.17	1.04	1.05	0.99	0.86	1.01
Nicaragua	0.51	0.61	1.04	1.06	0.85	0.66	0.51	0.54
Niger	0.63	0.65	0.66	0.76	0.68	0.54	0.57	0.61
Nigeria	0.40	0.61	0.86	1.05	0.99	1.09	0.86	0.83
Norway	0.26	0.60	0.66	0.88	0.81	0.74	0.62	0.61
Oman	1.70	1.71	2.13	1.48	1.63	1.18	1.74	2.28
Pakistan	0.72	0.88	1.40	1.44	1.41	1.51	1.70	1.59
Panama	0.18	0.28	0.52	0.66	0.64	0.59	0.64	0.87
Papua New Guinea	0.40	0.68	0.80	0.84	0.81	1.03	1.14	1.03
Paraguay	0.33	0.54	0.82	0.98	0.99	1.08	1.00	1.00
Peru	0.10	0.24	0.49	0.52	0.48	0.36	0.38	0.36
Philippines	0.13	0.43	0.93	1.37	1.19	1.11	0.98	0.91
Poland	0.04	0.32	0.34	0.49	0.17	0.13	0.11	0.12
Portugal	0.07	0.16	0.53	0.80	1.05	1.08	1.16	1.24
Qatar	0.28	0.57	0.75	0.70	0.70	0.77	0.78	0.91
Romania	0.17	0.57	0.73	0.81	0.61	0.40	0.37	0.45
Russia	0.02	0.20	0.43	0.44	0.33	0.27	0.19	0.18
Rwanda	0.77	0.83	0.82	0.83	0.82	0.83	0.79	0.40
Samoa	0.73	0.97	0.97	0.97	1.10	0.73	0.90	0.60
Saudi Arabia	0.11	0.62	0.58	1.01	0.68	0.60	0.49	0.59
Senegal	0.30	0.52	0.81	0.79	0.74	0.75	0.50	0.46
Serbia	0.04	0.15	0.89	1.08	1.02	1.34	1.30	1.11
Seychelles	0.73	0.90	0.97	0.82	0.67	0.54	0.78	1.03
Sierra Leone	0.41	0.69	1.88	1.08	1.06	0.80	0.74	0.78
Singapore	0.13	0.75	0.91	1.21	0.87	0.84	0.83	0.78
Slovak Rep.	0.12	0.17	0.72	0.83	0.89	0.89	0.93	0.88
Slovenia	0.13	0.36	0.93	0.90	1.01	1.07	1.01	1.04
SoTomPrncipe	0.49	0.87	1.01	1.29	15.33	38.18	87.64	80.01
Solomon Islands	0.59	0.87	0.99	0.95	1.06	1.21	1.07	0.93
Somalia	0.76	0.76	2.41	2.32	0.02	0.00	0.00	0.00
South Africa	0.19	0.42	0.85	1.15	1.07	1.04	1.05	0.99
Spain	0.03	0.09	0.37	0.69	0.85	0.99	1.04	1.10
Sri Lanka	0.46	0.59	0.72	0.94	0.87	0.84	0.90	1.13
St. Kitts Nevis	0.52	0.68	0.79	0.79	0.82	0.84	0.93	1.01

Table A3: **(continued).**

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F
St. Lucia	0.42	0.76	1.10	1.40	1.18	1.08	0.97	1.00
St. Vincent Grenadines	0.58	0.60	1.17	1.19	1.44	1.30	1.29	1.23
Sudan	0.36	0.59	0.76	1.27	1.01	1.07	1.13	0.94
Suriname	0.23	0.48	0.72	0.99	1.12	1.40	1.44	1.40
Swaziland	0.85	0.66	1.29	1.40	1.39	1.41	1.23	1.02
Sweden	0.08	0.26	0.77	0.88	0.70	0.83	0.88	0.70
Switzerland	0.19	0.40	0.97	1.32	1.23	0.99	0.93	0.94
Syria	0.37	0.70	0.95	0.97	0.83	0.84	0.85	0.75
Taiwan Prov. of China	0.14	0.53	0.82	1.26	0.93	0.96	1.05	1.12
Tajikistan	0.28	0.29	0.23	0.25	0.10	0.05	0.02	0.02
Tanzania	0.20	0.27	0.39	0.47	0.44	0.42	0.26	0.25
Thailand	0.08	0.32	0.79	1.06	0.88	0.85	0.87	0.93
Timor-Leste	0.37	0.66	0.92	0.94	0.81	0.74	0.66	0.43
Togo	0.67	0.77	0.86	0.94	1.09	1.04	0.99	1.66
Tonga	0.53	0.70	1.03	1.24	1.13	1.13	1.31	1.88
Trinidad and Tobago	0.34	0.38	0.56	0.59	0.62	0.71	0.76	0.61
Tunisia	0.20	0.52	0.96	1.18	1.34	1.61	1.86	1.83
Turkey	0.25	0.54	0.87	0.96	0.94	0.91	0.91	1.00
Turkmenistan	0.40	0.52	0.71	0.61	0.44	0.33	0.37	0.23
Tuvalu	0.20	0.30	0.30	0.20	0.24	0.41	0.42	0.34
Uganda	0.67	0.83	0.96	1.05	1.32	1.49	1.50	1.68
Ukraine	0.04	0.17	0.57	0.61	0.49	0.42	0.32	0.29
United Arab Emirates	0.39	0.81	0.96	1.26	1.06	1.04	0.91	0.87
United Kingdom	0.03	0.11	0.58	0.92	0.87	0.91	0.87	0.86
United States	0.10	0.18	0.61	0.86	0.89	1.00	1.05	0.99
Uruguay	0.23	0.47	0.91	0.92	0.86	0.81	0.91	0.89
Uzbekistan	0.19	0.20	0.31	0.34	0.24	0.23	0.21	0.23
Vanuatu	0.64	0.92	1.08	1.19	1.18	1.11	1.00	0.99
Venezuela	0.14	0.27	0.54	0.62	0.99	1.12	1.10	1.05
Vietnam	0.22	0.32	0.88	0.98	1.16	1.15	1.27	1.20
World	0.07	0.14	0.71	1.03	1.00	0.88	0.88	0.92
Yemen	0.09	0.75	1.30	1.11	1.08	1.10	1.11	1.11
Zambia	0.45	0.63	0.73	0.77	0.73	0.44	0.59	0.72
Zimbabwe	0.09	0.40	0.70	1.35	1.34	1.53	1.61	1.58

Notes:: This table reports sample estimates of the Theil U-statistic computed as the ratio of the mean squared error (MSE) of the WEO GDP growth forecasts relative to the MSE of the recursively updated historical average GDP growth. Values are shown for forecast horizons ranging from the current year (h=0,F and h = 0,S) to five years ahead in time (h=5,F). Values below unity suggest that the WEO forecasts are better than the historical mean forecast in an absolute and relative sense, while values above unity suggest that the historical average is most accurate.

Table A4: **Biases in current-year forecasts of GDP growth in individual countries: full-sample and sub-sample results**

	1990-2003		2004-2016		1990-2016	
	h=0,F	h=0,S	h=0,F	h=0,S	h=0,F	h=0,S
Proportion Sign.	0.16	0.20	0.21	0.19	0.17	0.18
Advanced Economies	0.00	-0.00	-0.00	-0.07	0.00	-0.03
Afghanistan	-0.78	-0.88	0.11	0.58	-0.34	-0.17
Albania	0.89	-0.16	0.26	0.23	0.55	0.05
Algeria	-0.90*	-0.84	-0.14	-0.26	-0.54*	-0.56
Angola	0.21	-0.97	0.21	-2.43*	0.21	-1.79**
Antigua and Barbuda	-0.49	-0.49	0.80	0.48	0.13	-0.02
Argentina	0.34	0.19	1.08***	1.46**	0.70*	0.81
Armenia	0.39	-2.35	1.04	0.88	0.75	-0.60
Australia	-0.02	0.21	-0.02	0.12	-0.02	0.17
Austria	0.09	-0.02	0.04	0.07	0.06	0.02
Azerbaijan	0.37	-1.71	-0.03	0.17	0.15	-0.69
Bahamas, The	-0.50	-0.63	-0.78***	-1.20**	-0.64**	-0.90*
Bahrain	0.12	0.49*	0.35	0.49**	0.23	0.49***
Bangladesh	0.16	0.29	0.19**	0.37***	0.17**	0.33***
Barbados	-0.69	-0.88	-0.24	-0.32	-0.47	-0.61
Belarus	2.99***	2.06	0.73	1.71*	1.77***	1.87**
Belgium	0.04	-0.16	0.06	0.26*	0.05	0.04
Belize	0.49	0.46	0.02	0.07	0.26	0.27
Benin	-0.04	0.07	-0.10	-0.43	-0.07	-0.17
Bhutan	-0.17	-0.33	-0.92***	-0.15	-0.53**	-0.24
Bolivia	-0.73***	-0.87***	0.40***	0.55***	-0.18	-0.18
Bosnia Herzegovina	-0.34	-1.81	0.18	0.14	-0.04	-0.65
Botswana	0.29	0.61	0.35	0.52	0.32	0.56
Brazil	0.00	-0.00	-0.12	-0.31	-0.05	-0.15
Brunei Darussalam	-1.00	-1.00	-1.30**	-1.11	-1.24**	-1.09*
Bulgaria	-1.11	-3.79**	0.29*	0.00	-0.43	-1.96*
Burkina Faso	-0.48	-0.55	0.27	0.49	-0.12	-0.05
Burundi	-2.57***	-5.40***	-0.21	-1.79**	-1.43**	-3.66***
Cabo Verde	-0.24	-0.01	-0.31	-0.72**	-0.27	-0.35
Cambodia	-0.63	-0.70	1.55*	1.73*	0.41	0.47
Cameroon	0.73*	0.02	-0.00	-0.17	0.38	-0.07
Canada	-0.16	-0.24	0.06	-0.09	-0.05	-0.17
Central African Rep.	-2.65***	-3.35***	-1.99	-3.93	-2.33***	-3.63***
Chad	-0.53	-0.84	-0.23	-2.29*	-0.39	-1.54**
Chile	0.23	0.05	-0.12	-0.29	0.05	-0.11
China	0.81**	1.37**	0.21	0.59*	0.52**	0.99***
Colombia	-0.47	-0.90*	0.41**	0.53	-0.04	-0.20
Comoros	-0.86***	-1.55***	0.05	-0.46	-0.42**	-1.03***
Congo, Democratic	-2.95**	-6.44***	-0.22	-0.44	-1.64**	-3.55***
Congo, Rep. of	-1.04**	-2.63***	-1.63***	-2.68***	-1.32***	-2.66***
Costa Rica	0.41	0.63	0.51*	0.49	0.46	0.56
Croatia	-0.17	-0.29	-0.01	-0.31	-0.08	-0.30
Cyprus	-0.37	-0.35	0.52*	0.28	0.05	-0.05
Czech Rep.	-0.25	-0.71	0.21	0.32	0.01	-0.12
Cï¿œte d'Ivoire	-0.71	-0.99	0.11	0.40	-0.31	-0.31
Denmark	0.11	0.12	-0.34	-0.34	-0.10	-0.10
Djibouti	-1.42**	-1.96***	-0.07	-0.23	-0.77**	-1.13**
Dominica	-0.78	-0.83	-0.21	-0.59	-0.50	-0.72*
Dominican Rep.	0.30	-0.02	1.99***	2.45***	1.11***	1.16**
EMDELOW			-0.10	-0.99	-0.10	-0.99

Table A4: **(continued).**

	1990-2003		2004-2016		1990-2016	
	h=0,F	h=0,S	h=0,F	h=0,S	h=0,F	h=0,S
Ecuador	0.12	-0.46	1.03***	1.22***	0.56***	0.34
Egypt	0.32	0.04	0.23**	0.51***	0.28*	0.27*
El Salvador	-0.06	-0.34	0.05	-0.33	-0.01	-0.34
EMDE	0.37*	0.74	0.20	0.25	0.28**	0.50*
Equatorial Guinea	-6.25	-3.98	3.62**	3.81**	-1.49	-0.22
Eritrea	-3.37***	-4.39***	0.91**	0.70	-0.58	-0.90
Estonia	0.54	0.10	0.62	0.11	0.59	0.11
Ethiopia	-1.34	-2.54*	1.60***	2.90***	0.07	0.07
Euro area	0.02	-0.68	0.02	0.09	0.02	-0.08
Fiji	-0.42**	-0.37*	0.08	-0.20	-0.18	-0.29
Finland	-0.33	-0.74	0.00	-0.16	-0.16	-0.46
France	-0.02	-0.17	-0.15**	-0.15*	-0.08	-0.16*
G7	-0.04	-0.01	-0.03	-0.16*	-0.04	-0.08
Gabon	0.38	-0.32	-0.19	-0.41	0.10	-0.36
Gambia, The	-1.11*	-1.06	-0.01	-0.23	-0.58	-0.66
Georgia	-4.27	-4.76	0.29	0.27	-1.80	-2.03
Germany	-0.13	-0.17	0.10	0.48**	-0.01	0.14
Ghana	-0.50***	-0.82***	0.29	0.24	-0.12	-0.31
Greece	0.15*	0.14	-0.00	-0.75	0.07	-0.28
Grenada	-0.00	-0.63	-0.57	-1.03	-0.27	-0.82
Guatemala	-0.22	-0.46***	0.29**	0.17	0.02	-0.15
Guinea	-0.80***	-0.82***	-0.23	-0.96**	-0.53***	-0.89***
Guinea-Bissau	-3.12	-4.15*	0.18	-0.58	-1.52	-2.43*
Guyana	0.32	0.33	0.16	-0.27	0.24	0.03
Haiti	-2.85**	-2.93**	-0.07	-1.41**	-1.51*	-2.20***
Honduras	-0.78	-0.76	0.27**	0.10	-0.27	-0.34
Hong Kong SAR	0.12	-0.66	0.15	0.52	0.13	-0.09
Hungary	-0.90	-1.87	0.04	-0.28	-0.45	-1.10
Iceland	0.92*	1.32**	0.39	0.91**	0.64**	1.10***
India	0.16	-0.08	0.32	0.26	0.24	0.08
Indonesia	0.17	-0.15	0.15***	0.20	0.16	0.01
Iran	0.62	0.84	0.43	0.40	0.53	0.63
Iraq	-4.18	-11.00	-1.03***	-3.18***	-2.66	-7.23
Ireland	1.49***	1.69***	1.83	1.98	1.65**	1.83**
Israel	0.43*	-0.23	0.40**	0.84**	0.42***	0.28
Italy	-0.19**	-0.44***	-0.09	-0.36***	-0.14**	-0.40***
Jamaica	-0.82**	-0.78**	-0.30	-0.96***	-0.57***	-0.87***
Japan	-0.00	-0.02	-0.23	-0.19	-0.11	-0.10
Jordan	-0.40	-0.75	0.25	0.16	-0.08	-0.31
Kazakhstan	-0.68	-1.23	0.77**	0.89	0.10	-0.08
Kenya	-0.75***	-1.25***	0.02	0.17	-0.37*	-0.56
Kiribati	-0.44	-0.10	0.04	0.04	-0.20	-0.02
Korea	0.33	0.69	-0.10	-0.00	0.12	0.35
Kosovo			-0.10	-0.40**	-0.10	-0.40**
Kuwait	-3.06	-11.91	0.57	0.50	-1.31	-5.93
Kyrgyz Rep.	-2.60	-3.69	0.06	-0.61	-1.15	-2.02
Lao P.D.R.	0.42	0.46	0.26	0.39*	0.34	0.42
Latvia	0.21	-1.02	0.35	0.08	0.29	-0.42
Lebanon	-0.40	-1.04	0.76*	0.73	0.15	-0.18
Lesotho	1.01	-0.03	0.41	0.10	0.72	0.03
Liberia	0.00	0.04	-0.02	-0.09	-0.01	-0.01
Libya	0.41	0.88	-3.98**	-3.41	-1.61	-1.10

Table A4: **(continued).**

	1990-2003		2004-2016		1990-2016	
	h=0,F	h=0,S	h=0,F	h=0,S	h=0,F	h=0,S
Lithuania	-0.53	-1.67	0.38	-0.06	-0.03	-0.80
Luxembourg	0.70	0.50	0.55	0.93*	0.62**	0.73**
Macao SAR			2.61	5.02	2.61	5.02
Macedonia, FYR	-0.54	-2.71***	-0.01	-0.18	-0.24	-1.28**
Madagascar	-1.20	-2.85**	0.25	-0.44	-0.50	-1.69**
Malawi	-2.02*	-2.02*	0.29	-0.20	-0.90	-1.15*
Malaysia	0.86***	0.16	0.31**	0.53**	0.59***	0.34
Maldives	0.49	0.87	0.73	0.86	0.60*	0.87
Mali	-0.11	0.22	-0.20	-1.13	-0.16	-0.42
Malta	-0.55	-0.78	0.80***	0.95**	0.10	0.05
Marshall Islands	1.32*	0.93	-0.84*	-0.84*	0.33	0.12
Mauritania	-0.40	-0.48	-0.73	-1.40*	-0.56*	-0.93**
Mauritius	-0.41	-0.59*	0.08	-0.10	-0.17	-0.35*
Mexico	-0.01	-0.35	0.14	-0.41	0.06	-0.38
Micronesia	-0.42*	-1.28***	-0.02	-0.15	-0.24	-0.76*
Moldova	-3.78*	-5.38**	1.26**	0.86	-1.05	-1.99
Mongolia	-0.14	-0.68	0.69	-0.07	0.30	-0.35
Montenegro, Rep. of			-0.06	-0.33	-0.06	-0.33
Morocco	-0.66	-1.90***	-0.08	-0.05	-0.39	-1.01**
Mozambique	0.01	-0.42	0.02	-0.11	0.01	-0.27
Myanmar	0.62	0.62	1.28	1.36	0.94	0.98
Namibia	-0.72	-1.21**	-0.09	-0.18	-0.36	-0.63*
Nepal	0.33	-0.89	0.31*	0.07	0.32	-0.42
Netherlands	0.04	-0.07	0.19	0.18	0.11	0.04
New Zealand	0.61**	-0.27	0.09	0.20	0.36**	-0.04
Nicaragua	-0.90	-0.94	0.54***	0.45	-0.20	-0.26
Niger	-0.24	-0.44	-0.20	-0.29	-0.23	-0.37
Nigeria	0.63	0.60	0.73	-0.31	0.68*	0.16
Norway	-0.17	-0.44	0.02	-0.21	-0.08	-0.33
Oman	2.26**	1.73*	0.30	0.33	1.32**	1.06*
Pakistan	-0.92**	-0.93**	-0.03	0.23	-0.49*	-0.36
Palau			3.48	3.55	3.48	3.55
Panama	-0.16	-0.37	1.29***	1.56**	0.53	0.55
Papua New Guinea	-1.45	-1.87	-0.11	-0.47	-0.80	-1.20
Paraguay	-0.91	-0.81	0.94**	1.08*	-0.01	0.09
Peru	0.22	0.24	0.48**	0.54	0.35	0.38
Philippines	-0.15	-0.78**	0.33**	0.71**	0.08	-0.06
Poland	0.25	-1.01	0.15	0.50*	0.20	-0.28
Portugal	-0.26	-0.50*	0.03	0.06	-0.12	-0.22
Puerto Rico			-0.80	-1.35	-0.80	-1.35
Qatar	-0.39	0.42	-0.27	-0.47	-0.33	-0.00
Romania	-1.08	-3.27	0.59**	0.38	-0.27	-1.51
Russia	0.58	1.03	0.07	-0.10	0.30	0.41
Rwanda	-3.67	-5.46	0.79	0.52	-1.52	-2.57
Samoa	-1.05	-1.01	0.70**	0.08	-0.20	-0.48
San Marino			-0.48	-0.28	-0.48	-0.28
Saudi Arabia	0.51*	1.37*	0.03	0.30	0.28	0.85*
Senegal	-0.73*	-1.06**	-0.28	-0.60	-0.51**	-0.84**
Serbia			-0.09	-0.47	-0.09	-0.47
Seychelles	-0.58	-0.98	1.18	1.50*	0.26	0.21
Sierra Leone	-3.25**	-3.64**	0.32	-2.51*	-1.53	-3.10***
Singapore	0.84*	0.62	0.11	1.83*	0.49*	1.20*

Table A4: **(continued).**

	1990-2003		2004-2016		1990-2016	
	h=0,F	h=0,S	h=0,F	h=0,S	h=0,F	h=0,S
Slovak Rep.	1.19**	1.17*	0.30	0.29	0.69**	0.67*
Slovenia	0.10	0.13	0.14	0.06	0.12	0.09
SoTomPrncipe	-0.82***	-1.03***	-0.23	-0.77**	-0.53***	-0.90***
Solomon Islands	-0.45	-0.85	0.83	0.74	0.16	-0.08
Somalia	-1.80	-1.82	0.00	0.00	-1.48	-1.50
South Africa	-0.52*	-0.99***	0.15	-0.16	-0.19	-0.59**
South Sudan			6.53	-4.78	6.53	-4.78
Spain	-0.07	-0.06	0.05	0.17	-0.01	0.04
Sri Lanka	-0.19	-0.48	0.35	0.33	0.07	-0.08
St. Kitts Nevis	-0.76	-1.08	-0.16	-0.31	-0.47	-0.71
St. Lucia	-0.34	-0.40	-0.36	-0.71	-0.35	-0.55
St. Vincent Grenadines	-0.73**	-0.72**	-0.32	-0.82	-0.54*	-0.77**
Sudan	0.88	1.35*	0.29	-0.16	0.60	0.61
Suriname	-0.00	-0.56	-0.42	-1.10	-0.20	-0.82
Swaziland	-0.71*	-0.58	0.81***	0.68**	0.02	0.02
Sweden	-0.32**	-0.33	0.06	0.28	-0.13	-0.03
Switzerland	-0.17	-0.44	0.23**	0.46***	0.02	-0.00
Syria	0.13	-0.18	0.06	0.13	0.11	-0.08
Taiwan Prov. of China	0.03	-0.28	0.06	0.16	0.05	-0.07
Tajikistan	-0.46	-1.47	0.79**	1.48***	0.21	0.12
Tanzania	-0.02	-0.22	0.15*	0.15	0.06	-0.04
Thailand	-0.24	-0.38	-0.08	-0.74**	-0.16	-0.56
Timor-Leste			-0.08	-1.18	-0.08	-1.18
Togo	-2.54**	-3.12***	-0.41	-0.42	-1.51**	-1.82**
Tonga	-0.58	-1.31*	-0.24	-0.37	-0.39	-0.78*
Trinidad and Tobago	0.03	-0.14	-1.31***	-1.61**	-0.61	-0.85
Tunisia	-0.34	-0.67	-0.37***	-0.76***	-0.35**	-0.71***
Turkey	0.42	0.19	0.57	0.95	0.49	0.55
Turkmenistan	-4.60	-3.99	1.38*	2.29*	-1.36	-0.59
Tuvalu			-0.40**	-0.05	-0.40**	-0.05
Uganda	0.34	0.31	-0.46*	-0.15	-0.04	0.08
Ukraine	1.09	-0.40	-0.64	-0.55	0.15	-0.48
United Arab Emirates	-0.07	-0.55	0.75	1.62***	0.32	0.49
United Kingdom	0.13	0.05	-0.10	-0.24	0.02	-0.08
United States	-0.04	0.09	0.02	-0.25**	-0.01	-0.07
Uruguay	0.21	-0.60	1.04***	1.54***	0.61	0.43
Uzbekistan	2.03***	1.46***	1.43***	1.71***	1.71***	1.59***
Vanuatu	-1.08*	-1.54***	0.18	0.23	-0.47	-0.68
Venezuela	1.66**	-0.13	0.44	0.98	1.07*	0.40
Vietnam	0.59*	0.53	0.32***	0.41**	0.46**	0.47**
World	0.15*	0.04	0.09	0.09	0.12*	0.06
Yemen	0.04	0.07	-0.99*	-4.22*	-0.54	-2.35
Zambia	-1.64**	-1.79**	0.31	-0.14	-0.69	-1.00**
Zimbabwe	-0.65	-2.84***	0.88**	-0.47	0.05	-1.74**

Notes:: This table reports estimates of biases in the WEO current-year forecasts of GDP growth in individual countries computed as the sample mean difference between the outcome and the predicted value. Positive values suggest that the forecasts tend to under-predict the outcome while negative values suggest that the forecast on average over-predict actual values. The table shows results for the two short horizons (h = 0, Spring and Fall) for the 1990-2003 and 2004-2016 subsamples as well as for the full sample, 1990-2016. The first row, Proportion Sign.if. is the proportion of countries with Significant bias in forecasts at the 5% Sign.ificance level. Stars indicate if the null of a zero bias is rejected against a two-sided alternative of a non-zero bias. ***: Significant at the 1% level, **: Significant at the 5% level, *: Significant at the 10% level.

Table A5: **Biases in next-year forecasts of GDP growth in individual countries: full-sample and subsample results**

	1990-2003		2004-2016		1990-2016	
	h=1,F	h=1,S	h=1,F	h=1,S	h=1,F	h=1,S
Proportion Sign.	0.27	0.28	0.17	0.16	0.25	0.32
Advanced Economies	-0.36	-0.45	-0.42	-0.60	-0.39*	-0.53**
Afghanistan	0.75	0.57	0.75	0.60	0.75	0.59
Albania	-0.75	-0.40	-0.51**	-0.56**	-0.61	-0.49
Algeria	-1.43**	-1.66**	-0.56*	-0.51*	-1.00**	-1.08***
Angola	-0.65	-1.26	-4.81***	-2.73*	-3.11**	-2.13**
Antigua and Barbuda	-0.66	-0.98	0.03	-0.04	-0.31	-0.51
Argentina	-1.37	-1.78	1.96**	1.80	0.29	0.01
Armenia	-5.68	1.85	0.08	0.75	-2.42	1.23
Australia	0.00	-0.10	-0.38***	-0.43**	-0.19	-0.26
Austria	-0.64*	-0.74**	-0.28	-0.50	-0.46*	-0.62**
Azerbaijan	-2.81	-3.07	-1.59	-2.18	-2.12	-2.57
Bahamas, The	-1.16	-1.66	-1.71***	-1.94**	-1.43***	-1.80***
Bahrain	0.82***	0.60*	0.30	0.27	0.56**	0.44
Bangladesh	0.14	0.22	0.25***	0.07	0.20	0.14
Barbados	-1.49	-1.53	-0.77	-1.05	-1.13*	-1.29**
Belarus	1.88	1.38	0.98	0.91	1.37	1.11
Belgium	-0.67*	-0.88**	-0.15	-0.38	-0.41*	-0.63**
Belize	0.09	0.19	-0.21	-0.51	-0.05	-0.15
Benin	-0.16	-0.21*	-0.65	-0.99*	-0.41	-0.60**
Bhutan	-0.34	-0.31	-0.79	-0.26	-0.57	-0.29
Bolivia	-1.40***	-1.50***	0.43*	0.20	-0.48	-0.64*
Bosnia Herzegovina	-1.84	-2.44	-0.97	-1.17*	-1.33	-1.65*
Botswana	0.42	0.66	-0.40	-1.28	0.01	-0.30
Brazil	-0.60	-1.07	-0.92	-1.27	-0.76	-1.17*
Brunei Darussalam	-0.23	-0.23	-1.95**	-1.85*	-1.72*	-1.63*
Bulgaria	-5.14**	-5.20**	-0.45	-0.70	-2.79**	-2.95**
Burkina Faso	-0.82	-0.93	-0.09	-0.29	-0.46	-0.61
Burundi	-5.89***	-5.07***	-2.05**	-2.23***	-3.97***	-3.65***
Cabo Verde	0.20	-0.04	-1.36***	-1.30**	-0.57	-0.67
Cambodia	-0.85	-0.89	1.22	1.49	0.18	0.29
Cameroon	-0.66	-1.30	-0.52	-0.46	-0.59**	-0.88*
Canada	-0.58	-0.82	-0.54*	-0.73**	-0.56*	-0.78**
Central African Rep.	-3.60***	-3.71***	-4.10	-4.55	-3.85***	-4.13***
Chad	-0.74	-0.90	-3.28**	-3.80*	-2.01**	-2.35**
Chile	-0.12	-0.51	-0.69	-0.85	-0.41	-0.68
China	1.93**	2.09**	0.59	0.58	1.26**	1.33**
Colombia	-1.17**	-1.74**	0.35	0.33	-0.41	-0.70
Comoros	-2.06***	-2.18***	-0.91**	-1.44***	-1.49***	-1.81***
Congo, Democratic	-8.45***	-10.37***	-1.29*	-0.96	-4.87***	-5.67***
Congo, Rep. of	-3.12***	-3.20***	-3.05***	-2.11**	-3.09***	-2.65***
Costa Rica	0.55	0.52	0.58	0.59	0.56	0.55
Croatia	-0.53	-0.92	-1.40	-1.46*	-1.05*	-1.24**
Cyprus	-0.47	-0.45	-0.68	-1.42*	-0.58	-0.92**
Czech Rep.	-1.18	-1.86*	-0.16	-0.38	-0.58	-0.98
Cï¿œte d'Ivoire	-2.60***	-2.66***	-1.18*	-0.91	-1.89***	-1.79***
Denmark	-0.05	-0.11	-0.80	-0.81	-0.42	-0.46
Djibouti	-2.15**	-2.44***	-0.36	-0.52*	-1.25**	-1.48***
Dominica	-1.18**	-1.28*	-0.50	-0.55	-0.84**	-0.91*
Dominican Rep.	-0.14	-0.22	2.34***	2.01***	1.09	0.89
EMDELOW			-2.06	-2.41	-2.06	-2.41

Table A5: **(continued).**

	1990-2003		2004-2016		1990-2016	
	h=1,F	h=1,S	h=1,F	h=1,S	h=1,F	h=1,S
Ecuador	-1.33*	-1.64*	0.56	0.45	-0.38	-0.59
Egypt	-0.37	-0.49	-0.00	-0.20	-0.19	-0.34
El Salvador	-0.49	-1.02**	-0.42	-0.70	-0.45	-0.86**
EMDE	-0.04	-0.04	-0.04	-0.10	-0.04	-0.07
Equatorial Guinea	10.65	14.44**	-1.83	-1.87	4.40	6.28
Eritrea	-5.52***	-5.56***	0.55	0.47	-1.36	-1.20
Estonia	-0.41	-0.24	-0.55	-1.07	-0.49	-0.71
Ethiopia	-3.03*	-2.92*	2.60***	2.88***	-0.21	-0.02
Euro area	-1.79	-2.09	-0.38	-0.61	-0.57	-0.89**
Fiji	-0.41	-0.22	-0.44	-0.35	-0.42	-0.28
Finland	-1.17	-1.12	-0.75	-0.73	-0.96	-0.92
France	-0.80**	-0.99***	-0.53**	-0.80***	-0.66***	-0.90***
G7	-0.37	-0.44	-0.45	-0.63*	-0.41**	-0.54**
Gabon	-0.49	-0.85	-0.24	0.01	-0.36	-0.41
Gambia, The	-1.60*	-1.62	-1.23	-1.54	-1.42**	-1.58**
Georgia	-4.59	-4.01	0.32	0.16	-1.81	-1.65
Germany	-1.11***	-1.33***	0.05	-0.09	-0.53*	-0.71**
Ghana	-0.92***	-1.09***	0.24	-0.79*	-0.33	-0.94***
Greece	0.07	0.08	-1.24*	-2.31**	-0.58	-1.11*
Grenada	-1.48	-1.62*	-1.58	-1.94	-1.53*	-1.78**
Guatemala	-0.91***	-1.15***	0.21	0.01	-0.35	-0.56**
Guinea	-1.32***	-1.19***	-1.86***	-2.27***	-1.59***	-1.73***
Guinea-Bissau	-4.14*	-3.78	-0.67	-1.21	-2.41*	-2.49*
Guyana	0.21	0.36	-0.49	-0.58	-0.14	-0.11
Haiti	-4.03***	-4.04***	-2.89***	-3.15***	-3.46***	-3.59***
Honduras	-1.06*	-1.34**	0.10	0.14	-0.48	-0.59
Hong Kong SAR	-0.77	-1.10	0.03	0.07	-0.36	-0.51
Hungary	-1.88	-2.32*	-0.80	-1.13	-1.34*	-1.73**
Iceland	1.10**	1.16*	0.25	-0.01	0.62	0.49
India	-0.14	-0.33	0.47	0.35	0.16	0.00
Indonesia	-1.41	-1.54	0.03	-0.11	-0.69	-0.82
Iran	0.21	0.39	-0.37	-0.21	-0.07	0.08
Iraq	-12.68	-11.71	-4.02***	-4.47***	-8.35	-8.09*
Ireland	1.91***	1.97**	1.23	0.96	1.57	1.46
Israel	-0.76	-1.39*	0.56	0.53	-0.10	-0.42
Italy	-1.02***	-1.27***	-1.07***	-1.32***	-1.04***	-1.29***
Jamaica	-1.46**	-1.40**	-1.26***	-1.51***	-1.36***	-1.46***
Japan	-1.12**	-1.54***	-0.61	-0.63	-0.86**	-1.09**
Jordan	0.11	-0.28	-0.00	-0.40	0.05	-0.34
Kazakhstan	-1.26	-1.09	-0.03	-0.27	-0.56	-0.63
Kenya	-2.29***	-2.77***	-0.53	-0.23	-1.41***	-1.50***
Kiribati	-0.08	0.12	0.42	0.46	0.18	0.30
Korea	-0.26	-0.51	-0.63*	-0.80*	-0.44	-0.65
Kosovo			-0.76**	-1.19***	-0.76**	-1.19***
Kuwait	-6.73	-0.74	0.30	0.14	-3.21	-0.29
Kyrgyz Rep.	-2.77	-3.46	-1.62**	-1.33*	-2.12*	-2.25*
Lao P.D.R.	0.58	0.51	0.42	0.47	0.50	0.49
Latvia	-0.75	-0.83	-0.61	-0.88	-0.67	-0.86
Lebanon	-0.66	-1.55	-0.03	-0.22	-0.35	-0.88
Lesotho	0.35	0.51	-0.21	-0.07	0.07	0.21
Liberia	0.05	0.11*	-1.56	-1.05	-0.75	-0.47
Libya	-0.00	-2.47	-15.26**	-16.84**	-7.32*	-9.37**

Table A5: **(continued).**

	1990-2003		2004-2016		1990-2016	
	h=1,F	h=1,S	h=1,F	h=1,S	h=1,F	h=1,S
Lithuania	-0.98	-1.20	-0.64	-1.05	-0.79	-1.12
Luxembourg	0.29	-0.09	0.36	0.26	0.33	0.10
Macedonia, FYR	-3.04***	-3.82***	-0.85*	-0.88**	-1.74***	-2.08***
Madagascar	-3.46**	-3.27**	-1.68**	-1.89***	-2.57***	-2.58***
Malawi	-2.02*	-1.86	-0.39	-0.26	-1.21*	-1.06
Malaysia	-0.36	-0.62	-0.04	-0.06	-0.20	-0.34
Maldives	0.15	0.09	0.30	0.64	0.22	0.36
Mali	-0.91*	-0.81	-1.14*	-1.38*	-1.02**	-1.09**
Malta	-0.99	-0.85	0.53	0.58	-0.22	-0.13
Marshall Islands	-0.01	-1.86**	-0.88	-0.88	-0.34	-1.49**
Mauritania	-0.13	0.05	-3.33**	-5.04*	-1.73**	-2.49
Mauritius	-0.29	-0.31	-0.29	-0.25	-0.29	-0.28
Mexico	-1.87**	-2.16**	-0.84	-0.88	-1.36**	-1.52***
Micronesia	-1.17**	-3.07***	-0.49	-0.31	-0.92**	-2.04**
Moldova	-6.20**	-6.55**	0.17	-0.19	-2.59	-2.96*
Mongolia	-0.98*	-1.22**	0.18	0.79	-0.32	-0.08
Montenegro, Rep. of			-1.89*	-1.70	-1.89*	-1.70
Morocco	-2.11***	-1.55*	-0.53*	-0.66*	-1.32***	-1.11**
Mozambique	0.03	0.39	-0.49	-0.57	-0.22	-0.08
Myanmar	0.93	0.93	1.56	2.00*	1.24	1.47*
Namibia	-1.54**	-1.77***	-0.44	-0.44	-0.89**	-0.98**
Nepal	-1.85*	-1.88*	-0.64	-0.62	-1.25**	-1.25**
Netherlands	-0.45	-0.60	-0.43	-0.48	-0.44	-0.54
New Zealand	0.27	-0.11	-0.32	-0.40	-0.02	-0.26
Nicaragua	-1.53**	-1.42**	0.31	0.08	-0.60	-0.66
Niger	-0.62	-0.72	-0.53	-0.60	-0.58	-0.66
Nigeria	-0.43	-0.65	-0.61	-0.41	-0.52	-0.53
Norway	-0.20	0.06	-0.51*	-0.30	-0.36	-0.11
Oman	1.67*	1.32	0.39	0.41	1.03*	0.87*
Pakistan	-1.11*	-1.49***	0.19	-0.14	-0.46	-0.82*
Palau			3.20	-0.76	3.20	-0.76
Panama	-0.63	-0.57	1.53*	1.90**	0.45	0.66
Papua New Guinea	-1.43	-1.17	0.36	0.29	-0.53	-0.44
Paraguay	-1.83**	-1.79**	0.47	0.72	-0.67	-0.53
Peru	-0.95	-0.94	0.58	0.54	-0.18	-0.19
Philippines	-1.19	-1.58**	0.71	0.77	-0.24	-0.40
Poland	-0.96	-1.33	0.20	0.31	-0.38	-0.51
Portugal	-1.16**	-1.38***	-0.69***	-1.13***	-0.92***	-1.25***
Qatar	0.37	1.00	-0.45	0.55	-0.03	0.77
Romania	-3.75	-4.27*	-0.38	-0.55	-2.06	-2.41*
Russia	-1.07	-1.72	-1.25	-1.06	-1.17	-1.34
Rwanda	-4.01	-3.73	0.60	0.50	-1.70	-1.61
Samoa	-0.68	-0.67	-0.14	-0.52	-0.41	-0.60
San Marino			-0.89	-0.10	-0.89	-0.10
Saudi Arabia	0.55	1.06	0.04	0.22	0.29	0.64
Senegal	-0.90	-0.76	-0.76	-0.72	-0.83**	-0.74*
Serbia			-1.95**	-2.49**	-1.95**	-2.49**
Seychelles	-1.59*	-1.54*	0.31	-0.17	-0.63	-0.86
Sierra Leone	-4.66**	-3.89**	-4.30	-1.85	-4.48**	-2.87
Singapore	0.47	-0.06	0.74	0.74	0.60	0.34
Slovak Rep.	0.69	0.56	-0.36	-0.30	0.06	0.04
Slovenia	-0.61**	-0.36	-0.46	-0.92	-0.52	-0.69

Table A5: **(continued).**

	1990-2003		2004-2016		1990-2016	
	h=1,F	h=1,S	h=1,F	h=1,S	h=1,F	h=1,S
SoTomPrncipe	-1.26***	-1.53***	-0.82**	-1.45***	-1.04***	-1.49***
Solomon Islands	-1.14	-1.62	0.88	0.99	-0.12	-0.31
Somalia	-4.98	-4.86	0.00	0.00	-4.04	-3.95
South Africa	-1.20***	-1.42***	-0.51	-0.76	-0.85**	-1.09***
South Sudan			-16.81	-34.54	-16.81	-34.54
Spain	-0.48	-0.75*	-0.14	-0.52	-0.31	-0.63*
Sri Lanka	-0.61	-0.70	0.11	0.09	-0.24	-0.30
St. Kitts Nevis	-0.83	-0.95*	-0.29	-0.44	-0.56	-0.70
St. Lucia	-1.21**	-1.23**	-0.97	-0.95	-1.09**	-1.09*
St. Vincent Grenadines	-1.14**	-1.14**	-1.28	-1.30	-1.21**	-1.22**
Sudan	1.89**	2.37**	-1.31	-1.45	0.29	0.45
Suriname	-0.31	-0.49	-0.84	-1.35	-0.58	-0.92
Swaziland	-0.72	-0.72	0.29	0.15	-0.21	-0.28
Sweden	-0.84**	-0.79*	-0.12	-0.01	-0.48	-0.40
Switzerland	-1.23***	-1.49***	0.18	0.08	-0.52*	-0.70**
Syria	-0.03	0.02	-0.12	0.06	-0.06	0.04
Taiwan Prov. of China	-0.61	-0.93	-0.56	-0.75	-0.58	-0.84
Tajikistan	-1.07	-1.92	1.28**	1.61**	0.25	0.07
Tanzania	-0.32	-0.48	-0.11	-0.07	-0.21	-0.28
Thailand	-1.23	-1.54	-1.32**	-1.43**	-1.28*	-1.49*
Timor-Leste			1.48	1.17	1.48	1.17
Togo	-3.03***	-3.12***	-0.57	-0.64	-1.80***	-1.88***
Tonga	-1.55	-1.92*	-0.51	-0.75	-0.96*	-1.23**
Trinidad and Tobago	-0.42	-0.57	-2.25**	-2.68***	-1.33*	-1.62**
Tunisia	-1.37***	-1.19*	-1.50***	-1.98***	-1.44***	-1.58***
Turkey	-0.55	-0.83	0.48	0.28	-0.03	-0.27
Turkmenistan	-2.67	-3.38	1.08	2.45	-0.55	-0.08
Tuvalu			-0.18	0.38	-0.18	0.38
Uganda	0.15	0.07	-0.66	-0.67	-0.25	-0.29
Ukraine	-3.54	-4.04	-2.73	-1.83	-3.08*	-2.84
United Arab Emirates	0.28	0.73	1.07	1.13	0.67	0.93
United Kingdom	-0.47	-0.63	-0.50	-0.73	-0.49	-0.68**
United States	0.23	0.10	-0.41	-0.61*	-0.09	-0.25
Uruguay	-1.03	-2.01	1.76**	2.03**	0.36	0.00
Uzbekistan	0.43	-0.12	2.14***	2.26***	1.40**	1.22*
Vanuatu	-1.83***	-2.06***	-0.48	-0.44	-1.15**	-1.25**
Venezuela	-2.60*	-2.97*	0.10	0.13	-1.24	-1.42
Vietnam	0.59	0.33	0.20	0.21	0.40	0.27
World	-0.44	-0.70**	-0.25	-0.35	-0.34	-0.53**
Yemen	-0.01	0.19	-5.37	-5.10*	-3.17	-2.93
Zambia	-2.00**	-1.56*	-0.16	-0.43	-1.08**	-1.00*
Zimbabwe	-4.82***	-6.12***	-2.18	-2.39	-3.55***	-4.33***

Notes:: This table reports estimates of biases in the WEO forecasts of next-year GDP growth in individual countries computed as the sample mean difference between the outcome and the predicted value. Positive values suggest that the forecasts tend to under-predict the outcome while negative values suggest that the forecast on average over-predict actual values. The table shows results for the two short horizons (h = 0, Spring and Fall) for the 1990-2003 and 2004-2016 subsamples as well as for the full sample, 1990-2016. The first row, Proportion Sign.if. is the proportion of countries with Significant bias in forecasts at the 5% Sign.ificance level. Stars indicate if the null of a zero bias is rejected against a two-sided alternative of a non-zero bias. ***: Significant at the 1% level, **: Significant at the 5% level, *: Significant at the 10% level.

Table A6: **Biases in 2-5-year WEO forecasts of GDP growth in individual countries**

	h=2,F	h=2,S	h=3,F	h=3,S	h=4,F	h=4,S	h=5,F	h=5,S
Proportion Sign.	0.36	0.38	0.34	0.32	0.31	0.31	0.34	0.33
Advanced Economies	-0.80***	-0.87***	-0.92***	-0.89***	-0.83***	-0.86***	-0.81***	-0.80**
Afghanistan	0.71	0.74	0.95	1.09	0.55	1.09	1.69	1.56
Albania	-1.16**	-1.11*	-1.41**	-1.37**	-1.64**	-1.69**	-1.19	-1.26
Algeria	-1.36***	-1.10**	-1.65***	-1.02**	-1.07**	-0.67*	-0.90***	-0.49*
Angola	-2.53**	-3.05***	-1.99*	-1.70**	-0.78	-0.03	1.36	1.95
Antigua and Barbuda	-0.54	-0.82	-0.59	-0.93	-0.69	-1.09	-0.52	-0.94
Argentina	-0.11	-0.08	-0.39	-0.24	-0.49	-0.36	-0.64	-0.48
Armenia	0.61	0.75	0.60	0.55	0.76	0.63	0.91	0.87
Australia	-0.22	-0.20	-0.17	-0.17	-0.20	-0.19	-0.28	-0.28
Austria	-0.89***	-0.90***	-0.95***	-0.95***	-0.86***	-0.81***	-0.85***	-0.83***
Azerbaijan	-1.00	-1.13	0.25	0.00	0.67	0.43	1.16	1.28
Bahamas, The	-1.38**	-1.49**	-1.37**	-1.53**	-1.42**	-1.59**	-1.47**	-1.64**
Bahrain	0.46	0.23	0.35	0.29	0.29	0.19	0.31	0.15
Bangladesh	0.11	0.08	0.05	0.09	0.10	0.16	0.15	0.26
Barbados	-1.30**	-1.28**	-1.11*	-1.17*	-1.26*	-1.22*	-1.38**	-1.33**
Belarus	1.41	1.29	1.87	1.64	2.00	1.72	1.87	1.41
Belgium	-0.74**	-0.79***	-0.78***	-0.71**	-0.68**	-0.61**	-0.73**	-0.65**
Belize	-0.05	-0.18	-0.21	-0.28	-0.33	-0.41	-0.31	-0.38
Benin	-0.72**	-0.76**	-0.71**	-0.65*	-0.75*	-0.77*	-0.83*	-0.63
Bhutan	-0.02	0.19	0.48	0.42	0.34	0.15	0.61	0.46
Bolivia	-0.63	-0.79*	-0.76	-0.76	-0.70	-0.68	-0.57	-0.62
Bosnia Herzegovina	-2.20**	-2.37**	-2.71***	-2.64***	-3.22***	-3.35***	-3.40***	-3.81***
Botswana	-0.39	0.04	-0.29	0.38	0.14	0.66	0.98	1.49
Brazil	-1.49**	-1.82***	-1.69**	-1.84***	-1.91**	-2.02***	-2.07**	-2.25***
Brunei Darussalam	-2.18**	-2.14*	-2.48**	-2.45**	-2.59***	-2.55***	-2.44***	-2.38***
Bulgaria	-2.53***	-2.65***	-2.63***	-2.69***	-2.74**	-2.68**	-2.83**	-2.69**
Burkina Faso	-0.86**	-0.88**	-0.61	-0.63	-0.45	-0.40	-0.09	-0.07
Burundi	-3.97***	-3.85***	-4.03***	-3.66***	-3.54***	-3.31***	-3.22***	-2.93***
Cabo Verde	-0.80	-0.97*	-0.92	-1.04	-0.77	-0.92	-0.73	-0.81
Cambodia	-0.03	0.03	-0.11	-0.10	-0.14	-0.13	-0.08	-0.04
Cameroon	-0.94**	-1.33***	-1.11**	-1.21**	-0.76	-0.74	-0.54	-0.41
Canada	-0.75**	-0.76**	-0.66**	-0.65**	-0.51	-0.53	-0.49	-0.49
Central African Rep.	-4.03**	-3.85**	-3.78**	-3.71**	-3.48**	-3.40**	-3.64**	-3.56**
Chad	-2.07	-1.63	0.96	0.60	-0.09	-3.90	-2.28	2.40*
Chile	-0.90	-0.86	-1.26**	-1.18*	-1.39**	-1.36**	-1.43**	-1.41**
China	1.35*	1.26	1.07	1.00	0.80	0.84	0.72	0.78
Colombia	-0.81	-1.00	-0.97	-1.19	-1.17	-1.25	-1.27	-1.36
Comoros	-2.14***	-2.29***	-2.57***	-2.64***	-2.62***	-2.65***	-2.66***	-2.69***
Congo, Democratic	-5.87***	-5.69***	-5.29***	-4.77***	-3.89**	-3.83**	-3.53**	-3.18*
Congo, Rep. of	-2.61***	-2.46**	-1.71	-0.83	-0.44	-0.31	0.29	0.77
Costa Rica	0.53	0.36	0.31	0.14	0.24	0.06	0.29	0.10
Croatia	-1.55**	-1.82**	-2.08**	-2.23***	-2.49***	-2.64***	-2.65**	-2.81***
Cyprus	-1.12**	-1.30**	-1.56**	-1.74**	-1.61*	-1.70**	-1.81*	-1.85**
Czech Rep.	-1.43*	-1.67**	-1.91**	-1.97**	-2.03**	-2.03**	-1.83***	-1.84***
Cï¿œte d'Ivoire	-1.92**	-1.76**	-1.85	-1.68	-1.74	-1.56	-1.65	-1.52
Denmark	-0.46	-0.49	-0.48	-0.53	-0.54	-0.54	-0.70	-0.66
Djibouti	-1.57**	-1.69**	-1.67**	-1.62**	-1.52*	-1.41*	-1.18*	-1.00
Dominica	-1.06**	-1.10**	-1.24**	-1.16**	-1.37**	-1.27***	-1.37**	-1.29***
Dominican Rep.	0.61	0.73	0.53	0.44	0.52	0.45	0.50	0.49
Ecuador	-0.80	-0.71	-0.82	-0.69	-0.63	-0.65	-0.65	-0.63
Egypt	-0.74*	-0.84*	-1.05*	-1.09*	-1.21*	-1.12	-1.11	-0.99
El Salvador	-1.06**	-1.22**	-1.46***	-1.57***	-1.81***	-1.83***	-2.05***	-2.05***

Table A6: **(continued).**

	h=2,F	h=2,S	h=3,F	h=3,S	h=4,F	h=4,S	h=5,F	h=5,S
EMDE	-0.29	-0.40	-0.49	-0.59	-0.60	-0.68	-0.64	-0.70
Equatorial Guinea	6.76	7.94*	9.76*	9.09*	11.98**	11.39**	13.46**	13.37**
Eritrea	-0.97	-1.08	-0.97	-0.18	-0.09	-0.42	-0.76	-0.30
Estonia	-1.28	-1.05	-1.21	-1.21	-1.25	-1.27	-1.70	-2.35*
Ethiopia	0.38	0.33	1.10	1.39*	1.24	1.22	1.46	1.45
Euro area	-1.02**	-1.23***	-1.30***	-1.30***	-1.27***	-1.28***	-1.52***	-1.39***
Fiji	-0.44	-0.43	-0.56	-0.56	-0.62	-0.66	-0.70	-0.73
Finland	-0.88	-0.89	-0.72	-0.72	-0.49	-0.53	-0.59	-0.58
France	-1.15***	-1.27***	-1.29***	-1.32***	-1.18***	-1.22***	-1.24***	-1.29***
G7	-0.83***	-0.91***	-0.97***	-0.94***	-0.86***	-0.90***	-0.83***	-0.82***
Gabon	-0.44	-0.30	-0.44	-0.45	-0.34	-0.08	-0.45	-0.47
Gambia, The	-1.21*	-1.19*	-1.14	-1.13	-0.95	-1.07	-0.48	-0.48
Georgia	-0.44	-0.16	-0.32	-0.02	-0.16	0.02	-0.14	0.13
Germany	-0.93***	-1.01***	-1.02***	-1.07***	-0.90***	-0.90***	-0.92***	-0.90***
Ghana	-1.09***	-0.94***	-0.31	-0.27	-0.27	-0.17	-0.05	-0.03
Greece	-1.22	-1.42*	-1.46	-1.54	-1.44	-1.45	-1.47	-1.52
Grenada	-1.78*	-2.04**	-1.88*	-2.10**	-2.03**	-2.20**	-2.16**	-2.27**
Guatemala	-0.86**	-0.85**	-1.11***	-1.10***	-1.26***	-1.24***	-1.39***	-1.35***
Guinea	-1.87***	-1.90***	-2.71***	-2.65***	-2.92***	-2.91***	-2.52***	-2.68***
Guinea-Bissau	-2.74*	-2.49*	-2.57**	-2.53**	-3.15***	-2.60***	-2.32*	-2.76***
Guyana	-0.28	-0.44	-0.47	-0.49	-0.45	-0.41	-0.64	-0.57
Haiti	-3.95***	-3.81***	-3.56***	-3.42***	-3.29***	-3.25***	-2.78***	-2.67***
Honduras	-0.80*	-0.82	-1.05*	-0.97*	-1.14**	-1.11***	-0.99***	-0.92***
Hong Kong SAR	-0.66	-0.63	-0.76	-0.69	-0.78	-0.78	-0.85	-0.85
Hungary	-1.63***	-1.89***	-1.65**	-1.94***	-1.63**	-1.89***	-1.70**	-1.96**
Iceland	0.28	0.06	0.19	0.05	-0.09	-0.23	-0.30	-0.40
India	0.18	0.04	0.15	0.06	0.20	0.13	0.29	0.25
Indonesia	-1.25	-1.32	-1.53	-1.63	-1.75*	-1.88*	-1.94*	-2.02**
Iran	-0.40	-0.51	-0.75	-0.81	-0.84	-0.90	-1.02	-0.59
Iraq	-4.91*	-2.78	-4.17	-1.40	-1.06	-0.26	-0.49	0.07
Ireland	1.45	1.35	1.35	1.34	1.37	1.39	1.35	1.39
Israel	-0.64	-0.87*	-0.89**	-0.92*	-0.85*	-0.82	-0.96**	-0.99
Italy	-1.50***	-1.62***	-1.70***	-1.72***	-1.65***	-1.68***	-1.71***	-1.75***
Jamaica	-1.71***	-1.92***	-1.82***	-2.07***	-1.97***	-2.20***	-2.16***	-2.41***
Japan	-1.52***	-1.72***	-1.93***	-1.99***	-1.91***	-1.89***	-1.81***	-1.79***
Jordan	-0.31	-0.56	-0.90	-1.08*	-1.11	-1.29*	-1.26*	-1.46**
Kazakhstan	-1.00	-0.26	-0.05	-0.12	-0.05	-0.03	0.08	0.48
Kenya	-1.87***	-1.94***	-2.01***	-2.10***	-2.02***	-2.04***	-2.01***	-2.03***
Kiribati	0.34	0.36	0.34	0.34	0.26	0.30	0.24	0.31
Korea	-1.16*	-1.23**	-1.37***	-1.37***	-1.46***	-1.46***	-1.71***	-1.72***
Kosovo	-0.91***	-1.53***	-1.49	-1.27	-1.15	-1.42	-1.35	-1.20
Kuwait	3.48	4.51	0.85	0.52	-0.18	-0.07	0.08	0.08
Kyrgyz Rep.	-1.19*	-1.08*	-0.90*	-0.92*	-1.14**	-0.83*	-0.95**	-0.80*
Lao P.D.R.	0.55	0.67	0.88	0.82	0.86	0.87	0.91	0.73
Latvia	-1.08	-0.95	-1.06	-0.92	-0.96	-0.95	-1.22	-1.19
Lebanon	-0.67	-1.25	-0.80	-1.42	-0.95	-1.60	-1.24	-1.83
Lesotho	0.03	-0.66	0.16	-0.13	0.10	-0.82	-2.02**	-1.78*
Liberia	-1.14	-0.61	-0.80	-0.29	-0.70	-0.19	-0.01	0.58
Libya	-2.58	-2.51	-1.38	-1.33	-1.88	-1.85	-1.62	-1.45
Lithuania	-1.22	-1.58	-1.74	-1.90	-1.89	-2.04	-2.09	-2.29
Luxembourg	-0.00	0.02	-0.10	-0.09	-0.21	-0.16	-0.30	-0.24
Macedonia, FYR	-2.42***	-2.35***	-2.66***	-2.39***	-2.51***	-2.34***	-2.43***	-2.29***
Madagascar	-2.53***	-2.61***	-2.80***	-2.73***	-2.77***	-2.79***	-2.77***	-2.86***

Table A6: **(continued).**

	h=2,F	h=2,S	h=3,F	h=3,S	h=4,F	h=4,S	h=5,F	h=5,S
Malawi	-1.13	-1.17	-0.64	-0.74	-0.91	-0.97	-0.17	-0.25
Malaysia	-0.70	-0.76	-1.01	-0.99	-1.23*	-1.27*	-1.44**	-1.53**
Maldives	0.26	0.43	0.16	0.32	0.11	0.23	0.03	0.11
Mali	-0.82*	-0.80*	-0.84*	-0.81	-0.57	-0.65	-0.23	-0.39
Malta	-0.43	-0.43	-0.64	-0.68	-0.79	-0.81	-0.86	-0.96
Marshall Islands	-1.44	-2.15*	-1.11	-1.51	-1.01	-1.26	-1.05	-1.05
Mauritania	-1.57**	-1.34	-1.99	-2.52	-1.96	-1.70	-1.16	-0.61
Mauritius	-0.47*	-0.49*	-0.54**	-0.52*	-0.67***	-0.71***	-0.73***	-0.82***
Mexico	-2.20***	-2.18***	-2.36***	-2.39***	-2.35***	-2.37***	-2.41***	-2.40***
Micronesia	-1.98	-3.14**	-2.23	-2.46	-2.19	-2.24	-2.04	-2.04
Moldova	-2.57*	-2.47**	-2.64*	-2.33**	-2.07*	-1.76*	-1.93*	-1.49
Mongolia	-0.45	-0.87	-1.78	-2.00	-1.79	-0.85	0.27	0.04
Montenegro, Rep. of	-1.66**	-1.56*	-1.53*	-1.70*	-1.62	-1.71	-1.29	-1.42
Morocco	-1.14**	-1.16**	-1.01**	-1.04**	-0.95*	-1.01*	-1.36**	-1.42**
Mozambique	0.05	-0.25	-0.25	0.72	0.66	1.14*	1.10	1.45**
Myanmar	1.78**	1.91**	2.03**	2.13**	2.17**	2.27**	2.27**	2.36***
Namibia	-1.00**	-0.81*	-0.80*	-0.83*	-1.77**	-0.79*	-1.51*	-0.80*
Nepal	-1.08***	-1.12**	-1.24***	-1.26***	-1.47***	-1.50***	-1.70***	-1.67***
Netherlands	-0.71*	-0.79**	-0.82**	-0.84*	-0.81*	-0.75	-0.82*	-0.77
New Zealand	-0.16	-0.26	-0.26	-0.33	-0.39	-0.40	-0.50	-0.44
Nicaragua	-0.74	-0.74	-0.83*	-0.80*	-0.78	-0.76	-0.80	-0.76
Niger	-0.59	-0.86	-0.20	-0.12	0.15	0.42	0.46*	0.41
Nigeria	-0.70	-0.55	-0.62	-0.55	-0.41	-0.42	-0.31	-0.19
Norway	0.00	0.11	0.06	0.07	0.06	0.09	-0.07	-0.04
Oman	0.94*	0.85*	0.89**	0.86*	0.79*	1.05	1.11*	1.13
Pakistan	-1.01**	-1.19**	-1.22**	-1.47**	-1.38**	-1.57***	-1.51***	-1.78***
Panama	0.46	0.61	0.40	0.58	0.45	0.67	0.85	1.07
Papua New Guinea	-0.58	-0.47	-0.53	-0.58	-1.03	-0.99	-0.42	-0.05
Paraguay	-0.58	-0.41	-0.48	-0.39	-0.47	-0.42	-0.46	-0.36
Peru	-0.23	-0.28	0.01	-0.01	-0.07	-0.04	-0.28	-0.32
Philippines	-0.43	-0.52	-0.45	-0.61	-0.43	-0.59	-0.44	-0.62
Poland	-0.48	-0.51	-0.59	-0.58	-0.75	-0.75	-0.88*	-0.85**
Portugal	-1.78***	-1.87***	-2.02***	-2.03***	-1.96***	-2.04***	-1.97***	-2.07***
Qatar	0.53	0.94	1.48	1.79	2.34**	2.87**	2.87**	3.91***
Romania	-2.31*	-2.49**	-2.02*	-2.15*	-2.25*	-2.20*	-2.34**	-2.26*
Russia	-1.70	-1.91	-1.90	-2.04*	-1.92*	-1.93*	-2.03*	-1.98*
Rwanda	-1.26	-1.05	-0.93	-0.88	-0.10	-0.11	2.45	2.37
Samoa	-0.40	-0.73	-0.42	-0.62	-0.58	-0.76	-0.32	-0.49
Saudi Arabia	0.07	-0.10	-0.40	-0.39	-0.42	-0.44	-0.30	-0.11
Senegal	-0.75*	-0.65	-0.64	-0.65	-0.42	-0.43	-0.31	-0.33
Serbia	-3.52***	-3.16***	-3.80***	-3.98***	-4.15	-4.60	-4.70	-4.19
Seychelles	-1.00	-1.10*	-1.22*	-1.29*	-1.37	-1.35	-1.28	-0.81
Sierra Leone	-2.70	-1.86	-1.40	-1.12	-1.13	-1.02	-1.08	-1.00
Singapore	0.00	-0.09	-0.15	-0.22	-0.46	-0.45	-0.70	-0.74
Slovak Rep.	-0.42	-0.67	-0.55	-0.68	-0.64	-0.89	-0.63	-0.95
Slovenia	-1.30*	-1.24*	-1.63**	-1.55*	-1.86**	-1.82**	-2.11***	-2.07**
SoTomPrncipe	-2.48**	-2.97**	-4.32	-7.46**	-8.46**	-7.51**	-7.47**	-17.19
Solomon Islands	-0.53	-0.46	-0.85	-0.65	-0.73	-0.67	-0.83	-1.09
Somalia	-0.18	-0.08	-0.00	0.08	0.00	0.10	0.00	0.13
South Africa	-1.23***	-1.29***	-1.20***	-1.20***	-1.22**	-1.22***	-1.18**	-1.25***
Spain	-0.87*	-1.09**	-1.17**	-1.25**	-1.21**	-1.19**	-1.27**	-1.24*
Sri Lanka	-0.40	-0.48	-0.47	-0.56	-0.56	-0.72	-0.59	-0.70
St. Kitts Nevis	-0.87	-1.00	-1.06	-1.11	-1.25	-1.22	-1.24	-1.27

Table A6: **(continued).**

	h=2,F	h=2,S	h=3,F	h=3,S	h=4,F	h=4,S	h=5,F	h=5,S
St. Lucia	-1.41**	-1.44***	-1.78***	-1.97***	-2.10***	-2.19***	-2.24***	-2.28***
St. Vincent Grenadines	-1.63***	-1.64***	-1.87***	-1.83***	-1.79***	-1.75***	-1.64***	-2.01***
Sudan	0.09	0.31	0.24	0.24	0.18	0.20	0.38	0.37
Suriname	-0.51	-0.70	-0.47	-0.54	-0.17	-0.35	0.12	-0.12
Swaziland	-0.51	-0.46	-0.33	-0.22	-0.52*	-0.40	-0.68***	-0.57***
Sweden	-0.61	-0.48	-0.41	-0.32	-0.13	-0.06	-0.14	-0.01
Switzerland	-0.87***	-0.83***	-0.71**	-0.69**	-0.55**	-0.53**	-0.51**	-0.49**
Syria	-0.24	-0.13	-0.45	-0.41	-0.70	-0.60	-0.74	-0.71
Taiwan Prov. of China	-1.30***	-1.42***	-1.61***	-1.70***	-1.83***	-1.86***	-1.97***	-2.00***
Tajikistan	0.67	0.72	1.22	1.19	1.79**	1.79**	2.06***	2.01***
Tanzania	-0.48**	-0.46**	-0.48**	-0.35	-0.34	-0.21	0.17	0.36
Thailand	-1.77**	-1.86**	-2.19**	-2.34**	-2.62***	-2.70***	-3.01***	-3.00***
Timor-Leste	1.99	1.53	3.02	2.76	2.00	1.86	1.58	1.53
Togo	-1.79**	-1.73**	-1.81**	-1.66*	-1.02	-1.04	-1.41	-1.47*
Tonga	-1.32**	-1.48**	-1.43**	-1.43**	-1.43*	-1.21**	-1.21**	-1.10*
Trinidad and Tobago	-1.75**	-0.76	-0.68	-0.40	-0.14	-0.33	-0.47	-0.46
Tunisia	-1.71***	-1.72***	-1.91***	-2.09***	-2.25***	-2.12***	-2.27***	-2.02**
Turkey	-0.37	-0.48	-0.57	-0.47	-0.71	-0.58	-0.33	-0.21
Turkmenistan	0.79	1.47	1.84	2.40	3.11	3.72*	5.53***	5.76***
Tuvalu	0.75	0.95	1.43	1.31	1.65	1.37	1.59	1.23
Uganda	-0.42	-0.36	-0.29	-0.18	-0.16	0.01	-0.09	-0.16
Ukraine	-3.27*	-3.85**	-3.29*	-3.63*	-3.14*	-3.38*	-3.06	-3.19*
United Arab Emirates	0.56	0.59	0.48	0.50	0.52	0.55	0.62	0.69
United Kingdom	-0.80**	-0.83**	-0.78*	-0.78**	-0.75*	-0.76*	-0.80*	-0.79*
United States	-0.40	-0.47	-0.47	-0.45	-0.33	-0.32	-0.28	-0.28
Uruguay	-0.07	-0.01	-0.31	-0.11	-0.12	0.05	-0.11	0.00
Uzbekistan	1.40**	1.32**	1.30	1.35	1.48	1.67*	1.80	1.98*
Vanuatu	-1.23**	-1.25**	-1.13*	-1.17*	-1.04	-1.15*	-1.02	-1.12
Venezuela	-1.78	-1.96	-2.16	-2.28	-2.19	-2.25	-2.02	-2.08
Vietnam	0.26	0.08	0.15	-0.03	-0.02	-0.22	-0.11	-0.23
World	-0.68**	-0.76***	-0.78***	-0.81***	-0.76***	-0.75***	-0.75**	-0.74**
Yemen	-3.14	-3.25	-3.41	-3.54	-3.81*	-3.85*	-4.03*	-4.11*
Zambia	-1.15*	-0.90	-0.75	-0.82	-0.98	-1.03	-0.66	-0.77
Zimbabwe	-5.21***	-5.92***	-5.02**	-5.50**	-4.97*	-5.35**	-5.37*	-5.72*

Notes:: This table reports estimates of biases in the WEO 2-5-year-ahead forecasts of GDP growth in individual countries computed as the sample mean difference between the outcome and the predicted value. Positive values suggest that the forecasts tend to under-predict the outcome while negative values suggest that the forecast on average over-predict actual values. The table shows results for the two short horizons (h = 0, Spring and Fall) for the 1990-2003 and 2004-2016 subsamples as well as for the full sample, 1990-2016. The first row, Proportion Sign.if. is the proportion of countries with Significant bias in forecasts at the 5% Sign.ificance level. Stars indicate if the null of a zero bias is rejected against a two-sided alternative of a non-zero bias. ***: Significant at the 1% level, **: Significant at the 5% level, *: Significant at the 10% level.

Table A7: **Mincer-Zarnowitz tests of efficiency for WEO forecasts of GDP growth in individual countries**

	MZ pvalue				slope			
	h=0,F	h=0,S	h=1,F	h=1,S	h=0,F	h=0,S	h=1,F	h=1,S
Proportion Sign.	0.29	0.43	0.48	0.59	0.23	0.33	0.36	0.45
Advanced Economies	0.71	0.20	0.14	0.00***	0.98	0.93*	1.18	0.39
Afghanistan	0.60	0.39	0.64	0.77	1.05	1.06	1.19	1.21
Albania	0.00***	0.96	0.05*	0.22	0.81***	0.95	0.73*	0.76
Algeria	0.03**	0.01**	0.00***	0.00***	0.67**	0.56**	0.20***	0.55
Angola	0.74	0.00***	0.00***	0.11	0.97	0.67***	0.58***	0.95
Antigua and Barbuda	0.93	0.90	0.04**	0.14	0.93	0.81	0.02**	0.11*
Argentina	0.20	0.31	0.63	0.37	0.95	1.07	0.71	0.14
Armenia	0.40	0.03**	0.00***	0.04**	1.20	-0.19***	-0.00***	0.35
Australia	0.59	0.61	0.60	0.21	1.21	0.71	1.08	0.55
Austria	0.47	0.87	0.04**	0.00***	0.92	1.06	0.48	0.07**
Azerbaijan	0.77	0.90	0.55	0.02**	1.09	1.03	1.01	0.84
Bahamas, The	0.15	0.00***	0.00***	0.00***	0.81	0.30***	0.05**	-0.20***
Bahrain	0.02**	0.00***	0.00***	0.06*	0.79**	0.84	0.77	0.70
Bangladesh	0.08*	0.00***	0.34	0.20	0.87	0.84	0.78	0.68*
Barbados	0.62	0.41	0.18	0.10	0.95	0.85	0.74	0.73
Belarus	0.00***	0.00***	0.26	0.30	0.99	1.20	1.34	1.52
Belgium	0.51	0.37	0.16	0.01**	0.96	0.88	0.60	0.35*
Belize	0.06*	0.00***	0.00***	0.00***	0.62**	0.40***	-0.07***	0.04***
Benin	0.00***	0.00***	0.00***	0.00***	0.81**	0.53***	0.35***	0.22***
Bhutan	0.00***	0.62	0.43	0.77	0.71***	0.97	0.65	0.89
Bolivia	0.48	0.43	0.01**	0.00***	0.76	0.68	0.06***	0.02***
Bosnia Herzegovina	0.48	0.51	0.31	0.18	0.87	0.71	0.71	0.66
Botswana	0.00***	0.00***	0.13	0.00***	0.58***	0.52***	0.47*	0.27***
Brazil	0.94	0.31	0.25	0.00***	1.01	0.80	1.18	-0.09
Brunei Darussalam	0.06*	0.08*	0.00***	0.00***	0.46*	0.44*	-0.60***	-0.71***
Bulgaria	0.44	0.00***	0.06*	0.06*	0.96	1.48***	1.09	1.31
Burkina Faso	0.49	0.36	0.15	0.00***	0.70	0.64	0.65	0.26
Burundi	0.00***	0.00***	0.00***	0.00***	0.57***	-0.35***	-0.28***	0.38
Cabo Verde	0.04**	0.00***	0.01**	0.00***	0.72**	0.68**	0.46***	0.06***
Cambodia	0.14	0.61	0.00***	0.00***	0.82*	0.49	-0.81***	-1.22***
Cameroon	0.06*	0.17	0.12	0.13	0.79**	0.88*	0.94	1.17
Canada	0.36	0.39	0.14	0.00***	1.07	1.01	1.03	0.37*
Central African Rep.	0.00***	0.02**	0.00***	0.00***	1.98***	0.93	0.31	0.88
Chad	0.68	0.00***	0.00***	0.00***	0.98	0.72***	0.70***	0.56***
Chile	0.21	0.00***	0.66	0.24	1.12	1.37***	1.16	0.24
China	0.00***	0.02**	0.00***	0.00***	0.80***	0.79	0.31**	-0.17***
Colombia	0.55	0.71	0.64	0.04**	1.23	1.25	1.26	0.18*
Comoros	0.05*	0.00***	0.00***	0.00***	0.79	0.29***	-0.00***	-0.05***
Congo, Democratic	0.02**	0.00***	0.00***	0.00***	1.33**	1.05	1.50	0.73
Congo, Rep. of	0.00***	0.00***	0.00***	0.00***	0.88	0.66**	0.66*	0.69
Costa Rica	0.39	0.41	0.00***	0.00***	1.08	0.95	-0.30***	-0.76***
Croatia	0.65	0.12	0.22	0.13	0.92	1.17*	0.93	0.80
Cyprus	0.00***	0.10	0.19	0.09*	0.79***	0.80**	0.93	1.17
Czech Rep.	0.58	0.50	0.64	0.07*	1.08	1.10	0.86	-0.11**
Cï¿œte d'Ivoire	0.45	0.15	0.00***	0.00***	0.94	0.84*	1.31	1.29
Denmark	0.16	0.13	0.31	0.27	1.31*	1.11	1.56	1.57
Djibouti	0.03**	0.01**	0.03**	0.01**	1.19*	1.33***	1.18	1.14
Dominica	0.24	0.03**	0.00***	0.00***	0.77	0.73	0.77	-0.00***
Dominican Rep.	0.00***	0.00***	0.00***	0.00***	0.71***	0.57*	0.00***	-0.56***
Ecuador	0.02**	0.62	0.70	0.00***	1.04	0.93	1.00	-0.11***

Table A7: **(continued).**

	MZ pvalue				slope			
	h=0,F	h=0,S	h=1,F	h=1,S	h=0,F	h=0,S	h=1,F	h=1,S
Egypt	0.08*	0.12	0.53	0.42	0.83	0.90	0.84	0.80
El Salvador	0.88	0.27	0.02**	0.00***	0.92	0.75	0.44**	0.46***
EMDE	0.03**	0.04**	0.10	0.00***	0.77*	0.58**	0.51**	-0.09***
Equatorial Guinea	0.03**	0.06*	0.16	0.09*	0.64**	0.63	0.59	0.65
Eritrea	0.03**	0.04**	0.00***	0.00***	0.48**	0.49**	-0.16***	-0.17***
Estonia	0.25	0.28	0.84	0.10	1.05	1.18	0.94	0.21**
Ethiopia	0.35	0.50	0.92	0.59	1.16	1.35	1.24	1.82
Euro area	0.83	0.68	0.22	0.00***	1.01	0.93	1.01	0.26**
Fiji	0.30	0.24	0.20	0.20	0.91	0.90	0.86	0.72
Finland	0.00***	0.02**	0.21	0.36	1.24***	1.39***	1.56	1.04
France	0.38	0.11	0.00***	0.00***	0.97	0.92	0.74	0.76
G7	0.41	0.13	0.10	0.00***	0.97	0.95	1.23	0.57
Gabon	0.93	0.22	0.00***	0.00***	0.97	0.81	0.12***	0.06***
Gambia, The	0.12	0.06*	0.00***	0.00***	0.54	0.44*	0.20**	-0.05***
Georgia	0.22	0.33	0.43	0.34	1.90*	2.15	1.17	0.67
Germany	0.01**	0.00***	0.00***	0.00***	0.91**	0.86**	0.34	-0.24***
Ghana	0.37	0.32	0.03**	0.00***	1.05	1.05	1.52	0.62***
Greece	0.01**	0.11	0.19	0.01**	1.07	1.24**	1.32	1.79**
Grenada	0.45	0.03**	0.00***	0.00***	0.69	0.48	-0.14***	-0.38***
Guatemala	0.22	0.23	0.00***	0.00***	0.78*	0.82	0.34***	0.31***
Guinea	0.01**	0.00***	0.00***	0.00***	0.80*	0.74	0.38**	0.47
Guinea-Bissau	0.11	0.00***	0.04**	0.00***	-0.00**	0.32**	0.01	-0.22**
Guyana	0.60	0.56	0.93	0.47	1.07	1.26	0.89	0.53
Haiti	0.00***	0.00***	0.00***	0.00***	0.60***	0.58***	0.80	0.97
Honduras	0.64	0.59	0.24	0.00***	0.86	0.98	0.36	0.00***
Hong Kong SAR	0.30	0.32	0.00***	0.00***	0.95	0.81	0.12***	-0.69***
Hungary	0.35	0.37	0.14	0.05*	1.25	0.80	0.99	0.82
Iceland	0.03**	0.00***	0.13	0.23	0.81*	0.72***	1.14	1.41
India	0.31	0.92	0.16	0.42	0.92	1.05	0.61	0.42
Indonesia	0.00***	0.52	0.10	0.20	0.92***	1.14	0.49*	-0.06*
Iran	0.17	0.32	0.13	0.16	0.89	0.81	0.42**	0.18
Iraq	0.19	0.00***	0.00***	0.00***	0.80	0.26***	0.06***	0.09***
Ireland	0.05*	0.00***	0.00***	0.44	1.20**	1.17**	1.36	0.82
Israel	0.01**	0.38	0.42	0.00***	1.06	0.78	0.60	0.22***
Italy	0.05*	0.00***	0.00***	0.00***	0.98	0.99	1.21	0.88
Jamaica	0.03**	0.00***	0.00***	0.00***	0.91	0.92	0.64	0.33**
Japan	0.54	0.49	0.04**	0.00***	0.97	0.90	0.78	0.08**
Jordan	0.82	0.38	0.05*	0.02**	0.82	0.58	0.00**	-0.28**
Kazakhstan	0.08*	0.58	0.30	0.64	1.31	1.21	1.61	0.81
Kenya	0.21	0.05*	0.00***	0.00***	1.06	0.91	0.62	0.30**
Kiribati	0.00***	0.03**	0.00***	0.00***	0.29**	0.33*	0.21***	0.34***
Korea	0.01**	0.69	0.15	0.24	0.93	0.90	0.04*	0.33
Kosovo	0.00***	0.00***	0.00***	0.00***	0.53***	0.57*	0.20**	0.44**
Kuwait	0.00***	0.00***	0.52	0.00***	0.83***	0.62***	1.06	1.36***
Kyrgyz Rep.	0.22	0.03**	0.12	0.04**	1.46*	2.34**	2.05	1.50
Lao P.D.R.	0.02**	0.03**	0.01**	0.00***	0.50***	0.49**	0.29***	0.18***
Latvia	0.10	0.06*	0.64	0.57	1.08**	1.30**	1.37	1.50
Lebanon	0.21	0.06*	0.03**	0.02**	0.80	0.55**	0.45**	0.12***
Lesotho	0.25	0.51	0.00***	0.00***	1.20	0.82	0.11**	-0.44***
Liberia	0.91	0.00***	0.00***	0.00***	1.03	0.68***	0.42***	0.28***
Libya	0.00***	0.00***	0.00***	0.00***	0.87***	1.28***	-1.03***	-0.26***
Lithuania	0.97	0.27	0.57	0.00***	1.03	1.37	0.90	0.08***

Table A7: **(continued).**

	MZ pvalue				slope			
	h=0,F	h=0,S	h=1,F	h=1,S	h=0,F	h=0,S	h=1,F	h=1,S
Luxembourg	0.05*	0.06*	0.07*	0.00***	1.01	0.97	0.26**	-0.09***
Macedonia, FYR	0.00***	0.02**	0.00***	0.00***	0.51***	0.68*	0.05	-0.32***
Madagascar	0.45	0.04**	0.00***	0.00***	1.04	0.90	0.56	0.28
Malawi	0.40	0.21	0.23	0.39	1.03	1.11	1.13	1.05
Malaysia	0.00***	0.47	0.08*	0.01**	0.98	1.00	0.34**	-0.02**
Maldives	0.13	0.32	0.92	0.54	1.17	1.24	1.11	1.64
Mali	0.00***	0.02**	0.01**	0.05*	0.52***	0.38***	1.18	0.89
Malta	0.50	0.25	0.06*	0.08*	0.87	0.68	0.15**	0.08**
Marshall Islands	0.01**	0.00***	0.00***	0.03**	0.64***	0.63***	0.73***	0.94
Mauritania	0.00***	0.00***	0.00***	0.00***	0.84	0.61***	0.27***	0.15***
Mauritius	0.00***	0.00***	0.00***	0.00***	0.77***	0.70***	0.20***	0.21***
Mexico	0.65	0.00***	0.04**	0.00***	1.08	1.53***	1.26	0.05
Micronesia	0.70	0.08*	0.08*	0.00***	0.91	0.78*	0.84	0.09***
Moldova	0.68	0.04**	0.16	0.00***	1.05	1.93**	0.39	-0.75***
Mongolia	0.32	0.51	0.12	0.76	1.13	0.85	0.66**	0.79
Montenegro, Rep. of	0.81	0.67	0.00***	0.00***	0.90	0.92	-0.33***	-0.52***
Morocco	0.00***	0.00***	0.00***	0.08*	1.22***	1.29**	1.70***	1.14
Mozambique	0.63	0.29	0.79	0.57	1.20	1.34	1.08	0.60
Myanmar	0.01**	0.02**	0.00***	0.00***	0.56**	0.35***	0.05***	0.11***
Namibia	0.24	0.00***	0.00***	0.00***	0.73	0.53***	-0.15***	-0.39***
Nepal	0.01**	0.00***	0.00***	0.00***	0.46***	0.06***	-0.42***	-0.54***
Netherlands	0.31	0.68	0.31	0.23	0.96	0.94	1.06	0.68
New Zealand	0.11	0.12	0.00***	0.00***	0.87	0.57**	-0.05***	0.05***
Nicaragua	0.83	0.79	0.03**	0.03**	0.93	0.95	0.09**	0.07**
Niger	0.32	0.42	0.38	0.00***	0.81	0.87	1.02	0.70**
Nigeria	0.11	0.01**	0.03**	0.00***	0.90	0.66***	0.62*	0.35***
Norway	0.04**	0.07*	0.33	0.44	0.83**	0.69**	1.14	0.57
Oman	0.00***	0.00***	0.00***	0.00***	0.33***	0.24***	0.20***	0.25***
Pakistan	0.20	0.09*	0.00***	0.00***	0.71	0.54**	0.27***	0.08***
Panama	0.21	0.56	0.39	0.04**	1.13	1.04	0.67	0.25**
Papua New Guinea	0.41	0.25	0.27	0.18	0.97	0.68	0.55	0.51*
Paraguay	0.68	0.78	0.56	0.62	1.09	1.17	0.91	0.27
Peru	0.15	0.67	0.01**	0.02**	1.20	1.15	-0.29***	-1.06**
Philippines	0.74	0.89	0.11	0.00***	1.02	0.94	0.40**	-0.29***
Poland	0.02**	0.44	0.73	0.01**	0.91**	1.33	1.21	0.10***
Portugal	0.41	0.06*	0.00***	0.00***	0.92	0.83**	0.86	0.82
Qatar	0.16	0.00***	0.00***	0.35	0.83*	0.65***	0.55***	0.66
Romania	0.16	0.01**	0.27	0.18	1.25*	1.65***	1.51	1.43
Russia	0.37	0.54	0.40	0.47	1.00	0.87	0.77	0.91
Rwanda	0.51	0.01**	0.57	0.31	1.71	0.72	1.54	1.28
Samoa	0.39	0.02**	0.12	0.10	0.66	0.04***	-0.06**	-0.52**
Saudi Arabia	0.20	0.00***	0.58	0.00***	0.94	0.65***	0.88	0.38***
Senegal	0.11	0.02**	0.11	0.14	1.10	1.15	1.19	1.20
Serbia	0.87	0.30	0.00***	0.00***	1.02	1.20	-0.18**	-0.68***
Seychelles	0.16	0.08*	0.15	0.27	0.61*	0.49**	0.35	0.74
Sierra Leone	0.15	0.00***	0.00***	0.20	0.82*	0.70	0.21***	0.08
Singapore	0.18	0.04**	0.38	0.02**	1.03	0.70*	0.60	-0.79***
Slovak Rep.	0.01**	0.00***	0.74	0.38	0.99	1.18	0.62	0.26
Slovenia	0.36	0.89	0.20	0.37	1.10	1.03	0.54*	0.74
SoTomPrncipe	0.02**	0.00***	0.00***	0.00***	0.94	0.78	0.80	0.83
Solomon Islands	0.91	0.67	0.25	0.39	0.92	0.54	0.07	0.17
Somalia	0.43	0.45	0.00***	0.00***	0.67	0.73	0.04***	0.07***

Table A7: **(continued).**

	MZ pvalue				slope			
	h=0,F	h=0,S	h=1,F	h=1,S	h=0,F	h=0,S	h=1,F	h=1,S
South Africa	0.55	0.02**	0.02**	0.01**	1.04	1.18	1.13	0.61
Spain	0.52	0.50	0.52	0.15	1.02	1.05	1.10	0.84
Sri Lanka	0.89	0.22	0.39	0.07*	1.03	0.81*	0.73	0.22**
St. Kitts Nevis	0.32	0.10	0.38	0.27	0.73	0.66	0.79	0.82
St. Lucia	0.13	0.02**	0.00***	0.00***	0.79	0.62*	0.37**	-0.17***
St. Vincent Grenadines	0.09*	0.03**	0.00***	0.00***	0.77*	0.84	0.35**	0.31**
Sudan	0.00***	0.00***	0.00***	0.00***	0.71***	0.64***	0.49***	0.15***
Suriname	0.70	0.19	0.69	0.17	1.10	1.39	1.24	0.46
Swaziland	0.00***	0.00***	0.00***	0.00***	0.48***	0.60***	0.06***	-0.15***
Sweden	0.04**	0.27	0.45	0.39	1.09**	1.09	1.25	0.72
Switzerland	0.69	0.93	0.06*	0.00***	1.05	0.94	0.00*	-0.52***
Syria	0.76	0.21	0.26	0.13	0.90	0.70	0.05	-0.01*
Taiwan Prov. of China	0.79	0.05*	0.40	0.07*	0.95	0.72**	0.89	-0.03
Tajikistan	0.90	0.01**	0.51	0.00***	1.02	1.34*	1.17	1.67***
Tanzania	0.87	0.95	0.21	0.23	0.98	1.00	0.86	0.86
Thailand	0.78	0.52	0.08*	0.07*	1.02	1.07	0.61	-0.02**
Timor-Leste	0.00***	0.00***	0.00***	0.02**	0.65***	0.51***	-0.27***	-0.22**
Togo	0.06*	0.00***	0.02**	0.01**	1.07	0.96	1.24	0.90
Tonga	0.24	0.11	0.17	0.01**	0.82	0.93	0.40	-0.38**
Trinidad and Tobago	0.06*	0.00***	0.00***	0.03**	1.16*	1.35**	1.56***	1.11
Tunisia	0.05*	0.01**	0.00***	0.00***	1.11	1.04	1.01	0.80
Turkey	0.04**	0.45	0.94	0.29	1.32	1.27	0.71	-0.58
Turkmenistan	0.63	0.59	0.69	0.70	1.16	0.83	0.89	1.25
Tuvalu	0.00***	0.00***	0.00***	0.00***	0.73***	0.60***	0.70	1.47*
Uganda	0.30	0.36	0.00***	0.01**	0.73	0.59	0.37**	0.23***
Ukraine	0.87	0.02**	0.00***	0.06*	0.98	1.22***	1.72***	1.93
United Arab Emirates	0.69	0.07*	0.19	0.00***	0.91	0.51*	0.44	0.07***
United Kingdom	0.55	0.68	0.13	0.07*	1.02	1.03	1.77*	0.85
United States	0.97	0.87	0.88	0.11	1.00	0.99	1.18	0.55
Uruguay	0.09*	0.00***	0.06*	0.79	1.06	1.61**	0.50**	0.06
Uzbekistan	0.00***	0.00***	0.01**	0.06*	0.77***	0.86***	0.86	0.94
Vanuatu	0.47	0.01**	0.00***	0.00***	0.95	0.56***	0.47	-0.12
Venezuela	0.07*	0.79	0.00***	0.13	1.03	1.07	2.09***	1.55*
Vietnam	0.02**	0.08*	0.00***	0.00***	0.87	0.83	0.37***	0.24***
World	0.12	0.79	0.32	0.06*	0.95	0.98	1.12	0.41
Yemen	0.34	0.19	0.00***	0.14	1.03	2.21	-0.66***	-0.27*
Zambia	0.20	0.07*	0.09*	0.02**	1.23	0.80	0.71	0.55**
Zimbabwe	0.65	0.04**	0.00***	0.00***	0.95	0.96	1.24	0.42

Notes:: This table presents results from Mincer-Zarnowitz (MZ) regressions of the actual GDP growth in individual countries on an intercept and the WEO forecast. Under the null of forecast efficiency, the estimated intercept should be zero while the slope coefficient should equal one. For each of the four forecast horizons in the table, the left-most columns report p-values from an F-test of this joint null. The four columns to the right report the estimated slope coefficient on the forecast, with p-values indicating deviations from the null that this coefficient equals one. ***: Significant at the 1% level, **: Significant at the 5% level, *: Significant at the 10% level.

Table A8: **Estimates of first-order serial correlation in errors from WEO GDP growth forecasts**

	h=0,F	h=0,S	h=1,F	h=1,S
Proportion Sign.	0.19	0.32	0.38	0.43
Average	0.10	0.18	0.22	0.26
Advanced Economies	-0.13	-0.29**	-0.02	-0.06
Afghanistan	-0.10	-0.21	-0.32*	-0.30
Albania	0.17**	0.18***	0.09	-0.04
Algeria	0.11	0.29**	0.11	0.69***
Angola	0.10	0.11	0.51**	0.26
Antigua and Barbuda	0.01	0.19	0.29**	0.31**
Argentina	0.15	0.26	0.14	0.20
Armenia	0.20	-0.03	0.06	0.23
Australia	0.23	-0.02	0.15	0.07
Austria	-0.14	-0.09	-0.03	0.01
Azerbaijan	0.23*	0.40*	0.44***	0.36***
Bahamas, The	0.08	0.18	0.48***	0.41**
Bahrain	0.27**	0.07	0.34**	0.28*
Bangladesh	-0.00	0.44***	0.35**	0.26***
Barbados	0.47*	0.46**	0.48***	0.45***
Belarus	0.57***	0.41***	0.33**	0.41**
Belgium	0.03	-0.01	-0.04	0.11
Belize	0.10	0.04	-0.09	0.00
Benin	0.10	0.48***	0.43***	0.56***
Bhutan	-0.07	-0.21	0.09	-0.01
Bolivia	0.33	0.48***	0.64***	0.69***
Bosnia Herzegovina	0.15	0.40	0.37*	0.39**
Botswana	-0.32**	-0.01	-0.11	0.32
Brazil	-0.44***	0.10	0.19	0.38*
Brunei Darussalam	0.17	0.23	0.56***	0.54***
Bulgaria	-0.19*	0.46**	0.32***	0.36***
Burkina Faso	0.03	-0.04	0.14	0.12
Burundi	-0.00	0.66***	0.69***	0.69***
Cabo Verde	-0.21	0.05	0.35*	0.19
Cambodia	0.64***	0.51***	0.40***	0.38*
Cameroon	-0.41***	-0.30	-0.13	0.53**
Canada	0.36	-0.03	0.23	0.25
Central African Rep.	0.13	0.09	0.09	0.20***
Chad	-0.03	0.01	0.05	0.14
Chile	0.11	0.29***	0.30**	0.25
China	0.05	0.59***	0.71***	0.71***
Colombia	0.16	0.34*	0.25	0.37**
Comoros	0.32	0.57***	0.76***	0.83***
Congo, Democratic	0.55***	0.59***	0.73***	0.84***
Congo, Rep. of	0.37*	0.57***	0.62***	0.69***
Costa Rica	0.15	0.23	0.31**	0.29*
Croatia	0.02	0.40***	0.36***	0.35***
Cyprus	-0.12	-0.19	-0.04	0.22
Czech Rep.	0.28*	0.43**	0.35*	0.34
Cï¿œte d'Ivoire	0.05	0.25	0.55***	0.49**
Denmark	0.25	0.05	0.15	0.19
Djibouti	0.55**	0.75***	0.70***	0.70***
Dominica	-0.14	0.19	0.22	0.23
Dominican Rep.	0.22	0.28	0.31	0.27
Ecuador	0.31***	0.33**	0.18	0.26

Table A8: **(continued).**

	h=0,F	h=0,S	h=1,F	h=1,S
Egypt	-0.15	-0.28	0.11	0.15
El Salvador	0.09	0.07	0.13	0.24
EMDE	-0.17	0.50**	0.05	0.18
Equatorial Guinea	0.04	-0.10	0.15	0.27
Eritrea	-0.03	0.16	0.07	-0.01
Estonia	0.05	0.22	0.19	0.26
Ethiopia	0.26	0.34	0.24	0.26
Euro area	0.05	0.06	-0.01	0.14
Fiji	0.29*	0.25	0.34**	0.36**
Finland	0.44**	0.37*	0.19	0.16
France	-0.14	-0.33*	0.08	0.32*
G7	-0.05	-0.28*	0.00	-0.03
Gabon	-0.08	-0.00	0.08	0.24
Gambia, The	-0.06	0.01	0.19	0.23
Georgia	0.33	0.34	0.11**	0.07
Germany	-0.18	0.07	-0.09	-0.04
Ghana	0.16	0.30**	0.43***	-0.06
Greece	0.11	0.42*	0.54**	0.73***
Grenada	-0.17	0.11	0.38***	0.40***
Guatemala	-0.01	0.21	0.34	0.29
Guinea	0.08	0.32***	0.49***	0.57***
Guinea-Bissau	0.05	0.21***	0.04	0.02
Guyana	0.14	0.27**	0.35**	0.41**
Haiti	0.44***	0.40**	0.48***	0.47***
Honduras	0.02	-0.01	-0.05	-0.01
Hong Kong SAR	0.02	-0.05	-0.06	-0.05
Hungary	0.63***	0.61**	0.36**	0.39***
Iceland	0.05	0.11	0.07	0.36***
India	0.12	0.32**	0.14	0.23
Indonesia	0.08	0.00	0.12	0.19*
Iran	-0.01	0.20	0.04	0.00
Iraq	0.04	0.36	0.68***	0.59***
Ireland	0.10	0.17	0.26*	0.26**
Israel	-0.06	0.20	0.23	0.22
Italy	-0.17	0.01	0.34*	0.38*
Jamaica	0.29	0.45**	0.68***	0.64***
Japan	-0.16	-0.12	0.16	0.19
Jordan	0.04	0.10	0.34***	0.27
Kazakhstan	0.18	0.32	0.28***	0.29***
Kenya	0.36***	0.59***	0.58***	0.64***
Kiribati	0.13	-0.03	0.11	0.09
Korea	0.03	-0.17	-0.27	-0.17
Kosovo	-0.30*	-0.14	0.36*	0.59***
Kuwait	-0.28	0.32**	-0.11*	-0.18
Kyrgyz Rep.	0.16	0.33	-0.02	-0.03
Lao P.D.R.	0.42**	0.38*	0.63***	0.49***
Latvia	0.31*	0.34***	0.30	0.35
Lebanon	0.34	0.43***	0.53***	0.62***
Lesotho	0.26*	0.19	0.28***	0.31**
Liberia	0.13*	-0.01	0.55***	0.50**
Libya	0.49***	-0.06	0.68***	0.65***
Lithuania	0.27**	0.22***	0.03	0.07
Luxembourg	0.33**	0.37**	0.25	0.24

Table A8: **(continued).**

	h=0,F	h=0,S	h=1,F	h=1,S
Macedonia, FYR	-0.05	0.39***	0.23	0.41***
Madagascar	-0.05	0.01	0.11	0.01
Malawi	0.07	-0.33	-0.36	-0.31
Malaysia	0.11	-0.21	-0.31***	-0.11
Maldives	-0.28	-0.09	-0.41	-0.37
Mali	-0.25*	0.15	-0.00	0.09
Malta	0.18	0.45***	0.35*	0.38***
Marshall Islands	0.10	-0.06	-0.33	0.37***
Mauritania	0.15	0.28***	0.45***	0.33***
Mauritius	0.34***	0.42***	-0.14	-0.13
Mexico	-0.12	-0.12	0.05	-0.00
Micronesia	-0.00	0.33*	0.22	0.59***
Moldova	0.19**	0.45***	0.21	0.10
Mongolia	-0.00	0.03	0.22	0.32*
Montenegro, Rep. of	-0.41	-0.29	-0.26***	-0.25***
Morocco	-0.09	0.03	-0.28	-0.43**
Mozambique	0.06	-0.06	-0.01	-0.05
Myanmar	0.46***	0.48**	0.55***	0.61***
Namibia	0.37***	0.35*	0.16	0.33
Nepal	0.02	-0.25	0.23***	0.29**
Netherlands	0.00	0.15	0.13	0.14
New Zealand	0.27***	0.09	0.16	0.17
Nicaragua	0.53***	0.46**	0.37*	0.33
Niger	-0.06	-0.09	-0.19	-0.13
Nigeria	0.51***	0.41*	0.38**	0.28
Norway	-0.15	0.02	0.31**	0.20**
Oman	0.52***	0.37***	0.24	0.31
Pakistan	0.18	0.39**	0.36**	0.54***
Panama	0.33**	0.54***	0.44**	0.48***
Papua New Guinea	0.11	0.14	0.22	0.17
Paraguay	-0.01	-0.25	-0.14	-0.21
Peru	-0.02	0.15	0.11	0.22
Philippines	0.18	0.09	0.20	0.14
Poland	-0.15	0.40	0.16*	0.29***
Portugal	0.45**	0.23	0.41**	0.45**
Qatar	0.19	0.26**	0.24**	0.39*
Romania	0.21	0.58**	0.46***	0.46***
Russia	-0.01	-0.05	0.04	0.21
Rwanda	-0.06	-0.12	-0.01	-0.01
Samoa	-0.07	-0.22**	-0.15	0.01
Saudi Arabia	0.17	0.30	0.14	0.18
Senegal	0.27	0.40**	0.39**	0.30**
Serbia	-0.39**	-0.02	0.04	0.04
Seychelles	-0.08	-0.10	0.01	0.04
Sierra Leone	0.21	0.13	-0.06	0.29***
Singapore	0.16	0.15	-0.05	-0.06
Slovak Rep.	0.42***	0.55***	0.25	0.20
Slovenia	0.02	0.00	0.05	0.13
SoTomPrncipe	0.37**	0.42	0.57***	0.79***
Solomon Islands	0.00	0.33*	0.35*	0.44**
Somalia	0.00	0.01	0.08	0.08
South Africa	0.34	0.35	0.36*	0.40**
Spain	0.25	0.32*	0.29*	0.36**

Table A8: **(continued).**

	h=0,F	h=0,S	h=1,F	h=1,S
Sri Lanka	-0.08	-0.04	0.15*	0.14*
St. Kitts Nevis	0.29	0.29	0.36***	0.38***
St. Lucia	0.06	0.18	0.23	0.25
St. Vincent Grenadines	-0.06	0.18	0.44***	0.43***
Sudan	-0.10	0.03	0.35**	0.37**
Suriname	-0.07	0.47	0.62**	0.78**
Swaziland	0.25**	0.30***	0.06	0.02
Sweden	0.19	-0.04	0.02	-0.03
Switzerland	0.09	0.37**	0.25	0.27
Syria	0.13	0.24	0.37**	0.45**
Taiwan Prov. of China	-0.35	-0.08	-0.10	-0.08
Tajikistan	0.19***	0.31***	0.29***	0.36***
Tanzania	0.16	0.46***	0.26	0.47**
Thailand	0.09	0.18	0.08	0.08
Timor-Leste	-0.05	0.08	0.20	0.36
Togo	0.19***	0.35**	0.06	0.05
Tonga	0.31*	0.39**	0.50***	0.48***
Trinidad and Tobago	0.04	0.40**	0.50***	0.43**
Tunisia	-0.02	0.13	0.35**	0.46***
Turkey	-0.29*	-0.20	-0.22	-0.19
Turkmenistan	0.60***	0.54***	0.44***	0.41***
Tuvalu	0.20	-0.44*	0.00	0.66***
Uganda	-0.11	-0.00	0.22**	0.39***
Ukraine	0.14	0.28	0.46***	0.43**
United Arab Emirates	0.05	0.16	0.18	0.14
United Kingdom	0.16	-0.04	0.25	0.13
United States	0.12	0.09	0.13	0.09
Uruguay	0.10	0.19	0.20	0.35*
Uzbekistan	0.67***	0.39***	0.47***	0.62***
Vanuatu	0.25	0.34**	0.49***	0.52***
Venezuela	0.23	0.19	0.37**	0.46***
Vietnam	0.46**	0.30**	0.30	0.42**
World	-0.03	-0.01	0.04	0.01
Yemen	-0.35***	0.38**	0.57***	0.42***
Zambia	0.19	0.17	0.09	0.10
Zimbabwe	-0.00	0.18*	0.63***	0.57**

Notes:: This table reports estimates of first-order serial correlation in the forecast errors associated with the WEO forecast of GDP growth in individual countries. Under the null of an efficient forecast, the first-order serial correlation should equal zero. Using the four shortest forecast horizons, the table present the estimated first-order autocorrelations along with stars indicating statistical Sign.ificance for a two-sided test statistic. The first row shows the proportion of countries within a particular area that generate forecast errors with a first-order serial correlation that is Significantly different from zero at the 5% level.

Table A9: **Projections of errors in WEO forecasts of GDP growth in individual countries on the contemporaneous forecast error for US GDP growth**

	h=0,F	h=0,S	h=1,F	h=1,S
Proportion Sign.	0.11	0.11	0.22	0.23
Advanced Economies	0.52***	0.51***	0.71***	0.77***
Afghanistan	0.99	0.77	-0.84	-0.42
Albania	0.37	-1.05	-0.04	0.07
Algeria	0.75*	0.29	0.31	0.04
Angola	-0.10	0.24	0.72	0.40
Antigua and Barbuda	1.13	1.23	1.15**	0.79**
Argentina	1.88***	1.08	0.54	0.48
Armenia	-1.22	-0.15	-1.40	0.66
Australia	0.50**	0.78***	0.67***	0.63***
Austria	0.09	-0.07	0.48**	0.43*
Azerbaijan	-1.14	0.93	0.33	0.42
Bahamas, The	0.71	1.17**	1.48***	1.38***
Bahrain	0.17	0.34	0.30	0.18
Bangladesh	0.32*	0.12	0.18**	0.22***
Barbados	1.15*	0.97	1.28***	1.11***
Belarus	-0.85	1.53	1.01	1.11*
Belgium	0.16	0.21	0.46***	0.48***
Belize	-0.16	0.69	0.82**	0.51*
Benin	0.27	-0.05	0.03	0.15
Bhutan	0.34	0.72**	0.26	0.19
Bolivia	0.50	-0.16	0.01	-0.00
Bosnia Herzegovina	2.54**	1.78	1.12*	1.11**
Botswana	0.67	0.88*	0.74	0.10
Brazil	-0.14	0.45	0.49	0.62*
Brunei Darussalam	-0.69	-0.56	1.13***	0.90***
Bulgaria	-0.88	-0.38	1.32	1.16
Burkina Faso	0.09	0.21	0.28	0.24
Burundi	0.37	-1.62	-1.05**	-0.43
Cabo Verde	1.00*	0.58	0.66***	0.87***
Cambodia	-0.43	-1.16	-0.17	-0.11
Cameroon	0.69*	0.74	0.35*	0.44*
Canada	0.24*	0.36	0.74***	0.82***
Central African Rep.	-1.94	-1.96	0.14	0.28
Chad	-0.64	0.18	0.12	0.35
Chile	0.45	0.06	0.23	0.28
China	0.67*	0.37	0.06	0.04
Colombia	0.13	-0.60	0.03	0.03
Comoros	-0.17	-0.56	-0.46***	-0.25
Congo, Democratic	-0.36	-0.54	-0.22	-1.10
Congo, Rep. of	-0.38	-1.55**	-0.45	-0.45*
Costa Rica	1.14**	0.73	0.73**	0.68**
Croatia	0.24	-0.27	0.24	0.26
Cyprus	0.22	-0.10	0.16	0.22
Czech Rep.	-0.32	-1.39***	-0.02	0.01
Cï¿œte d'Ivoire	0.19	-0.67**	-0.09	-0.02
Denmark	0.06	0.19	0.65***	0.57***
Djibouti	-0.38	-0.55	-0.17	-0.11
Dominica	-0.24	-0.10	-0.00	-0.01
Dominican Rep.	1.14	1.12	0.75*	0.88***
Ecuador	-0.85**	-0.85**	-0.53	-0.23
Egypt	-0.73	-0.37	0.01	0.29**

Table A9: **(continued).**

	h=0,F	h=0,S	h=1,F	h=1,S
El Salvador	-0.21	-0.70*	-0.02	0.06
EMDE	-0.14	0.13	0.39	0.37
Equatorial Guinea	-1.47	-3.03	1.50	2.98
Eritrea	0.79	-2.20***	-1.96***	-1.82**
Estonia	0.25	-0.17	1.51	1.66*
Ethiopia	0.42	-0.10	-0.28	-0.11
Euro area	0.03	0.03	0.60*	0.72***
Fiji	0.32	0.12	0.44**	0.37**
Finland	0.42	0.89	1.42***	1.42***
France	0.27**	0.29**	0.44***	0.43***
G7	0.55***	0.55***	0.70***	0.76***
Gabon	-0.95	-1.39*	-0.29	-0.40
Gambia, The	0.62	1.15**	0.18	0.42
Georgia	-3.54	-1.65	-1.05	-0.22
Germany	0.40*	0.21	0.57**	0.56*
Ghana	-0.26	-0.19	-0.07	0.22
Greece	-0.10	0.41*	0.12	0.32
Grenada	0.45	-0.50	0.64	0.55
Guatemala	-0.27	-0.20	0.13	0.14
Guinea	0.17	-0.18	0.21	0.13
Guinea-Bissau	-1.18	-3.09	-0.29	-0.13
Guyana	0.99**	0.22	-0.02	0.01
Haiti	-1.37	-1.55	-0.63	-0.62*
Honduras	-0.41	-0.49	-0.12	0.18
Hong Kong SAR	0.17	0.28	0.99**	0.90
Hungary	0.68	0.14	1.49***	1.38***
Iceland	0.41	0.39	0.14	0.35
India	-0.18	0.16	0.41*	0.51**
Indonesia	0.13	-0.61	-0.35	-0.43
Iran	-0.11	-1.46*	-0.39	-0.28
Iraq	-1.17	-3.42	3.85	3.35
Ireland	0.55	-0.25	1.14**	1.46***
Israel	-0.18	-0.35	0.27	0.22
Italy	0.02	-0.15	0.33	0.39*
Jamaica	-0.18	-0.42	0.01	0.07
Japan	-0.00	0.05	0.35	0.38
Jordan	0.13	0.24	-0.33	-0.23
Kazakhstan	-2.92*	-2.26**	-0.68	0.14
Kenya	-0.14	-0.65**	0.06	-0.23
Kiribati	-0.43	0.11	-0.01	-0.02
Korea	0.44	-0.30	0.76	0.58
Kosovo	-0.62	-0.38	-0.24	-1.05***
Kuwait	0.28	-3.08	4.39	4.21
Kyrgyz Rep.	-0.94	-0.75	-1.10	-0.75
Lao P.D.R.	0.63	0.12	0.12	0.27
Latvia	-0.23	-0.11	1.35	1.23
Lebanon	-0.51	-0.54	-0.77*	-0.76
Lesotho	-0.99	-2.28***	0.09	-0.23
Liberia	-0.04	-0.10	0.74	0.30
Libya	-1.67	1.70	1.31	1.15
Lithuania	-0.58	-0.33	0.58	0.86
Luxembourg	0.06	0.22	0.93**	1.04***
Macedonia, FYR	2.30***	0.62	0.70	0.47

Table A9: **(continued).**

	h=0,F	h=0,S	h=1,F	h=1,S
Madagascar	0.48	0.45	0.83	0.72
Malawi	-0.40	-0.88	-0.41	-0.36
Malaysia	0.22	-0.36	0.83	0.59
Maldives	0.57	-0.07	0.59	0.45
Mali	-0.24	0.13	0.17	0.27
Malta	0.25	-0.42	0.32	0.18
Marshall Islands	-1.46	-1.03	0.33	-0.42
Mauritania	0.79*	0.85**	1.05**	1.14**
Mauritius	0.52**	0.09	-0.13	-0.09
Mexico	0.35	0.77	1.12***	1.13***
Micronesia	0.11	-0.58	-0.29	-1.19**
Moldova	-1.73	-3.53***	-1.40	-0.69
Mongolia	-0.30	-1.62*	0.52	0.34
Montenegro, Rep. of	0.89	0.84	2.42***	1.96***
Morocco	-0.45	-0.76	-0.25	-0.18
Mozambique	-0.03	0.39	0.02	0.16
Myanmar	-0.34	-0.36	0.24	0.07
Namibia	1.08**	0.18	0.44	0.30
Nepal	-0.54	0.47	0.84	0.72
Netherlands	0.31**	0.26	0.54***	0.60***
New Zealand	0.49*	0.33	0.32	0.31
Nicaragua	0.42	0.17	0.88***	0.81***
Niger	-1.99**	-0.46	0.20	0.17
Nigeria	0.13	0.26	0.13	0.14
Norway	0.57**	-0.02	0.36**	0.30
Oman	-0.27	-0.63	-0.09	0.18
Pakistan	0.00	-0.79**	0.09	-0.06
Panama	1.38**	0.37	0.36	0.13
Papua New Guinea	1.42*	0.56	0.21	-0.18
Paraguay	0.75	-0.15	0.51	0.87
Peru	-0.00	-0.58	0.76	0.42
Philippines	0.48*	0.26	0.66*	0.72
Poland	-0.14	1.43	0.98**	0.89**
Portugal	0.11	0.26	0.40***	0.46***
Qatar	1.27	1.73	0.74	0.58
Romania	-0.49	-1.18	0.47	0.12
Russia	0.09	-1.21	0.78	0.51
Rwanda	-5.67	-4.23	-1.81	-0.70
Samoa	-2.02**	-1.34	0.00	-0.10
Saudi Arabia	0.68**	0.01	0.27	0.05
Senegal	-0.18	0.18	0.40	0.43**
Serbia	-0.06	-0.68	0.73	1.14**
Seychelles	1.83*	0.09	0.53	0.61
Sierra Leone	0.80	-1.13	-1.26	-0.10
Singapore	0.26	0.08	1.38**	1.50**
Slovak Rep.	0.09	-0.32	0.55	0.51
Slovenia	0.62**	-0.08	0.75	0.58
SoTomPrncipe	0.00	-0.00	0.04	-0.01
Solomon Islands	-0.00	-1.13	-0.01	-0.03
Somalia	3.47	2.90	2.68	2.69*
South Africa	0.18	-0.07	0.43*	0.32
Spain	0.03	-0.07	0.31*	0.46***
Sri Lanka	0.84	0.25	0.52	0.50

Table A9: **(continued).**

	h=0,F	h=0,S	h=1,F	h=1,S
St. Kitts Nevis	1.49*	0.56	0.25	0.26
St. Lucia	0.74	0.10	0.63	0.73
St. Vincent Grenadines	0.09	-0.12	0.18	0.19
Sudan	1.22*	1.50	0.40	0.62
Suriname	0.34	0.62	0.98***	0.89***
Swaziland	0.58	-0.04	-0.02	-0.00
Sweden	0.36	-0.01	0.73**	0.87***
Switzerland	0.10	0.09	0.40***	0.38**
Syria	0.06	-0.14	-0.51	-0.31
Taiwan Prov. of China	0.87*	0.71	1.04**	1.28**
Tajikistan	-3.65*	0.79	-0.64	-0.18
Tanzania	0.15	-0.30	-0.05	-0.10
Thailand	0.26	-0.51	0.52	0.33
Timor-Leste	-4.67*	-0.55	-3.59***	-2.47**
Togo	0.03	-0.57	0.07	0.09
Tonga	-0.44	-1.52***	-0.37	-0.45
Trinidad and Tobago	0.35	0.23	0.74*	0.41
Tunisia	0.29	0.81**	0.09	0.26
Turkey	-0.09	-0.40	1.31	1.36*
Turkmenistan	-2.92	-5.40	-1.98	-1.83
Tuvalu	0.71	-0.66	-0.11	-0.41
Uganda	-0.22	-0.07	-0.13	-0.12
Ukraine	0.16	-1.91*	0.09	0.29
United Arab Emirates	0.40	-0.27	0.41	0.17
United Kingdom	0.32***	0.27	0.69***	0.71***
Uruguay	1.86**	1.62**	0.48	0.33
Uzbekistan	0.19	-0.43	-0.20	-0.16
Vanuatu	-0.95	-0.81*	-0.16	-0.28
Venezuela	-0.16	-0.76	-0.69	-0.57
Vietnam	0.17	-0.21	0.18	0.14
World	0.45***	0.29**	0.61***	0.61***
Yemen	-0.77	2.86	1.67	0.99*
Zambia	0.29	-0.35	-0.21	-0.12
Zimbabwe	0.81	-0.48	0.52	-0.59

Notes:: This table shows results from regressions of individual countries' WEO GDP growth forecast errors on an intercept and the contemporaneous forecast error for US GDP growth. The four columns report the estimated slope coefficient from these regressions with stars indicating Sign.ificance of tests that the slope coefficient equals zero against a two-sided alternative. ***: Significant at the 1% level, **: Significant at the 5% level, *: Significant at the 10% level.

Table A10: **Projections of WEO GDP forecast errors on the output gap**

	h=0,F	h=0,S	h=1,F	h=1,S
Proportion Sign.	0.33	0.39	0.50	0.51
Advanced Economies	-0.14***	-0.19**	-0.48**	-0.63***
Argentina	0.26*	1.03***	0.26	0.55
Australia	-0.01	-0.46***	0.21	-0.14
Austria	-0.13*	-0.15	-0.41	-0.48
Barbados	0.18***	0.12***	0.27***	0.21***
Belgium	-0.25***	-0.41***	-0.57***	-0.54***
Brazil	0.04	-0.34**	0.18	-2.13***
Bulgaria	0.12	0.10	-0.04	0.35**
Canada	-0.03	-0.12	-0.05	-0.17
Chile	-0.05	-0.06	-0.36**	-1.25***
China	0.00	0.18*	-0.00	0.02
Colombia	0.62	0.93**	-1.49**	4.30***
Costa Rica	-0.47***	0.50	-0.14	-1.17***
Croatia	0.52***	0.45	1.62***	1.18*
Cyprus	-0.03*	-0.04*	-0.04	-0.00
Czech Rep.	0.10	0.18	0.48**	-0.49
Denmark	0.14	-0.13	-0.19	-0.41
Estonia	-0.18	-0.68***	-1.34***	-1.39***
Euro area	-0.05	-0.25**	-0.79**	-0.65***
Finland	0.14	0.11	-0.23	-0.43
France	-0.14**	-0.36***	-0.42***	-0.37***
G7	-0.13***	-0.09*	-0.33**	-0.50***
Germany	-0.00	-0.13	-0.42	-0.57**
Greece	-0.01	0.07	0.11	0.30*
Guyana	-0.57***	-0.48***	-0.74***	-0.65**
Hong Kong SAR	-0.10	-0.36**	-0.50**	-0.76**
Hungary	-0.08*	0.14	-0.12	0.03
Iceland	-0.00	-0.37***	-0.02	0.11
India	-2.22***	-4.32***	-4.13***	-4.50***
Indonesia	-0.03	-0.37**	-0.59***	-1.01***
Ireland	0.13	0.02	0.26	0.03
Israel	-0.06	-0.02	-0.06	-0.12
Italy	-0.14*	-0.20**	-0.50*	-0.77***
Japan	-0.07*	-0.15**	-0.06	-0.28
Korea	-0.27***	-0.65***	-0.82***	-0.87***
Lithuania	-0.19	-0.89***	-0.70***	-0.97***
Luxembourg	0.01	0.00	0.07	0.07*
Malaysia	-0.08	-0.95***	-0.00	-0.35
Malta	0.14	-0.04	-0.59	-0.16
Mauritius	-0.18	0.00	-0.10	0.02***
Mexico	-0.08***	-0.01	-0.31***	-0.47***
Moldova	-1.03**	-1.54***	-1.84***	-1.63***
Netherlands	-0.08**	-0.10	-0.28**	-0.38***
New Zealand	0.12	0.11	-0.02	-0.08
Nicaragua	-0.56***	-0.79***	-0.90**	-0.19
Norway	-0.28***	-0.37*	-0.01	0.01
Peru	-0.15	-0.02	-0.47	-0.22
Philippines	-0.66	-1.42***	-1.72**	-1.42***
Poland	-0.01	0.51***	-0.55	-0.69
Portugal	0.01	-0.00	0.03	0.02
Romania	-0.12***	0.33***	0.30***	0.70***

Table A10: **(continued).**

	h=0,F	h=0,S	h=1,F	h=1,S
Russia	0.03	-0.12	-1.05***	-1.31***
Singapore	-0.28*	-0.73***	-1.09**	-1.45***
Slovak Rep.	-0.03	0.40	-0.66**	-1.49**
Slovenia	-0.13	-0.11	-0.80*	-1.02
South Africa	-0.26***	0.07	-0.39***	-0.59***
Spain	-0.00	-0.06	-0.05	0.00
Swaziland	0.02	-0.02	0.18**	0.13
Sweden	-0.04	-0.26	-0.54**	-0.49***
Switzerland	0.07	0.20	0.17	0.01
Taiwan Prov. of China	-0.05	-0.31	-0.45**	-1.04**
Thailand	-0.82*	-1.21**	0.68	-0.04
Turkey	-0.14	0.10	-0.81***	-1.05***
Ukraine	-0.31**	-0.11	-0.73	-1.60***
United Kingdom	-0.00	-0.05	0.06	-0.15
United States	-0.11***	0.01	0.00	0.02

Notes::This table shows results from regressions of individual countries forecast errors on an intercept and the output gap. We report the estimated slope coefficient from these regressions with stars indicating Sign.ificance of tests that the slope coefficient equals zero against a two-sided alternative. ***: Significant at the 1% level, **: Significant at the 5% level, *: Significant at the 10% level.

Table A11: **Projections of WEO GDP forecast errors on the WEO forecast error for terms of trade and commodity terms of trade**

	tot				ctot			
	$\beta_{0,F}$	$\beta_{0,S}$	$\beta_{1,F}$	$\beta_{1,S}$	$\beta_{0,F}$	$\beta_{0,S}$	$\beta_{1,F}$	$\beta_{1,S}$
percentage positive	0.54	0.52	0.59	0.57	0.45	0.44	0.48	0.48
positive Sign.ificant	0.09	0.11	0.14	0.16	0.10	0.11	0.14	0.14
negative Sign.ificant	0.05	0.11	0.07	0.07	0.12	0.10	0.08	0.11
Albania	0.02*	0.01	0.00	0.00	-1.79	-0.90*	-0.48*	-0.42*
Algeria	0.01***	0.00	0.00	0.00	0.19**	-0.05	0.00	0.01
Angola	0.00	0.00	0.01	0.04	0.10*	0.03	0.01	0.04
Antigua and Barbuda	-0.02	-0.03	0.05	0.01	-0.06	-0.01	0.00	0.02
Argentina	-0.03	0.01	0.14	0.18	1.73*	-0.42	0.70**	0.94**
Australia	-0.03*	-0.06***	0.00	0.00	0.01	0.05	-0.04	0.07
Austria	-0.06***	-0.13***	-0.33**	-0.38**	-0.32	-0.11	-0.78*	-0.56
Bahamas, The	0.00	0.03	0.03	0.00	0.00	0.03**	-0.01	-0.00
Bahrain	-0.01***	-0.01***	-0.03***	-0.04***	0.14*	-0.00	0.06*	0.06**
Bangladesh	0.00	0.00	-0.01	-0.00	-0.79*	-0.12	-0.06	-0.16
Barbados	0.03	0.06***	0.02	0.06	-0.94	0.15	-0.12	-0.07
Belgium	-0.00	0.00	-0.05	0.01	-0.62*	-0.19	-0.22	-0.14
Belize	-0.01	-0.03	-0.06	-0.02	-1.38*	-0.36	-0.42**	-0.11
Benin	-0.00*	-0.00	-0.00	-0.00	-0.21	0.62*	0.41*	0.50*
Bhutan	0.00	-0.02*	0.00	-0.02	-0.36	0.49**	0.72	0.22
Bolivia	0.00	0.00	0.01***	0.01***	0.23***	-0.01	0.10***	0.05*
Brazil	0.03	0.12***	0.16***	0.11*	0.31	1.58***	1.60***	2.21***
Brunei Darussalam	0.01*	0.04***	0.01	0.03**	-0.17	0.03	0.04*	0.05*
Bulgaria	0.00	-0.00	0.14	0.12	1.34***	-0.17	0.73*	1.03*
Burkina Faso	0.00	0.01	-0.01	-0.04***	-0.54	0.08	-0.34**	-0.43***
Burundi	-0.01	0.03**	0.03*	0.03**	1.40**	-0.52	-0.87***	-0.79***
CAÂŽte d'Ivoire	-0.00	-0.02*	0.00	0.00	0.12	-0.53**	-0.60***	-0.45**
Cabo Verde	0.00	0.00	0.00	0.01	-0.23	-0.29***	-0.06	-0.19
Cambodia	0.05	-0.02	-0.01	-0.06	-3.21***	-0.98	-1.12	-1.40**
Cameroon	-0.00	-0.01*	-0.01	-0.01*	0.19	-0.61***	-0.08	-0.20
Canada	0.00	0.02	0.09	0.02	-0.16	0.08	0.29	0.19
Central African Republic	-0.07	-0.03	-0.02	-0.01	-5.65***	-5.37	-1.28	-1.37
Chad	-0.00	0.00	0.03***	0.04***	0.83*	-0.01	0.11**	0.14
Chile	0.01	0.02	0.03***	0.05***	-0.03	-0.13***	0.00	0.07
China	0.02	0.06	-0.01	-0.09*	-0.36	-0.61***	-0.29	-0.48**
Colombia	0.01	-0.02	0.04*	0.04**	0.39	-0.11	0.23	0.35**
Comoros	0.00	0.00	0.00	0.00	-0.12	-0.42	-0.16	-0.10
Congo, DR	0.00	0.00	0.00	0.00	2.39***	0.29	-0.03	0.03
Congo, Rep.	-0.00	0.01	0.04***	0.04**	0.07	-0.02	0.02***	0.04**
Costa Rica	-0.00	0.00	0.00	-0.02*	-1.46***	-0.53	-0.54	-0.71**
Cyprus	0.00	0.00	-0.01	-0.02	-0.07	0.23	0.01	-0.00
Denmark	-0.07	-0.05	-0.07	-0.04	0.07	-0.28	0.71	1.00
Djibouti	0.00	0.00	0.00	0.00	0.07	0.00	0.04**	0.03*
Dominica	-0.05	-0.11**	-0.13***	-0.17***	-0.52*	-0.46	-0.62***	-0.49***
Dominican Republic	-0.01	-0.02	-0.02	-0.03	-1.60	-0.26	0.04	-0.03
Ecuador	-0.00	-0.03***	-0.01	-0.02	0.21	0.33**	0.57***	0.53***
Egypt	-0.00	-0.00	-0.05	0.02	0.12	-0.39	0.54	0.28
El Salvador	0.00	0.00	-0.00	-0.00	-0.33**	0.20	-0.20	-0.11
Equatorial Guinea	0.01	0.01	0.00	-0.06*	0.13	0.05	-0.02	-0.04
Ethiopia	0.00	0.01	0.02	0.01	0.47	-0.81***	-0.20	-0.35*
Finland	-0.07	0.04	-0.08	-0.10	1.32**	-0.68	-1.24	-1.24
France	0.01	-0.01	-0.00	-0.02	0.39	-0.06	0.04	0.02
Gabon	0.01	-0.09**	0.04	0.05***	-0.00	-0.04	0.06*	0.08***

Table A11: **(continued).**

	terms of trade				commodity terms of trade			
	$\beta_{0,F}$	$\beta_{0,S}$	$\beta_{1,F}$	$\beta_{1,S}$	$\beta_{0,F}$	$\beta_{0,S}$	$\beta_{1,F}$	$\beta_{1,S}$
Gambia, The	0.03	0.01	0.03	0.01	0.50	-0.09	-0.23**	-0.37***
Germany	-0.04	-0.11	-0.23**	-0.20**	-0.40	-0.10	-0.54	-0.46
Ghana	0.00	0.00	0.00	-0.00	-1.29	-0.23	0.03	-0.09
Greece	-0.02***	-0.03**	-0.08***	-0.11***	1.18	-0.98*	-0.52	-0.85*
Grenada	-0.01	-0.01	0.01	0.02	1.66*	2.01**	1.16	0.92
Guatemala	0.00	0.00	0.00	0.05	-0.18	0.10	-0.36	-0.38
Guinea	-0.01**	-0.00	-0.01***	-0.00	-0.29	-0.26***	0.17	0.01
Guinea-Bissau	-0.01	0.10*	0.11**	0.08***	0.47	0.06	0.07	0.01
Guyana	0.01	0.05***	0.02	0.04***	0.08	-0.08	0.01	0.01
Haiti	-0.00	-0.02***	0.01	0.00	-0.28	0.34	-0.05	-0.24
Honduras	-0.01	-0.02	-0.02	0.00	-0.27**	0.21	-0.22	-0.16
Hong Kong SAR	-0.01	-0.04	-0.51	-0.59	-1.51**	-0.26	-0.61	-0.64
Iceland	-0.05***	-0.06	0.05	0.10**	-0.16***	-0.16	0.00	0.10
India	0.14**	-0.01	0.00	-0.19**	-0.90	-0.38	-0.01	-0.32
Indonesia	-0.00	-0.02	0.04***	-0.01	-0.03	-0.15	0.28***	0.34***
Iran	-0.00	0.00	0.00	-0.00	0.33**	-0.16	0.16	0.24*
Ireland	0.25	0.28	0.23	0.25	-0.70	10.99**	6.35*	6.09**
Israel	-0.01	0.01	0.03	0.02	-0.80	-0.68***	-0.42**	-0.51**
Italy	-0.01	-0.00	-0.02	0.02	-1.23**	0.21*	-0.11	-0.05
Jamaica	0.01	0.02**	-0.07***	-0.13	-0.25	0.01	-0.06	-0.01
Japan	0.02**	0.03	-0.01	-0.01	-1.11	-0.33	-0.27	-0.17
Jordan	-0.01	0.01	-0.02	-0.02	0.22	-0.05	-0.20***	-0.16***
Kenya	0.02*	0.03*	-0.01	0.01	-1.36***	-0.46**	-0.21	-0.15
Kiribati	0.00*	0.00**	0.00	0.00	0.20	0.31**	0.05	-0.00
Korea	0.01	0.10	0.04	0.03	-1.24***	-0.36	-0.14	-0.10
Kuwait	-0.01	0.01	0.04**	0.05**	0.04	0.01	0.12*	0.10**
Lao P.D.R.	0.00	0.00	0.00	0.00	0.92	0.63**	0.27**	0.13
Lebanon	0.00	0.01***	0.01***	0.00	0.07	-0.67**	-0.03	-0.06
Liberia	0.01**	0.05*	0.05**	0.14***	-0.05	0.21***	0.00	-0.09*
Luxembourg	-0.22***	-0.09***	-0.37***	-0.16***	-0.80	0.38	0.17	0.10
Madagascar	0.00	0.03	0.02	0.01	1.08*	0.36	-0.36	-0.38
Malawi	-0.01***	-0.01***	-0.01***	-0.01***	3.34**	-0.41	-0.57*	-0.76**
Malaysia	-0.04	-0.05	0.06	0.02	0.11	-0.18	0.39	0.16
Maldives	0.02	0.05***	-0.01	0.05	-0.11	0.15	-0.23*	-0.20
Mali	-0.00	-0.03***	-0.01*	-0.01*	0.20	-0.14	0.33*	-0.00
Mauritania	-0.00	0.00	-0.00	-0.09	-0.10	-0.04	-0.02	0.02
Mauritius	0.02	0.01	0.00	-0.01	0.15	-0.22*	-0.24	-0.24
Mexico	0.00	0.02	0.07	0.12	-0.04	-1.36**	1.46	2.10
Mongolia	0.00	-0.00	-0.00	0.04*	-0.96*	0.03	0.46***	0.17
Morocco	0.03***	0.00	0.05**	0.05	-0.34	0.09	-0.06	-0.15
Mozambique	0.00	0.00	0.01	0.02	0.58*	0.38*	-0.10	0.02
Myanmar	-0.01	-0.00	0.00	0.01	2.48*	0.29	0.45	0.47
Netherlands	-0.01	-0.11**	-0.05	-0.10	0.23	-0.27	-0.43	-0.35
New Zealand	-0.03	0.01	0.11**	0.05	-1.04**	-0.85	-0.02	0.48*
Nicaragua	0.01	0.00	0.02	0.00	-0.06	0.38*	0.02	0.09
Niger	0.02	0.04**	0.05	0.05***	-0.04	0.37	0.08	-0.11
Nigeria	0.00	0.03**	0.02*	0.01	0.55**	0.16	0.14**	0.15***
Norway	-0.03	-0.01	0.01	0.02*	-0.01	-0.07***	0.02	0.04
Oman	0.01***	0.00	0.01**	0.01**	0.02	0.08***	0.04**	0.04***
Pakistan	-0.01	-0.01**	-0.01*	-0.01	-1.27	-0.08	-0.06	0.03
Panama	-0.01	-0.02	-0.08**	-0.04	0.22	0.92*	-0.85*	-1.26**
Papua New Guinea	0.00	0.01	0.00	0.02	-0.36	0.18	0.17	0.22

Table A11: **(continued).**

	terms of trade				commodity terms of trade			
	$\beta_{0,F}$	$\beta_{0,S}$	$\beta_{1,F}$	$\beta_{1,S}$	$\beta_{0,F}$	$\beta_{0,S}$	$\beta_{1,F}$	$\beta_{1,S}$
Paraguay	-0.01	-0.03	-0.01	-0.06**	0.26	0.35	-0.18	-0.20
Peru	0.01	0.03	0.08***	0.10***	-0.07	-0.23	0.58***	0.57***
Philippines	-0.00	-0.02	-0.01	-0.07	-1.00***	0.19	-0.13	-0.20
Poland	0.00	-0.09	0.00	-0.07	-0.08	0.08	-0.01	-0.50
Portugal	0.02*	-0.03	-0.03	0.00	-1.06**	-0.08	0.08	0.11
Qatar	-0.00	0.01	0.03*	0.04***	-0.01	0.15*	0.15**	0.11***
Romania	-0.00	-0.01	-0.03	-0.03*	0.23	-0.78	-2.19**	-1.74
Rwanda	-0.01	0.04	0.03	0.04	0.00***	0.00	0.00***	0.00
S.T.PrAÂncipe	0.00	0.00	0.00	-0.00	-0.27	0.21	-0.09	0.01
Saudi Arabia	0.01	0.01	0.02**	0.02**	0.17**	0.06**	0.09***	0.07**
Senegal	0.01	-0.03***	-0.03	-0.04*	0.04	0.30**	0.16	0.24***
Seychelles	-0.03*	-0.05***	-0.02	-0.02*	-0.10	-0.03	0.11*	0.09*
Sierra Leone	-0.02	0.03	0.19	0.35**	1.05**	0.46*	1.61**	2.00
Singapore	0.03	0.25**	0.15	0.18	-0.62*	-0.42	-0.20*	-0.31*
Solomon Islands	0.02	0.09***	0.08***	0.05	-1.60***	-0.82	-0.53*	-0.38
South Africa	-0.00	0.02	0.01	0.02	-0.29	0.48	0.07	-0.43
Spain	0.01	-0.05*	-0.08	-0.19	-0.35	0.31	0.14	0.29
Sri Lanka	0.02	0.07	0.06	0.10*	-0.43	-0.31*	-0.27***	-0.37***
St. Lucia	0.00**	0.02**	-0.01	0.01	-0.43**	0.35	-0.40	-0.56
St.VincentGrenadines	0.03	-0.06**	0.03	-0.07**	-0.39	-0.04	-0.11	-0.10
Sudan	-0.01	-0.05	-0.04	-0.01	1.84*	-0.16	-0.27	0.20
Suriname	0.00	-0.00	-0.01	-0.00	1.05	0.78	-1.12***	-1.59***
Sweden	-0.01	-0.12	-0.22	-0.24	1.48*	2.38**	-0.31	-0.89
Switzerland	0.02	-0.06	0.00	-0.12	-0.15	-0.59**	-0.87**	-1.10**
Syria	0.00	0.00	0.00	0.00	0.04	0.06	0.04	-0.00
Tanzania	-0.00	-0.00	-0.00	-0.01*	-0.05	-0.11*	-0.02	-0.02
Thailand	0.10**	-0.05	0.11*	0.15**	-1.69***	-0.40***	-0.18	-0.23
Togo	0.00	0.00	-0.00	0.00	0.09	0.05	0.17*	0.15
Tonga	0.01**	-0.00	0.00	0.00	0.78***	0.34**	-0.14	0.09
Trinidad and Tobago	0.05	0.07**	0.07*	0.05	0.71	0.07	0.17**	0.17***
Tunisia	0.00	-0.00	-0.01	-0.04	0.70	-0.59***	0.05	-0.16
Turkey	0.06	0.09	-0.03	-0.18*	-2.09**	0.15	-1.30	-0.95
Uganda	-0.00	-0.00	0.00	0.00	-0.50**	-0.26	-0.48*	-0.54***
UnitedArabEmirates	0.03***	0.02	0.04	0.07**	0.10	-0.07	0.21**	0.16**
United Kingdom	0.05	0.14***	0.27**	0.36*	-1.52	-0.64	-2.10	-0.52
United States	0.06	0.03	-0.12	0.01	-1.83*	0.15	-0.37	-0.22
Uruguay	-0.00	0.04	0.02	-0.05	-1.40*	-0.14	-1.50**	-1.32***
Venezuela	-0.02	0.00	0.03***	0.06***	0.27	-0.10	0.33***	0.37***
Vietnam	-0.00	0.00	-0.01	-0.00	0.17	-0.17	-0.09	0.17
Zambia	0.00	0.01*	0.01***	0.01**	0.50***	0.27***	0.27***	0.25***
Zimbabwe	-0.01	-0.07	0.07	0.12**	-0.40	-0.66	0.21	-0.08

Notes: This table shows results from regressions of individual countries' WEO forecast errors on an intercept and the contemporaneous WEO terms of trade forecast error (left panel) and WEO commodity terms of trade forecast error (right panel). We report the estimated slope coefficient from these regressions with stars indicating Sign.ificance of tests that the slope coefficient equals zero against a two-sided alternative. ***: Significant at the 1% level, **: Significant at the 5% level, *: Significant at the 10% level.

Table A12: **Biases in Consensus Economics GDP growth forecast errors across sub-samples**

	2004-2016				1990-2016			
	h=0,m9	h=0,m3	h=1,m9	h=1,m3	h=0,m9	h=0,m3	h=1,m9	h=1,m3
Proportion Sign.	0.27	0.16	0.15	0.23	0.22	0.16	0.16	0.23
Albania	0.13	-0.25	-0.80**	-1.48***	0.13	-0.25	-0.80**	-1.48***
Argentina	1.20***	1.35**	1.70*	1.69	1.26***	1.28**	1.22	2.19**
Armenia	-0.53	-2.03	-2.92	-3.34	-0.53	-2.03	-2.92	-3.34
Australia	-0.08	-0.04	-0.46***	-0.51***	0.00	0.04	-0.27	-0.37
Austria	0.06	0.02	-0.33	-0.49	0.08	-0.04	-0.49*	-0.56*
Azerbaijan	-0.50	0.50	0.32	1.05	0.37	1.11	1.13	1.60
Bangladesh	0.38***	0.46***	0.29*	0.43**	0.34***	0.47***	0.24*	0.24
Belarus	0.94*	1.21	0.98	0.85	1.43***	1.76**	1.70	1.53
Belgium	0.14	0.08	-0.23	-0.50	0.10	-0.00	-0.46*	-0.63**
Bolivia	0.68***	0.92***	0.91***	0.83***	0.59***	0.77***	0.68**	0.70***
Bosnia Herzegovina	0.12	-0.86*	-1.64**	-2.56***	0.12	-0.86*	-1.64**	-2.56***
Brazil	-0.22	-0.38	-1.08	-1.36	-0.22*	-0.10	-1.18**	-1.21
Bulgaria	0.21	-0.18	-0.73	-0.93	-0.06	-0.61	-1.21	-1.43
Canada	0.02	-0.15	-0.66*	-0.88**	-0.06	-0.18	-0.59**	-0.74**
Chile	-0.11	-0.28	-0.66	-0.80	-0.12	-0.52	-0.75	-0.94*
China	0.28**	0.55*	0.63	0.67	0.23*	0.41*	0.30	0.30
Colombia	0.34	0.39	0.17	0.20	0.32	0.48	0.13	0.33
Costa Rica	0.94***	0.64	0.55	0.28	1.01***	0.84*	0.61	0.47
Croatia	-0.07	-0.48	-1.33	-1.63*	0.07	-0.24	-0.93	-1.04
Cyprus	0.21	-0.30	-1.00	-1.54	0.21	-0.30	-1.00	-1.54
Czech Rep.	0.10	0.16	-0.45	-0.66	-0.03	-0.27	-0.88	-1.20
Denmark	-0.28	-0.53	-0.82	-0.96	0.00	-0.19	-0.48	-0.56*
Dominican Rep.	2.04***	2.27***	2.15***	1.85**	1.66***	1.56**	1.47	1.32
Ecuador	1.35***	1.08*	0.65	0.33	1.23***	0.73	0.48	0.28
Egypt	0.30***	0.35*	0.02	-0.25	0.30***	0.29	-0.09	-0.29
El Salvador	-0.20	-0.60	-0.24	-0.47***	-0.20	-0.60	-0.24	-0.47***
Estonia	0.48	0.00	-0.86	-1.30	0.28	-0.00	-0.75	-0.78
Euro area	0.03	-0.04	-0.50	-0.68	0.03	-0.04	-0.50	-0.68
Finland	0.02	-0.33	-0.75	-0.99	-0.14	-0.51	-0.84	-0.93
France	-0.16**	-0.17	-0.55*	-0.72**	-0.06	-0.21**	-0.62***	-0.80***
Georgia	0.36	-0.69	-1.39	-1.21	0.36	-0.69	-1.39	-1.21
Germany	0.02	0.13	-0.18	-0.29	0.02	0.01	-0.51*	-0.65*
Greece	0.13	-0.44	-1.23	-2.04*	0.26	0.00	-0.50	-0.98
Guatemala	0.46**	0.29*	0.50*	0.41**	0.46**	0.29*	0.50*	0.41**
Honduras	0.19*	-0.16	0.09	-0.09	0.19*	-0.16	0.09	-0.09
Hong Kong SAR	0.33	0.39	-0.09	-0.14	0.37**	0.18	-0.13	-0.44
Hungary	-0.04	-0.14	-0.83	-1.25	-0.36	-0.54	-0.83*	-1.22**
India	0.37	0.25	0.10	0.42	0.21	0.31	-0.14	0.20
Indonesia	0.11**	0.16	-0.00	-0.07	0.20*	-0.09	-0.74	-0.93
Ireland	2.07	1.70	1.19	0.85	1.98**	1.92**	1.75	1.70
Israel	0.68***	0.74**	0.48	0.29	0.47**	0.27	-0.33	-0.67
Italy	-0.12	-0.59***	-1.10**	-1.39***	-0.17***	-0.53***	-1.03***	-1.27***
Japan	-0.31	-0.14	-0.68	-0.64	-0.22*	-0.06	-0.75**	-0.95**
Kazakhstan	0.53	0.50	-0.42	-0.44	0.96*	1.64**	0.94	1.08
Korea	-0.11	-0.05	-0.77**	-1.02**	0.00	0.24	-0.54	-0.64
Latvia	0.48	0.12	-0.69	-1.22	0.59	0.48	-0.16	-0.32
Lithuania	0.33	-0.09	-0.78	-0.94	0.40	0.07	-0.03	-0.20
Macedonia, FYR	0.28	-0.38	-0.81	-1.28*	0.28	-0.38	-0.81	-1.28*
Malaysia	0.34***	0.33*	-0.07	-0.19	0.22**	0.08	-0.35	-0.53
Mexico	0.01	-0.49	-0.98	-1.14	-0.11	-0.68**	-1.21*	-1.13*

Table A12: **(continued).**

	2004-2016				1990-2016			
	h=0,m9	h=0,m3	h=1,m9	h=1,m3	h=0,m9	h=0,m3	h=1,m9	h=1,m3
Moldova	1.25**	0.82	-0.06	-0.64	0.98	1.29*	0.75	0.55
Netherlands	0.21	0.03	-0.33	-0.56	0.14	-0.00	-0.42	-0.58
New Zealand	0.03	0.09	-0.35	-0.55	0.14	-0.04	-0.22	-0.44
Nicaragua	0.86***	0.71*	1.26***	1.19***	0.86***	0.71*	1.26***	1.19***
Nigeria	0.05	-0.12	-0.39	-0.11	0.19	0.15	-0.17	-0.01
Norway	-0.63***	-0.55***	-0.77**	-0.66*	-0.24	-0.14	-0.31	-0.28
Pakistan	0.03	0.13	-0.25	-0.08	-0.15	-0.01	-0.43	-0.44
Panama	1.49***	2.07***	2.09**	2.34**	1.21***	1.75***	1.78**	2.14***
Paraguay	1.15**	1.19	1.36	1.26	0.89*	0.98	0.83	1.21
Peru	0.50**	0.68	0.68	0.66	0.52***	1.30*	0.73	1.26
Philippines	0.33**	0.65**	0.60	0.56	0.25*	0.34	0.19	-0.01
Poland	0.13	0.29	0.02	-0.06	0.07	0.06	0.03	-0.10
Portugal	0.15	-0.13	-0.61*	-1.12**	-0.09	-0.33*	-0.78**	-1.07***
Romania	0.36*	0.13	-0.38	-0.63	0.23	-0.24	-1.09	-1.41
Russia	-0.17	-0.43	-1.47	-1.46	0.23	0.25	-0.51	-0.66
Saudi Arabia	0.00	0.72*	0.18	0.28	0.08	0.50	0.03	0.09
Serbia	-0.10	-0.92**	-2.10***	-2.97***	-0.10	-0.92**	-2.10***	-2.97***
Singapore	0.22	1.12	0.21	0.06	0.34	0.66	-0.03	-0.23
Slovak Rep.	0.38*	0.24	-0.11	-0.27	0.61***	0.60	0.19	0.05
Slovenia	0.18	-0.14	-0.76	-0.98	0.06	-0.23	-0.65	-0.84
South Africa	0.02	-0.44	-0.87	-1.22**	-0.13	-0.56***	-0.98***	-1.32***
Spain	0.05	0.08	-0.24	-0.52	0.00	-0.01	-0.37	-0.56
Sri Lanka	0.34	0.28	0.13	0.09	0.17	0.02	-0.24	-0.34
Sweden	0.02	0.03	-0.18	-0.21	-0.13	-0.15	-0.50	-0.58
Switzerland	0.17**	0.37***	0.07	-0.01	-0.10	-0.16	-0.59*	-0.70**
Taiwan Prov. of China	0.08	0.06	-0.78	-0.89	-0.01	-0.20	-0.74	-0.90*
Thailand	-0.20	-0.60*	-1.15**	-1.30**	-0.12	-0.58	-1.19*	-1.54*
Turkey	0.47	0.88	0.21	-0.22	0.76*	0.97	-0.20	-0.56
Turkmenistan	0.86*	0.87	0.78	1.05	0.86*	0.87	0.78	1.05
Ukraine	-0.34	-1.15	-3.09*	-3.33*	-0.02	-0.60	-1.61	-2.06
United Kingdom	-0.07	-0.26	-0.62	-0.73	0.02	-0.15	-0.53*	-0.66*
United States	-0.01	-0.34***	-0.62*	-0.91**	-0.02	-0.09	-0.24	-0.44
Uruguay	1.09***	1.77**	1.73*	1.79*	0.70	0.81	0.78	1.72**
Uzbekistan	1.25***	1.69***	1.76***	1.86***	1.25***	1.56***	1.66***	1.54***
Venezuela	0.38	0.74	-0.25	-0.19	0.38	0.11	-1.49	-1.23
Vietnam	0.33***	0.05	-0.01	-0.15	0.00	-0.18	-0.40	-0.49

Notes:: This table reports forecast error biases, i.e., the sample mean difference between the outcome and the predicted value, so that positive values suggest that the forecasts under-predict the outcome, while negative values suggest that the forecast on average over-predict actual values. The table shows results for the four short horizons (h = 0, m9 and m3 and h=1, m9 and m3) for 2004-2016 subsamples and whole sample. Stars indicate if the null of a zero bias is rejected against a two-sided alternative of a non-zero bias. ***: Significant at the 1% level, **: Significant at the 5% level, *: Significant at the 10% level.

Table A13: **Estimates of first-order serial correlation in Consensus Economics GDP forecast errors**

	h=0,m3	h=0,m9	h=1,m3	h=1,m9
Proportion Sign.	0.16	0.23	0.20	0.30
Average	0.15	0.14	0.19	0.25
Albania	0.21	0.18	0.18	0.66***
Argentina	0.39**	0.35**	-0.00	0.36*
Armenia	0.05	0.10	0.09	0.05**
Australia	0.13	-0.01	0.14	0.08
Austria	-0.07	-0.08	-0.04	-0.00
Azerbaijan	0.07	0.19	0.55***	0.65***
Bangladesh	0.19	0.38***	0.24	0.25
Belarus	0.73***	0.42**	0.35	0.61***
Belgium	-0.02	-0.18	0.00	0.12
Bolivia	0.35*	0.55***	0.46**	0.45*
Bosnia Herzegovina	0.14	0.01	0.10	0.36***
Brazil	0.00	0.15	0.16	0.19
Bulgaria	0.08	0.06	0.25	0.31*
Canada	0.32	-0.08	0.22	0.26
Chile	0.20	0.11	0.19	0.16
China	0.19	0.33	0.53*	0.59***
Colombia	-0.06	0.10	0.20	0.27
Costa Rica	0.48**	0.38*	0.31	0.24
Croatia	0.26	0.35*	0.29**	0.45***
Cyprus	0.13	0.20	0.36	0.55**
Czech Republic	0.01	0.41**	0.35*	0.38*
Denmark	0.15	0.15	0.16	0.20
Dominican Republic	0.67***	0.51***	0.43**	0.39**
Ecuador	0.58***	0.42***	0.25	0.29
Egypt	0.19	0.45***	0.23	0.45***
El Salvador	0.07	0.06***	0.47**	0.82***
Estonia	0.22	0.30	0.26	0.32
Euro area	0.24**	-0.00	0.09	0.06
Finland	0.36	0.28	0.19	0.24
France	-0.15	-0.20	0.12	0.27
Georgia	-0.26	0.21	0.11	-0.13
Germany	-0.08	-0.19	-0.05	-0.01
Greece	0.54***	0.58**	0.65***	0.77***
Guatemala	0.34***	0.35*	0.28	0.29
Honduras	0.20	-0.27***	0.24***	0.39*
Hong Kong SAR	0.20	-0.11	-0.08	-0.02
Hungary	0.38***	0.32**	0.19	0.28
India	0.27	0.10	0.30*	0.17
Indonesia	-0.39	-0.04	-0.00	0.15
Ireland	0.19*	0.23*	0.28*	0.33**
Israel	0.11	0.14	0.16	0.26
Italy	-0.03	0.21	0.32*	0.36*
Japan	0.07	-0.18*	0.11	0.16
Kazakhstan	0.22	0.64***	0.50***	0.52***
Korea	-0.12	-0.23	-0.26	-0.17
Latvia	0.36*	0.35***	0.31	0.33
Lithuania	0.10	0.11	0.05	0.03
Macedonia, FYR	-0.14	-0.29*	-0.22***	0.16**
Malaysia	-0.27	-0.31***	-0.26***	-0.15***
Mexico	0.18	-0.06	0.04	-0.00
Moldova	-0.05	-0.34	-0.30*	-0.08

Table A13: **(continued).**

	h=0,m3	h=0,m9	h=1,m3	h=1,m9
Netherlands	0.21	0.20	0.13	0.24
New Zealand	-0.00	-0.06	0.13	0.24
Nicaragua	0.71***	0.15	0.75***	0.71***
Nigeria	0.04	0.21	0.36	0.30
Norway	0.22	0.13	0.30**	0.17*
Pakistan	0.18	0.17	0.40***	0.55***
Panama	0.72***	0.82***	0.54**	0.55**
Paraguay	-0.18	-0.35*	-0.37*	-0.41*
Peru	0.23	0.02	0.00	0.14
Philippines	0.00	-0.16	-0.11	-0.01
Poland	-0.08	0.05	0.18	0.25
Portugal	0.30	0.36**	0.38*	0.43**
Romania	0.15	0.30	0.31*	0.40**
Russia	0.16	0.03	0.10	0.16
Saudi Arabia	0.00	0.34**	0.08	0.15
Serbia	-0.38	-0.03	0.01	0.23***
Singapore	-0.04	0.02	-0.08	-0.06
Slovak Republic	0.43***	0.22	-0.00	0.08
Slovenia	0.13	0.17*	0.10	0.17
South Africa	0.24	0.35*	0.48**	0.55***
Spain	0.12	0.31*	0.29	0.37**
Sri Lanka	-0.20	-0.08	-0.04	0.02
Sweden	0.20	-0.01	0.09	0.07
Switzerland	0.36**	0.29*	0.30	0.28
Taiwan Province of China	-0.27	-0.08	-0.08	-0.03
Thailand	-0.11	0.05	0.06	0.17
Turkey	0.21	0.03	-0.13	-0.15
Turkmenistan	-0.00	0.55***	0.48***	0.28
Ukraine	0.30*	0.34*	0.24	0.26
United Kingdom	0.16	0.14	0.21	0.18
United States	0.17	0.13	0.21	0.23
Uruguay	0.37*	0.20	0.10	0.37***
Uzbekistan	0.50***	0.46***	0.56***	0.62***
Venezuela	0.21	0.35	0.43*	0.39
Vietnam	0.15*	-0.03	0.38***	0.28

Notes:: This table reports estimates of first-order serial correlation in individual countries' forecast errors' computed by comparing actual GDP growth to the Consensus Economics forecast. Under the null of an efficient forecast, the first-order serial correlation should equal zero. Using the four shortest forecast horizons, the left-most columns present the estimated first-order autocorrelations along with stars indicating statistical Sign.ificance for a two-sided test statistic. The columns on the right show the proportion of countries within a particular area that generate forecast errors with a first-order serial correlation that is Significantly different from zero at the 10% level.

Table A14: **Mincer-Zarnowitz tests of GDP forecast efficiency, Consensus Economics**

	MZ pvalue				beta			
	h=0,m9	h=0,m3	h=1,m9	h=1,m3	h=0,m9	h=0,m3	h=1,m9	h=1,m3
Proportion Sign.	0.37	0.33	0.34	0.47	0.20	0.25	0.30	0.40
Albania	0.00***	0.00***	0.03**	0.00***	1.12	1.28***	0.90	0.34***
Argentina	0.00***	0.05*	0.13	0.14	0.94	1.10	1.60	0.53
Armenia	0.06*	0.37	0.19	0.00***	1.27**	1.25	-0.46*	-3.53***
Australia	0.57	0.92	0.49	0.21	1.14	1.05	1.43	1.47
Austria	0.63	0.15	0.01**	0.00***	1.02	1.35*	0.25**	-0.17***
Azerbaijan	0.21	0.50	0.71	0.29	0.84	1.03	1.19	1.68
Bangladesh	0.00***	0.00***	0.01**	0.03**	0.61***	0.50***	0.63**	0.45**
Belarus	0.00***	0.00***	0.27	0.45	1.03	1.31	0.69	0.58
Belgium	0.50	0.46	0.01**	0.01**	0.97	1.11	0.28**	0.08**
Bolivia	0.00***	0.00***	0.03**	0.02**	1.03	0.93	0.97	0.86
Bosnia Herzegovina	0.79	0.02**	0.01**	0.00***	1.01	1.18	0.09*	-1.85***
Brazil	0.00***	0.93	0.00***	0.09*	1.09***	0.96	1.75***	0.86
Bulgaria	0.01**	0.00***	0.46	0.36	1.22	1.32***	1.07	1.14
Canada	0.10	0.01**	0.10	0.00***	1.11**	1.12*	1.15	1.05
Chile	0.66	0.27	0.11	0.06*	0.96	0.83	1.33	0.42
China	0.10	0.12	0.13	0.04**	1.00	0.84	0.54*	0.24**
Colombia	0.23	0.09*	0.14	0.00***	1.01	0.96	0.21*	-0.85***
Costa Rica	0.00***	0.11	0.06*	0.00***	0.95	1.01	-0.20**	-1.21***
Croatia	0.93	0.16	0.44	0.44	1.02	1.29*	0.53	0.67
Cyprus	0.16	0.57	0.09*	0.13	0.87*	0.91	0.61**	0.42
Czech Rep.	0.54	0.12	0.37	0.13	1.05	1.16	0.77	-0.12*
Denmark	0.00***	0.01**	0.21	0.22	1.27***	1.50***	1.61	1.34
Dominican Rep.	0.00***	0.03**	0.00***	0.00***	0.90	0.76	-0.90***	-1.42***
Ecuador	0.00***	0.35	0.50	0.10	0.90	0.89	0.21	-0.59**
Egypt	0.01**	0.14	0.50	0.11	0.98	1.11	0.71	0.19**
El Salvador	0.00***	0.00***	0.00***	0.01**	1.22***	2.95***	0.39***	0.59*
Estonia	0.14	0.13	0.84	0.05*	1.08**	1.31*	0.93	-0.00*
Euro area	0.00***	0.00***	0.30	0.37	1.05***	1.31***	1.70	-0.05
Finland	0.00***	0.02**	0.35	0.28	1.41***	1.78***	1.56	1.72
France	0.57	0.11	0.01**	0.00***	0.98	1.01	0.73	0.53*
Georgia	0.22	0.08*	0.00***	0.00***	0.95	0.32*	-1.18***	-1.73***
Germany	0.32	0.72	0.00***	0.00***	0.91	1.11	0.37	-0.85***
Greece	0.00***	0.01**	0.31	0.29	1.11*	1.22	1.39	1.73
Guatemala	0.00***	0.21	0.00***	0.00***	0.70***	1.06	0.30***	0.49**
Honduras	0.00***	0.01**	0.00***	0.00***	0.90***	1.69***	0.40***	0.21***
Hong Kong SAR	0.09*	0.91	0.00***	0.00***	1.04	0.99	0.03***	-1.49***
Hungary	0.34	0.11	0.23	0.06*	1.27	1.45**	1.11	1.03
India	0.26	0.02**	0.02**	0.00***	1.23	0.52**	-0.00***	-0.46***
Indonesia	0.00***	0.29	0.00***	0.34	0.88***	1.24	0.43**	0.05
Ireland	0.02**	0.00***	0.05*	0.33	1.19**	1.30*	1.08	0.83
Israel	0.04**	0.72	0.04**	0.00***	1.05	0.99	-0.06**	-0.72***
Italy	0.03**	0.00***	0.00***	0.00***	0.99	1.18*	1.11	0.80
Japan	0.22	0.84	0.05*	0.01**	0.96	0.95	0.67	0.04**
Kazakhstan	0.15	0.05*	0.08*	0.01**	0.93	0.80	0.48**	-0.14***
Korea	0.97	0.81	0.23	0.25	0.99	0.97	0.06	-0.04
Latvia	0.06*	0.03**	0.91	0.11	1.08*	1.26**	1.17	0.25
Lithuania	0.57	0.06*	0.77	0.00***	0.97	1.37**	0.80	0.19*
Macedonia, FYR	0.26	0.59	0.00***	0.00***	0.86	1.03	-0.24***	-2.15***
Malaysia	0.00***	0.12	0.15	0.06*	1.03	1.17	0.32*	-0.12*
Mexico	0.69	0.00***	0.08*	0.00***	0.99	1.54***	2.86	-0.50**
Moldova	0.17	0.10	0.33	0.03**	1.06	0.96	0.27	-0.33**

Table A14: **(continued).**

	MZ pvalue				beta			
	h=0,m9	h=0,m3	h=1,m9	h=1,m3	h=0,m9	h=0,m3	h=1,m9	h=1,m3
Netherlands	0.33	0.35	0.39	0.19	0.96	1.16	0.97	0.45
New Zealand	0.57	0.96	0.72	0.10	1.01	1.01	1.15	0.52
Nicaragua	0.00***	0.12	0.00***	0.00***	0.93	1.05	0.11***	0.12***
Nigeria	0.88	0.61	0.05*	0.05*	1.00	0.71	0.19**	-0.14**
Norway	0.17	0.48	0.47	0.63	0.85	0.82	1.24	0.86
Pakistan	0.57	0.02**	0.58	0.08*	1.11	0.63	0.57	0.08**
Panama	0.00***	0.00***	0.04**	0.00***	1.19	0.89	0.51	0.05**
Paraguay	0.09*	0.19	0.57	0.23	1.34**	1.60	-0.27	-0.66
Peru	0.00***	0.00***	0.05*	0.00***	1.21***	0.22**	-0.15*	-1.64***
Philippines	0.03**	0.44	0.01**	0.03**	1.11	0.88	0.30**	-0.24**
Poland	0.29	0.37	0.45	0.18	1.17	1.27	0.71	0.41*
Portugal	0.28	0.22	0.04**	0.01**	0.91	0.92	0.80	0.79
Romania	0.05*	0.00***	0.58	0.47	1.15	1.63**	0.89	0.64
Russia	0.56	0.82	0.44	0.48	1.02	0.89	0.45	0.34
Saudi Arabia	0.49	0.35	0.11	0.25	0.88	0.92	0.32**	0.27*
Serbia	0.85	0.07*	0.00***	0.00***	0.96	1.14	-0.05**	-1.32***
Singapore	0.28	0.51	0.31	0.22	1.02	0.95	0.41	-0.50*
Slovak Rep.	0.00***	0.01**	0.32	0.70	1.08	1.29*	0.67	0.64
Slovenia	0.74	0.86	0.39	0.35	1.05	1.16	0.54	0.50
South Africa	0.53	0.00***	0.01**	0.00***	0.96	1.18	0.70	-0.29
Spain	0.95	0.49	0.47	0.31	1.00	1.07	1.04	0.88
Sri Lanka	0.41	0.95	0.82	0.35	1.22	0.92	1.13	0.54
Sweden	0.00***	0.05*	0.21	0.32	1.11***	1.30**	1.57	0.35
Switzerland	0.20	0.68	0.00***	0.00***	1.15*	1.04	-0.81***	-1.74***
Taiwan Prov. of China	0.89	0.05*	0.23	0.11	0.96	0.79**	0.83	0.48
Thailand	0.73	0.43	0.10	0.18	1.04	1.10	0.81	0.19
Turkey	0.05*	0.00***	0.30	0.00***	1.12	1.55***	-1.06	-2.92***
Turkmenistan	0.00***	0.32	0.01**	0.00***	0.69**	0.86	-0.14***	-0.66***
Ukraine	0.25	0.00***	0.57	0.41	1.10*	1.44***	0.93	0.59
United Kingdom	0.40	0.09*	0.15	0.10	1.04	1.22**	1.80	0.81
United States	0.87	0.82	0.68	0.03**	1.02	0.99	1.33	0.21
Uruguay	0.00***	0.00***	0.27	0.04**	1.27***	1.89***	1.70	-0.19
Uzbekistan	0.00***	0.00***	0.00***	0.00***	0.79*	0.78**	0.74**	0.86
Venezuela	0.10	0.94	0.00***	0.05*	1.16	1.07	2.77***	3.32**
Vietnam	0.74	0.38	0.30	0.18	1.05	0.83	0.56	0.36*

Notes:: This table presents results from Mincer-Zarnowitz (MZ) regressions of the actual GDP growth in individual countries on an intercept and the predicted value from Consensus Economics. Under the null of forecast efficiency, the estimated intercept should be zero while the slope coefficient should equal one. For each of the four forecast horizons, the left-most columns report p-values from an F-test of this joint null. The four columns to the right report the estimated slope coefficient on the forecast, with p-values indicating deviations from the null that this coefficient equals one. ***: Significant at the 1% level, **: Significant at the 5% level, *: Significant at the 10% level.

Table A15: **Encompassing tests for GDP growth forecasts: WEO versus Consensus Economics**

	y= WEO forecast error				y=CE forecast error			
	h=0,m9	h=0,m3	h=1,m9	h=1,m3	h=0,F	h=0,S	h=1,F	h=1,S
Encompass Prob	0.18	0.25	0.08	0.08	0.06	0.12	0.10	0.17
Rejection Ratio	0.15	0.24	0.23	0.39	0.26	0.37	0.20	0.30
Albania	-0.07	0.35*	-0.17	-0.28	0.06	0.22***	-0.05	-0.17
Argentina	-0.09	0.06	0.55	-0.51	-0.05	0.11**	0.09	-0.26
Armenia	-0.09	-0.26	-1.57*	-5.18***	0.26***	0.77*	-1.25*	-1.78*
Australia	0.31*	0.04	0.33	0.58	0.12	-0.10	0.34	-0.09
Austria	-0.03	0.11	-0.81**	-1.18***	0.01	0.37***	-0.28	-0.59
Azerbaijan	0.00	-0.11	-0.09	-0.33	-0.13	0.10	0.18	0.42***
Bangladesh	-0.22***	-0.29**	-0.45**	-0.46***	-0.03	-0.19	0.01	0.12
Belarus	0.08	0.18	-0.19	-0.32	0.05	0.43***	0.03	-0.01
Belgium	-0.01	-0.13	-0.70**	-1.07***	-0.00	0.13**	-0.22	-0.33
Bolivia	0.23	0.18	0.03	0.13	0.02	0.09	0.21	0.10
Bosnia Herzegovina	0.05	-0.14	-0.91**	-3.14***	0.00	0.43***	-0.65	-1.04**
Brazil	0.08	-0.07	0.83***	-0.21	0.08**	0.03	0.73***	-0.58
Bulgaria	0.11	0.17*	0.13	0.11	0.16**	0.35***	0.37	0.55
Canada	0.09	0.03	0.00	-0.07	0.11**	0.12*	0.26	-0.17
Chile	-0.03	0.23***	0.31	-0.40	-0.04	0.15	0.34	0.08
China	-0.12	-0.16	-0.50**	-0.62***	0.00	0.00	-0.09	-0.34
Colombia	-0.00	-0.06	-0.70*	-1.86***	0.04	0.12	-0.23	-0.70**
Costa Rica	0.19	0.15	-0.51	-2.24***	-0.00	-0.02	-0.77**	-1.55***
Croatia	-0.03	0.21*	-0.42	-0.48	0.02	0.41***	-0.11	0.17
Cyprus	-0.19***	-0.22***	-0.23*	-0.29	-0.08	-0.13	-0.10	0.12
Czech Rep.	0.14	0.14	-0.14	-1.17*	0.03	0.17	-0.13	-1.00**
Denmark	0.35***	0.20**	0.68	0.29	0.29***	0.42***	0.71	0.85
Dominican Rep.	-0.12	-0.23	-2.08***	-2.01***	-0.01	-0.09	-0.57	-0.72
Ecuador	-0.01	-0.34***	-1.00*	-1.77**	0.06	0.09	0.38	-0.64
Egypt	-0.05	-0.07	-0.22	-0.78**	0.04	0.17***	-0.02	-0.10
El Salvador	0.22***	1.69***	-0.98***	-1.64***	0.23***	1.25***	-0.37***	-0.23**
Estonia	0.06	0.18	-0.10	-0.97*	0.09**	0.35***	0.10	-0.46
Euro area	0.01	0.05	0.49	-1.45	0.05***	0.25***	0.84*	-0.25
Finland	0.26***	0.57**	0.43	0.42	0.41***	0.68***	0.84*	0.53
France	-0.02	-0.09	-0.39	-0.49**	-0.00	0.05	-0.07	-0.12
Georgia	-0.00	-0.77**	-1.97***	-2.90***	0.23*	-0.37	-1.02***	-2.19***
Germany	-0.07*	-0.15*	-0.80	-2.23***	-0.06	0.12	-0.31	-0.76**
Greece	0.09*	0.25**	0.34	0.94**	0.11*	0.24*	0.47**	1.04**
Guatemala	0.04	0.15	-0.66***	-0.39*	-0.43***	0.05	-0.57***	-0.33*
Honduras	-0.00	0.98***	-0.28**	-0.85***	-0.08***	0.81**	-0.73***	-0.62***
Hong Kong SAR	0.02	-0.07	-0.62***	-2.43***	0.05	0.06	-1.07**	-1.46***
Hungary	0.27	0.72**	0.24	0.12	0.26	0.16	-0.08	-0.04
India	-0.13	-0.19	-1.04***	-1.29***	0.27**	-0.05	-0.66**	-1.28***
Indonesia	-0.06***	0.20	-0.28	-0.92	-0.11***	0.20	-0.75**	-0.98
Ireland	0.19***	0.14	0.06	-0.35	0.25**	0.38***	0.47	0.05
Israel	0.05	-0.05	-0.78*	-1.96***	0.10	0.04	-1.04**	-1.06***
Italy	-0.01	0.00	0.04	-0.32	0.00	0.18**	0.33	0.08
Japan	-0.03	-0.10	-0.32	-1.02**	-0.00	-0.02	0.00	-0.75**
Kazakhstan	0.01	-0.19*	-0.33	-1.12**	-0.06	-0.13	-0.53	-1.08***
Korea	-0.03	-0.02	-1.04*	-0.93	-0.01	-0.07	-0.81	-0.51
Latvia	0.07*	0.21*	0.09	-0.54	0.09*	0.32***	0.63	0.85
Lithuania	-0.08	0.19	-0.29	-0.86*	-0.02	0.41***	0.29	-0.58
Macedonia, FYR	-0.23***	-0.11	-1.02***	-3.54***	-0.01	0.56***	-1.12**	-0.88*
Malaysia	0.00	0.09	-0.72*	-1.17**	0.03	0.12	-0.55*	-0.80*
Mexico	-0.01	0.41***	1.75	-1.49*	-0.00	0.48***	2.74*	-0.10

Table A15: **(continued).**

	y= WEO forecast error				y=CE forecast error			
	h=0,m9	h=0,m3	h=1,m9	h=1,m3	h=0,F	h=0,S	h=1,F	h=1,S
Moldova	0.07	0.45***	0.01	-0.60	-0.01	0.68**	-1.24*	-1.53**
Netherlands	-0.02	-0.05	0.00	-0.61	-0.02	0.17**	0.12	-0.10
New Zealand	0.00	-0.02	0.29	-0.66	0.06	-0.06	-0.38	-0.14
Nicaragua	0.15***	0.18	-0.81***	-0.76***	-0.06	0.15	-0.69***	-0.73***
Nigeria	-0.29	-0.74***	-0.93***	-0.93*	0.28**	0.17	-0.16	-0.29
Norway	-0.10	-0.27*	0.57**	0.12	0.03	0.02	0.67**	0.08
Pakistan	0.09	-0.29	-1.06**	-1.32***	0.11	-0.12	-0.03	-0.47
Panama	0.28	0.04	-0.43	-0.96**	0.16	0.00	-0.45	-0.75*
Paraguay	0.28	0.48	-1.32	-1.84	0.35**	0.84***	0.80*	-0.08
Peru	0.17***	-0.19	-1.07*	-2.17***	0.21***	-0.08	-0.79	-3.59***
Philippines	-0.00	-0.18	-0.59*	-1.44**	0.12**	-0.05	-0.48**	-0.96***
Poland	-0.04	0.43	-0.13	-0.38	0.28***	-0.03	-0.17	-0.64**
Portugal	-0.06	-0.18**	-0.15	-0.24	-0.05	-0.00	-0.02	0.09
Romania	0.13	0.53***	0.04	-0.14	0.13	0.71***	0.21	0.40
Russia	0.01	-0.25	-0.55	-0.28	0.04	-0.08	-0.54*	-0.87
Saudi Arabia	-0.19**	-0.20	-0.51*	-0.53	0.01	0.03	0.00	-0.23
Serbia	0.00	0.29	-0.88*	-2.45***	-0.00	0.40**	-1.26***	-1.22***
Singapore	0.05	-0.23	-0.48	-1.41	0.02	-0.06	-0.47	-1.54***
Slovak Rep.	0.09	0.32***	0.02	-0.14	0.09	0.51***	-0.07	-0.18
Slovenia	0.11	0.04	-0.49	-0.39	0.06	0.33	-0.29	-0.07
South Africa	-0.03	0.12	-0.18	-0.95	-0.00	0.27*	0.19	0.04
Spain	0.02	0.04	0.04	-0.19	0.00	0.09	0.13	-0.00
Sri Lanka	0.44	0.08	0.56	0.00	0.25	-0.01	0.37	-0.62*
Sweden	0.11**	0.13	0.66*	-0.87	0.12***	0.28***	0.54	0.10
Switzerland	0.13	-0.08	-1.75***	-3.02***	0.13**	0.17	-0.70	-1.07***
Taiwan of China	-0.04	-0.35**	-0.10	-0.60	-0.01	-0.09	0.02	-0.75
Thailand	0.02	0.06	-0.12	-0.84	0.04	0.09	-0.40	-0.87**
Turkey	0.28*	0.52**	-1.77	-4.01***	0.15*	0.55***	0.42	-1.62*
Turkmenistan	0.06	0.11	0.32	-1.06***	-0.16	-0.20*	0.15	-0.25
Ukraine	0.08*	0.42***	0.59	0.03	0.11*	0.38***	0.17	-1.20
United Kingdom	0.03	0.03	0.77	-0.38	0.04	0.21***	0.97**	0.20
United States	0.00	-0.00	0.31	-1.14*	0.04	0.02	0.51	0.06
Uruguay	0.08	0.77*	0.08	-0.82	0.24***	0.98***	0.20	0.06
Uzbekistan	-0.13**	-0.30***	-0.12	-0.22	-0.05	-0.12	-0.23*	-0.09
Venezuela	0.05	0.05	1.69***	1.85**	0.11	0.11	1.46***	1.32***
Vietnam	-0.08	-0.16	-0.47	-0.66	0.17**	0.02	-0.06	-0.47**

Notes:: This table reports the estimated slope coefficient from an encompassing regression of the WEO forecast error on the CE forecasts (left columns) or from encompassing regressions of the CE forecast error on the WEO forecast (right columns). ***: Significant at the 1% level, **: Significant at the 5% level, *: Significant at the 10% level. Numbers in the first row denote the proportion of countries for which the WEO forecast is a Significant predictor of the CE forecast errors, but not vice versa (first four columns) or for which the CE forecast is a Significant predictor of the WEO forecast errors, but not vice versa (columns 5-8). The number of the second row report ratio of significant beta of each column.

Table A16: **Full-sample (1995-2016) RMSE values for WEO forecasts of inflation in individual countries**

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F	PT
Advanced Economies	0.12	0.31	0.74	0.78	0.80	0.77	0.78	0.84	0.70
Afghanistan	2.72	4.82	6.71	7.03	6.77	6.57	5.41	7.09	0.26
Albania	4.30	3.48	8.66	6.24	9.62	7.67	6.20	3.35	0.05*
Algeria	5.18	2.94	3.74	2.98	3.89	5.78	5.93	5.97	0.45
Angola	951.49	1029.91	1031.06	1031.76	903.56	96.41	97.74	101.77	0.91
Antigua and Barbuda	1.37	1.65	1.70	1.68	1.69	2.04	1.64	2.03	0.55
Argentina	0.95	2.40	10.09	7.95	7.71	7.20	7.55	7.75	0.29
Armenia	2.99	11.91	12.23	34.63	34.61	3.92	3.66	4.29	0.78
Australia	0.44	0.57	0.98	1.10	1.05	1.01	1.03	1.04	0.71
Austria	0.22	0.47	0.83	0.88	0.99	1.02	1.06	1.09	0.98
Azerbaijan	11.31	23.38	71.23	78.00	85.50	8.11	8.19	8.61	0.82
Bahamas, The	0.71	1.00	1.18	1.16	1.34	1.37	1.27	1.56	0.70
Bahrain	1.46	1.66	1.53	1.59	1.92	2.18	1.90	1.51	0.08*
Bangladesh	1.56	2.12	2.64	2.71	2.61	2.93	3.34	3.22	0.77
Barbados	1.92	2.32	2.93	3.08	3.19	3.27	3.38	3.47	0.95
Belarus	11.04	84.39	129.78	146.87	158.37	71.34	81.99	88.66	0.47
Belgium	0.22	0.58	1.13	1.08	1.10	1.16	1.18	1.16	0.57
Belize	1.23	1.55	1.83	1.91	1.99	2.12	2.27	2.46	0.98
Benin	1.57	2.61	2.57	2.53	3.63	3.57	3.61	3.57	0.47
Bhutan	1.31	1.71	2.40	2.31	2.86	3.35	3.56	3.23	0.29
Bolivia	27.15	18.87	28.10	19.34	28.77	28.41	19.29	19.33	0.13
Bosnia Herzegovina	1.67	1.51	2.81	2.62	2.80	2.97	2.99	2.80	0.25
Botswana	1.09	1.56	2.30	2.59	2.90	3.19	3.87	4.77	0.94
Brazil	2.33	3.39	3.52	3.35	63.96	8.75	30.21	41.72	0.47
Bulgaria	11.86	69.99	221.13	228.27	227.93	230.30	231.21	231.25	0.50
Burkina Faso	1.77	2.21	2.84	2.77	2.92	3.04	2.86	2.79	0.13
Burundi	5.81	8.46	9.26	10.04	10.05	11.07	11.42	11.23	0.66
Cabo Verde	1.90	2.59	2.88	2.79	2.84	2.41	2.50	2.67	0.40
Cambodia	3.50	5.02	5.86	5.96	6.13	6.67	6.83	6.98	0.96
Cameroon	1.12	1.45	2.16	2.42	5.57	5.60	5.44	5.72	0.49
Canada	0.24	0.51	0.66	0.71	0.65	0.62	0.64	0.72	0.28
Central African Rep.	2.45	3.17	4.50	4.78	4.83	5.06	5.05	4.94	0.29
Chad	5.09	5.91	5.79	5.82	5.90	6.02	5.87	5.74	0.09*
Chile	0.31	0.86	1.67	1.55	1.60	1.68	1.73	1.82	0.66
China	1.06	1.56	3.31	3.25	3.60	3.64	3.76	3.72	0.80
Colombia	0.56	1.12	1.98	2.41	2.60	3.36	3.55	3.78	0.97
Comoros	1.19	1.55	1.75	1.82	1.95	1.88	1.81	1.80	0.45
Congo, Democratic	112.97	184.41	214.29	231.67	230.83	224.13	214.29	219.14	0.22
Congo, Rep. of	2.59	3.01	2.72	2.76	2.99	2.96	2.85	2.82	0.31
Costa Rica	1.86	3.73	4.16	4.63	4.68	4.65	4.66	4.68	0.88
Croatia	0.67	1.07	1.68	3.01	1.85	2.07	2.19	2.19	0.38
Cyprus	0.51	0.71	1.64	1.42	1.52	1.49	1.72	1.74	0.47
Czech Rep.	0.50	0.87	1.91	2.11	2.11	2.18	2.18	2.17	0.40
Cï¿œte d'Ivoire	2.10	2.24	2.53	2.49	3.22	3.32	3.34	3.62	0.85
Denmark	0.27	0.66	0.82	0.94	0.80	0.83	0.84	0.88	0.67
Djibouti	1.76	1.77	2.41	2.25	2.28	2.45	2.52	2.59	0.47
Dominica	1.42	1.69	1.46	1.61	1.58	1.70	1.76	1.73	0.45
Dominican Rep.	1.38	6.01	9.42	11.69	11.89	11.82	12.11	12.22	0.68
Ecuador	2.24	13.95	15.15	13.54	20.78	23.80	24.27	24.08	0.53
Egypt	0.92	1.18	2.74	3.66	3.60	4.10	4.81	9.44	0.75
El Salvador	1.09	1.71	2.66	2.50	2.79	2.95	2.76	2.41	0.36
EMDE	0.35	0.87	1.80	2.36	1.94	2.33	2.40	5.05	0.46
Equatorial Guinea	2.23	2.71	3.09	3.45	3.56	3.83	3.87	3.65	0.32

Table A16: **(continued).**

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F	PT
Eritrea	6.28	7.76	9.29	9.88	8.14	11.21	11.80	11.57	0.46
Estonia	1.17	1.89	5.47	6.15	6.92	5.25	3.48	3.16	0.47
Ethiopia	3.61	6.66	8.13	10.87	11.10	11.72	11.53	12.45	0.60
Euro area	0.20	0.44	0.89	0.93	1.01	1.04	1.04	1.11	0.56
Fiji	1.12	1.91	1.81	2.16	2.45	2.65	2.84	2.84	0.78
Finland	0.26	0.66	1.08	1.23	1.38	1.39	1.49	1.56	0.88
France	0.18	0.37	0.72	0.79	0.80	0.91	1.01	1.08	0.98
G7	0.12	0.31	0.76	0.80	0.83	0.80	0.80	0.87	0.77
Gabon	1.13	1.96	2.00	2.41	2.48	2.55	2.80	2.95	0.98
Gambia, The	1.81	3.00	3.89	4.25	4.40	4.44	4.39	4.30	0.44
Georgia	2.88	8.30	603.55	33.50	103.48	8.06	5.27	4.16	0.21
Germany	0.17	0.40	0.85	0.95	1.00	0.99	0.97	0.96	0.84
Ghana	7.01	8.67	15.90	16.41	18.36	19.25	19.30	19.56	0.98
Greece	0.33	0.93	1.05	1.11	1.08	1.43	1.56	2.19	0.85
Grenada	1.20	1.77	2.16	2.09	2.25	2.28	2.19	2.20	0.55
Guatemala	0.86	2.00	2.93	2.87	3.36	3.52	3.63	3.69	0.86
Guinea	2.54	5.67	7.88	9.82	10.91	12.03	12.39	13.12	0.90
Guinea-Bissau	8.84	8.97	12.93	12.96	13.30	14.26	15.34	15.25	0.68
Guyana	2.60	3.25	3.91	3.30	3.71	3.94	4.74	5.31	0.64
Haiti	3.08	6.19	6.57	7.64	8.65	9.36	9.62	9.57	0.85
Honduras	3.31	3.77	4.99	5.38	5.40	5.99	6.08	5.92	0.68
Hong Kong SAR	0.69	1.21	2.17	2.95	3.44	4.27	4.56	4.98	0.86
Hungary	1.08	1.00	2.73	4.13	4.59	6.16	7.11	7.11	0.76
Iceland	0.44	1.89	2.43	3.27	3.30	3.44	3.55	3.70	0.97
India	1.64	2.22	2.63	3.42	3.67	4.11	4.15	4.10	0.84
Indonesia	0.90	3.92	11.56	11.61	11.43	12.15	13.12	12.71	0.45
Iran	5.44	7.51	11.34	11.35	12.95	12.69	13.03	12.12	0.63
Iraq	25.18	19.01	24.12	21.38	22.60	23.96	30.29	33.69	0.40
Ireland	0.33	0.64	1.43	1.52	1.53	1.72	1.74	1.70	0.63
Israel	0.71	1.37	1.76	1.77	1.92	2.22	3.13	3.20	0.98
Italy	0.15	0.49	0.97	1.09	1.08	1.08	1.01	1.07	0.71
Jamaica	3.36	3.74	5.29	5.62	5.98	7.39	7.33	7.48	0.80
Japan	0.17	0.37	0.74	0.86	1.17	1.50	1.63	1.72	0.98
Jordan	0.97	1.89	3.34	3.40	4.17	3.78	4.54	4.39	0.69
Kazakhstan	2.62	3.98	25.43	31.75	36.61	8.43	5.13	4.49	0.52
Kenya	3.14	3.90	5.28	5.43	5.22	5.10	5.01	5.15	0.40
Kiribati	3.45	3.37	4.03	3.78	3.59	3.58	3.71	3.53	0.06*
Korea	0.30	0.91	1.46	1.47	1.42	1.50	1.30	1.67	0.49
Kuwait	1.37	1.32	2.09	1.98	2.15	2.19	2.44	2.56	0.59
Kyrgyz Rep.	2.87	7.14	8.96	10.35	12.22	11.28	11.13	10.94	0.98
Lao P.D.R.	17.93	18.00	19.35	19.38	19.17	19.19	18.97	18.01	0.21
Latvia	0.76	1.99	4.64	5.59	6.45	5.06	4.11	4.10	0.43
Lebanon	2.05	2.87	9.19	9.18	12.60	42.39	58.87	71.88	0.68
Lesotho	1.50	1.51	2.70	2.45	2.57	2.42	2.45	2.82	0.34
Liberia	3.68	5.77	5.94	6.61	6.57	5.56	5.59	5.96	0.45
Libya	8.07	9.68	10.41	15.36	9.22	7.85	8.06	6.69	0.11
Lithuania	1.34	2.94	5.85	6.16	7.92	5.61	4.55	4.70	0.71
Luxembourg	0.50	0.64	1.11	1.14	1.39	1.39	1.44	1.31	0.51
Macedonia, FYR	2.15	2.29	3.30	4.04	3.67	2.83	2.79	2.59	0.31
Madagascar	4.75	8.45	8.89	8.76	10.56	11.01	11.03	11.14	0.63
Malawi	7.48	18.22	21.72	22.50	22.61	22.58	22.06	22.39	0.64
Malaysia	0.64	1.12	1.93	1.67	1.81	1.79	1.92	2.15	0.51
Maldives	2.50	3.87	3.64	3.71	4.07	4.47	4.03	3.83	0.32

Table A16: **(continued).**

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F	PT
Mali	3.31	3.64	3.41	3.03	3.62	3.43	3.55	3.90	0.13
Malta	0.62	0.86	1.00	1.02	0.97	1.18	1.24	1.35	0.79
Mauritania	2.05	2.19	3.32	3.22	3.37	3.42	3.46	3.58	0.72
Mauritius	1.11	1.39	2.18	2.35	2.25	2.19	2.38	2.34	0.63
Mexico	0.92	1.85	6.83	8.30	9.63	10.11	10.20	10.05	0.54
Moldova	2.71	7.20	11.04	11.59	11.22	10.73	10.56	10.31	0.38
Mongolia	7.63	7.35	16.50	15.08	15.92	13.15	9.41	6.89	0.50
Morocco	1.17	1.40	1.59	1.75	1.53	1.49	1.53	1.71	0.73
Mozambique	3.17	9.09	12.15	12.37	13.25	13.19	13.13	12.72	0.37
Myanmar	9.19	10.98	13.67	14.44	13.79	15.09	30.04	40.62	0.79
Namibia	2.41	2.73	3.19	3.06	3.15	3.25	2.45	2.41	0.21
Nepal	1.14	1.90	2.42	3.18	2.91	3.24	3.59	3.88	0.67
Netherlands	0.34	0.46	1.21	0.77	1.04	1.10	1.09	0.99	0.16
New Zealand	0.31	0.57	1.01	0.99	1.10	1.08	1.14	1.16	0.87
Nicaragua	2.15	2.97	4.37	4.60	6.42	8.17	12.04	15.35	0.97
Niger	2.08	3.00	2.90	2.80	3.39	3.45	3.42	3.42	0.33
Nigeria	4.30	3.89	12.50	12.56	14.84	16.55	16.87	16.79	0.70
Norway	0.28	0.51	0.82	0.97	0.89	0.98	0.97	1.04	0.74
Oman	1.39	2.21	3.04	2.89	3.14	3.13	3.38	3.66	0.64
Pakistan	0.89	1.44	3.51	4.73	5.15	5.24	5.74	5.75	0.95
Panama	0.70	1.07	1.97	2.17	2.35	2.27	2.15	2.37	0.33
Papua New Guinea	3.28	5.15	6.09	6.23	6.80	6.89	6.75	6.71	0.65
Paraguay	1.88	2.40	3.75	3.83	3.66	3.61	3.72	4.07	0.75
Peru	0.44	0.95	1.70	1.57	1.66	1.59	1.44	1.54	0.12
Philippines	0.62	1.48	2.16	2.30	2.27	2.41	2.56	2.63	0.79
Poland	0.37	1.08	2.39	2.86	4.35	5.09	6.00	5.70	0.54
Portugal	0.22	0.58	1.08	1.25	1.27	1.56	1.71	1.87	0.98
Qatar	2.23	4.19	5.18	5.66	5.82	5.85	5.53	5.43	0.51
Romania	9.87	9.94	32.08	32.23	34.02	35.87	37.11	37.62	0.86
Russia	4.98	11.42	21.38	28.86	40.29	21.00	19.65	20.22	0.98
Rwanda	3.81	4.48	5.79	6.03	6.20	6.55	6.39	6.20	0.48
Samoa	2.17	3.20	3.44	3.29	3.70	3.78	3.90	3.91	0.61
Saudi Arabia	1.27	1.47	2.48	2.39	2.55	2.73	3.10	3.20	0.69
Senegal	0.80	1.36	1.81	1.89	2.25	2.22	2.21	2.28	0.65
Seychelles	4.30	5.66	6.76	9.97	9.39	10.48	10.21	9.83	0.21
Sierra Leone	9.17	9.65	11.16	11.16	11.21	11.55	22.71	31.13	0.98
Singapore	0.67	1.12	1.93	1.95	2.04	2.04	2.02	1.97	0.63
Slovak Rep.	0.46	0.81	1.92	2.23	2.40	3.09	3.45	3.36	0.54
Slovenia	0.52	2.00	2.54	2.91	3.23	3.17	3.05	3.04	0.94
SoTomPrncipe	14.38	18.08	19.53	20.96	21.89	22.53	22.15	21.99	0.62
Solomon Islands	1.84	3.37	3.74	3.57	4.44	5.48	6.14	6.13	0.78
Somalia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25
South Africa	0.87	1.30	2.04	2.23	2.40	2.67	3.01	2.90	0.78
Spain	0.29	0.51	1.17	1.25	1.29	1.30	1.20	1.39	0.70
Sri Lanka	1.25	3.16	5.81	5.98	6.55	6.66	6.83	7.00	0.97
St. Kitts Nevis	2.37	2.90	2.97	3.05	3.21	3.05	2.89	2.81	0.02**
St. Lucia	1.37	2.07	2.40	2.16	2.13	2.17	2.29	2.25	0.20
St. Vincent Grenadines	1.42	2.10	2.61	2.30	2.74	2.75	3.04	3.07	0.51
Sudan	12.47	9.36	16.84	17.30	14.78	17.33	19.46	21.78	0.66
Suriname	13.34	30.28	70.57	88.64	66.77	61.01	60.62	54.52	0.34
Swaziland	1.99	2.49	2.55	3.11	3.02	2.85	2.51	2.48	0.16
Sweden	0.41	1.02	1.16	1.36	1.31	1.34	1.39	1.46	0.70
Switzerland	0.18	0.32	0.89	0.93	0.96	1.08	1.15	1.25	0.95

Table A16: **(continued).**

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F	PT
Syria	3.72	3.64	5.14	4.67	4.95	6.30	6.39	7.38	0.45
Taiwan Prov. of China	0.51	1.02	1.44	1.31	1.43	1.44	1.51	1.57	0.53
Tajikistan	67.77	130.03	113.89	116.14	152.03	95.72	19.07	10.95	0.36
Tanzania	3.03	4.60	7.64	8.77	8.96	9.11	9.17	8.79	0.67
Thailand	0.44	1.22	2.17	2.53	2.30	2.44	2.41	2.46	0.73
Togo	2.43	2.86	3.81	3.65	3.83	4.14	4.23	4.26	0.47
Tonga	3.79	4.70	4.65	4.64	4.81	6.02	6.45	5.23	0.54
Trinidad and Tobago	1.66	2.76	2.56	2.30	2.44	2.86	2.94	3.38	0.49
Tunisia	0.56	0.75	1.15	1.13	1.25	1.41	1.46	1.55	0.78
Turkey	5.18	7.32	22.27	19.25	29.42	34.40	32.49	32.49	0.60
Turkmenistan	167.17	275.11	281.05	298.45	298.53	215.43	20.83	7.80	0.53
Uganda	2.99	3.99	4.05	4.09	4.82	4.97	7.79	9.99	0.99
Ukraine	10.40	6.02	46.41	54.05	74.47	20.50	12.87	13.61	0.71
United Arab Emirates	1.17	2.32	3.38	3.28	3.78	4.10	4.16	3.98	0.41
United Kingdom	0.34	0.49	0.91	1.12	1.06	0.96	0.98	1.01	0.47
United States	0.20	0.49	1.00	0.98	1.02	1.01	0.99	1.04	0.72
Uruguay	2.32	3.65	7.55	6.66	8.74	10.83	10.30	9.38	0.48
Uzbekistan	9.48	36.00	31.49	55.42	60.06	15.69	15.26	13.41	0.76
Vanuatu	1.50	1.57	1.57	1.55	1.47	1.45	1.51	1.75	0.63
Venezuela	47.91	49.23	21.26	44.73	51.59	58.14	58.11	59.56	0.49
Vietnam	1.66	3.63	5.50	5.39	15.29	22.13	27.55	31.63	0.72
World	0.26	0.36	0.79	0.90	0.96	0.95	1.00	1.10	0.58
Yemen	4.57	9.85	10.90	10.47	15.76	19.62	20.65	21.49	0.22
Zambia	3.91	9.24	11.60	12.87	14.38	15.93	16.11	15.77	0.63
Zimbabwe	1248.51	1695.13	1392.13	2629.23	2956.73	2776.61	2440.35	2354.55	0.33

Notes:: This table reports full-sample estimates of RMSE values across a variety of forecast horizons ordered in declining order from current year fall and spring forecasts (h=0,F and h = 0,S) to next-year forecasts (h = 1,F and h = 1,S) and forecasts 2, 3, 4 and 5 years ahead (h=2,F, h = 3,F, h = 4,F, and h = 5,F). The Patton-Timmermann (PT) test listed in the last column provides the p-value for the null hypothesis of a weakly increasing term structure of RMSE values as the forecast horizon grows. Small p-values indicate that the null is rejected.

Table A17: **Comparisons of sub-sample RMSE values for WEO inflation forecasts in individual countries: 1990-2003 versus 2004-2016**

	1990-2003				2004-2016			
	h=0,F	h=0,S	h=1,F	h=1,S	h=0,F	h=0,S	h=1,F	h=1,S
Advanced Economies	0.11	0.26	0.35	0.49	0.13	0.33	0.92	0.94
Afghanistan	23.54	30.59	20.26	25.08	3.54	6.28	8.73	9.15
Albania	9.61	7.76	12.87	9.27	0.35	0.58	0.91	0.89
Algeria	8.87	9.55	6.03	7.30	1.30	1.72	2.00	1.91
Angola	1419.86	1535.54	1612.01	1613.08	3.55	4.01	7.00	10.20
Antigua and Barbuda	0.80	0.96	1.00	1.25	1.68	1.94	2.00	1.82
Argentina	121.46	571.89	38.46	37.13	0.78	1.30	2.87	4.09
Armenia	1117.54	1939.01	1662.94	1663.64	1.37	2.09	2.65	2.81
Australia	0.71	1.36	1.60	1.80	0.21	0.52	1.04	0.97
Austria	0.36	0.47	0.56	0.83	0.21	0.45	0.95	0.95
Azerbaijan	130.46	361.98	514.43	534.85	1.50	2.59	6.95	6.92
Bahamas, The	1.15	1.23	1.28	1.21	0.53	0.94	1.02	1.00
Bahrain	1.30	1.41	1.38	1.54	1.42	1.60	1.44	1.41
Bangladesh	1.98	2.62	3.00	3.17	0.96	1.47	2.17	2.21
Barbados	2.16	2.00	2.29	2.42	1.72	2.42	3.16	3.39
Belarus	187.57	398.51	697.66	714.34	3.52	11.81	14.40	19.77
Belgium	0.24	0.52	0.71	0.71	0.20	0.60	1.32	1.24
Belize	1.42	1.46	1.46	1.45	1.13	1.63	1.97	2.11
Benin	3.68	4.48	10.19	10.25	1.57	2.33	2.88	2.58
Bhutan	1.25	1.25	1.49	1.49	1.33	1.95	2.84	2.70
Bolivia	34.22	23.89	36.64	25.06	0.48	1.38	3.11	4.63
Bosnia Herzegovina	2.26	1.29	2.11	1.83	1.15	1.58	3.04	2.77
Botswana	1.69	2.48	2.56	2.56	0.91	1.78	2.84	3.23
Brazil	211.42	588.94	636.90	864.91	0.14	0.53	1.44	1.74
Brunei Darussalam	0.47	0.47	2.88	2.88	0.91	1.00	0.98	1.04
Bulgaria	18.04	104.57	313.56	311.08	0.50	1.31	2.69	3.32
Burkina Faso	2.75	2.64	6.77	6.61	1.60	2.38	3.28	3.16
Burundi	7.15	10.40	10.92	11.80	2.52	4.46	6.25	6.69
Cabo Verde	2.37	2.39	2.59	2.54	1.30	2.65	3.04	2.81
Cambodia	48.64	48.64	50.49	50.49	1.75	4.92	6.24	6.43
Cameroon	1.31	1.63	4.95	4.77	1.09	1.31	1.51	1.55
Canada	0.28	0.52	0.69	0.88	0.14	0.43	0.73	0.77
Central African Rep.	3.73	3.48	7.67	7.88	2.00	3.57	3.41	4.01
Chad	4.88	5.07	11.83	11.92	4.53	5.90	5.66	5.65
Chile	1.07	2.31	1.84	3.68	0.21	1.03	2.07	1.99
China	3.00	4.60	5.51	6.36	0.43	0.92	2.24	2.26
Colombia	2.64	2.79	4.36	5.14	0.27	0.92	1.64	1.84
Comoros	1.20	3.01	6.07	6.28	1.10	1.47	1.83	1.95
Congo, Democratic	4858.79	6240.20	6538.69	6803.23	5.75	7.61	12.36	12.95
Congo, Rep. of	5.23	5.48	15.39	15.28	2.11	2.35	1.36	1.51
Costa Rica	4.07	5.43	5.77	6.36	1.03	2.18	2.92	2.90
Croatia	0.75	41.47	1.66	4.31	0.57	0.85	1.69	1.56
Cyprus	0.77	0.77	1.75	1.42	0.34	0.73	1.63	1.62
Czech Rep.	0.75	1.19	2.62	2.84	0.24	0.44	1.20	1.40
Cï¿œte d'Ivoire	3.27	3.51	7.57	7.79	1.52	1.67	2.09	1.74
Denmark	0.34	0.51	0.55	0.69	0.24	0.77	0.98	1.16
Djibouti	1.68	1.19	1.26	1.29	1.73	2.09	2.97	2.74
Dominica	2.73	2.71	1.07	1.04	1.65	2.06	1.70	1.90
Dominican Rep.	12.20	12.82	14.35	14.48	1.29	6.63	10.22	13.52
EMDELOW					0.34	0.71	1.22	2.06
Ecuador	8.60	19.43	22.59	20.69	0.32	1.62	1.96	2.07

Table A17: **(continued).**

	1990-2003				2004-2016			
	h=0,F	h=0,S	h=1,F	h=1,S	h=0,F	h=0,S	h=1,F	h=1,S
Egypt	1.47	5.19	3.22	4.58	1.07	1.37	3.29	4.52
El Salvador	1.72	2.61	4.28	3.94	0.85	1.41	2.71	2.44
EMDE	5.82	26.57	10.81	12.67	0.36	0.66	1.18	1.58
Equatorial Guinea	3.42	3.86	11.28	11.40	1.90	2.05	2.11	2.41
Eritrea	3.59	5.46	8.67	11.39	7.33	8.61	9.56	9.23
Estonia	2.02	17.29	13.37	16.21	0.26	1.20	2.48	2.99
Ethiopia	4.30	7.17	8.62	8.50	4.21	6.80	7.92	12.35
Euro area	0.35	0.65	0.87	0.79	0.12	0.35	0.90	0.96
Fiji	2.39	1.91	1.72	1.56	1.38	2.43	2.11	2.61
Finland	0.34	0.87	1.25	1.48	0.23	0.55	1.14	1.21
France	0.25	0.33	0.61	0.69	0.13	0.37	0.78	0.82
G7	0.11	0.24	0.39	0.50	0.14	0.34	0.94	0.95
Gabon	3.49	3.53	9.91	9.91	1.13	2.30	2.38	2.95
Gambia, The	2.10	3.73	4.75	4.74	1.13	1.66	2.37	3.24
Georgia	1013.51	2025.67	2495.07	2329.47	0.72	2.38	3.56	4.34
Germany	0.34	0.54	0.80	0.94	0.14	0.35	0.87	1.03
Ghana	11.88	13.30	21.66	22.01	1.09	3.37	4.80	6.12
Greece	0.45	3.18	3.04	5.85	0.36	1.07	1.17	1.24
Grenada	1.36	1.47	1.21	1.24	1.13	1.96	2.57	2.45
Guatemala	2.72	3.61	4.66	4.57	0.56	1.89	2.85	2.90
Guinea	2.74	3.27	3.47	3.52	2.62	6.84	9.83	12.47
Guinea-Bissau	24.29	26.47	29.66	29.69	1.34	2.92	3.45	3.07
Guyana	22.31	22.29	23.18	23.12	1.17	2.73	3.68	3.81
Haiti	11.98	14.28	16.82	16.90	0.45	1.92	4.01	6.24
Honduras	5.62	6.09	7.87	8.50	0.87	0.95	1.80	2.23
Hong Kong SAR	2.87	2.66	3.46	3.80	0.55	0.40	1.53	1.74
Hungary	3.04	6.03	7.35	10.55	0.34	0.89	1.76	2.46
Iceland	0.45	1.12	1.47	1.58	0.40	2.23	2.91	4.04
India	2.10	2.95	3.24	3.61	1.15	1.95	2.40	3.90
Indonesia	1.20	4.89	14.84	14.90	0.71	1.56	2.79	2.98
Iran	10.50	11.20	14.37	13.36	3.61	4.95	9.40	9.11
Iraq	32.40	28.23	36.93	35.17	10.10	8.48	10.24	9.56
Ireland	0.37	0.73	1.24	1.24	0.31	0.59	1.49	1.62
Israel	1.44	2.72	3.19	4.25	0.29	0.89	1.34	1.61
Italy	0.14	0.51	0.93	1.22	0.17	0.53	0.91	0.94
Jamaica	20.26	20.23	20.35	20.35	2.22	3.24	5.15	5.70
Japan	0.20	0.43	0.67	1.04	0.16	0.38	0.85	0.90
Jordan	3.11	3.28	3.61	3.58	0.58	1.89	4.10	4.21
Kazakhstan	291.55	605.49	586.19	591.59	0.77	1.31	3.44	4.12
Kenya	7.22	13.42	15.06	14.75	3.70	4.47	5.53	6.23
Kiribati	2.13	2.28	2.29	2.30	4.02	3.87	4.82	4.48
Korea	0.58	1.47	1.97	2.36	0.19	0.71	1.11	1.28
Kosovo					1.01	1.26	1.92	2.52
Kuwait	10.00	10.02	10.23	8.49	1.21	1.63	2.65	2.48
Kyrgyz Rep.	175.71	233.43	74.47	84.20	1.65	3.37	6.92	7.14
Lao P.D.R.	22.45	22.55	25.07	25.07	1.63	1.44	2.64	2.96
Latvia	2.31	5.20	10.45	11.00	0.46	1.56	3.51	4.15
Lebanon	41.65	41.68	61.02	61.03	1.63	2.66	3.81	3.60
Lesotho	1.53	2.00	2.79	2.67	1.53	1.22	2.54	2.14
Liberia	2.93	4.40	4.56	4.56	3.69	5.97	6.24	7.29
Libya	10.58	11.61	12.84	18.97	5.36	7.22	7.49	8.26
Lithuania	3.61	52.67	14.28	18.52	0.31	1.34	2.66	3.01

Table A17: **(continued).**

	1990-2003				2004-2016			
	h=0,F	h=0,S	h=1,F	h=1,S	h=0,F	h=0,S	h=1,F	h=1,S
Luxembourg	0.70	0.77	1.01	0.99	0.22	0.54	1.18	1.23
Macao SAR					0.21	0.61		
Macedonia, FYR	4.38	5.61	4.27	5.58	0.86	1.40	2.40	2.46
Madagascar	8.13	11.48	14.00	13.82	2.47	4.48	5.13	5.24
Malawi	11.97	24.05	28.74	28.76	3.14	4.72	7.47	9.56
Malaysia	0.93	1.15	1.91	1.81	0.39	1.00	1.69	1.31
Maldives	3.29	4.98	4.88	4.82	2.46	3.32	3.50	3.94
Mali	3.92	4.06	9.06	9.00	2.73	3.22	3.66	3.13
Malta	1.07	1.23	1.13	1.03	0.45	0.84	1.15	1.08
Marshall Islands	1.83	1.92	0.86	1.03	1.60	1.28	2.74	2.74
Mauritania	2.36	2.48	2.53	2.64	2.10	2.21	3.95	3.77
Mauritius	2.31	2.94	2.77	2.29	1.28	1.68	2.64	2.68
Mexico	1.34	3.49	8.95	11.14	0.17	0.48	0.76	1.05
Micronesia	0.28	0.40	0.31	0.82	1.26	1.26	2.67	2.71
Moldova	66.41	135.33	30.88	30.29	1.00	1.98	4.33	3.99
Mongolia	17.75	26.02	26.55	24.81	1.65	5.96	7.63	7.18
Montenegro, Rep. of					0.35	1.75	1.92	1.36
Morocco	1.61	1.50	1.89	2.25	0.76	1.26	1.38	1.30
Mozambique	16.58	19.28	21.92	22.13	2.35	4.90	5.75	5.74
Myanmar	14.72	20.97	22.41	27.23	6.82	10.39	13.85	15.11
Namibia	3.36	3.79	4.35	4.13	1.32	1.46	2.02	2.01
Nepal	3.58	3.92	4.08	4.19	0.30	1.29	2.29	3.54
Netherlands	0.32	0.52	0.76	0.78	0.39	0.40	1.43	0.77
New Zealand	0.45	0.68	0.71	0.61	0.36	0.55	1.20	1.18
Nicaragua	43.26	43.28	799.03	799.03	1.93	3.01	4.88	5.21
Niger	1.60	1.61	9.50	9.50	2.43	3.73	3.49	3.34
Nigeria	9.02	12.63	26.83	27.81	0.95	2.34	3.50	3.31
Norway	0.32	0.59	0.88	0.95	0.25	0.54	0.78	1.04
Oman	2.26	2.48	2.77	2.42	1.08	2.46	3.45	3.45
Pakistan	1.67	2.01	4.23	3.73	0.82	1.61	2.84	5.43
Palau					1.85	2.51	2.33	3.03
Panama	1.00	1.12	1.07	1.07	0.36	0.99	2.38	2.66
Papua New Guinea	3.34	5.77	7.21	7.50	2.65	3.18	3.34	3.14
Paraguay	5.60	5.92	6.63	6.64	0.96	1.92	3.65	3.77
Peru	177.79	177.85	50.31	50.32	0.21	0.85	1.33	1.40
Philippines	1.06	1.51	3.39	4.04	0.45	1.60	2.30	2.17
Poland	61.67	62.03	17.76	17.68	0.22	0.71	1.38	1.53
Portugal	0.30	0.73	0.84	1.52	0.26	0.63	1.16	1.27
Puerto Rico					0.09	0.29		
Qatar	1.26	1.22	1.30	1.30	2.66	5.33	6.65	7.28
Romania	16.75	54.38	97.44	109.78	0.50	1.02	1.74	2.10
Russia	28.70	63.14	57.45	76.89	0.39	1.34	3.43	3.96
Rwanda	16.92	17.07	17.68	18.00	2.46	3.53	4.91	5.13
Samoa	5.15	5.35	4.92	4.59	1.81	3.27	3.93	3.82
San Marino					0.16	0.29	0.78	0.33
Saudi Arabia	1.83	1.81	2.22	2.11	1.07	1.31	2.71	2.56
Senegal	2.72	2.53	8.49	8.44	0.46	1.54	2.14	2.27
Serbia					0.96	1.73	3.04	3.41
Seychelles	4.68	4.74	4.93	4.96	2.85	5.53	7.32	12.01
Sierra Leone	12.88	16.46	21.82	22.35	1.48	3.64	5.80	6.02
Singapore	0.87	1.07	1.22	1.24	0.58	1.14	2.25	2.27
Slovak Rep.	0.59	0.98	2.06	2.79	0.35	0.64	1.82	1.74

Table A17: **(continued).**

	1990-2003				2004-2016			
	h=0,F	h=0,S	h=1,F	h=1,S	h=0,F	h=0,S	h=1,F	h=1,S
Slovenia	0.90	3.59	3.64	4.21	0.29	0.64	1.32	1.42
SoTomPrncipe	21.06	24.99	27.63	29.26	1.58	4.39	5.68	6.78
Solomon Islands	3.57	4.08	4.53	4.08	1.82	3.77	4.06	3.44
Somalia	0.00	19.29	0.00	10.91	0.00	0.00	0.00	0.00
South Africa	1.08	4.51	2.08	4.38	0.59	1.18	2.07	2.44
South Sudan					55.94	119.57	260.01	374.84
Spain	0.37	0.57	0.84	0.97	0.25	0.39	1.32	1.40
Sri Lanka	1.57	2.83	4.22	5.11	1.35	3.47	6.57	6.20
St. Kitts Nevis	1.88	2.32	2.44	2.60	2.44	2.96	3.06	3.10
St. Lucia	1.38	1.64	1.73	1.58	1.47	2.31	2.79	2.53
St. Vincent Grenadines	1.44	1.51	1.47	1.39	1.32	2.37	3.14	2.76
Sudan	17.89	30.85	26.09	38.80	2.97	7.14	8.89	9.90
Suriname	95.26	101.30	133.14	151.81	4.15	6.17	15.39	15.87
Swaziland	2.62	2.90	2.42	3.56	1.14	1.89	2.59	2.95
Sweden	0.48	1.64	1.30	1.61	0.21	0.86	1.04	1.24
Switzerland	0.37	0.59	0.94	1.07	0.18	0.28	0.95	1.05
Syria	4.65	3.62	5.22	4.43	3.90	4.11	5.55	4.96
Taiwan Prov. of China	0.80	1.09	1.26	1.22	0.52	0.97	1.41	1.20
Tajikistan	735.99	752.54	199.39	202.22	2.01	3.02	4.95	4.86
Tanzania	7.42	9.73	12.85	13.91	1.94	2.36	4.01	4.44
Thailand	0.67	1.69	1.88	2.77	0.21	0.98	2.17	2.15
Timor-Leste					2.09	3.84	4.98	5.28
Togo	11.59	10.66	11.35	11.31	1.96	2.43	2.54	2.47
Tonga	4.54	4.57	4.36	4.43	2.70	4.62	4.79	4.79
Trinidad and Tobago	3.41	3.58	3.20	3.22	1.96	3.52	3.26	2.88
Tunisia	0.96	1.08	1.10	1.00	0.40	0.59	1.24	1.29
Turkey	7.71	14.92	32.02	29.11	0.45	1.63	2.49	3.07
Turkmenistan	819.53	1124.27	922.01	933.13	1.48	4.00	5.04	4.88
Tuvalu					0.81	0.70	0.65	0.52
Uganda	8.54	4.02	4.11	9.33	3.41	4.62	4.44	4.64
Ukraine	448.55	1165.42	67.63	278.60	0.90	4.87	11.50	6.53
United Arab Emirates	0.86	1.02	1.09	1.09	1.44	2.94	4.32	4.16
United Kingdom	0.48	0.69	0.58	0.68	0.15	0.47	1.14	1.42
United States	0.17	0.42	0.59	0.65	0.23	0.55	1.19	1.14
Uruguay	20.21	21.66	20.99	21.91	0.47	1.08	3.29	3.87
Uzbekistan	29.87	420.25	417.63	455.70	2.70	2.36	4.75	4.10
Vanuatu	1.74	1.53	1.40	1.52	1.06	1.58	1.60	1.64
Venezuela	2.55	7.70	17.56	24.96	62.30	63.74	24.12	54.61
Vietnam	24.91	25.08	31.68	31.67	1.08	3.30	6.26	6.15
World	0.34	0.26	0.43	0.38	0.20	0.41	0.94	1.08
Yemen	7.63	7.63	11.89	11.89	3.51	11.87	10.16	9.37
Zambia	47.29	67.77	70.52	69.25	0.98	2.68	5.27	5.90
Zimbabwe	9.62	18.63	36.49	112.49	1651.60	2285.64	1876.76	3543.16

Notes:: This table shows sub-sample estimates of RMSE values associated with WEO forecasts of inflation in individual countries. We show results for current-year and next-year forecast horizons ordered in declining order from current year fall and spring forecasts (h=0,F and h = 0,S) to next-year forecasts (h = 1,F and h = 1,S).

Table A18: **Theil U-statistics comparing WEO inflation forecasts to the random walk forecast for individual countries**

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F
Advanced Economies	0.01	0.10	0.58	0.67	0.52	0.51	0.44	0.46
Afghanistan	0.04	1.52	1.65	2.42	0.53	0.17	0.06	0.07
Albania	0.04	0.02	0.32	0.16	0.24	0.17	0.18	0.03
Algeria	1.52	1.78	0.73	1.03	0.77	0.87	0.54	0.29
Angola	0.93	1.09	1.09	1.09	0.52	0.00	0.00	0.00
Antigua and Barbuda	0.42	0.57	0.60	0.59	0.76	1.08	0.50	1.08
Argentina	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Armenia	0.37	1.11	0.97	0.97	0.00	0.00	0.00	0.00
Australia	0.13	0.55	0.89	1.03	0.60	0.44	0.38	0.47
Austria	0.10	0.24	0.69	0.92	0.73	0.69	0.58	0.54
Azerbaijan	0.07	0.58	1.09	1.18	0.05	0.00	0.00	0.00
Bahamas, The	0.60	0.89	0.95	0.87	0.89	1.03	0.64	0.75
Bahrain	0.81	0.99	0.84	0.92	0.89	0.90	0.63	0.32
Bangladesh	0.50	0.91	1.33	1.45	0.66	0.84	1.23	0.94
Barbados	0.37	0.47	0.71	0.81	0.65	0.73	0.66	0.79
Belarus	0.09	0.45	1.26	1.32	0.10	0.01	0.02	0.02
Belgium	0.02	0.17	0.64	0.59	0.55	0.69	0.71	0.66
Belize	0.67	0.96	1.16	1.26	1.07	1.07	0.87	0.92
Benin	0.09	0.15	0.63	0.63	0.53	0.51	0.50	0.14
Bhutan	0.55	0.87	1.63	1.50	1.37	1.91	1.49	1.04
Bolivia	1.01	0.49	1.09	0.52	1.06	1.12	0.52	0.51
Bosnia Herzegovina	0.00	0.00	0.00	0.57	0.78	0.50	0.48	0.49
Botswana	0.25	0.63	0.94	1.09	1.07	0.99	1.15	1.55
Brazil	0.00	0.13	0.41	0.77	0.57	0.60	0.50	0.00
Brunei Darussalam	0.51	0.61	0.81	0.91	1.01	1.51	0.94	0.61
Bulgaria	0.00	0.05	0.53	0.52	0.48	0.51	0.50	0.51
Burkina Faso	0.11	0.13	0.58	0.55	0.45	0.46	0.45	0.15
Burundi	0.28	0.64	0.75	0.87	0.64	1.15	1.02	0.80
Cabo Verde	0.39	0.67	0.82	0.73	0.69	0.36	0.44	0.47
Cambodia	0.61	0.61	0.62	0.62	0.59	0.08	0.05	0.03
Cameroon	0.03	0.05	0.32	0.30	0.50	0.48	0.44	0.43
Canada	0.03	0.16	0.35	0.47	0.40	0.32	0.37	0.26
Central African Rep.	0.21	0.29	0.80	0.89	0.53	0.50	0.48	0.36
Chad	0.14	0.19	0.54	0.54	0.45	0.51	0.48	0.18
Chile	0.04	0.26	0.57	1.30	0.17	0.12	0.09	0.08
China	0.27	0.73	1.17	1.50	0.56	0.44	0.38	0.23
Colombia	0.58	0.71	1.68	2.31	1.05	0.74	0.49	0.32
Comoros	0.03	0.15	0.51	0.55	0.47	0.49	0.47	0.12
Congo, Democratic	0.31	0.52	0.53	0.57	0.61	0.59	0.48	0.00
Congo, Republic of	0.07	0.08	0.55	0.54	0.57	0.52	0.50	0.05
Costa Rica	0.54	1.06	1.21	1.42	1.19	1.28	1.08	0.76
Croatia	0.00	0.00	0.00	0.02	0.00	0.00	0.01	0.00
Cyprus	0.14	0.24	1.11	0.86	0.74	0.60	0.60	0.66
Czech Republic	0.02	0.06	0.53	0.65	0.51	0.50	0.40	0.24
Cï¿œte d'Ivoire	0.16	0.18	0.73	0.75	0.57	0.57	0.51	0.26
Denmark	0.11	0.68	1.06	1.53	0.93	0.84	0.60	0.66
Djibouti	0.40	0.39	0.68	0.60	0.60	0.70	0.66	0.55
Dominica	0.27	0.38	0.29	0.34	0.48	0.35	0.32	0.24
Dominican Republic	0.34	0.46	0.65	0.82	0.35	0.37	0.40	0.36
Ecuador	0.13	0.70	0.88	0.74	0.76	0.74	0.64	0.61
Egypt	0.08	0.14	0.70	1.38	1.19	1.17	1.62	1.78
El Salvador	0.18	0.43	1.20	1.00	1.01	0.57	0.30	0.17
EMDE	0.08	2.75	0.46	2.00	0.49	0.39	0.26	0.05

Table A18: **(continued).**

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F
Equatorial Guinea	0.07	0.09	0.59	0.60	0.53	0.42	0.49	0.15
Eritrea	0.55	0.83	1.20	1.33	0.74	1.32	1.05	1.28
Estonia	0.00	0.00	0.76	1.12	0.20	0.08	0.02	0.01
Ethiopia	0.11	0.30	0.42	0.69	0.58	0.79	0.61	0.59
Euro area	0.04	0.19	0.74	0.87	0.63	0.63	0.63	0.78
Fiji	0.58	0.76	0.76	0.94	0.70	0.67	0.50	0.49
Finland	0.07	0.47	1.22	1.56	0.81	0.62	0.58	0.59
France	0.05	0.16	0.62	0.73	0.67	0.64	0.83	0.81
G7	0.01	0.10	0.59	0.66	0.53	0.54	0.46	0.48
Gabon	0.08	0.10	0.58	0.60	0.40	0.51	0.50	0.10
Gambia, The	0.25	0.76	1.21	1.42	0.64	0.51	0.50	0.46
Georgia	0.15	0.60	0.88	0.77	0.00	0.00	0.00	0.00
Germany	0.07	0.23	0.74	1.04	0.60	0.51	0.41	0.35
Ghana	0.42	0.60	1.81	1.92	1.42	1.24	1.18	1.93
Greece	0.05	1.56	1.71	5.74	0.89	0.38	0.17	0.15
Grenada	0.24	0.52	0.76	0.71	0.92	0.79	0.70	0.65
Guatemala	0.43	0.92	1.57	1.54	1.32	1.50	1.18	0.86
Guinea	0.19	0.74	1.38	2.14	1.12	0.94	0.90	1.01
Guinea-Bissau	1.24	1.49	1.74	1.73	0.77	0.57	0.77	0.55
Guyana	0.56	0.57	0.57	0.57	0.05	0.05	0.05	0.06
Haiti	0.85	1.27	1.81	1.96	1.57	1.24	0.89	0.54
Honduras	0.82	0.97	1.55	1.84	1.36	1.63	1.15	0.93
Hong Kong SAR	0.63	0.49	1.48	1.81	0.95	1.02	0.80	0.73
Hungary	0.05	0.22	1.44	2.97	1.02	1.02	1.03	0.80
Iceland	0.03	0.53	0.90	1.62	0.85	0.75	0.67	0.59
India	0.39	0.84	1.12	1.94	1.26	1.28	1.00	0.74
Indonesia	0.00	0.07	0.61	0.62	0.44	0.61	0.70	0.59
Iran	0.72	0.89	1.78	1.58	1.09	0.86	0.92	0.77
Iraq	0.77	0.56	1.01	0.91	0.76	0.71	0.79	0.92
Ireland	0.06	0.23	0.94	1.04	0.59	0.63	0.66	0.66
Israel	0.12	0.60	0.88	1.53	0.75	0.64	0.47	0.40
Italy	0.02	0.24	0.78	1.08	0.49	0.41	0.34	0.39
Jamaica	0.82	0.83	0.81	0.82	0.86	0.46	0.38	0.20
Japan	0.02	0.12	0.50	0.80	0.78	1.15	1.17	1.13
Jordan	0.24	0.35	0.73	0.75	0.74	0.48	0.66	0.67
Kazakhstan	0.23	1.00	1.13	1.16	0.00	0.00	0.00	0.00
Kenya	0.45	1.41	1.70	1.70	0.81	0.69	0.36	0.18
Kiribati	0.54	0.52	0.74	0.65	0.45	0.46	0.38	0.41
Korea	0.05	0.29	0.69	0.97	0.44	0.58	0.42	0.42
Kosovo	0.03	0.14	0.33	0.90	0.28	0.06	0.05	0.13
Kuwait	0.57	0.58	0.58	0.41	0.21	0.10	0.13	0.13
Kyrgyz Republic	0.32	0.57	0.06	0.07	0.00	0.00	0.00	0.00
Lao P.D.R.	0.96	0.97	1.12	1.13	0.78	0.76	0.63	0.57
Latvia	0.00	0.00	0.21	0.24	0.11	0.05	0.02	0.02
Lebanon	0.99	0.99	1.98	1.98	1.75	1.56	1.47	1.48
Lesotho	0.38	0.46	1.19	0.97	0.54	0.43	0.51	0.64
Liberia	0.63	1.56	1.65	2.04	1.02	0.63	0.83	0.99
Libya	1.17	1.53	1.64	3.20	0.85	0.69	0.67	0.40
Lithuania	0.00	0.06	0.01	0.03	0.00	0.00	0.00	0.00
Luxembourg	0.21	0.36	1.01	1.06	1.00	0.88	0.82	0.76
Macedonia, FYR	0.00	0.00	0.11	0.17	0.07	0.04	0.04	0.03
Madagascar	0.43	0.90	1.24	1.21	0.68	0.61	0.62	0.56
Malawi	0.30	1.17	1.61	1.67	0.91	1.06	1.03	0.87

Table A18: **(continued).**

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F
Malaysia	0.20	0.46	1.25	0.96	1.15	1.30	1.01	1.21
Maldives	0.36	0.78	0.75	0.80	0.46	0.50	0.34	0.22
Mali	0.14	0.17	0.59	0.56	0.46	0.43	0.48	0.17
Malta	0.28	0.49	0.59	0.51	0.40	0.71	1.04	0.67
Marshall Islands	0.52	0.48	1.03	1.09	0.98	0.48	0.41	0.04
Mauritania	0.53	0.59	1.14	1.09	0.93	1.06	0.69	0.69
Mauritius	0.37	0.61	0.76	0.64	0.54	0.74	0.58	0.47
Mexico	0.01	0.08	0.89	1.39	0.82	0.81	0.88	0.93
Micronesia	0.47	0.50	1.32	1.54	0.69	0.36	1.19	1.97
Moldova	0.07	0.29	0.02	0.02	0.00	0.00	0.00	0.00
Mongolia	0.27	0.62	0.63	0.55	0.25	0.13	0.05	0.02
Montenegro, Rep. of	0.01	0.28	0.45	0.22	0.41	0.29	0.41	0.26
Morocco	0.60	0.72	1.04	1.28	0.84	0.54	0.61	0.51
Mozambique	0.81	1.20	1.65	1.68	1.21	0.63	0.56	0.32
Myanmar	0.83	1.73	2.07	2.89	1.33	1.87	3.49	5.20
Namibia	0.67	0.85	1.14	1.05	0.79	0.62	0.34	0.43
Nepal	0.43	0.56	0.68	0.94	0.67	0.49	0.57	0.57
Netherlands	0.13	0.22	1.31	0.60	0.50	0.43	0.47	0.46
New Zealand	0.10	0.25	0.65	0.59	0.43	0.46	0.46	0.55
Nicaragua	0.00	0.00	1.12	1.12	1.05	0.52	0.00	0.00
Niger	0.04	0.09	0.57	0.56	0.47	0.53	0.52	0.15
Nigeria	0.28	0.58	2.47	2.64	1.33	0.92	0.58	0.41
Norway	0.05	0.23	0.48	0.68	0.70	0.67	0.47	0.69
Oman	0.32	0.74	1.36	1.23	0.75	0.63	0.57	0.57
Pakistan	0.13	0.27	1.13	1.89	1.34	1.07	0.89	0.71
Panama	0.14	0.30	0.93	1.12	0.91	0.91	0.74	0.79
Papua New Guinea	0.31	0.77	1.07	1.12	0.96	1.14	0.87	0.91
Paraguay	0.89	1.09	1.65	1.68	0.98	1.10	0.67	0.37
Peru	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Philippines	0.06	0.22	0.80	1.01	0.52	0.63	0.55	0.46
Poland	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00
Portugal	0.04	0.22	0.50	0.96	0.40	0.32	0.32	0.32
Qatar	0.23	0.79	1.22	1.45	0.84	0.68	0.54	0.50
Romania	0.05	0.55	1.64	2.08	1.03	0.70	0.49	0.35
Russia	0.01	0.07	0.07	0.14	0.05	0.01	0.00	0.00
Rwanda	0.80	0.83	0.87	0.91	0.65	0.74	0.62	0.14
Samoa	0.26	0.36	0.41	0.37	0.61	0.54	0.64	0.31
Saudi Arabia	0.37	0.41	1.02	0.92	0.91	0.72	0.81	0.72
Senegal	0.05	0.06	0.56	0.55	0.46	0.44	0.45	0.09
Serbia	0.06	0.24	0.74	1.06	0.62	0.27	0.28	0.14
Seychelles	0.16	0.29	0.41	0.89	0.40	0.54	0.58	0.54
Sierra Leone	0.34	0.57	0.96	1.01	1.00	1.10	1.01	0.94
Singapore	0.12	0.32	0.92	0.94	0.71	0.76	0.69	0.50
Slovak Republic	0.01	0.05	0.43	0.58	0.36	0.63	0.87	0.87
Slovenia	0.03	0.49	1.21	1.58	1.01	0.75	0.56	0.48
SoTomPrncipe	1.05	1.51	1.74	1.98	1.64	1.31	0.88	0.68
Solomon Islands	0.50	0.95	1.09	0.84	0.81	1.62	1.56	1.74
Somalia	0.00	0.00	0.00	0.96	0.00	0.00	0.00	0.00
South Africa	0.13	2.24	0.83	2.43	0.65	0.49	0.56	0.65
Spain	0.05	0.15	0.80	0.95	0.68	0.49	0.37	0.50
Sri Lanka	0.07	0.35	1.04	1.09	0.90	0.92	1.10	1.28
St. Kitts Nevis	0.48	0.72	0.76	0.81	0.91	0.64	0.48	0.58
St. Lucia	0.27	0.54	0.71	0.59	0.60	0.73	0.63	0.63

Table A18: **(continued).**

	h=0,F	h=0,S	h=1,F	h=1,S	h=2,F	h=3,F	h=4,F	h=5,F
St. Vincent Grenadines	0.28	0.57	0.85	0.67	0.63	0.79	0.78	0.65
Sudan	0.48	0.81	1.19	2.52	0.63	0.39	0.35	0.30
Suriname	0.90	1.02	1.65	2.14	0.68	0.59	0.56	0.29
Swaziland	0.47	0.68	0.69	1.17	0.63	0.54	0.53	0.62
Sweden	0.04	0.33	0.43	0.64	0.32	0.29	0.24	0.23
Switzerland	0.08	0.13	0.79	1.01	0.72	0.50	0.41	0.43
Syria	0.66	0.49	0.92	0.69	0.62	0.95	0.66	0.75
Taiwan Prov. of China	0.22	0.55	0.88	0.72	0.87	0.85	0.78	0.59
Tajikistan	1.09	1.14	0.10	0.11	0.17	0.05	0.00	0.00
Tanzania	1.84	3.22	5.61	6.61	2.67	1.49	0.91	0.62
Thailand	0.03	0.29	0.64	0.96	0.69	0.63	0.50	0.52
Timor-Leste	0.19	0.65	1.07	1.20	0.61	0.56	0.70	0.82
Togo	0.70	0.60	0.64	0.63	0.49	0.55	0.50	0.14
Tonga	0.88	1.44	1.45	1.41	1.31	1.58	1.34	0.66
Trinidad and Tobago	0.61	1.08	1.00	0.90	0.95	0.80	0.62	0.60
Tunisia	0.25	0.36	0.69	0.66	0.81	0.74	1.01	0.72
Turkey	0.26	0.98	4.19	3.48	3.44	2.77	1.82	1.16
Turkmenistan	0.70	1.32	2.32	2.38	0.22	0.07	0.00	0.00
Tuvalu	0.47	0.35	0.72	0.46	0.15	0.15	0.15	0.19
Uganda	0.55	0.23	0.22	0.67	0.46	0.59	0.53	0.54
Ukraine	0.08	0.57	0.00	0.05	0.00	0.00	0.00	0.00
United Arab Emirates	0.22	0.74	1.51	1.41	0.94	0.75	0.58	0.48
United Kingdom	0.10	0.24	0.66	1.00	0.42	0.24	0.21	0.22
United States	0.02	0.15	0.61	0.59	0.48	0.54	0.49	0.53
Uruguay	0.63	0.83	1.37	1.50	1.76	0.78	0.32	0.15
Uzbekistan	0.00	1.08	1.04	1.24	0.03	0.00	0.00	0.00
Vanuatu	1.29	1.49	1.45	1.60	0.78	0.54	0.63	0.87
Venezuela	1.83	1.94	0.41	1.69	1.11	1.07	0.93	0.98
Vietnam	1.99	2.04	3.10	3.09	1.81	1.88	1.99	1.81
World	0.02	0.04	0.54	0.62	0.59	0.50	0.38	0.39
Yemen	0.15	0.51	0.62	0.57	0.97	0.99	1.16	1.11
Zambia	0.77	1.63	1.69	1.63	0.96	0.67	0.13	0.08
Zimbabwe	0.36	0.64	0.43	0.70	1.65	1.48	1.16	1.01

Notes:: This table reports sample estimates of the Theil U-statistic computed as the ratio of the mean squared error (MSE) of the WEO inflation forecasts relative to the MSE of random walk forecasts. Values are shown for forecast horizons ranging from the current year (h=0,F and h = 0,S) to five years ahead in time (h=5,F). Values below unity suggest that the WEO forecasts are better than the random walk forecast in an absolute and relative sense, while values above unity suggest that the random walk is most accurate.

Table A19: **Biases in current-year forecasts of inflation in individual countries: full-sample and sub-sample results**

	1990-2003		2004-2016		1990-2016	
	h=0,F	h=0,S	h=0,F	h=0,S	h=0,F	h=0,S
Proportion Sign.	0.18	0.21	0.15	0.09	0.13	0.13
Advanced Economies	-0.02	-0.06	-0.02	0.17*	-0.02	0.05
Afghanistan	6.29	11.51	0.50	0.00	3.50	5.97
Albania	-5.23**	-1.30	-0.05	-0.26**	-2.42*	-0.74
Algeria	-1.94	-3.02	-0.56	-0.30	-1.28	-1.71
Angola	683.37	755.16	-1.01	1.76	296.54	329.32
Antigua and Barbuda	-0.34**	-0.29	-0.36	-0.90***	-0.35*	-0.59***
Argentina	32.66	155.53	-0.36*	-0.40	18.90	90.56
Armenia	318.36	808.51	-0.02	-0.38	145.90	370.36
Australia	-0.48***	-0.60	-0.09**	-0.02	-0.29***	-0.32
Austria	-0.16**	-0.00	0.04	0.16	-0.06	0.07
Azerbaijan	46.14	130.17	-0.69**	-1.12*	20.77	59.05
Bahamas, The	-0.29	-0.16	-0.18	-0.07	-0.24	-0.11
Bahrain	-0.48	-0.37	0.18	0.18	-0.16	-0.10
Bangladesh	-0.78*	-0.86	-0.07	0.36	-0.44*	-0.27
Barbados	0.30	0.21	-0.04	0.60	0.13	0.40
Belarus	63.65	195.34	0.40	1.01	29.39	90.08
Belgium	-0.02	0.05	-0.02	0.25*	-0.02	0.15
Belize	-0.77**	-0.86***	-0.50*	-0.04	-0.64***	-0.47
Benin	0.64	1.42	-0.74*	-0.54	-0.02	0.47
Bhutan	-0.34	-0.34	0.16	0.44	-0.09	0.03
Bolivia	1.43	8.16	0.02	-0.11	0.75	4.17
Bosnia Herzegovina	0.10	-0.03	-0.62*	-0.45	-0.37	-0.33
Botswana	0.86***	1.18**	0.13	0.84*	0.51**	1.02***
Brazil	70.71	284.74*	-0.00	0.28**	36.66	147.78*
Brunei Darussalam	-0.38	-0.38	-0.29	-0.39	-0.31	-0.39*
Bulgaria	8.53**	52.27**	-0.10	-0.00	4.37*	26.13*
Burkina Faso	-0.75	-0.95	-0.58*	-0.30	-0.67*	-0.64
Burundi	2.43	5.86**	-0.50	1.93*	1.02	3.97***
Cabo Verde	0.07	0.29	-0.50	-0.21	-0.20	0.05
Cambodia	17.16	17.14	0.44	1.42	9.11	9.57
Cameroon	0.14	-0.27	-0.14	-0.09	0.00	-0.19
Canada	-0.03	0.01	-0.07**	0.18*	-0.05	0.09
Central African Rep.	-0.78	-1.13	-0.10	1.17	-0.45	-0.02
Chad	-0.71	-0.43	-0.94	-0.91	-0.82	-0.66
Chile	0.19	0.36	-0.02	0.22	0.08	0.29
China	-0.56	-0.35	-0.25***	-0.02	-0.41	-0.19
Colombia	0.82	1.16	-0.07	0.16	0.39	0.68
Comoros	-0.03	0.52	-0.10	0.18	-0.06	0.36
Congo, Democratic	1585.57	2351.32	0.62	2.14	822.45	1220.23
Congo, Rep. of	0.16	1.04	-0.49	-0.03	-0.14	0.52
Costa Rica	1.10	1.97	0.12	0.30	0.63	1.17
Croatia	0.05	-12.69	-0.25**	-0.25	-0.12	-5.65
Cyprus	-0.07	-0.02	-0.19***	-0.16	-0.13	-0.08
Czech Rep.	-0.29	-0.46	-0.17***	-0.25**	-0.22**	-0.34**
Cï¿œte d'Ivoire	-0.12	0.06	-0.31	-0.53	-0.21	-0.22
Denmark	-0.12*	-0.26**	-0.11**	-0.02	-0.11***	-0.14
Djibouti	0.88**	0.41	-0.10	0.42	0.40	0.41
Dominica	0.47	0.41	-0.05	-0.28	0.21	0.07
Dominican Rep.	3.00	4.57	-0.55**	1.53	1.29	3.11*
EMDELOW			-0.22	0.65	-0.22	0.65

Table A19: **(continued).**

	1990-2003		2004-2016		1990-2016	
	h=0,F	h=0,S	h=0,F	h=0,S	h=0,F	h=0,S
Ecuador	3.04	6.43*	-0.05	0.37	1.55	3.51*
Egypt	0.15	-0.81	0.42	0.26	0.28	-0.29
El Salvador	0.36	0.41	-0.35	-0.08	0.01	0.17
EMDE	-2.28	-5.61	-0.26***	0.07	-1.31	-2.76
Equatorial Guinea	0.34	0.55	-0.88**	-1.03*	-0.24	-0.20
Eritrea	1.84	3.69***	0.04	0.32	0.67	1.38
Estonia	0.10	5.81	0.05	0.11	0.07	2.72
Ethiopia	-0.61	-0.39	1.02	1.11	0.17	0.33
Euro area	0.24	0.53	-0.00	0.12	0.05	0.22**
Fiji	-0.15	-0.12	-0.00	0.85	-0.08	0.34
Finland	-0.20***	-0.46**	0.04	0.01	-0.08	-0.23
France	-0.05	0.00	-0.03	0.04	-0.04	0.02
G7	-0.01	-0.03	-0.01	0.21**	-0.01	0.09
Gabon	-0.74	-0.60	-0.20	-0.95	-0.48	-0.77
Gambia, The	0.46	1.30	-0.54**	-0.54	-0.02	0.41
Georgia	-48.22	765.92	-0.25	-0.22	-22.24	350.92
Germany	0.01	0.13	0.00	0.15	0.00	0.14
Ghana	6.95***	10.01***	0.67***	2.50***	3.93***	6.39***
Greece	0.08	1.38	-0.06	0.31	0.01	0.86
Grenada	0.02	0.27	-0.54*	-0.09	-0.24	0.10
Guatemala	1.36*	1.93*	0.13	0.58	0.77*	1.28**
Guinea	0.23	0.38	0.97	0.67	0.59	0.52
Guinea-Bissau	11.84*	14.42**	-0.28	-0.35	6.00	7.30*
Guyana	7.14	7.33	-0.23	-0.09	3.59	3.76
Haiti	7.14**	10.75***	-0.22*	0.24	3.60*	5.69***
Honduras	2.34*	3.19**	0.03	-0.10	1.23*	1.60*
Hong Kong SAR	0.26	-0.58	0.12	0.11	0.19	-0.24
Hungary	1.18*	2.72**	-0.11	0.11	0.55	1.46*
Iceland	-0.28**	-0.14	0.00	0.97*	-0.13	0.46
India	0.82*	1.28*	-0.38	0.45	0.24	0.88*
Indonesia	0.08	1.07	0.01	0.09	0.04	0.60
Iran	3.72	3.56	-1.18	-0.10	1.35	1.79
Iraq	10.29	13.87**	1.37	-0.42	6.00	6.99*
Ireland	-0.07	-0.00	-0.09	-0.12	-0.08	-0.06
Israel	-0.64**	-0.63	-0.11*	0.24	-0.39**	-0.21
Italy	-0.00	0.04	0.05	0.16	0.02	0.10
Jamaica	2.88	2.99	0.45	0.60	1.71	1.84
Japan	-0.00	-0.07	0.03	0.03	0.01	-0.02
Jordan	-1.05	-1.09	-0.36***	-0.50	-0.72*	-0.81*
Kazakhstan	104.78	248.38	0.16	-0.05	48.11	113.81
Kenya	1.67	6.70*	-0.44	2.28**	0.65	4.57**
Kiribati	0.52	0.36	-1.23	-0.89	-0.38	-0.31
Korea	-0.24*	-0.25	-0.12***	-0.19	-0.18**	-0.22
Kosovo			0.19	0.04	0.19	0.04
Kuwait	-3.75*	-3.06	0.17	0.20	-1.86	-1.48
Kyrgyz Rep.	51.32	60.34	-0.29	-0.63	23.36	27.31
Lao P.D.R.	10.04*	10.56**	0.17	0.07	5.29*	5.51*
Latvia	0.08	1.71	0.05	0.55	0.06	1.09
Lebanon	-14.33	-14.73	-0.89**	-0.17	-7.86	-7.72
Lesotho	0.05	0.08	-0.59	0.06	-0.25	0.07
Liberia	0.78	1.66	-1.30	-0.27	-0.21	0.73
Libya	-2.98	-4.24	-0.46	1.37	-1.82	-1.65

Table A19: **(continued).**

	1990-2003		2004-2016		1990-2016	
	h=0,F	h=0,S	h=0,F	h=0,S	h=0,F	h=0,S
Lithuania	0.46	17.13	0.13*	0.48	0.28	8.11
Luxembourg	0.16	0.10	-0.00	0.12	0.07	0.11
Macao SAR			-0.21	-0.61	-0.21	-0.61
Macedonia, FYR	-2.06	-2.51	-0.32	-0.51	-1.08*	-1.38*
Madagascar	2.48	5.63*	0.52	1.47	1.54	3.63*
Malawi	6.45**	15.41***	0.50	3.04**	3.58**	9.45***
Malaysia	-0.55***	-0.47	-0.13*	-0.03	-0.35***	-0.26
Maldives	0.09	-0.09	-0.42	0.67	-0.15	0.27
Mali	-1.16	-1.03	-0.32	-0.39	-0.76	-0.72
Malta	-0.12	-0.13	-0.10	-0.12	-0.11	-0.13
Marshall Islands	0.93	1.27**	-1.32***	-0.91***	-0.09	0.27
Mauritania	1.18**	1.34***	-0.77	-0.71	0.24	0.35
Mauritius	-0.32	-0.36	-0.57**	-1.03***	-0.44	-0.69**
Mexico	0.76**	2.36***	0.05	0.06	0.42**	1.25**
Micronesia	-0.11	-0.23	-0.78**	-0.82***	-0.42**	-0.50**
Moldova	4.86	23.59	0.04	0.38	2.25	11.02
Mongolia	-2.93	4.20	-0.28	1.17	-1.49	2.56
Montenegro, Rep. of			-0.19**	0.78	-0.19**	0.78
Morocco	-0.28	-0.22	-0.44***	-0.50	-0.36	-0.35
Mozambique	9.43**	11.96**	0.69	1.58	5.22**	6.96**
Myanmar	0.47	-3.37	-4.05**	-5.38**	-1.70	-4.34
Namibia	1.13	1.15	-0.73***	-0.67*	0.07	0.12
Nepal	1.58**	1.44	-0.05	0.14	0.79*	0.81
Netherlands	0.00	0.19	-0.16*	0.08	-0.07	0.14*
New Zealand	0.02	0.01	-0.12	-0.13	-0.05	-0.06
Nicaragua	-11.83	-11.64	0.08	0.54	-6.09	-5.77
Niger	-0.66	-0.67	-0.30	-0.85	-0.49	-0.76
Nigeria	1.63	5.08	0.20	0.42	0.94	2.83
Norway	-0.20***	-0.28*	0.03	0.01	-0.08	-0.13
Oman	-0.53	-0.95	0.00	0.35	-0.27	-0.32
Pakistan	0.55	0.77	0.15	0.42	0.36	0.60
Palau			-0.55	-1.56	-0.55	-1.56
Panama	-0.74***	-0.77***	-0.11	0.09	-0.44***	-0.35
Papua New Guinea	1.19	3.68***	-0.85	-1.40*	0.20	1.23
Paraguay	2.81**	3.43**	-0.14	-0.45	1.38*	1.56
Peru	62.42	62.93	0.02	0.40**	32.37	32.82
Philippines	0.07	0.29	-0.20***	0.19	-0.05	0.24
Poland	17.93	16.20	-0.00	-0.11	9.29	8.34
Portugal	0.07	0.08	-0.05	0.03	0.01	0.06
Puerto Rico			-0.09	0.29	-0.09	0.29
Qatar	-0.79***	-0.61***	0.28	0.28	-0.27	-0.18
Romania	4.16	23.03*	-0.10	-0.15	2.11	11.86
Russia	3.02	12.46	0.03	-0.02	1.40	5.70
Rwanda	5.02	4.99	0.72	1.25	2.95	3.19
Samoa	1.54	1.62	0.62	0.98	1.10*	1.31*
San Marino			-0.06	-0.29	-0.06	-0.29
Saudi Arabia	-0.73*	-0.86**	-0.36	0.10	-0.56**	-0.39
Senegal	-1.80***	-1.65***	-0.19*	-0.52	-1.03***	-1.11***
Serbia			0.10	-0.15	0.10	-0.15
Seychelles	-1.55	-1.71	0.26	-1.50	-0.67	-1.61**
Sierra Leone	1.93	3.40	0.30	1.78**	1.14	2.62
Singapore	-0.27	-0.35	0.04	0.06	-0.11	-0.15

Table A19: **(continued).**

	1990-2003		2004-2016		1990-2016	
	h=0,F	h=0,S	h=0,F	h=0,S	h=0,F	h=0,S
Slovak Rep.	-0.09	0.20	-0.08	-0.18	-0.08	-0.01
Slovenia	0.50**	2.34**	0.03	0.18	0.23*	1.12**
SoTomPrncipe	11.06**	16.34***	0.87**	2.28***	6.16**	9.57***
Solomon Islands	0.29	1.94**	-0.41	0.90	-0.04	1.44**
Somalia	0.00	5.15	0.00	0.00	0.00	4.24
South Africa	-0.26	-1.29	-0.33**	0.08	-0.29**	-0.62
South Sudan			-27.65	95.62	-27.65	95.62
Spain	-0.03	0.28**	0.03	0.17*	0.00	0.23***
Sri Lanka	0.82**	1.42***	-0.66***	0.36	0.10	0.91*
St. Kitts Nevis	0.32	0.01	0.43	0.41	0.37	0.20
St. Lucia	0.22	0.33	-0.38	-0.19	-0.07	0.08
St. Vincent Grenadines	-0.37	-0.54	-0.13	0.14	-0.26	-0.21
Sudan	0.73	16.36**	1.11	4.75***	0.91	10.77**
Suriname	33.41	31.22	-1.47	1.48	16.61	16.90
Swaziland	0.14	0.05	-0.30	-0.07	-0.07	-0.00
Sweden	-0.20**	-0.45	-0.06	0.04	-0.13**	-0.21
Switzerland	-0.02	-0.02	-0.10**	0.02	-0.06	-0.00
Syria	-1.22	-0.15	0.11	0.87	-0.78	0.18
Taiwan Prov. of China	-0.31***	-0.60***	-0.21*	0.12	-0.26***	-0.25
Tajikistan	100.25	90.55	-0.60	-1.22	45.62	40.84
Tanzania	4.16**	6.60***	0.99*	1.19**	2.64**	3.99***
Thailand	-0.46***	-0.75*	-0.01	0.00	-0.24**	-0.39
Timor-Leste			-0.10	-0.11	-0.10	-0.11
Togo	2.51	1.74	-0.00	-0.04	1.30	0.88
Tonga	0.23	2.10	-0.98*	-1.46	-0.42	0.08
Trinidad and Tobago	1.37	1.99**	-0.32	0.88	0.55	1.46**
Tunisia	-0.41**	-0.42*	-0.01	0.16	-0.22*	-0.13
Turkey	4.23**	6.17	-0.13	0.18	2.13*	3.29
Turkmenistan	385.48	597.87*	-0.48*	-1.27	176.42	273.33
Tuvalu			-0.55***	-0.20	-0.55***	-0.20
Uganda	1.59	0.22	0.85	0.64	1.23	0.42
Ukraine	128.85	301.61	-0.33	0.94	58.87	144.74
United Arab Emirates	-0.25	-0.46*	0.11	1.04	-0.07	0.26
United Kingdom	-0.01	-0.00	-0.02	0.21	-0.01	0.10
United States	-0.02	0.01	-0.02	0.31***	-0.02	0.16*
Uruguay	7.90	12.04**	0.06	0.53**	4.13	6.49**
Uzbekistan	11.76	187.56	-0.34	0.84	5.20	86.42
Vanuatu	-0.81**	-0.75**	-0.53*	-0.76*	-0.67***	-0.75***
Venezuela	0.97	3.59**	-20.05	-16.04	-9.15	-5.86
Vietnam	-9.99	-9.95	-0.07	0.85	-5.21	-4.75
World	-0.18*	-0.08	-0.13***	0.14	-0.15***	0.05
Yemen	0.91	0.92	0.21	0.32	0.51	0.58
Zambia	17.71*	35.60**	0.10	0.53	9.23	18.72*
Zimbabwe	3.34*	9.07**	-489.77	680.73	-224.25	304.60

Notes:: This table reports estimates of biases in the WEO current-year forecasts of inflation in individual countries computed as the sample mean difference between the outcome and the predicted value. Positive values suggest that the forecasts tend to under-predict the outcome while negative values suggest that the forecast on average over-predict actual values. The table shows results for the two short horizons (h = 0, Spring and Fall) for the 1990-2003 and 2004-2016 subsamples as well as for the full sample, 1990-2016. The first row, Proportion Sign.if. is the proportion of countries with Significant bias in forecasts at the 5% Sign.ificance level. Stars indicate if the null of a zero bias is rejected against a two-sided alternative of a non-zero bias. ***: Significant at the 1% level, **: Significant at the 5% level, *: Significant at the 10% level.

Table A20: **Biases in next-year forecasts of inflation in individual countries: full-sample and subsample results**

	1990-2003		2004-2016		1990-2016	
	h=1,F	h=1,S	h=1,F	h=1,S	h=1,F	h=1,S
Proportion Sign.	0.22	0.25	0.11	0.11	0.16	0.18
Advanced Economies	-0.15	-0.26**	0.01	0.05	-0.06	-0.09
Afghanistan	5.62	9.72	0.28	1.02	2.95	5.37
Albania	-2.17	2.25	-0.43*	-0.43*	-1.19	0.73
Algeria	1.85	3.15	-0.04	-0.03	0.90	1.56
Angola	811.02	829.81	4.02**	6.25***	334.16	343.16
Antigua and Barbuda	-0.49*	-0.64*	-0.52	-0.23	-0.51*	-0.43
Argentina	9.93	8.72	-0.57	-1.43	5.37	4.30
Armenia	530.40	541.54	0.47	0.15	230.87	235.54
Australia	-0.79	-0.65	-0.16	-0.04	-0.47*	-0.35
Austria	-0.13	0.05	0.17	0.24	0.02	0.14
Azerbaijan	187.40	196.27	-0.45	-0.13	81.22	85.26
Bahamas, The	-0.43	-0.50	-0.19	0.01	-0.31	-0.24
Bahrain	-0.37	-0.80*	-0.00	0.57	-0.19	-0.11
Bangladesh	-1.53**	-1.25	0.86	1.27**	-0.33	0.00
Barbados	0.08	-0.04	0.58	1.11	0.33	0.53
Belarus	284.87	320.42	3.06	5.21	125.59	142.26
Belgium	-0.03	0.02	0.30	0.41	0.13	0.22
Belize	-1.00***	-1.03***	-0.50	-0.42	-0.75**	-0.73*
Benin	3.05	3.33	-0.55	-0.28	1.24	1.52
Bhutan	-0.38	-0.38	1.34	1.24	0.47	0.43
Bolivia	1.31	9.13	0.47	0.66	0.89	4.89
Bosnia Herzegovina	-0.40	-1.37	-0.37	-0.20	-0.37	-0.42
Botswana	1.03*	1.26*	0.85	1.66*	0.94*	1.46***
Brazil	317.67	423.36	0.97***	1.31***	159.32	212.34
Brunei Darussalam	-2.27	-2.27	-0.47*	-0.51*	-0.71**	-0.75**
Bulgaria	136.40*	118.80	0.22	0.53	68.31	57.30
Burkina Faso	1.03	0.95	-0.11	0.13	0.45	0.54
Burundi	6.38***	7.20***	1.79	2.94*	4.08***	5.07***
Cabo Verde	0.45	0.46	-0.53	-0.60	-0.04	-0.06
Cambodia	19.35	19.38	1.02	1.59	10.18	10.48
Cameroon	0.96	1.27	-0.00	0.12	0.47	0.70
Canada	-0.20	-0.18	-0.17	-0.10	-0.19	-0.14
Central African Rep.	2.68	2.82	0.91	1.32	1.80	2.07
Chad	2.79	2.72	-0.85	-0.75	0.97	0.98
Chile	0.24	0.11	0.01	0.33	0.12	0.22
China	-0.66	0.01	0.07	0.40	-0.29	0.21
Colombia	1.18	2.54	0.58	0.70	0.88	1.62*
Comoros	1.56	1.64	0.62	0.72	1.09	1.18
Congo, Democratic	2686.62*	2782.32	5.22	5.30	1345.92	1393.81
Congo, Rep. of	4.95	5.10	0.25	0.58	2.60	2.84
Costa Rica	2.57	3.08*	0.16	0.19	1.36	1.63
Croatia	0.48	-0.72	-0.58	-0.44	-0.15	-0.56
Cyprus	-0.11	0.12	-0.55	-0.53	-0.33	-0.18
Czech Rep.	-0.60	-0.62	-0.44	-0.30	-0.50	-0.43
Cï¿œte d'Ivoire	2.91	2.88	-0.54	-0.37	1.18	1.25
Denmark	-0.27**	-0.28	-0.40	-0.18	-0.33**	-0.23
Djibouti	0.40	0.37	0.83	0.98	0.62	0.67*
Dominica	-0.38	-0.34	0.11	0.12	-0.13	-0.10
Dominican Rep.	5.66*	6.47*	0.77	3.00	3.22	4.74*
EMDELOW			0.73	2.06	0.73	2.06

Table A20: **(continued).**

	1990-2003		2004-2016		1990-2016	
	h=1,F	h=1,S	h=1,F	h=1,S	h=1,F	h=1,S
Ecuador	15.95***	16.97***	0.42	0.42	8.18**	8.69***
Egypt	-0.92	-0.04	0.85	1.25	-0.03	0.60
El Salvador	1.60	1.56	-0.66	-0.18	0.46	0.69
EMDE	6.15*	7.17*	0.02	0.81**	3.21*	3.86*
Equatorial Guinea	3.62	3.79	-1.19**	-1.33**	1.21	1.22
Eritrea	7.65***	10.10***	-0.10	0.93	2.34	3.48
Estonia	4.28	5.34	0.60	0.92	2.20	2.84
Ethiopia	-0.30	0.31	2.34	5.60**	1.02	2.95
Euro area	0.83	0.75	0.06	0.09	0.20	0.21
Fiji	-0.85*	-0.66	0.27	1.05	-0.28	0.19
Finland	-0.75**	-0.97**	-0.12	-0.03	-0.44*	-0.50
France	-0.05	-0.14	-0.01	-0.04	-0.03	-0.09
G7	-0.16	-0.30**	0.07	0.11	-0.04	-0.08
Gabon	1.74	1.74	-0.48	-0.66	0.63	0.53
Gambia, The	1.66	1.85	0.15	0.51	0.91	1.18
Georgia	456.35	754.34	-0.45	-0.11	198.15	327.90
Germany	0.11	0.25	0.09	0.21	0.10	0.23
Ghana	16.87***	17.74***	3.67***	5.15***	10.27***	11.45***
Greece	1.28	2.67	0.09	0.21	0.68	1.44
Grenada	-0.17	-0.17	-0.07	0.06	-0.12	-0.05
Guatemala	2.88**	2.45*	0.58	0.83	1.73**	1.64**
Guinea	0.97	0.66	6.16**	6.98*	3.56**	3.82*
Guinea-Bissau	18.63**	19.77**	-0.27	-0.04	9.17*	9.86**
Guyana	8.93	7.75	-0.13	-0.15	4.39	3.79
Haiti	11.91***	12.46***	0.90	2.28	6.41***	7.37***
Honduras	5.05***	6.13***	-0.26	-0.33	2.39**	2.90**
Hong Kong SAR	-1.17	-2.30**	0.28	0.38	-0.44	-0.96
Hungary	4.09**	6.63***	-0.05	0.35	2.02**	3.49**
Iceland	-0.00	0.18	0.90	2.08*	0.51	1.25
India	0.61	1.28	0.70	1.64	0.65	1.46*
Indonesia	4.44	4.77	0.43	0.78	2.43	2.78
Iran	7.67**	8.12**	0.99	1.57	4.33*	4.85**
Iraq	20.21**	21.48***	-0.60	-2.21	9.80*	9.63*
Ireland	0.16	0.20	-0.37	-0.51	-0.10	-0.15
Israel	-1.07	-0.65	-0.48	-0.34	-0.77	-0.49
Italy	0.25	0.22	0.16	0.11	0.20	0.17
Jamaica	10.18**	10.13**	1.28	2.18	5.73**	6.16**
Japan	-0.24	-0.51**	-0.18	-0.33*	-0.21	-0.42***
Jordan	-1.10	-1.05	-0.26	0.38	-0.68	-0.33
Kazakhstan	198.38	199.81	1.44*	1.89*	87.07	87.95
Kenya	7.35*	7.98*	3.86***	4.85***	5.61**	6.41***
Kiribati	0.24	0.02	-0.90	-0.64	-0.37	-0.35
Korea	0.06	0.61	-0.43	-0.51	-0.18	0.05
Kosovo			0.33	0.38	0.33	0.38
Kuwait	-4.16*	-2.69	0.66	0.70	-1.74	-0.99
Kyrgyz Rep.	26.59	30.28	0.87	1.34	12.05	13.93
Lao P.D.R.	13.81**	13.81**	0.21	0.46	7.01*	7.13*
Latvia	3.31	4.02	0.74	1.37	1.86	2.52
Lebanon	-31.13*	-31.03*	-0.23	0.43	-15.68	-15.29
Lesotho	0.75	0.22	-0.27	0.32	0.23	0.27
Liberia	1.78	1.78	-0.12	0.26	0.83	1.02
Libya	-3.71	1.02	2.22	3.66	-0.86	2.29

Table A20: **(continued).**

	1990-2003		2004-2016		1990-2016	
	h=1,F	h=1,S	h=1,F	h=1,S	h=1,F	h=1,S
Lithuania	3.27	4.94	0.67	0.54	1.80	2.45
Luxembourg	0.01	-0.04	-0.07	0.05	-0.03	0.00
Macedonia, FYR	-2.34*	-0.42	-0.42	-0.47	-1.20*	-0.45
Madagascar	7.17*	7.54*	2.20	2.78*	4.68**	5.16**
Malawi	20.13***	20.45***	4.60**	7.07***	12.36***	13.76***
Malaysia	-0.97**	-0.75	-0.28	-0.16	-0.63**	-0.45
Maldives	0.62	0.84	1.00	0.99	0.81	0.92
Mali	1.46	1.49	-0.53	-0.31	0.46	0.58
Malta	-0.16	-0.16	0.05	-0.05	-0.05	-0.10
Marshall Islands	0.66**	0.76**	-2.44	-2.44	-0.50	-0.43
Mauritania	1.57***	1.59***	-0.12	0.28	0.72	0.94
Mauritius	0.14	0.57	-0.58	-0.45	-0.22	0.06
Mexico	4.06*	6.15**	0.46***	0.69***	2.26*	3.42**
Micronesia	-0.13	-0.47	-2.49	-2.54	-1.02*	-1.25**
Moldova	17.37**	18.06**	0.94	1.70*	8.08*	8.81**
Mongolia	17.27**	14.37*	1.00	2.16	8.07*	7.46*
Montenegro, Rep. of			-0.70	-0.12	-0.70	-0.12
Morocco	-0.23	-0.27	-0.68**	-0.65*	-0.46	-0.46
Mozambique	13.37**	13.74**	1.75	2.45*	7.56**	8.09**
Myanmar	-1.60	-6.60	-7.80**	-8.70**	-4.70	-7.65
Namibia	1.54	1.47	-0.65	-0.31	0.24	0.41
Nepal	1.52	1.48	1.08***	2.34***	1.30**	1.91***
Netherlands	0.13	0.32	0.18	-0.07	0.15	0.12
New Zealand	0.13	0.19	-0.54**	-0.19	-0.20	0.00
Nicaragua	-234.80	-234.63	1.02	1.57	-116.88	-116.52
Niger	2.28	2.26	-0.05	0.16	1.11	1.21
Nigeria	15.60**	17.54**	2.23***	2.30***	8.92**	9.92**
Norway	-0.37**	-0.43**	-0.02	-0.14	-0.20	-0.28*
Oman	-1.34*	-1.19*	0.36	0.29	-0.49	-0.44
Pakistan	0.38	1.48	0.06	2.07	0.22	1.78*
Palau			-2.16	-3.03	-2.16	-3.03
Panama	-0.79***	-0.79***	0.33	0.56	-0.23	-0.11
Papua New Guinea	5.22***	5.79***	-0.75	-0.53	2.23*	2.63**
Paraguay	5.15***	5.18***	-0.04	-0.14	2.55**	2.51**
Peru	18.82	18.79	0.44	0.68**	9.63	9.74
Philippines	1.18	1.89*	-0.28	0.40	0.44	1.15*
Poland	8.29	7.47	-0.34	-0.43	3.97	3.51
Portugal	0.25	0.12	-0.05	-0.01	0.10	0.05
Qatar	-0.93***	-0.83***	0.11	0.56	-0.41	-0.13
Romania	62.54**	74.27***	-0.08	0.19	31.23**	37.23**
Russia	31.20*	45.15**	0.94	1.50*	14.09	20.48*
Rwanda	7.19	6.92	1.78	2.19	4.49	4.55
Samoa	1.40	1.31	0.84	0.68	1.12	0.99
San Marino			-0.69	-0.33	-0.69	-0.33
Saudi Arabia	-1.19**	-1.16**	0.17	0.54	-0.51	-0.31
Senegal	1.21	1.22	-0.51	-0.32	0.34	0.44
Serbia			0.57	0.16	0.57	0.16
Seychelles	-1.58	-1.65	1.10	1.81	-0.23	0.08
Sierra Leone	-1.27	-2.61	3.61***	4.45***	1.17	0.91
Singapore	-0.39	-0.45	-0.15	0.05	-0.27	-0.19
Slovak Rep.	0.83	1.30	-0.36	-0.47	0.12	0.25
Slovenia	2.88***	3.55***	-0.29	-0.31	1.00*	1.27*

Table A20: **(continued).**

	1990-2003		2004-2016		1990-2016	
	h=1,F	h=1,S	h=1,F	h=1,S	h=1,F	h=1,S
SoTomPrncipe	19.92***	22.28***	3.40***	5.20***	11.66***	13.74***
Solomon Islands	1.69	2.48**	-0.05	0.88	0.82	1.68**
Somalia	0.00	3.02	0.00	0.00	0.00	2.45
South Africa	0.17	1.11	-0.19	0.12	-0.00	0.62
South Sudan			203.10	374.84	203.10	374.84
Spain	0.18	0.55**	-0.09	-0.00	0.04	0.27
Sri Lanka	2.77***	3.43***	-0.82	0.96	0.97	2.20*
St. Kitts Nevis	0.02	0.14	0.28	0.38	0.15	0.26
St. Lucia	0.39	0.34	-0.65	-0.31	-0.13	0.01
St. Vincent Grenadines	-0.95***	-0.74**	0.00	0.24	-0.47	-0.25
Sudan	12.52**	17.31*	6.14***	7.18***	9.33***	12.24**
Suriname	42.39	36.72	3.92	4.19	23.16	20.46
Swaziland	0.52	0.74	0.00	0.66	0.26	0.70
Sweden	-0.56*	-0.84**	-0.50*	-0.40	-0.53**	-0.62**
Switzerland	-0.39	-0.12	-0.37*	-0.28	-0.38**	-0.20
Syria	-2.12*	-1.01	0.29	2.13	-1.28	0.08
Taiwan Prov. of China	-0.81***	-0.79**	-0.38	-0.27	-0.60***	-0.53**
Tajikistan	117.24*	119.84*	0.17	1.10	51.07	52.72
Tanzania	8.61**	9.90***	2.50**	3.06***	5.56***	6.48***
Thailand	-0.64	-0.94	0.15	0.05	-0.24	-0.44
Timor-Leste			0.79	0.34	0.79	0.34
Togo	1.27	3.03	-0.14	0.13	0.56	1.58
Tonga	1.87	2.54	-2.01**	-0.97	-0.32	0.46
Trinidad and Tobago	1.49	1.73*	1.20**	1.81***	1.34**	1.77***
Tunisia	-0.26	-0.17	0.69***	0.82***	0.21	0.32
Turkey	19.45**	14.10*	0.89	1.59*	10.17**	7.85*
Turkmenistan	439.36	452.48	-0.71	-1.37	190.62	195.95
Tuvalu			-0.20	0.14	-0.20	0.14
Uganda	0.27	-2.02	1.56*	2.86***	0.91	0.42
Ukraine	22.70	115.98	3.20	2.19	11.68	53.91
United Arab Emirates	-0.38	-0.46	0.74	1.49	0.17	0.51
United Kingdom	-0.25*	-0.29*	0.11	0.31	-0.07	0.01
United States	-0.29*	-0.32*	0.18	0.24	-0.05	-0.04
Uruguay	9.05	15.31***	-0.22	0.25	4.41	7.78**
Uzbekistan	153.64	177.67	0.01	1.23	66.81	77.94
Vanuatu	-0.33	-0.63	-0.68	-0.66	-0.51*	-0.64*
Venezuela	11.33***	19.09***	7.97	16.98	9.65**	18.04*
Vietnam	-16.17*	-15.70*	1.29	2.56	-7.43	-6.57
World	0.07	0.29***	-0.02	0.43*	0.01	0.38**
Yemen	-4.95	-4.95	1.69	2.98	-1.02	-0.26
Zambia	41.22**	42.99**	2.88**	3.81***	22.05**	23.40**
Zimbabwe	12.83	55.72*	606.02	407.91	284.71	217.14

Notes:: This table reports estimates of biases in the WEO forecasts of next-year inflation in individual countries computed as the sample mean difference between the outcome and the predicted value. Positive values suggest that the forecasts tend to under-predict the outcome while negative values suggest that the forecast on average over-predict actual values. The table shows results for the two short horizons (h = 0, Spring and Fall) for the 1990-2003 and 2004-2016 subsamples as well as for the full sample, 1990-2016. The first row, Proportion Sign.if. is the proportion of countries with Significant bias in forecasts at the 5% Sign.ificance level. Stars indicate if the null of a zero bias is rejected against a two-sided alternative of a non-zero bias. ***: Significant at the 1% level, **: Significant at the 5% level, *: Significant at the 10% level.

Table A21: **Biases in 2-5-year WEO forecasts of inflation in individual countries**

	h=2,F	h=2,S	h=3,F	h=3,S	h=4,F	h=4,S	h=5,F
Proportion Sign.	0.18	0.23	0.20	0.22	0.20	0.22	0.22
Advanced Economies	-0.20	-0.24	-0.31**	-0.34**	-0.39***	-0.39**	-0.45***
Afghanistan	2.37	3.58	1.16	1.78	0.25	0.62	-0.40
Albania	-0.34	0.45	0.31	0.98	0.37	0.87	-0.66
Algeria	2.41	2.20	2.05	1.71	1.74	1.05	1.36
Angola	243.21	246.18	53.96**	54.92**	54.00*	52.86*	54.44
Antigua Barbuda	-0.58*	-0.53	-0.54	-0.56	-0.53	-0.57	-0.51
Argentina	1.04	-0.18	1.89	0.25	2.30	0.98	2.54
Armenia	7.22	7.39	0.10	0.30	-0.56	-0.36	-1.11
Australia	-0.37	-0.29	-0.23	-0.19	-0.17	-0.16	-0.13
Austria	0.01	0.08	-0.04	-0.00	-0.11	-0.09	-0.17
Azerbaijan	17.46	17.10	-0.50	-1.13	-1.04	-1.34	-0.93
Bahamas, The	-0.32	-0.33	-0.50	-0.53	-0.56	-0.53	-0.59
Bahrain	-0.38	-0.05	-0.33	0.01	-0.30	0.02	-0.02
Bangladesh	0.00	0.27	0.43	0.66	0.75	0.96	0.97
Barbados	0.78	0.62	0.62	0.64	0.83	0.85	1.07
Belarus	51.41	59.81*	24.54	32.15	24.99	31.90	23.60
Belgium	0.14	0.18	0.11	0.16	0.05	0.09	0.00
Belize	-0.73*	-0.61	-0.67	-0.63	-0.65	-0.74	-0.76
Benin	1.88	1.98	2.11	2.25	2.36	2.35	0.80
Bhutan	0.69	0.65	0.96	0.81	1.16	1.13	0.97
Bolivia	0.70	4.81	0.88	4.92	5.39	5.01	5.54*
Bosnia Herzegovina	-0.63	-0.65	-0.79	-0.65	-0.76	-0.60	-0.67
Botswana	1.25*	1.58**	0.98	1.16	1.28	1.02	0.70
Brazil	198.82	219.85	180.47	190.44	99.29	107.30	-5.21
Brunei Darussalam	-0.91**	-0.93**	-1.02**	-1.03**	-0.75*	-0.78**	-0.74*
Bulgaria	57.91	58.77	58.00	59.18	58.12	57.91	56.91
Burkina Faso	0.59	0.73	0.82	0.92	0.92	0.90	-0.12
Burundi	5.64***	6.13***	6.63***	6.80***	7.06***	7.17***	7.05***
Cabo Verde	0.13	0.08	-0.04	0.03	-0.18	-0.13	-0.28
Cambodia	11.14	11.30	4.61*	4.66*	3.64*	3.68*	2.95*
Cameroon	1.40	1.38	1.68	1.83	2.14	2.15	1.69
Canada	-0.30*	-0.26	-0.26	-0.25	-0.22	-0.25	-0.13
CentralAfricanRep.	2.50*	2.55*	2.62*	2.73*	2.90*	2.86*	2.04**
Chad	1.42	1.47	2.30	2.15	1.93	1.82	0.29
Chile	0.30	0.11	0.49	-0.07	0.37	-0.21	0.08
China	0.25	0.46	0.43	0.48	0.11	0.10	-0.70
Colombia	1.09	1.74*	1.10	1.69	0.99	1.54	0.66
Comoros	1.36	1.27	1.41	1.39	1.50	1.49	0.51
Congo, Democratic	1287.33	1288.16	1170.83	1170.30	1139.88	1139.36	112.16*
Congo, Rep. of	3.30	3.37	3.58	3.55	3.82	3.80	1.58**
Costa Rica	2.00*	2.29*	1.63	2.00	1.69	2.14*	1.30
Croatia	-0.16	-0.51	-0.26	-0.55	-0.34	-0.45	-0.52
Cyprus	-0.27	0.02	-0.40	-0.13	-0.53	-0.40	-0.66*
Czech Rep.	-0.52	-0.48	-0.62	-0.59	-0.75*	-0.74*	-1.24**
Cï¿œte d'Ivoire	1.52	1.53	1.74	1.73	1.72	1.56	0.74
Denmark	-0.35*	-0.26	-0.31	-0.28	-0.23	-0.26	-0.21
Djibouti	0.49	0.63	0.65	0.56	0.61	0.19	0.51
Dominica	-0.21	-0.24	-0.43	-0.44	-0.53	-0.55	-0.54
Dominican Rep.	3.03	3.56	3.89	4.13	4.22	4.43	4.21
Ecuador	11.33**	11.25**	11.71**	11.38*	11.20*	10.64	10.93
Egypt	0.24	0.92	0.90	1.44	1.33	1.76	1.32
El Salvador	0.72	0.57	0.54	0.26	-0.07	-0.39	-0.41

Table A21: **(continued).**

	h=2,F	h=2,S	h=3,F	h=3,S	h=4,F	h=4,S	h=5,F
EMDE	4.33*	4.29*	4.05*	3.23*	2.61*	1.47***	0.51
Equatorial Guinea	1.91	1.86	2.24	2.13	2.66	2.63	1.32
Eritrea	3.96*	4.40*	5.07*	5.19*	5.79*	5.64*	6.39*
Estonia	1.47	1.69	0.79	0.96	0.23	0.34	0.12
Ethiopia	3.37	3.57*	3.76	3.47	4.14	3.78	4.89
Euro area	0.14	0.09	0.01	-0.00	-0.08	-0.08	-0.16
Fiji	-0.00	0.07	-0.00	0.02	-0.08	-0.05	0.00
Finland	-0.61*	-0.66*	-0.65*	-0.75*	-0.70	-0.75	-0.68
France	-0.15	-0.23	-0.26	-0.32	-0.32	-0.36	-0.35
G7	-0.21	-0.26	-0.33**	-0.37**	-0.42***	-0.43***	-0.48***
Gabon	0.95	0.59	1.63	1.60	1.77	1.68	0.30
Gambia, The	1.43	1.48	1.44	1.42	1.57	1.52	1.73
Georgia	-13.48	8.48	1.63	1.78	0.05	0.12	0.26
Germany	0.07	0.14	-0.00	0.01	-0.13	-0.14	-0.19
Ghana	13.12***	13.64***	14.92***	14.91***	15.07***	15.02***	15.14***
Greece	0.82	1.11	0.54	0.75	0.20	0.42	-0.13
Grenada	0.00	0.05	0.06	0.18	0.27	0.35	0.27
Guatemala	2.22**	2.05**	2.41**	2.28**	2.47***	2.22***	2.33***
Guinea	5.45**	5.36**	6.31**	6.31**	6.99**	6.67*	7.20*
Guinea-Bissau	8.53**	8.67**	6.66	6.56	5.52	5.20	4.96
Guyana	1.10	0.43	0.62	-0.27	0.42	-0.53	0.05
Haiti	8.01***	8.21***	8.29***	8.18***	7.94***	7.71***	6.57***
Honduras	3.48***	3.78***	4.08***	4.13***	4.36**	4.19**	3.85**
Hong Kong SAR	-1.24*	-1.50*	-1.75*	-1.90*	-2.11	-2.16	-2.60
Hungary	2.82**	3.43**	3.09*	3.66*	3.00	3.37	2.66
Iceland	1.28*	1.58**	1.64*	1.88**	1.88**	2.07**	2.17**
India	1.19	1.73*	1.57	1.95*	1.74	2.05*	1.67
Indonesia	4.02*	4.26**	4.84**	4.93**	5.28**	5.35**	5.56**
Iran	5.59*	6.44**	7.32**	7.74***	8.01***	8.57***	7.90***
Iraq	12.01**	10.65*	12.38*	9.78	10.55	7.49	8.81
Ireland	-0.27	-0.24	-0.38	-0.34	-0.36	-0.35	-0.37
Israel	-1.07*	-0.73	-1.25*	-0.92*	-1.47**	-1.07**	-1.84**
Italy	0.17	0.13	0.10	0.07	0.00	-0.03	-0.09
Jamaica	7.10**	7.03**	5.16**	5.06**	5.00**	4.72**	4.24***
Japan	-0.80***	-0.83***	-1.03***	-1.05***	-1.22***	-1.21***	-1.36***
Jordan	-0.47	-0.18	-0.11	-0.00	0.03	0.06	0.10
Kazakhstan	10.50	10.89	4.33***	4.71***	3.47***	3.80***	3.17***
Kenya	6.33***	6.45***	5.73***	5.87***	4.32***	4.34***	3.48***
Kiribati	-0.62	-0.59	-0.70	-0.85	-0.95	-0.76	-0.84
Korea	-0.13	0.11	-0.13	0.09	-0.15	0.06	-0.29
Kosovo	0.35	-0.80*	-0.62	-1.11	-1.04	-1.45	-1.77
Kuwait	0.31	0.54	0.47	0.36	0.56	0.52	0.53
Kyrgyz Rep.	5.57**	5.87**	5.39*	5.58**	5.28*	4.60*	4.46
Lao P.D.R.	7.26*	7.34*	7.58*	7.69*	8.09*	8.09*	8.39*
Latvia	1.41	1.75	0.86	1.09	0.37	0.41	0.22
Lebanon	-23.61*	-23.44*	-26.28	-26.26	-29.30	-29.30	-30.65
Lesotho	0.47	0.45	0.33	0.11	0.20	0.02	0.18
Liberia	1.03	1.02	1.02	1.02	0.98	0.88	0.92
Libya	0.56	1.05	1.17	1.60	1.16	1.25	-0.44
Lithuania	0.38	0.35	-0.70	-0.73	-1.46	-1.50	-1.64
Luxembourg	-0.08	-0.01	-0.11	-0.05	-0.10	-0.06	-0.06
Macedonia, FYR	-1.25	-1.08	-0.80	-0.85	-0.74	-0.81	-0.53
Madagascar	6.27**	6.33**	6.99**	6.89**	7.31***	7.11**	6.15***

Table A21: **(continued).**

	h=2,F	h=2,S	h=3,F	h=3,S	h=4,F	h=4,S	h=5,F
Malawi	14.75***	15.16***	15.65***	15.38***	15.78***	15.63***	15.67***
Malaysia	-0.59*	-0.30	-0.59	-0.45	-0.62	-0.44	-0.68
Maldives	1.28	0.93	1.04	0.67	0.66	0.34	0.32
Mali	0.90	0.97	1.22	0.98	1.26	1.13	0.13
Malta	-0.18	-0.20	-0.23	-0.22	-0.34	-0.35	-0.50
Marshall Islands	-0.79	-0.96	0.04	0.04	0.57	0.57	-0.78
Mauritania	1.22	1.25	1.20	1.22	1.37	1.39	1.54
Mauritius	0.03	0.19	0.61	0.65	0.71	0.66	0.59
Mexico	3.84*	4.22**	4.56*	4.83*	4.98*	5.08*	5.27*
Micronesia	-1.15**	-1.44***	-0.32	-0.66	0.21	-0.20	-0.94
Moldova	5.62**	6.64***	5.67**	6.52***	5.44**	6.14**	5.89**
Mongolia	7.32*	7.63**	6.35**	6.53**	4.48**	4.81***	3.30**
Montenegro Rep.	-1.03	-0.73	-1.05	-0.79*	-1.32	-1.21	-1.70
Morocco	-0.53*	-0.53	-0.57*	-0.59*	-0.70**	-0.67**	-0.85***
Mozambique	8.51**	8.76**	7.86*	7.99*	7.37*	7.39*	5.36**
Myanmar	-6.18	-11.28*	-8.72	-14.17*	-14.38	-19.81*	-19.00
Namibia	0.49	0.58	0.73	0.76	0.87	0.78*	0.93***
Nepal	1.74**	2.05***	1.58**	1.76**	1.85*	1.92*	2.04*
Netherlands	0.07	0.11	-0.04	0.00	-0.12	-0.04	-0.16
New Zealand	0.10	0.05	0.25	0.12	0.33	0.21	0.38
Nicaragua	-230.15	-230.01	-123.48	-123.37	-5.43	-5.34	-3.37
Niger	1.57	1.60	1.85	1.86	1.99	1.95	0.51
Nigeria	11.68**	12.55**	11.79**	12.35**	10.66**	10.97**	9.13***
Norway	-0.35**	-0.52***	-0.43**	-0.54***	-0.46**	-0.57***	-0.43**
Oman	-0.52	-0.57	-0.43	-0.62	-0.39	-0.61	-0.37
Pakistan	1.24	2.38*	2.25	2.78*	2.68*	3.06*	3.16**
Panama	-0.01	0.00	0.10	0.14	0.24	0.29	0.45
Papua New Guinea	3.17**	3.40***	3.79***	3.90***	4.19***	4.26***	4.53***
Paraguay	2.93***	2.83***	3.13***	2.96***	2.91***	2.67***	2.41***
Peru	2.59	2.68*	1.99*	1.92*	1.09**	0.82**	0.57**
Philippines	0.80*	1.03**	0.93	1.01*	0.95	0.94	0.80
Poland	3.30	3.67	3.16	3.36	2.46	2.85	1.71
Portugal	-0.19	-0.17	-0.35	-0.33	-0.46	-0.50	-0.62
Qatar	-0.27	-0.06	-0.04	0.11	0.21	0.34	0.53
Romania	35.61**	37.10**	31.69**	32.12**	23.10*	23.10*	17.56
Russia	16.14*	17.86*	10.77**	11.06**	9.77**	10.03**	10.20*
Rwanda	5.02*	4.98*	5.28*	5.09	5.32	5.00	2.91*
Samoa	1.05	0.93	0.86	0.81	1.00	0.97	0.39
Saudi Arabia	-0.40	-0.26	-0.17	-0.05	0.00	0.08	0.20
Senegal	0.77	0.78	0.89	0.87	1.05	1.03	-0.25
Serbia	0.34	0.17	0.14	0.48	0.02	-0.76	-1.16
Seychelles	1.30	1.71	2.10	2.07	2.42	2.24	2.62
Sierra Leone	-0.87	-0.95	-2.16	-2.94	-2.50	-3.25	-2.78
Singapore	-0.33	-0.28	-0.25	-0.24	-0.24	-0.24	-0.27
Slovak Rep.	0.64	0.70	0.84	0.92	0.79	0.89	0.70
Slovenia	1.27	1.13	1.15	1.06	0.90	0.88	0.67
SoTomPrncipe	14.04***	14.73***	15.02***	15.19***	15.56***	15.54***	15.01***
Solomon Islands	1.00	1.58	1.11	1.53	1.26	1.59	1.12
Somalia	0.00	1.37	0.00	0.61	0.00	0.24	0.00
South Africa	0.15	-0.01	0.18	-0.06	0.22	-0.12	0.25
Spain	0.11	0.21	0.00	0.03	-0.14	-0.14	-0.35
Sri Lanka	2.17	3.03**	2.78*	3.50**	3.25*	3.95***	3.48*
St. Kitts Nevis	0.15	0.27	0.23	0.31	0.31	0.38	0.35

Table A21: **(continued).**

	h=2,F	h=2,S	h=3,F	h=3,S	h=4,F	h=4,S	h=5,F
St. Lucia	0.04	0.18	0.04	0.08	0.18	0.16	0.29
StVincentGrenadines	-0.46	-0.37	-0.62	-0.41	-0.63	-0.41	-0.47
Sudan	9.23***	11.17**	6.39**	7.68	3.76	4.93	-0.12
Suriname	25.48	21.85	26.93	22.35	23.50	17.95	9.03
Swaziland	0.70	1.09*	0.97*	1.29**	0.96*	1.32***	0.94
Sweden	-0.73***	-0.92***	-0.75**	-0.93***	-0.90***	-1.07***	-0.94***
Switzerland	-0.59***	-0.56***	-0.77***	-0.74***	-0.89***	-0.87***	-0.92***
Syria	-1.19	-0.40	-1.38	-0.60	-1.67	-1.02	-2.40
Taiwan China	-0.62**	-0.61**	-0.74**	-0.70**	-0.78**	-0.75**	-0.87***
Tajikistan	51.62	49.27	28.09	26.99	8.36*	7.70*	5.08**
Tanzania	6.92***	6.95***	6.82***	6.75***	6.41**	6.37***	5.72***
Thailand	-0.13	-0.24	0.02	-0.21	0.07	-0.16	0.09
Timor-Leste	1.08	0.74	1.29	1.14	1.38	1.32	1.58
Togo	1.83	1.84	2.23	2.33	2.49	2.61	0.87
Tonga	0.26	0.62	0.66	0.96	0.94	1.31	1.30
TrinidadTobago	1.88***	2.10***	1.93***	2.13***	1.75**	1.85**	1.44
Tunisia	0.36	0.37	0.54	0.54	0.74**	0.71*	0.86**
Turkey	13.29**	7.65	12.48*	5.64	11.61	2.76	8.04
Turkmenistan	87.43	84.78	44.70	48.29	-0.29	2.79	-1.93
Tuvalu	0.32	0.50	0.80	0.84	0.94	0.95	1.32
Uganda	1.09	-0.25	-0.41	-1.70	-0.40	-1.72	-0.48
Ukraine	22.96	26.18	9.57**	10.11**	6.84***	7.18***	6.93***
UnitedArabEmirates	0.27	0.49	0.34	0.53	0.50	0.58	0.55
United Kingdom	0.03	-0.02	-0.06	-0.12	-0.12	-0.14	-0.17
United States	-0.19	-0.27	-0.31	-0.39*	-0.38**	-0.45**	-0.44**
Uruguay	6.86*	9.44**	6.99*	8.35**	6.87**	6.81**	5.97***
Uzbekistan	18.73	19.67	8.28**	8.25**	8.00*	7.28*	6.78*
Vanuatu	-0.47	-0.73**	-0.57	-0.77*	-0.64	-0.84*	-0.69
Venezuela	20.63*	20.55**	25.77*	26.89*	27.44*	27.83*	27.86*
Vietnam	-9.56	-9.31	-10.41	-10.20	-10.62	-10.43	-11.37
World	0.48**	0.50**	0.50**	0.52***	0.42*	0.47**	0.47*
Yemen	-1.34	-1.09	-1.91	-1.59	-1.18	-1.12	-0.75
Zambia	25.07**	25.56**	20.53**	20.38***	14.06***	14.00***	12.81***
Zimbabwe	151.19	191.56	262.95	171.22	463.10	163.03	596.18

Notes:: This table reports estimates of biases in the WEO 2-5-year-ahead forecasts of inflation in individual countries computed as the sample mean d the outcome and the predicted value. Positive values suggest that the forecasts tend to under-predict the outcome while negative values suggest tha average over-predict actual values. The table shows results for the two short horizons (h = 0, Spring and Fall) for the 1990-2003 and 2004-2016 subsam the full sample, 1990-2016. The first row, Proportion Sign.if. is the proportion of countries with Significant bias in forecasts at the 5% Sign.ificance lev if the null of a zero bias is rejected against a two-sided alternative of a non-zero bias. ***: Significant at the 1% level, **: Significant at the 5% level, *: 10% level.

Table A22: **Mincer-Zarnowitz efficiency tests for WEO inflation forecasts**

	MZ pvalue				beta			
	h=0,F	h=0,S	h=1,F	h=1,S	h=0,F	h=0,S	h=1,F	h=1,S
Proportion Sign.	0.38	0.42	0.37	0.45	0.34	0.35	0.36	0.36
Advanced Economies	0.42	0.05*	0.17	0.00***	0.98	0.92**	0.80	0.54***
Afghanistan	0.52	0.48	0.42	0.30	0.87	0.64	0.78	0.23
Albania	0.00***	0.00***	0.00***	0.79	0.75***	0.83***	0.48***	1.02
Algeria	0.00***	0.00***	0.44	0.00***	0.67***	0.62***	1.19	1.40***
Angola	0.18	0.02**	0.31	0.35	4.61	1.09	2.64	10.54
Antigua and Barbuda	0.02**	0.00***	0.00***	0.00***	0.63**	0.51***	0.33***	0.35***
Argentina	0.00***	0.00***	0.46	0.54	1.24***	9.60***	1.83	2.02
Armenia	0.00***	0.46	0.45	0.33	0.93**	1.60	3.19	143.49
Australia	0.00***	0.28	0.00***	0.00***	0.88**	0.71	0.05***	-0.29***
Austria	0.47	0.62	0.35	0.34	0.94	1.06	0.80	0.72
Azerbaijan	0.00***	0.08*	0.03**	0.15	1.26***	2.03**	12.85**	6.97*
Bahamas, The	0.25	0.16	0.19	0.26	0.76	0.63*	0.59	0.61
Bahrain	0.02**	0.19	0.11	0.92	0.72	0.60	0.66*	1.14
Bangladesh	0.17	0.26	0.00***	0.00***	0.91	0.65	0.18***	-0.02***
Barbados	0.70	0.62	0.35	0.23	0.91	1.01	0.63	0.44
Belarus	0.00***	0.00***	0.38	0.23	1.27***	1.99***	3.05	5.64
Belgium	0.41	0.37	0.10	0.03**	1.03	1.07	0.19**	0.34**
Belize	0.01**	0.10	0.01**	0.00***	1.00	0.68	0.55	0.31*
Benin	0.00***	0.00***	0.70	0.00***	1.39***	1.65***	0.90	1.34
Bhutan	0.61	0.64	0.16	0.27	0.90	0.85	0.50*	0.56
Bolivia	0.00***	0.40	0.00***	0.23	-0.02***	1.00	-0.07***	0.30
Bosnia Herzegovina	0.59	0.36	0.67	0.47		1.00	1.00	0.59
Botswana	0.09*	0.00***	0.13	0.03**	1.07	1.11	0.74	0.82
Brazil	0.08*	0.00***	0.00***	0.00***	1.10	1.67**	2.03***	9.19***
Brunei Darussalam	0.03**	0.00***	0.04**	0.02**	0.72	0.68	0.28	0.19
Bulgaria	0.03**	0.00***	0.06*	0.24	1.01*	1.42***	11.11**	12.23*
Burkina Faso	0.00***	0.00***	0.22	0.43	0.82***	0.83***	0.19*	0.60
Burundi	0.48	0.01**	0.01**	0.00***	0.91	1.17	0.53	0.26
Cabo Verde	0.83	0.92	0.25	0.82	1.02	0.87	0.57	0.82
Cambodia	0.35	0.28	0.19	0.18	-1.00	-3.11	-5.11*	-5.50*
Cameroon	0.35	0.00***	0.63	0.01**	1.05	0.96***	1.11	1.33***
Canada	0.00***	0.22	0.00***	0.43	0.93***	0.89*	0.83**	0.77
Central African Rep.	0.00***	0.00***	0.35	0.15	0.74***	0.73***	0.91	-0.14*
Chad	0.27	0.01**	0.81	0.47	0.98	0.95	0.17	-0.42
Chile	0.26	0.58	0.70	0.45	1.06	1.06	1.10	0.85
China	0.09*	0.44	0.94	0.57	1.03	1.09	0.93	0.74
Colombia	0.29	0.14	0.35	0.14	1.08	1.10*	1.04	1.21
Comoros	0.84	0.00***	0.26	0.04**	0.99	1.72***	1.43	-0.93**
Congo, Democratic	0.01**	0.02**	0.00***	0.00***	3.01***	9.60	23.64***	16.18*
Congo, Rep. of	0.00***	0.00***	0.20	0.15	1.38***	1.35***	-0.18*	1.35
Costa Rica	0.43	0.37	0.36	0.25	1.01	0.84	0.84	0.69
Croatia	0.66	0.00***	0.86	0.00***	1.00	0.41***	0.89	0.14***
Cyprus	0.37	0.65	0.18	0.61	0.99	1.07	0.71	0.87
Czech Rep.	0.02**	0.03**	0.09*	0.28	1.01	1.04	1.08	1.08
Cï¿œte d'Ivoire	0.00***	0.00***	0.46	0.24	0.75***	0.72***	-0.03	-0.09
Denmark	0.00***	0.00***	0.00***	0.00***	0.88*	0.65*	0.67	0.07***
Djibouti	0.18	0.13	0.00***	0.01**	0.74	1.02	0.48**	0.66*
Dominica	0.87	0.80	0.88	0.72	1.18	0.85	0.92	0.72
Dominican Rep.	0.17	0.08*	0.29	0.19	0.93*	1.29	1.38	0.61
Ecuador	0.27	0.13	0.00***	0.00***	0.98	0.98	1.98***	1.66***
Egypt	0.04**	0.02**	0.00***	0.04**	0.91*	0.63***	0.68***	0.59**

Table A22: **(continued).**

	MZ pvalue				beta			
	h=0,F	h=0,S	h=1,F	h=1,S	h=0,F	h=0,S	h=1,F	h=1,S
El Salvador	0.11	0.00***	0.54	0.00***	1.10*	1.30***	1.20	1.60***
EMDE	0.00***	0.00***	0.00***	0.00***	0.86***	0.38***	1.71***	2.51***
Equatorial Guinea	0.00***	0.30	0.04**	0.00***	1.15***	1.11	-1.03*	-1.20**
Eritrea	0.36	0.00***	0.00***	0.00***	0.69	0.27***	-0.06***	-0.10***
Estonia	0.00***	0.09*	0.37	0.15	1.03***	1.73**	1.18	0.63*
Ethiopia	0.41	0.56	0.54	0.29	1.08	0.89	0.88	0.93
Euro area	0.48	0.00***	0.54	0.67	1.03	1.23***	1.09	0.87
Fiji	0.88	0.67	0.76	0.92	0.88	1.02	0.89	1.03
Finland	0.18	0.29	0.04**	0.00***	0.96	0.93	0.47*	0.31**
France	0.53	0.55	0.22	0.28	0.97	1.07	0.74	0.69
G7	0.70	0.00***	0.16	0.00***	0.97	0.92**	0.74	0.50***
Gabon	0.00***	0.00***	0.87	0.57	1.13***	1.15***	0.78	0.49
Gambia, The	0.86	0.51	0.54	0.32	1.05	0.89	0.53	0.05
Georgia	0.00***	0.00***	0.00***	0.47	0.75***	5.16***	-0.05***	154.56
Germany	0.92	0.11	0.84	0.50	1.01	1.11	0.97	0.92
Ghana	0.02**	0.00***	0.00***	0.00***	1.03	1.24	0.19*	0.79
Greece	0.13	0.11	0.09*	0.24	1.03**	1.24*	1.27**	1.19
Grenada	0.60	0.29	0.04**	0.00***	1.02	0.69	-0.05*	0.19***
Guatemala	0.15	0.09*	0.00***	0.00***	1.04	0.87	0.06***	0.08***
Guinea	0.32	0.42	0.07*	0.09*	1.10	0.87	1.21	0.57*
Guinea-Bissau	0.23	0.13	0.09*	0.02**	1.10	1.28	1.95	3.01**
Guyana	0.21	0.18	0.13	0.35	2.22	2.20	2.92*	2.46
Haiti	0.14	0.01**	0.02**	0.00***	0.76	0.76	0.01	-0.33*
Honduras	0.26	0.19	0.06*	0.00***	0.86	0.83	0.00**	-1.56***
Hong Kong SAR	0.82	0.32	0.48	0.28	0.99	1.09	0.89	0.92
Hungary	0.34	0.03**	0.00***	0.00***	1.03	1.05	1.39***	1.41*
Iceland	0.00***	0.36	0.63	0.25	1.07***	1.16	0.96	0.31
India	0.76	0.16	0.55	0.01**	1.04	0.89	0.87	0.05***
Indonesia	0.12	0.34	0.00***	0.00***	0.98**	1.19	0.56***	0.58***
Iran	0.29	0.47	0.00***	0.04**	0.72	0.73	-0.33***	-0.45**
Iraq	0.35	0.13	0.20	0.13	0.80	1.05	0.93	1.06
Ireland	0.21	0.69	0.88	0.82	1.03	1.06	0.92	0.92
Israel	0.00***	0.01**	0.09*	0.26	0.92***	0.82***	0.82*	0.73
Italy	0.25	0.42	0.47	0.38	0.98	0.96	0.91	0.82
Jamaica	0.00***	0.00***	0.07*	0.05*	0.29***	0.27***	-0.61*	-0.87*
Japan	0.75	0.51	0.08*	0.00***	0.98	0.93	0.77**	0.70***
Jordan	0.04**	0.05*	0.06*	0.06*	0.84	0.89	0.36**	0.31**
Kazakhstan	0.14	0.00***	0.33	0.55	1.27*	2.73***	13.83	3.86
Kenya	0.05*	0.09*	0.00***	0.00***	0.78*	0.65	-0.87***	0.80
Kiribati	0.32	0.47	0.20	0.23	0.71	0.84	-0.46*	-0.14
Korea	0.01**	0.37	0.77	0.52	0.93	0.84	0.96	0.75
Kosovo	0.44	0.00***	0.13	0.50	0.89	0.83**	2.30**	3.38
Kuwait	0.00***	0.00***	0.00***	0.00***	0.07***	-0.04***	-0.01***	0.45***
Kyrgyz Rep.	0.00***	0.11	0.19	0.41	1.77***	1.88*	3.31	1.03
Lao P.D.R.	0.10	0.11	0.12	0.06*	0.58**	0.59*	-1.31**	-1.62**
Latvia	0.00***	0.00***	0.44	0.25	1.06***	1.08***	1.17	1.18
Lebanon	0.00***	0.01**	0.00***	0.00***	0.74	0.74	0.48***	0.48***
Lesotho	0.65	0.50	0.17	0.23	0.97	0.90	0.66*	0.72
Liberia	0.20	0.00***	0.00***	0.00***	0.68	0.20***	0.19***	-0.00***
Libya	0.10	0.00***	0.00***	0.00***	0.50*	0.24***	-0.15***	-0.07***
Lithuania	0.00***	0.00***	0.10	0.50	1.02***	1.71***	1.72**	1.88
Luxembourg	0.55	0.72	0.00***	0.00***	0.91	0.98	0.07***	-0.02***

Table A22: **(continued).**

	MZ pvalue				beta			
	h=0,F	h=0,S	h=1,F	h=1,S	h=0,F	h=0,S	h=1,F	h=1,S
Macedonia, FYR	0.00***	0.00***	0.05*	0.20	0.84***	0.79***	0.68*	0.15*
Madagascar	0.04**	0.00***	0.08*	0.03**	1.48**	2.66***	1.78	2.38*
Malawi	0.06*	0.00***	0.00***	0.00***	1.04	1.04	-0.68*	-0.72
Malaysia	0.00***	0.00***	0.00***	0.00***	0.79***	0.64***	0.17***	0.19***
Maldives	0.94	0.84	0.44	0.38	0.96	0.95	1.34	1.44
Mali	0.00***	0.00***	0.91	0.00***	0.85***	0.83***	0.94	2.09***
Malta	0.20	0.11	0.36	0.59	0.75*	0.60*	0.56	0.71
Marshall Islands	0.05*	0.41	0.00***	0.00***	1.43*	1.30	2.79***	3.03***
Mauritania	0.05*	0.00***	0.00***	0.00***	0.65**	0.66***	-0.11***	-0.35***
Mauritius	0.20	0.03**	0.21	0.67	0.81	0.67**	0.49*	0.68
Mexico	0.00***	0.00***	0.00***	0.04**	1.06***	1.21***	1.13	1.55**
Micronesia	0.13	0.05*	0.15	0.00***	0.96	0.92	1.33	1.08
Moldova	0.14	0.05*	0.01**	0.00***	1.19	1.30	3.71**	3.25***
Mongolia	0.00***	0.00***	0.16	0.00***	0.82***	0.79***	1.21	1.85***
Montenegro, Rep. of	0.06*	0.10	0.01**	0.14	1.02	1.51	0.27**	0.70*
Morocco	0.00***	0.18	0.13	0.47	1.11	1.12	1.07	0.69
Mozambique	0.02**	0.00***	0.01**	0.00***	1.35**	1.93***	2.59***	2.56***
Myanmar	0.03**	0.00***	0.00***	0.00***	0.64**	0.43***	0.23***	0.22***
Namibia	0.28	0.06*	0.01**	0.05*	0.63	0.39*	-0.16***	-0.05**
Nepal	0.15	0.35	0.06*	0.02**	1.02	1.07	1.15	0.94
Netherlands	0.10	0.20	0.16	0.34	1.07	1.07	0.50*	1.29
New Zealand	0.79	0.75	0.00***	0.32	0.98	1.06	0.56***	0.70
Nicaragua	0.13	0.10	0.08*	0.07*	0.97**	0.97**	0.47**	0.47**
Niger	0.07*	0.16	0.62	0.01**	0.96	0.94	0.88	1.14
Nigeria	0.00***	0.00***	0.11	0.07*	1.19**	1.24***	0.91	0.64
Norway	0.23	0.43	0.00***	0.00***	0.96	0.90	0.55***	0.20***
Oman	0.31	0.71	0.00***	0.14	1.08	1.04	0.36***	0.52*
Pakistan	0.36	0.27	0.07*	0.01**	0.96	0.97	0.60**	0.32**
Panama	0.00***	0.16	0.72	0.13	1.06	1.09	0.80	0.53**
Papua New Guinea	0.92	0.40	0.05*	0.00***	1.03	0.63	-0.46**	-0.54***
Paraguay	0.16	0.12	0.00***	0.00***	1.13	1.22	1.39	1.28
Peru	0.00***	0.00***	0.00***	0.00***	1.17***	1.17***	1.75***	1.75***
Philippines	0.07*	0.11	0.66	0.14	1.10	1.16*	1.32	1.50
Poland	0.00***	0.00***	0.09*	0.38	1.61***	1.60***	1.70**	1.34
Portugal	0.12	0.88	0.64	0.71	1.03**	1.00	1.02	0.87
Qatar	0.06*	0.89	0.41	0.02**	1.22**	0.81	0.21	-0.41**
Romania	0.23	0.05*	0.07*	0.08*	0.98	1.25**	1.73	1.91
Russia	0.00***	0.17	0.00***	0.00***	1.07***	1.14*	1.95***	2.64***
Rwanda	0.02**	0.00***	0.08*	0.07*	0.42**	0.35***	-0.13**	-0.33**
Samoa	0.12	0.13	0.22	0.27	1.00	1.16	0.67	1.74
Saudi Arabia	0.00***	0.07*	0.00***	0.26	0.92*	1.17	0.60***	0.78
Senegal	0.00***	0.00***	0.76	0.77	0.83***	0.84***	0.75	0.85
Serbia	0.79	0.89	0.36	0.04**	0.96	0.96	1.21	0.53
Seychelles	0.22	0.03**	0.56	0.22	1.00	0.90	1.10	0.39
Sierra Leone	0.10	0.05*	0.00***	0.00***	0.90**	0.88**	0.60***	0.59***
Singapore	0.66	0.50	0.14	0.24	1.00	1.06	0.28*	-0.11
Slovak Rep.	0.19	0.21	0.50	0.41	1.01	1.06	1.16	1.24
Slovenia	0.07*	0.01**	0.05*	0.00***	1.05**	1.38***	1.57**	1.42*
SoTomPrncipe	0.11	0.01**	0.01**	0.00***	0.96	1.14	1.07	1.90
Solomon Islands	0.50	0.02**	0.00***	0.01**	0.75	0.60	0.45***	0.69
Somalia	0.39	0.48	0.39	0.46		0.80		0.76
South Africa	0.05*	0.00***	0.97	0.02**	1.01	0.49***	0.95	0.22***

Table A22: **(continued).**

	MZ pvalue				beta			
	h=0,F	h=0,S	h=1,F	h=1,S	h=0,F	h=0,S	h=1,F	h=1,S
Spain	0.17	0.00***	0.69	0.36	0.93*	1.02	0.88	1.07
Sri Lanka	0.54	0.23	0.00***	0.00***	0.94	1.13	0.12***	-0.19***
St. Kitts Nevis	0.64	0.09*	0.08*	0.00***	0.95	0.34*	0.05*	-0.96***
St. Lucia	0.95	0.68	0.00***	0.22	0.98	0.58	-0.41***	0.30*
St. Vincent Grenadines	0.55	0.70	0.38	0.72	0.97	1.04	0.49	1.24
Sudan	0.20	0.00***	0.01**	0.05*	0.97	1.13	1.11	0.91
Suriname	0.24	0.00***	0.00***	0.00***	0.89	0.65***	0.09***	-0.01***
Swaziland	0.44	0.15	0.07*	0.00***	0.75	0.60*	0.52**	0.01***
Sweden	0.01**	0.69	0.03**	0.06*	0.99	0.96	1.06	0.89
Switzerland	0.01**	0.33	0.00***	0.29	1.04	1.10	1.12	1.18
Syria	0.60	0.23	0.14	0.94	0.87	1.19	0.62	1.09
Taiwan of China	0.00***	0.02**	0.02**	0.04**	0.92	0.76**	0.81	0.97
Tajikistan	0.00***	0.00***	0.00***	0.00***	0.29***	0.26***	2.67***	2.94***
Tanzania	0.02**	0.01**	0.00***	0.00***	1.24*	1.36	1.03	0.94
Thailand	0.00***	0.02**	0.23	0.05*	0.89***	0.77**	0.65	0.32**
Timor-Leste	0.07*	0.92	0.55	0.26	1.18**	0.89	0.51	0.08
Togo	0.54	0.57	0.00***	0.46	0.19	0.86	0.51***	2.86
Tonga	0.00***	0.00***	0.00***	0.00***	0.58***	0.40***	0.39***	0.37***
Trinidad and Tobago	0.18	0.01**	0.01**	0.00***	0.61*	0.29**	0.44**	0.90
Tunisia	0.18	0.51	0.24	0.10	0.95	0.88	0.73	0.73
Turkey	0.02**	0.07*	0.08*	0.04**	1.09***	1.06	0.94	0.93
Turkmenistan	0.01**	0.00***	0.11	0.38	1.85***	4.85***	5.35	-2.59
Tuvalu	0.00***	0.00***	0.50	0.00***	0.77***	1.49***	1.64	1.48***
Uganda	0.52	0.82	0.05*	0.25	1.09	1.01	1.11	0.75
Ukraine	0.00***	0.45	0.46	0.04**	1.41***	1.93	1.01	4.11**
United Arab Emirates	0.19	0.56	0.35	0.68	1.12	1.30	0.45	0.74
United Kingdom	0.06*	0.10	0.21	0.15	1.02**	1.10*	0.80	0.57*
United States	0.45	0.02**	0.02**	0.06*	0.96	0.93	0.62**	0.63**
Uruguay	0.10	0.00***	0.22	0.02**	1.41**	1.78***	0.96	1.90**
Uzbekistan	0.00***	0.00***	0.13	0.15	1.05***	3.94***	5.57*	4.28
Vanuatu	0.01**	0.00***	0.00***	0.00***	0.54**	0.49***	0.38***	0.39***
Venezuela	0.00***	0.00***	0.00***	0.04**	0.53***	0.52***	1.27***	2.58**
Vietnam	0.15	0.22	0.00***	0.00***	0.57*	0.56*	0.33***	0.32***
World	0.00***	0.37	0.15	0.06*	0.93**	0.95	0.65*	0.75
Yemen	0.00***	0.93	0.00***	0.00***	1.32***	1.05	0.49***	0.51***
Zambia	0.21	0.05*	0.08*	0.05*	0.96	1.10	1.81	2.33
Zimbabwe	0.00***	0.00***	0.00***	0.00***	0.64***	3.36***	2.41***	0.07***

Notes:: This table presents results from Mincer-Zarnowitz (MZ) regressions of the actual inflation in individual countries on an intercept and the WEO inflation forecast. Under the null of forecast efficiency, the estimated intercept should be zero while the slope coefficient should equal one. For each of the four forecast horizons in the table, the left-most columns report p-values from an F-test of this joint null. The four columns to the right report the estimated slope coefficient on the forecast, with p-values indicating deviations from the null that this coefficient equals one. ***: Significant at the 1% level, **: Significant at the 5% level, *: Significant at the 10% level.

Table A23: **Estimates of first-order serial correlation in inflation forecast errors**

	h=0,F	h=0,S	h=1,F	h=1,S
Proportion Sign.	0.32	0.36	0.38	0.52
Average	0.24*	0.19***	0.26***	0.30***
Advanced Economies	-0.30**	0.41***	-0.03	0.04
Afghanistan	-0.00	0.45**	-0.05	0.39**
Albania	0.13***	0.10	-0.30	0.39
Algeria	-0.14	-0.01	0.22	0.44***
Angola	0.51	0.50	0.45	0.46
Antigua and Barbuda	-0.27*	-0.27	-0.05	0.05
Argentina	0.01***	0.02***	0.04	-0.12***
Armenia	-0.04***	0.46	0.01***	0.03***
Australia	0.52***	0.50***	0.36	0.40**
Austria	-0.07	0.37***	0.04	0.17
Azerbaijan	0.29	0.27	0.19***	0.20***
Bahamas, The	0.09	0.27	0.12	0.38***
Bahrain	-0.32	0.17	0.18	0.48***
Bangladesh	-0.06	-0.02	0.26	0.26
Barbados	-0.08	0.00	-0.09	0.22
Belarus	0.20	0.62**	0.24***	0.26***
Belgium	0.07	0.09	-0.22	-0.01
Belize	0.33**	0.27	0.51**	0.48**
Benin	-0.11	0.23	0.05	0.10**
Bhutan	-0.17	0.11	0.58***	0.63***
Bolivia	-0.47*	0.00	0.01	0.01
Bosnia Herzegovina	0.12	-0.10	-0.13	-0.02
Botswana	0.18	0.15	0.15	0.45***
Brazil	0.11***	0.29*	0.72***	0.68**
Brunei Darussalam	0.08	0.07	0.45*	0.47**
Bulgaria	0.14	0.23	0.10	0.11
Burkina Faso	-0.20*	-0.05	-0.08	-0.07
Burundi	0.37	0.32	0.22	0.35
Cabo Verde	-0.08	0.22	0.17	0.20
Cambodia	0.19***	0.19***	0.19***	0.19***
Cameroon	-0.22**	0.04	0.07	0.03
Canada	-0.34	-0.10	0.00	0.01
Central African Rep.	-0.11	-0.07	0.39**	0.40***
Chad	-0.04	-0.07	0.04	0.04
Chile	0.06	0.01	-0.17	-0.03
China	0.33	0.47**	0.39**	0.45**
Colombia	0.51***	0.38***	0.72***	0.76***
Comoros	0.29**	0.09	0.05	0.05
Congo, Democratic	-0.06	0.11	0.13	0.13
Congo, Rep. of	-0.21***	-0.06	0.06	0.06
Costa Rica	-0.16***	0.19	0.32*	0.48**
Croatia	0.30*	-0.01***	0.17	0.02
Cyprus	0.04	-0.01	-0.11	-0.02
Czech Rep.	0.27	0.22*	-0.01	0.01
Cï¿œte d'Ivoire	-0.49***	-0.45***	0.16	0.08
Denmark	-0.14	0.48***	0.17	0.29
Djibouti	0.17	-0.20	-0.04	0.11
Dominica	-0.03	-0.08	0.17	0.11
Dominican Rep.	-0.01**	0.00	0.00	0.13
Ecuador	0.23***	-0.32	0.60**	0.81***
Egypt	0.17	-0.11*	0.20	-0.12

Table A23: **(continued).**

	h=0,F	h=0,S	h=1,F	h=1,S
El Salvador	0.15	0.15	0.11	0.53***
EMDE	0.58**	-0.13***	0.68***	0.75***
Equatorial Guinea	0.27**	0.35***	0.04	0.06
Eritrea	-0.15	-0.26**	0.05	0.22
Estonia	-0.05	0.20***	0.42***	0.43***
Ethiopia	-0.06	-0.08	-0.03	0.09
Euro area	0.42	0.49***	0.15	0.20
Fiji	0.30*	0.25**	0.26	0.50***
Finland	0.34***	0.52***	0.51***	0.59***
France	0.16	0.01	0.16	0.20
G7	-0.26*	0.42***	0.00	0.05
Gabon	-0.17	-0.02	0.01	0.02
Gambia, The	0.43**	0.29	0.51**	0.53**
Georgia	-0.48*	0.29	-0.33***	0.02***
Germany	-0.28***	0.34***	0.28	0.33*
Ghana	0.19	0.43***	0.72***	0.74***
Greece	0.43***	0.56***	0.25***	0.51***
Grenada	0.12	0.21	0.06	0.31
Guatemala	0.57***	0.57***	0.49**	0.55***
Guinea	0.17	-0.00	0.73***	0.70***
Guinea-Bissau	0.42*	0.53**	0.62***	0.71***
Guyana	0.08***	0.07***	0.10***	0.08***
Haiti	0.61***	0.60***	0.54**	0.61**
Honduras	0.03	0.31**	0.55***	0.59***
Hong Kong SAR	0.45**	0.52***	0.35**	0.50***
Hungary	-0.00	0.06	0.18***	0.32*
Iceland	0.48***	0.22***	0.25**	0.64***
India	0.10	0.18	0.38*	0.61***
Indonesia	0.18	-0.31**	-0.18***	-0.12***
Iran	0.48*	0.30	0.48*	0.57***
Iraq	-0.21	0.07	0.30*	0.27
Ireland	0.10	0.16	0.18**	0.32***
Israel	-0.12	0.34*	0.17	0.11
Italy	-0.09	0.17	0.14	0.16
Jamaica	-0.45***	-0.44***	0.31***	0.31***
Japan	-0.00	-0.26	-0.08	0.09
Jordan	0.19**	0.03	-0.14	-0.11
Kazakhstan	0.20***	0.42	0.06***	0.07***
Kenya	0.19	0.60***	0.59**	0.67***
Kiribati	0.25	0.08	0.13	0.11
Korea	0.17	0.15	-0.27*	-0.11
Kosovo	-0.54***	-0.21	0.32	0.15
Kuwait	-0.08	-0.26***	-0.10	-0.14***
Kyrgyz Rep.	-0.03***	-0.13***	-0.02***	-0.06***
Lao P.D.R.	0.16	0.18	0.53***	0.54***
Latvia	0.05	0.55**	0.40***	0.46***
Lebanon	-0.00	-0.00	0.62***	0.62***
Lesotho	-0.07	-0.14	0.17	0.28**
Liberia	0.03	0.45***	0.36**	0.35
Libya	0.03	0.21	0.40*	0.15
Lithuania	0.20*	0.08***	0.43***	0.38***
Luxembourg	0.50***	0.31***	0.51***	0.49***
Macedonia, FYR	0.18**	0.14***	0.22	-0.13

Table A23: **(continued).**

	h=0,F	h=0,S	h=1,F	h=1,S
Madagascar	0.52**	0.60**	0.62***	0.65***
Malawi	0.26	0.64***	0.64***	0.68***
Malaysia	0.34**	0.27	-0.00	0.18
Maldives	0.07	0.16	0.30*	0.27
Mali	0.01	0.10	0.01	0.02
Malta	0.00	-0.12	-0.29	0.00
Marshall Islands	0.19	0.30***	0.79***	0.78***
Mauritania	0.11	0.07	0.32*	0.42**
Mauritius	-0.29**	-0.36	-0.18	-0.06
Mexico	0.33*	0.58***	0.25***	0.57***
Micronesia	0.02***	0.17	0.70***	0.66***
Moldova	-0.48***	-0.41***	0.28***	0.30***
Mongolia	0.05	-0.18	0.65***	0.69***
Montenegro, Rep. of	0.12	0.24	0.12	-0.25
Morocco	0.25	0.16	0.32***	0.27*
Mozambique	0.45**	0.54***	0.71***	0.72***
Myanmar	0.05	0.27	0.34*	0.58***
Namibia	0.10***	0.18	0.28	0.38***
Nepal	0.05	0.16	0.11	0.36**
Netherlands	0.20	0.10	0.17	0.29**
New Zealand	-0.05	0.03	0.02	0.34
Nicaragua	0.04***	0.04***	0.05	0.05
Niger	0.14	0.03	0.01	0.02
Nigeria	0.39*	0.53**	0.74***	0.78***
Norway	0.12	0.26	-0.22	-0.07
Oman	0.14	0.21	0.19	0.37
Pakistan	0.10	0.32***	0.30**	0.65***
Panama	0.38**	0.40***	0.17	0.31
Papua New Guinea	0.09	0.29	0.41**	0.57***
Paraguay	0.36**	0.52***	0.33*	0.34**
Peru	0.32***	0.32***	0.29***	0.30***
Philippines	0.38***	0.03	0.00	0.16*
Poland	0.07***	0.07***	0.48***	0.37***
Portugal	-0.02	0.04	0.25	0.34***
Qatar	0.50***	0.34*	0.35*	0.54***
Romania	0.08	0.18	0.63***	0.72***
Russia	-0.35***	-0.50***	0.50***	0.42***
Rwanda	0.18**	0.22**	0.40***	0.39***
Samoa	-0.27**	-0.20	-0.20*	-0.13
Saudi Arabia	-0.00	0.13	0.03	0.31
Senegal	0.46**	0.45**	-0.06	-0.05
Serbia	-0.55***	0.11	0.31***	0.29
Seychelles	0.03	-0.16	0.15*	0.14
Sierra Leone	0.13	-0.20	0.42***	0.50***
Singapore	0.00	0.18	0.17	0.29
Slovak Rep.	-0.15	0.27	0.03	0.27
Slovenia	0.26	0.65***	0.52***	0.72***
SoTomPrncipe	0.35*	0.57***	0.70***	0.76***
Solomon Islands	0.02	0.04	0.14	0.46***
Somalia	0.00	0.00***	-0.44***	0.00***
South Africa	-0.03	-0.10	0.11	0.14
Spain	-0.13	0.23*	0.15	0.16
Sri Lanka	0.07	-0.00	0.16	0.41**

Table A23: **(continued).**

	h=0,F	h=0,S	h=1,F	h=1,S
St. Kitts Nevis	0.02	0.00	0.23	0.25*
St. Lucia	-0.21	-0.33**	-0.20	-0.08
St. Vincent Grenadines	-0.11	0.10	0.28	0.43*
Sudan	-0.15	0.32***	0.19	0.09
Suriname	0.17	-0.01	0.25	0.15
Swaziland	-0.24	-0.13	0.25*	0.13
Sweden	0.11	0.12	0.26	0.37*
Switzerland	0.03	0.37**	0.23	0.05
Syria	-0.26	0.00	-0.15	0.25
Taiwan Prov. of China	-0.27	0.12	0.12	0.22
Tajikistan	-0.46***	-0.49***	0.70***	0.71***
Tanzania	0.60***	0.84***	0.85***	0.90***
Thailand	0.42***	0.19	0.00	0.10
Timor-Leste	-0.02	0.02	0.36**	0.54***
Togo	-0.01	-0.01	-0.28***	0.15*
Tonga	-0.26	-0.06	-0.03	0.28
Trinidad and Tobago	0.18	0.03	0.10	0.54***
Tunisia	-0.10	-0.18	0.07	0.29**
Turkey	0.43	0.32**	0.53*	0.39***
Turkmenistan	0.44***	0.59***	0.37***	0.41***
Tuvalu	0.19	0.47	0.18	0.24
Uganda	-0.04	-0.24	-0.18**	-0.06
Ukraine	-0.07***	-0.12***	0.19***	0.27***
United Arab Emirates	0.38*	0.62***	0.34	0.61**
United Kingdom	-0.08	0.25*	0.23	0.50***
United States	-0.37**	0.07	0.00	0.03
Uruguay	0.14	0.46***	0.69***	0.81***
Uzbekistan	0.54***	0.56**	0.10***	0.17***
Vanuatu	0.27*	0.40**	0.22	0.49***
Venezuela	5.48***	-2.49	0.73***	1.39***
Vietnam	0.41	0.40	0.63**	0.64**
World	0.37*	0.17	0.07	0.14
Yemen	0.19	-0.45*	0.07	0.28
Zambia	-0.04***	0.52*	0.63***	0.67***
Zimbabwe	26.10***	10.55	7.05***	-0.54***

Notes:: This table reports estimates of first-order serial correlation in the forecast errors associated with the WEO forecast of inflation in individual countries. Under the null of an efficient forecast, the first-order serial correlation should equal zero. Using the four shortest forecast horizons, the table present the estimated first-order autocorrelations along with stars indicating statistical Sign.ificance for a two-sided test statistic. The first row shows the proportion of countries within a particular area that generate forecast errors with a first-order serial correlation that is Significantly different from zero at the 5% level.

Table A24: **Projections of inflation forecast errors on the contemporaneous forecast error for US inflation**

	h=0,F	h=0,S	h=1,F	h=1,S
Proportion Sign.	0.07	0.15	0.29	0.29
Advanced Economies	0.54***	0.56***	0.69***	0.75***
Afghanistan	31.62	1.10	4.13*	2.88
Albania	2.58	-1.19	0.95	-1.58
Algeria	-1.94	3.07	-1.08	-1.44**
Angola	95.77	-183.74	-117.88	-163.52
Antigua and Barbuda	1.85	0.43	0.55	0.92***
Argentina	155.60	252.25	-3.35	0.92
Armenia	-158.35	-578.79	-57.39	-125.75
Australia	0.40	0.82**	0.62***	0.94***
Austria	0.66**	0.47***	0.69***	0.62***
Azerbaijan	-20.25	-94.46	-22.74	-40.80
Bahamas, The	0.18	0.87***	0.34	0.46***
Bahrain	-1.23	-0.69	0.20	0.11
Bangladesh	0.40	-0.29	0.91*	0.96*
Barbados	-0.67	1.29	1.46***	1.46***
Belarus	-28.23	-162.78	-36.97	-60.66
Belgium	0.53***	0.53**	0.87***	0.88***
Belize	-1.49	0.88*	0.56	0.55
Benin	0.16	-1.08	0.60	-0.29
Bhutan	-0.73	0.77	0.55	0.35
Bolivia	-15.42	-2.86	-0.40	0.73
Bosnia Herzegovina	1.74	0.32	1.68***	1.68***
Botswana	-0.24	0.38	1.17**	0.93*
Brazil	216.13	95.35	-55.68	-85.87
Brunei Darussalam	-1.64	1.12***	0.27	0.20
Bulgaria	6.82	-66.10*	-27.20	-35.28
Burkina Faso	-0.00	1.26*	0.86	0.31
Burundi	0.45	2.46	2.17	1.11
Cabo Verde	-0.83	-0.45	0.26	-0.08
Cambodia	-12.50	-10.04	-6.11	-6.75
Cameroon	-1.88**	0.26	-0.21	-0.50
Canada	0.46**	0.55***	0.49***	0.66***
Central African Rep.	-0.28	0.08	0.23	-0.29
Chad	-5.81	0.72	-1.00	-1.49
Chile	0.76	1.22**	0.62	0.37
China	-0.68	0.30	1.37***	1.53**
Colombia	-1.91	-1.07	-0.07	-0.81
Comoros	1.18	1.04	1.01***	0.37
Congo, Democratic	-1427.32	-1942.63	-373.30	-632.77
Congo, Rep. of	-1.24	-2.20*	-0.97	-1.54
Costa Rica	-0.86	-0.69	0.32	-0.54
Croatia	0.29	10.26	0.39	0.42
Cyprus	0.01	-0.20	0.61**	0.67**
Czech Rep.	-0.34	-0.04	0.30	0.25
Cï¿œte d'Ivoire	-1.36	-0.58	0.34	-0.42
Denmark	-0.07	0.57**	0.45***	0.63***
Djibouti	-1.97	0.34	1.43**	0.97*
Dominica	0.73	1.32	0.78***	1.06***
Dominican Rep.	-6.22	-5.44	3.44**	2.09
Ecuador	-1.97	5.19	0.16	-2.21
Egypt	-1.57	-2.62	1.14**	0.66

Table A24: **(continued).**

	h=0,F	h=0,S	h=1,F	h=1,S
El Salvador	-0.84	-0.23	1.09*	0.81
EMDE	-1.15	2.96	-0.51	-1.15
Equatorial Guinea	0.36	1.20	-0.43	-0.90
Eritrea	-3.30	-0.65	-2.92	-4.86**
Estonia	-0.62	-2.87	0.79	1.16
Ethiopia	-0.19	0.23	2.93*	0.16
Euro area	0.49***	0.19	0.63***	0.71***
Fiji	2.06	1.64**	1.16***	1.36***
Finland	0.02	0.61***	0.58***	0.72***
France	0.47***	0.28*	0.50***	0.62***
G7	0.59***	0.57***	0.73***	0.78***
Gabon	-1.53	0.26	0.48	-0.45
Gambia, The	1.01	-0.53	-0.05	-0.51
Georgia	34.48	-577.25	-4.42	-173.50
Germany	0.15	0.16	0.58***	0.72***
Ghana	3.87	-0.25	-0.89	-2.49
Greece	0.21	-0.73	0.31	0.48
Grenada	1.70	1.02	1.19**	1.14***
Guatemala	-1.37	-0.80	0.97	0.76
Guinea	-0.64	-1.32	2.89***	4.25**
Guinea-Bissau	-12.60	-10.59	-2.81	-3.51
Guyana	-13.36	-9.29	-0.05	1.26
Haiti	2.19	-4.80*	-0.30	-1.60
Honduras	-2.15	-3.20	-0.65	-1.24
Hong Kong SAR	0.72	0.17	0.58	1.28***
Hungary	1.80	2.01	-0.07	-0.02
Iceland	-0.15	2.14***	1.16**	0.46
India	-0.90	-0.22	-0.24	0.01
Indonesia	0.20	-1.29	-1.98	-2.73
Iran	-9.03	-6.59**	1.89	0.57
Iraq	17.24	2.19	4.27	2.02
Ireland	0.27	0.31	0.83***	0.66**
Israel	-1.07	0.71	0.47	0.61
Italy	0.17	0.47***	0.48***	0.63***
Jamaica	-3.39	-0.39	-0.77	-1.28
Japan	0.05	-0.04	0.42***	0.46***
Jordan	1.42	0.80	1.63*	2.06**
Kazakhstan	-52.32	-180.52	-21.60	-43.99
Kenya	3.81	-0.49	0.73	0.39
Kiribati	-9.26**	2.01	-0.38	-0.74
Korea	0.52***	0.91**	0.26	0.15
Kosovo	2.49***	-1.28**	1.30***	2.44***
Kuwait	7.94	5.59	1.26*	0.67
Kyrgyz Rep.	-23.06	-31.86	-0.06	-4.21
Lao P.D.R.	-1.36	-7.77	-2.57	-3.21
Latvia	-0.36	-0.72	1.54	1.60
Lebanon	6.26	8.90	10.10	9.66
Lesotho	-0.70	0.81	-0.01	-0.16
Liberia	-1.25	0.47	0.93	-0.38
Libya	1.56	-3.47	1.30	-0.85
Lithuania	-2.05	-9.48	0.57	0.16
Luxembourg	0.58	0.39	0.86***	0.88***
Macedonia, FYR	0.70	1.41	1.37***	1.29**

Table A24: **(continued).**

	h=0,F	h=0,S	h=1,F	h=1,S
Madagascar	-3.02	-1.26	0.04	-0.17
Malawi	-5.04	-9.14	-3.00	-4.33*
Malaysia	0.01	0.43	0.74**	0.33
Maldives	-1.41	0.85	1.26*	1.03
Mali	-2.19	1.57	0.20	-0.09
Malta	-0.05	0.14	0.46***	0.61***
Marshall Islands	-2.97	-0.74	0.69	0.37
Mauritania	-1.11	-1.74***	0.93	0.84
Mauritius	0.51	-0.27	1.45***	1.20***
Mexico	-0.80	-0.53	-1.04	-1.61
Micronesia	1.58	-0.25	0.75*	0.67
Moldova	0.51	-9.30	0.88	0.04
Mongolia	-2.49	-0.90	-0.52	-0.12
Montenegro, Rep. of	-0.02	0.75	0.58	0.24**
Morocco	-0.12	-0.23	0.16	0.15
Mozambique	2.89	1.69	-0.41	-0.41
Myanmar	12.62	2.53	-0.27	-2.69
Namibia	-3.95	0.20	-0.09	-0.31
Nepal	-0.18	-1.16	-0.71	-0.87
Netherlands	-0.09	-0.02	0.40***	0.27***
New Zealand	0.50*	0.36**	0.21	0.56***
Nicaragua	31.23	23.49	122.39	118.95
Niger	-1.13	1.85**	0.67	0.15
Nigeria	-3.79	-3.59	-2.69	-3.54
Norway	-0.10	0.30	0.17	0.22*
Oman	1.70	2.77***	1.52**	1.44**
Pakistan	0.07	0.35	0.65	0.06
Panama	0.80	1.07**	1.56***	1.59***
Papua New Guinea	-0.01	1.28	-0.79	-0.77
Paraguay	-1.18	-2.71*	-0.10	0.16
Peru	149.46	42.57	-3.03	-1.24
Philippines	-0.43	0.14	0.70	0.29
Poland	68.07	25.71	-1.18	-0.56
Portugal	-0.05	0.21	0.63***	0.76***
Qatar	-0.14	0.61	2.66*	2.22
Romania	3.64	-16.71**	-11.52	-14.28
Russia	-2.30	-8.77	-5.93	-10.21
Rwanda	-2.69	0.10	0.30	-0.78
Samoa	4.07	2.49*	-0.50	-0.95
Saudi Arabia	-1.19	-0.15	0.97	0.87*
Senegal	0.18	1.35*	0.63	0.30
Serbia	-0.00	-0.03	1.42**	0.96
Seychelles	2.13	0.37	1.82	-1.88
Sierra Leone	1.76	-2.49	3.11	2.15
Singapore	1.74***	1.16***	1.30***	1.22***
Slovak Rep.	-0.14	0.18	1.12***	0.83**
Slovenia	-0.02	-0.78	0.18	-0.19
SoTomPrncipe	-14.86	-16.06**	-2.42	-5.08
Solomon Islands	-3.20*	0.59	0.70	0.69
Somalia	0.00	18.60	0.00	1.04
South Africa	0.59	3.29*	0.17	-0.49
Spain	0.52	0.30	0.78***	0.87***
Sri Lanka	-2.70**	1.32	2.33	1.48

Table A24: **(continued).**

	h=0,F	h=0,S	h=1,F	h=1,S
St. Kitts Nevis	-4.04**	0.48	0.91**	0.60
St. Lucia	0.29	0.34	0.92**	0.89**
St. Vincent Grenadines	0.32	1.42	1.42***	0.92*
Sudan	13.43*	3.60	0.69	-1.82
Suriname	-6.34	-10.31	-3.28	-0.66
Swaziland	-0.23	1.02	0.48	0.37
Sweden	-0.06	1.56***	0.45***	0.69***
Switzerland	-0.13	0.23	0.42**	0.58***
Syria	-6.12*	0.12	2.90***	2.31**
Taiwan Prov. of China	0.77	0.96**	0.77***	0.68***
Tajikistan	-98.59	-80.40	-17.23	-22.67
Tanzania	0.62	-1.78	-0.99	-1.67
Thailand	0.64*	1.15*	1.12***	1.00**
Timor-Leste	0.27	1.86	2.41***	2.60***
Togo	-3.69	-2.35	0.65	-0.10
Tonga	-2.24	0.35	1.15	0.30
Trinidad and Tobago	-0.20	-1.36	0.13	0.57*
Tunisia	-0.74	-0.35	0.33**	0.32**
Turkey	-4.85	-4.80	-0.35	-4.84*
Turkmenistan	-261.23	-355.88	-63.80	-103.63
Tuvalu	-0.92	0.19	-0.26	-0.22**
Uganda	-0.39	2.43	0.57	0.58
Ukraine	-66.29	-161.93	-6.60	-29.95
United Arab Emirates	-0.50	0.98	1.21	1.11
United Kingdom	0.18	0.36*	0.43**	0.58**
Uruguay	12.74	-0.31	-3.26	-3.88
Uzbekistan	-3.78	-132.88	-19.02	-39.96
Vanuatu	-0.36	-0.16	-0.54**	-0.37
Venezuela	-24.79	-16.17	-8.11*	-15.82**
Vietnam	5.37	6.74	6.05**	6.43**
World	0.24*	0.49***	0.61***	0.59***
Yemen	-2.22	-2.63	1.20	1.53
Zambia	5.25	-10.89	-8.65	-10.63
Zimbabwe	-742.98	1189.04	21.71	-293.28

Notes:: This table shows estimates from regressions of individual countries' WEO inflation forecast errors on an intercept and the contemporaneous forecast error for the WEO forecast of US inflation. The four columns report the estimated slope coefficient from these regressions with stars indicating Sign.ificance of tests that the slope coefficient equals zero against a two-sided alternative. ***: Significant at the 1% level, **: Significant at the 5% level, *: Significant at the 10% level.

Table A25: **Projections of inflation forecast errors on the output gap**

	h=0,F	h=0,S	h=1,F	h=1,S
Proportion Sign.	0.33	0.34	0.30	0.27
Advanced Economies	-0.03**	0.05	-0.04	-0.09
Argentina	-0.10	-0.33***	-0.93**	-1.59***
Australia	0.03	0.11**	0.05	0.03
Austria	0.02	-0.00	0.09	-0.01
Barbados	0.38***	-0.40***	0.23**	-0.09
Belgium	0.05	0.21**	0.21	-0.01
Brazil	0.01	0.03	-0.29***	0.11
Bulgaria	-0.01	-0.19**	-0.50***	-0.27
Canada	0.00	0.07*	0.19	-0.07
Chile	0.08***	0.21	0.19	0.88***
China	0.00	0.13***	0.37**	0.46***
Colombia	0.25	-1.28	-0.36	-10.22***
Costa Rica	1.65***	2.30*	2.16***	6.26***
Croatia	0.16	-0.52**	-0.95*	-1.10***
Cyprus	0.00	-0.01	0.04*	0.03
Czech Rep.	0.05**	0.05	-0.21	0.14
Denmark	-0.01	-0.00	0.02	-0.16
Estonia	-0.07***	-0.49***	-0.79**	-1.38***
Euro area	0.02	0.17***	0.12	0.02
Finland	0.00	0.13	0.24*	0.08
France	0.02	0.17***	0.30**	0.11
G7	-0.03**	0.02	-0.09	-0.11
Germany	0.01	0.01	-0.11	-0.18*
Greece	0.00	0.01	0.03	0.10**
Guyana	-0.11	0.30	0.41	0.26
Hong Kong SAR	0.04	0.21***	0.27**	0.22
Hungary	-0.06**	-0.15**	-0.49***	-0.70***
Iceland	0.06**	0.19*	-0.26	-0.16
India	0.86	2.82	1.06	-2.85
Indonesia	-0.03	-0.48	0.70	0.17
Ireland	0.02	0.04	0.17	0.23
Israel	0.02	0.33**	0.14	0.00
Italy	0.00	0.09	0.23	-0.07
Japan	-0.00	0.04*	-0.02	-0.01
Korea	0.05	0.06	0.17***	0.07
Lithuania	-0.04	-0.42***	-0.73**	-0.45***
Luxembourg	-0.00	-0.02*	-0.01	-0.02
Malaysia	0.18***	0.12	0.21	-1.32***
Malta	0.19	-0.06	-0.01	-0.25
Mauritius	0.46***	0.01**	0.66	0.00
Mexico	0.02***	-0.01	-0.02	0.00
Moldova	-0.09**	0.23	-0.56	0.23
Netherlands	0.00	0.04	0.06	0.17**
New Zealand	0.04	0.07	0.16	-0.00
Nicaragua	-0.57	-0.18	-2.24***	-3.56***
Norway	-0.03	-0.00	-0.32***	-0.19
Peru	-0.10***	-0.13**	0.00	-0.60***
Philippines	0.04	-0.13**	-0.34	-0.50
Poland	0.34***	0.53***	1.84**	2.59***
Portugal	0.03	0.07	0.09	0.07
Romania	-0.05*	-0.45***	-0.53***	-1.32***

Table A25: **(continued).**

	h=0,F	h=0,S	h=1,F	h=1,S
Russia	0.05	0.25*	0.76	0.65
Singapore	-0.01	-0.01	0.34	-0.16
Slovak Rep.	0.06	0.09	0.38	1.38*
Slovenia	0.05	0.21**	0.19	0.32
South Africa	-0.38**	-0.47	0.35***	0.26**
Spain	-0.00	-0.00	0.11	0.13
Swaziland	0.06*	0.08*	0.11	0.16**
Sweden	0.00	-0.12	0.06	-0.21
Switzerland	-0.02	0.08*	0.08	-0.03
Taiwan Prov. of China	0.00	0.03	0.15	0.14
Thailand	-0.06	-0.07	0.00	0.30
Turkey	0.01	0.07	-0.14***	0.03
Ukraine	-0.06	-0.97	-2.88	-0.41
United Kingdom	-0.03	-0.03	-0.19	-0.26
United States	-0.02*	-0.03	-0.10	-0.01

Notes::This table shows results from regressions of individual countries' WEO inflation forecast errors on an intercept and the output gap. We report the estimated slope coefficient from these regressions with stars indicating Sign.ificance of tests that the slope coefficient equals zero against a two-sided alternative. ***: Significant at the 1% level, **: Significant at the 5% level, *: Significant at the 10% level.

Table A26: **Projections of inflation forecast errors on the WEO terms of trade and commodity terms of trade forecast errors**

	terms of trade				commodity terms of trade			
	$\beta_{0,F}$	$\beta_{0,S}$	$\beta_{1,F}$	$\beta_{1,S}$	$\beta_{0,F}$	$\beta_{0,S}$	$\beta_{1,F}$	$\beta_{1,S}$
percentage positive	0.51	0.50	0.44	0.43	0.44	0.48	0.30	0.28
positive Sign.ificant	0.06	0.11	0.08	0.09	0.11	0.08	0.08	0.08
negative Sign.ificant	0.08	0.11	0.15	0.20	0.10	0.09	0.38	0.46
Albania	-0.00	-0.00	-0.00	-0.00	-1.27***	0.03	-0.33***	-0.36***
Algeria	0.01	0.01	-0.01**	-0.02***	-0.18	-0.07	-0.04**	-0.06***
Angola	0.00	0.06	-0.01	0.09	-0.11	0.05*	0.01	-0.00
Antigua Barbuda	-0.01	-0.00	-0.01	0.00	0.06**	0.04***	-0.01	-0.02*
Argentina	-0.01	0.03*	-0.31*	-0.13	-0.11	0.15	-0.39	-0.36
Australia	-0.00	0.03**	0.04***	0.03***	0.18***	0.13	0.46***	0.35***
Austria	-0.01	-0.06**	-0.23***	-0.18***	-0.14	-0.02	-0.73***	-0.54***
Bahamas, The	-0.00	-0.02	0.00	-0.03	-0.00	0.01*	0.01	0.02*
Bahrain	0.00	-0.02	-0.02	-0.01	0.04	-0.00	0.07*	0.02**
Bangladesh	0.00	0.07	0.00	-0.06	-0.68	0.28	-1.38***	-0.94***
Barbados	-0.01	-0.03	-0.06	-0.10***	-1.43**	-0.67***	-0.67***	-0.67***
Belgium	-0.02	-0.02	-0.10	-0.04	0.15	-0.14	-0.71**	-0.45**
Belize	-0.01	-0.09***	-0.12***	-0.11***	-0.47	-0.83***	-0.63***	-0.49***
Benin	-0.00*	0.00	-0.00	0.00	0.16	-0.07	-1.01**	-1.19***
Bhutan	-0.03***	-0.04**	-0.09***	-0.06**	2.08***	0.82***	0.67	0.31
Bolivia	0.00	0.00	0.18	0.02**	-0.20***	0.15*	0.47***	0.60**
Brazil	-0.01	-0.04***	-0.08	-0.06	0.04	-0.19	-0.02	-0.29
Brunei Darussalam	0.00	0.00	0.00**	0.00**	-0.11	0.04	0.01	0.01
Bulgaria	0.02***	-0.12***	-0.05	-0.14	0.51	0.48*	0.09	0.14
Burkina Faso	0.03*	0.00	-0.02	-0.04*	0.65	0.05	-0.64	-0.82***
Burundi	0.01	0.02	0.03	0.04**	0.09	0.00	-0.53	-0.79
CAÂŽte d'Ivoire	0.00	-0.00	-0.01	-0.00	-0.92	-0.62*	0.27*	0.08
Cabo Verde	-0.01	-0.00	0.01	0.02*	0.82***	0.48*	-0.18	-0.37**
Cambodia	-0.01	-0.08	-0.14	-0.31**	-0.67	0.06	-1.60	-1.36
Cameroon	0.02*	0.01	0.01	0.01	-0.75	0.29	0.01	0.34*
Canada	0.02	0.04*	0.10***	0.08***	-0.04	0.18	0.32***	0.32***
CentralAfricanRep.	0.00	0.04	-0.00	-0.00	1.40**	0.81	-4.49***	-2.20**
Chad	-0.00	0.01	0.00	0.01	0.31	0.22	-0.02	-0.02
Chile	-0.00***	-0.03***	-0.01	-0.01	-0.03	-0.06	0.01	-0.03
China	0.02	0.01	-0.22***	-0.17**	0.24***	-0.03	-0.81**	-0.69***
Colombia	0.02***	-0.00	0.00	-0.02	-0.06	-0.06	-0.07	-0.16
Comoros	0.00*	0.01**	0.01**	0.00**	-1.51***	-0.75**	-0.68***	-0.46**
Congo, DR.	-0.01	-0.06	-0.07	-0.08	-1.02	3.94***	2.65*	2.80*
Congo, Republic of	-0.03***	-0.02*	-0.00	-0.00	0.02	-0.02	0.00	0.01*
Costa Rica	-0.00	0.01	-0.04	-0.01	-0.24	-0.16	-1.76***	-1.27***
Cyprus	-0.00***	-0.00	-0.00	-0.02**	-0.30	0.19	-0.41***	-0.45***
Denmark	0.00	0.13**	0.06	0.07	0.19**	1.26***	1.02***	1.39***
Djibouti	-0.00	-0.00	-0.01***	-0.02***	0.26	0.07	-0.18*	-0.10
Dominica	0.03	0.00	-0.00	-0.01	-0.15	0.26	-0.44***	-0.56***
Dominican Republic	0.02	0.04	0.13	0.29	1.57	-1.23	-2.09	-0.36
Ecuador	-0.00	-0.02	-0.02*	-0.01	-0.02	0.14	0.10	0.08
Egypt	-0.06	-0.07*	-0.12**	-0.29**	0.48	0.54	-0.70	-1.64**
El Salvador	-0.00	-0.04***	-0.03***	-0.04***	-0.25	-0.24	-0.97***	-0.82***
Equatorial Guinea	-0.01	-0.00	-0.02**	-0.01	0.01	0.01	-0.00	0.00
Ethiopia	0.05	-0.02	-0.06	-0.05	1.80	1.78**	-1.79**	-0.63
Finland	-0.01	0.02	-0.10	-0.05	-0.48***	-0.39**	-0.88***	-0.74***
France	-0.00	-0.02	-0.09***	-0.10***	-0.07	0.08	-0.67***	-0.63***
Gabon	-0.00	0.03	0.00	-0.00	0.02	0.05*	0.03	0.02

Table A26: **(continued).**

	terms of trade				commodity terms of trade			
	$\beta_{0,F}$	$\beta_{0,S}$	$\beta_{1,F}$	$\beta_{1,S}$	$\beta_{0,F}$	$\beta_{0,S}$	$\beta_{1,F}$	$\beta_{1,S}$
Gambia, The	-0.03	-0.03***	0.00	0.00	-0.42	0.20***	0.09	0.19
Germany	0.01	-0.02	-0.13***	-0.12***	0.07	-0.09	-0.76***	-0.78***
Ghana	-0.00*	-0.01	-0.02	-0.02	-0.26	-0.52	0.09	-0.07
Greece	0.00	0.01**	0.02*	0.02*	-0.48	0.06	-0.61***	-0.62***
Grenada	0.00	-0.04**	-0.03***	-0.04***	0.40	-0.18	-0.83*	-1.24***
Guatemala	-0.00	-0.04	0.00	0.02	-0.09	-0.22	-1.34**	-1.07**
Guinea	-0.01**	-0.02	-0.09**	-0.10**	0.15	-1.06	2.35***	1.53**
Guinea-Bissau	0.03***	0.08**	0.01	0.01	0.86*	0.04	-0.84*	-0.57
Guyana	0.01	0.04	-0.02	-0.00	-0.02	-0.68**	-0.36**	-0.43***
Haiti	-0.00	0.02***	0.03**	0.03***	0.47***	-0.70	-1.09	-0.85**
Honduras	0.00	-0.03**	-0.06***	-0.09***	-0.16	-0.03	-0.33***	-0.47***
Hong Kong SAR	0.03	-0.06	-0.39*	-0.54**	-0.64	0.02	-0.50**	-0.49**
Iceland	-0.01***	0.00	-0.07*	-0.08	0.02	0.32*	-0.00	-0.03
India	-0.07	-0.06	-0.05	-0.00	-0.19	-0.73	-0.31	-0.64*
Indonesia	-0.00	0.03	-0.00	-0.02	-0.41**	1.28***	1.18***	1.00***
Iran	-0.00	-0.00	0.10**	0.05	-1.02***	-1.24***	0.54	0.22
Ireland	-0.01	-0.03**	-0.10**	-0.05	0.48	0.93**	-1.20**	-1.08**
Israel	0.00	0.03	-0.02	-0.00	-0.14	-0.48*	-0.50***	-0.61***
Italy	-0.00	-0.05***	-0.10***	-0.09***	0.53**	0.09	-0.47**	-0.54***
Jamaica	0.07**	0.15***	0.02	0.28*	-0.44	-0.38	-1.05***	-1.01***
Japan	-0.00	0.00	-0.02	-0.03*	-0.34*	-0.09	-0.55***	-0.34***
Jordan	0.00	-0.01	-0.04	-0.01	-0.18	0.06	-0.52**	-0.51***
Kenya	-0.04	-0.02	0.02	0.02	-4.13	-0.70	-0.88***	-0.96***
Kiribati	0.00	0.00	-0.00	0.00	0.20	-0.62**	-0.27	-0.38
Korea	-0.00	0.00	-0.07***	-0.09***	-0.20**	-0.30**	-0.27***	-0.26***
Kuwait	-0.00	-0.01	0.01	0.02*	-0.08	0.02	0.07	0.06**
Lao P.D.R.	0.00	0.01	0.02**	0.01	-0.89	-0.16	-0.08	-0.30
Lebanon	0.00	0.00**	-0.00	-0.01**	-0.44	-0.29	-0.87***	-0.74***
Liberia	-0.02	-0.11	-0.02	-0.14**	0.07	-0.12	-0.05	-0.02
Luxembourg	0.02***	0.02	0.13*	-0.01	-0.08	-0.12	-0.47***	-0.40***
Madagascar	0.00	-0.01	-0.03	-0.02	-2.24**	-1.50	-1.61**	-1.14**
Malawi	0.00	0.01	0.02**	0.04**	-1.34	1.42**	0.28	0.72
Malaysia	0.00	0.07	0.18***	0.11*	0.11	0.31***	0.57***	0.37***
Maldives	-0.03*	-0.00	0.01	0.06*	0.00	-0.04	-0.31***	-0.58***
Mali	0.00	0.00	-0.00	-0.01	3.72***	0.06	-0.38	-0.75***
Mauritania	0.00	-0.00	-0.02	-0.02	-0.05	0.02	-0.04	0.03
Mauritius	-0.06***	-0.00	-0.09*	-0.06**	-0.71*	0.22	-0.79***	-0.81***
Mexico	-0.00**	-0.01	0.00	-0.01	0.04	0.34***	0.57	0.45
Mongolia	-0.00	-0.07***	-0.06**	-0.00	-0.45	-0.21	-0.13	0.14
Morocco	-0.01	0.05**	0.05***	0.04**	0.56***	-0.01	-0.11	-0.09
Mozambique	-0.01	-0.04	0.07*	0.10	-0.24	-1.67*	1.13	1.01*
Myanmar	0.01	-0.00	-0.00	-0.01	2.00	0.83***	0.86	-0.38
Netherlands	0.01	0.02	-0.01	-0.02	-0.04	0.12	-0.32	-0.47***
New Zealand	-0.02	-0.03**	-0.00	0.02	-0.10	0.08	-0.34	-0.68
Nicaragua	0.07**	0.03	0.04	-0.04	-0.87	-0.28	-1.34***	-1.26***
Niger	-0.00	0.01	0.07	0.05	0.08***	-1.28	-0.01	-0.50
Nigeria	-0.00	-0.00	0.01	0.01	0.04	0.00	0.13***	0.04
Norway	-0.01	0.00	0.00	-0.00	-0.02	0.03	0.01	-0.00
Oman	0.01*	0.00	0.03	0.02	-0.20***	0.09	0.14***	0.14***
Pakistan	0.00	0.00	-0.01	0.01	-0.36	-0.39	-1.11***	-1.23***
Panama	0.00	-0.00	-0.01	-0.05*	0.11	0.02	-1.14*	-1.67***
Papua New Guinea	0.00	0.01	0.01*	0.00	-1.32**	-0.15	0.00	0.09

Table A26: **(continued).**

	terms of trade				commodity terms of trade			
	$\beta_{0,F}$	$\beta_{0,S}$	$\beta_{1,F}$	$\beta_{1,S}$	$\beta_{0,F}$	$\beta_{0,S}$	$\beta_{1,F}$	$\beta_{1,S}$
Paraguay	0.00	-0.00	0.02	-0.00	-0.38	0.12	0.33	0.12
Peru	0.00	0.00	-0.00	0.00	-0.28***	-0.33***	-0.37***	-0.22***
Philippines	0.01	-0.10	-0.11*	-0.23***	-0.56***	-0.54**	-1.11***	-0.86***
Poland	-0.02**	-0.12***	-0.12	-0.12	0.61***	-0.01	-0.51**	-0.90***
Portugal	0.03**	0.00	0.09	-0.03	-0.12	0.05	-0.53**	-0.43***
Qatar	-0.01	0.00	0.03	0.04	0.08	0.22*	0.26**	0.21**
Romania	0.00	0.01	-0.03	-0.06	0.03	0.40	-0.84**	-1.31***
Rwanda	0.00	0.05	0.01	0.03	0.00	0.00	0.00**	0.00***
S.TomAPrA.	0.00	-0.00	0.00	-0.02*	-0.04	-0.00	-2.15***	-0.63
Saudi Arabia	0.00	0.01	0.01	0.01	-0.02	0.04	0.09	0.08*
Senegal	0.01	0.01	0.02	0.03	0.44	-0.15	-0.25*	-0.33**
Seychelles	-0.02	0.03**	0.00	0.07	0.31	0.12	-0.22	-0.26
Sierra Leone	0.06	0.13***	0.14*	0.12**	-0.57	-0.00	-0.83***	-0.80*
Singapore	0.00	0.10***	0.14***	0.21***	0.09	0.03	-0.34***	-0.32***
Solomon Islands	0.00	0.02	0.00	0.00	0.49	-2.55***	-1.66***	-1.83***
South Africa	0.03	0.01	0.02	0.01	0.15	-0.37	-0.30	-0.05
Spain	0.01	0.07**	-0.03	-0.00	-0.24	0.04	-0.88***	-0.72***
Sri Lanka	-0.03***	-0.01	-0.35**	-0.32**	0.01	0.17	-1.82*	-1.60**
St. Lucia	0.00	-0.00	-0.00	0.00	0.14**	-0.12	-0.75***	-0.88***
StVincentGrenadines	0.00	-0.08**	-0.07	-0.08**	0.03	-0.07	-0.41***	-0.34***
Sudan	-0.04	-0.01	0.01	0.05	1.95**	-0.92*	0.56	-0.38
Suriname	-0.00	0.04	0.09*	0.07	2.51	-1.71	-0.17	1.10
Sweden	0.04	0.05	-0.05	0.06	0.31	-1.15	-0.43	-0.24
Switzerland	0.02*	0.03*	0.09***	-0.00	-1.07***	-0.39**	-1.28***	-1.25***
Syria	-0.01	-0.02	-0.01	-0.01	-0.48	-0.02	0.60**	0.48**
Tanzania	0.03**	0.03**	0.07***	0.07***	0.00	0.17	-0.37*	-0.42***
Thailand	0.02**	0.02	0.13	0.05	-0.14	0.01	-0.86***	-0.84***
Togo	-0.01**	-0.02***	-0.04***	-0.04**	-0.17	-0.12	-0.60*	-0.63***
Tonga	0.06	0.04	0.04	0.05	2.38*	0.38	-0.48	-0.19
Trinidad Tobago	-0.01	-0.02	-0.01	-0.02	-0.45**	0.05	0.14**	0.11*
Tunisia	0.01	0.01	0.01	0.02	0.00	-0.17***	-0.31*	-0.28***
Turkey	-0.03	-0.08	-0.03	-0.05	0.34	0.32	-0.22	-0.09
Uganda	-0.03	0.04	0.05	0.08*	-0.08	-0.50	-0.52	-0.53
UnitedArabEmirates	-0.01	0.00	0.02	0.05	-0.07	0.06	0.22	0.20*
United Kingdom	-0.00	-0.05	-0.10	-0.16***	0.97	-0.06	-3.93***	-4.80***
United States	-0.01	-0.08***	-0.17***	-0.20***	-0.25	-0.66***	-1.91***	-1.56***
Uruguay	0.00	0.03	0.09	0.05	1.52***	0.20	1.82	0.46
Venezuela	0.04	-0.07	-0.19***	-0.42**	-2.66	-3.52	-1.32	-2.64**
Vietnam	0.01	0.03	0.14	0.20**	0.54	2.40***	2.64***	1.94**
Zambia	-0.00	-0.04*	-0.03*	-0.02	-0.25	-0.03	-0.15	-0.22
Zimbabwe	13.68	-21.48	-22.52	-69.27	66.06	-422.55	133.26	86.11

Notes: This table shows results from regressions of individual countries forecast errors on an intercept and the contemporaneous terms trade forecast error (left panel) and commodity terms of trade forecast error (right panel) for the four shortest forecast horizons. We rep the estimated slope coefficient from these regressions with stars indicating Sign.ificance of tests that the slope coefficient equals zero agains two-sided alternative. ***: Significant at the 1% level, **: Significant at the 5% level, *: Significant at the 10% level.

Table A27: **Bias estimates for Consensus Economics' Inflation forecasts**

	2004-2016				1990-2016			
	h=0,m9	h=0,m3	h=1,m9	h=1,m3	h=0,m9	h=0,m3	h=1,m9	h=1,m3
Proportion Sign.	0.19	0.10	0.09	0.13	0.20	0.11	0.17	0.19
Albania	-0.09	-0.18	-0.40	-0.63*	-0.09	-0.18	-0.40	-0.63*
Argentina	-0.45	-0.64***	-1.10*	-1.23	-3.27	-4.53	-1.30	-2.42*
Armenia	-0.34	-0.46	-0.33	-1.17	-0.34	-0.46	-0.33	-1.17
Australia	-0.03	0.00	-0.20	-0.15	-0.07	-0.20	-0.53**	-0.62*
Austria	0.03	0.23	0.11	0.14	-0.03	0.07	-0.04	-0.04
Azerbaijan	0.01	-0.15	0.76	0.71	-0.52	-1.08	-0.86	-0.07
Bangladesh	-0.05	0.47	0.64	1.07**	-0.33	-0.07	-0.17	0.09
Belarus	1.92	3.49	3.58	2.98	2.09	8.21	12.05	3.46
Belgium	0.10	0.36*	0.19	0.21	0.02	0.16	-0.01	-0.07
Bolivia	-0.32	0.08	0.20	0.37	-0.43*	-0.27	-0.03	0.18
Bosnia Herzegovina	-0.32**	-0.63	-1.06	-1.97***	-0.32**	-0.63	-1.06	-1.97***
Brazil	0.24	0.57***	0.83**	0.90**	0.61*	71.98	1.54**	77.45
Bulgaria	-0.28	-0.17	-0.12	-0.14	6.11	22.03	50.90	51.57
Canada	-0.11***	0.18*	-0.25	-0.24	-0.09***	0.05	-0.29*	-0.30*
Chile	-0.17	0.27	0.26	0.36	-0.17	0.01	0.15	0.22
China	-0.09	0.04	-0.11	0.00	-0.58*	-0.97*	-1.58*	-1.88*
Colombia	0.07	0.23	0.31	0.39	0.08	-0.01	0.27	0.36
Costa Rica	-0.09	0.03	-0.08	0.23	-0.04	-0.63	-0.08	0.26
Croatia	-0.12	-0.24	-0.39	-0.52	-0.16*	-0.30	-0.45	-0.53
Cyprus	0.05	-0.30	-0.63	-0.65	0.05	-0.30	-0.63	-0.65
Czech Republic	-0.09***	-0.19**	-0.43*	-0.35	-0.20***	-0.27**	-0.67*	-0.60
Denmark	-0.02	-0.04	-0.26	-0.30	-0.06	-0.16	-0.31*	-0.38**
Dominican Republic	-0.13	1.45	2.08	2.32	0.39	2.10	3.10	3.46
Ecuador	-0.12	-0.30	-0.35	-0.62	0.71	-1.04	-0.67	-1.73
Egypt	0.45	1.35*	2.18**	2.69**	0.03	0.34	0.73	0.86
El Salvador	-1.50***	-1.77***	-1.69***	-1.94***	-1.50***	-1.77***	-1.69***	-1.94***
Estonia	0.29***	0.63*	0.44	0.61	-0.00	0.17	-0.13	0.18
Euro area	-0.01	0.15	-0.09	-0.06	-0.01	0.15	-0.09	-0.06
Finland	0.01	0.04	-0.18	-0.15	-0.12	-0.25	-0.53**	-0.62**
France	0.06**	0.15	-0.07	-0.08	0.00	0.05	-0.17	-0.18
Georgia	-0.84*	-1.62*	-1.90*	-2.53**	-0.84*	-1.62*	-1.90*	-2.53**
Germany	0.01	0.14	-0.13	-0.11	0.05	0.11	-0.08	-0.07
Greece	0.23*	0.32	-0.16	0.00	0.10	0.12	-0.23	-0.17
Guatemala	-0.79***	-1.17**	-0.80***	-0.90**	-0.79***	-1.17**	-0.80***	-0.90**
Honduras	-0.49	-0.92***	-1.30***	-1.59***	-0.49	-0.92***	-1.30***	-1.59***
Hong Kong SAR	-0.03	0.01	-0.07	0.04	-0.24***	-0.60**	-1.16***	-1.43**
Hungary	-0.09	0.11	-0.05	0.35	-0.19	0.25	0.88	1.40
India	0.49	0.11	1.35*	1.28	0.02	-0.29	0.28	0.13
Indonesia	-0.03	0.29	0.53	0.69	-0.62	1.16	2.10	2.56
Ireland	-0.31**	-0.38*	-0.82*	-0.88**	-0.19**	-0.22	-0.45	-0.45
Israel	-0.16	-0.29	-0.63	-0.65	-0.24*	-0.46	-0.71*	-0.90*
Italy	0.04	0.11	-0.04	-0.06	0.03	0.09	0.04	0.01
Japan	-0.02	0.04	-0.23	-0.20	0.00	0.02	-0.24**	-0.30**
Kazakhstan	0.38	0.48	1.65*	1.67	-0.01	0.13	0.75	1.49*
Korea	-0.14***	-0.13	-0.42	-0.34	-0.23***	-0.33	-0.33	-0.35
Latvia	0.16	0.89*	1.07	1.36	0.00	0.43	0.44	0.73
Lithuania	0.07	0.45	0.41	0.42	-0.29	-0.34	-0.33	-0.53
Macedonia, FYR	-0.41	-0.33	-0.74	-1.42**	-0.41	-0.33	-0.74	-1.42**
Malaysia	-0.09***	-0.00	-0.25	-0.16	-0.23***	-0.33**	-0.57**	-0.58**
Mexico	0.10	0.10	0.24	0.31	0.21**	-0.22	0.23	0.10
Moldova	0.08	-0.15	0.24	0.32	0.46	0.25	1.61	-0.07

Table A27: **(continued).**

	2004-2016				1990-2016			
	h=0,m9	h=0,m3	h=1,m9	h=1,m3	h=0,m9	h=0,m3	h=1,m9	h=1,m3
Netherlands	-0.11	-0.03	-0.24	-0.22	0.00	0.10	-0.02	0.07
New Zealand	-0.14***	-0.02	-0.43	-0.23	-0.04	-0.02	-0.10	-0.15
Nicaragua	-0.82**	-1.52**	-0.78	-1.26*	-0.82**	-1.52**	-0.78	-1.26*
Nigeria	0.32	0.70	1.28	1.05	-0.43	-0.21	0.92	0.67
Norway	0.02	0.14	0.03	0.00	-0.05	-0.15	-0.23	-0.33
Pakistan	0.49	1.68	1.82	2.62*	-0.19	0.13	0.07	0.44
Panama	-0.42*	0.15	0.24	0.50	-0.38**	0.03	0.22	0.36
Paraguay	-0.39	-0.60	-0.47	-0.54	-0.55*	-0.28	-0.14	0.37
Peru	0.03	0.36*	0.38	0.46	-0.01	-1.52	0.18	-1.15
Philippines	-0.05	0.06	-0.18	-0.04	-0.18*	-0.33	-0.48	-0.38
Poland	-0.06	-0.08	-0.42	-0.44	-1.04	0.33	-0.05	-0.22
Portugal	0.02	0.09	0.01	-0.07	-0.05	0.07	-0.04	-0.09
Romania	-0.14*	-0.37	-0.24	-0.50	0.69	3.10	8.36	8.34
Russia	0.55**	0.61	1.47*	1.76*	-1.79	1.86	-3.04	0.94
Saudi Arabia	-0.22	0.03	0.15	0.42	-0.51*	-0.60	-0.91	-0.67
Serbia	0.12	0.01	0.35	0.15	0.12	0.01	0.35	0.15
Singapore	0.05	0.05	0.05	0.06	-0.17*	-0.30	-0.44	-0.53
Slovak Republic	-0.20**	-0.29	-0.55	-0.55	-0.28***	-0.40**	-0.38	-0.29
Slovenia	-0.08	-0.24	-0.47	-0.56	0.00	-0.04	-0.04	-0.07
South Africa	-0.10	0.34	0.20	0.49	-0.19*	0.05	-0.17	0.10
Spain	-0.00	0.17	-0.15	-0.13	-0.02	0.14	-0.08	0.02
Sri Lanka	-0.45	0.34	0.47	0.78	-0.83*	-0.22	0.00	0.40
Sweden	0.26	0.25	-0.32	-0.47	0.01	-0.00	-0.45**	-0.65**
Switzerland	-0.05**	-0.05	-0.49**	-0.62***	-0.05	-0.07	-0.48***	-0.54**
Taiwan Prov. China	-0.08	0.06	-0.38	-0.32	-0.17***	-0.34**	-0.68***	-0.76***
Thailand	-0.15	-0.01	-0.39	-0.34	-0.33***	-0.39	-0.71*	-0.70
Turkey	0.03	0.24	0.43	0.65	1.29*	2.43	3.76*	6.22**
Turkmenistan	-5.17***	-5.07***	-4.23***	-5.48***	-5.17***	-5.07***	-4.23***	-5.48***
Ukraine	-0.01	1.58	3.71	4.77	-1.67	-3.91	-5.41	-5.64
United Kingdom	-0.63***	-0.35	-0.44	-0.23	-0.26*	-0.09	-0.40**	-0.37
United States	-0.06	0.28*	-0.07	0.00	-0.05**	0.15	-0.22	-0.19
Uruguay	0.09	0.81***	1.08**	1.13	-0.18	0.03	1.63**	1.62**
Uzbekistan	0.48	1.89	-1.12	0.79	-0.26	0.46	-1.93	1.22
Venezuela	-29.94	-3.11	16.19	22.13	-25.23	-3.72	14.82	21.45
Vietnam	-0.10	1.35	1.18	1.83	-0.92**	-0.79	-0.95	-0.96

Notes:: This table reports estimates of biases in the Consensus Economics inflation forecasts, i.e., the sample mean difference between the outcome and the predicted value, so that positive values suggest that the forecasts tend to under-predict the outcome, while negative values suggest that the forecast on average over-predict actual values. The table shows results for the four short horizons (h = 0, m9 and m3 and h=1, m9 and m3) for 2004-2016 subsamples and whole sample. Stars indicate if the null of a zero bias is rejected against a two-sided alternative of a non-zero bias. ***: Significant at the 1% level, **: Significant at the 5% level, *: Significant at the 10% level.

Table A28: **Estimates of first-order serial correlation in inflation forecast errors, Consensus Economics**

	h=0,m9	h=0,m3	h=1,m9	h=1,m3
Proportion Sign.	0.36	0.37	0.23	0.40
Average	0.29	0.20	0.19	0.33
Albania	0.06	0.15	0.20	0.55**
Argentina	-0.17***	0.36***	-0.39	0.23
Armenia	0.31	0.03	-0.26*	0.16
Australia	0.20*	0.40***	0.47**	0.63***
Austria	-0.00	0.30**	0.19	0.31
Azerbaijan	0.23	0.05	0.13	0.17
Bangladesh	-0.01	0.16	0.38**	0.55***
Belarus	0.15	0.03	0.24***	0.11
Belgium	0.14	0.02	-0.16	0.06
Bolivia	-0.05	-0.10	-0.18	-0.08
Bosnia Herzegovina	0.09	-0.02	0.02	0.78***
Brazil	0.10	0.55***	0.35	-0.04
Bulgaria	0.13	0.10	0.05	0.04
Canada	0.06	0.31**	0.18*	0.29**
Chile	-0.16	0.25	-0.07	0.07
China	0.66***	0.72***	0.53**	0.64***
Colombia	-0.00	0.43	0.34	0.58
Costa Rica	0.39*	0.37	0.30	0.63***
Croatia	0.25	0.21	0.33	0.47**
Cyprus	0.15	0.44	0.16	0.33
Czech Republic	0.38*	0.23*	-0.02	-0.04
Denmark	0.25*	0.43***	0.27	0.42*
Dominican Republic	0.35	0.24	0.23	0.22
Ecuador	-0.06***	-0.06	0.03	0.03
Egypt	-0.24	0.45**	0.56***	0.62***
El Salvador	0.74***	0.62***	0.58**	0.73***
Estonia	0.23***	0.15	0.00	0.12
Euro area	-0.07	0.32	-0.01	0.17
Finland	0.58***	0.63***	0.48***	0.63***
France	0.40***	0.41**	0.18	0.33
Georgia	0.41***	0.11	0.02	0.20
Germany	0.40**	0.36***	0.23	0.40**
Greece	0.33*	0.11	0.23	0.46**
Guatemala	0.74***	0.23***	0.11	-0.17
Honduras	0.03	0.16	0.34	0.75***
Hong Kong SAR	0.61***	0.57***	0.57***	0.71***
Hungary	0.18*	0.11	0.33	0.56***
India	0.08	-0.27	0.50**	0.49**
Indonesia	0.13***	-0.14***	-0.22***	-0.02
Ireland	0.25	0.19	0.31***	0.48***
Israel	0.49***	-0.01	0.17	0.44*
Italy	-0.04	0.23**	0.06	0.22
Japan	-0.09	-0.05	-0.10	0.13
Kazakhstan	0.35	0.17	0.15	0.17
Korea	0.01	0.29**	-0.13	-0.02
Latvia	0.30**	0.55***	0.31	0.39
Lithuania	0.68***	0.54***	0.28	0.47**
Macedonia, FYR	-0.17	-0.24	-0.12	0.51**
Malaysia	0.54***	0.19	-0.11	0.12
Mexico	-0.06	0.31	0.52***	0.56**

Table A28: **(continued).**

	h=0,m9	h=0,m3	h=1,m9	h=1,m3
Moldova	-0.39*	-0.40	0.14	-0.02
Netherlands	0.35***	0.34**	0.37***	0.43***
New Zealand	0.05	0.00	0.24	0.41*
Nicaragua	0.81**	0.44***	0.50	0.71***
Nigeria	-0.16	0.02	-0.11	0.04
Norway	0.58***	0.50***	-0.06	0.29
Pakistan	-0.32	0.53***	0.71***	0.68***
Panama	0.42**	0.39	0.02	0.35
Paraguay	0.42**	-0.02	-0.25	-0.22
Peru	-0.40***	0.01	-0.20	-0.03
Philippines	0.25	-0.05	-0.26	-0.06
Poland	0.49*	-0.40***	0.29	-0.30
Portugal	0.27*	0.22	0.21	0.29*
Romania	0.22	0.10	0.28***	0.21***
Russia	-0.33***	-0.25	0.01	0.05
Saudi Arabia	0.45***	0.49**	0.46	0.66***
Serbia	0.24	0.33**	0.33**	0.40**
Singapore	0.48***	0.26	0.16	0.33
Slovak Republic	0.34	0.00	-0.06	0.19
Slovenia	0.09	0.00	0.12	0.23
South Africa	0.11	0.14	0.30**	0.36**
Spain	-0.29*	0.06	0.02	0.26
Sri Lanka	0.35	0.17	0.11	0.23
Sweden	0.20*	0.12	0.00	0.16
Switzerland	0.33**	0.37**	0.28	0.40***
Taiwan Province of China	-0.08	0.11	0.07	0.35
Thailand	0.40**	0.37***	0.06	0.09
Turkey	0.44***	0.70***	0.27	0.62***
Turkmenistan	0.81***	0.73***	0.13	0.37***
Ukraine	0.26	0.51**	0.37***	0.42***
United Kingdom	0.36	0.33*	0.47*	0.63***
United States	-0.19	0.19	0.05	0.20
Uruguay	-0.30*	-0.30	0.42***	-0.03
Uzbekistan	0.02	0.05	0.27	0.12
Venezuela	8.38***	-0.31	1.88***	2.27***
Vietnam	0.64***	0.28**	0.12	0.44**

Notes:: This table reports estimates of first-order serial correlation in the forecast errors associated with Consensus Economics' forecasts of inflation in individual countries. Under the null of an efficient forecast, the first-order serial correlation should equal zero. Using the four shortest forecast horizons, the left-most columns present the estimated first-order autocorrelations along with stars indicating statistical Sign.ificance for a two-sided test statistic. The columns on the right show the proportion of countries within a particular area that generate forecast errors with a first-order serial correlation that is Significantly different from zero at the 5% level.

Table A29: **Mincer-Zarnowitz efficiency tests for Consensus Economics' inflation forecasts**

	MZ pvalue				beta			
	h=0,m9	h=0,m3	h=1,m9	h=1,m3	h=0,m9	h=0,m3	h=1,m9	h=1,m3
Proportion Sign.	0.44	0.38	0.44	0.47	0.36	0.37	0.30	0.39
Albania	0.11	0.36	0.01**	0.00***	0.91	1.18	0.14	-0.56
Argentina	0.00***	0.00***	0.00***	0.00***	0.28***	0.37***	-0.04***	0.13***
Armenia	0.00***	0.60	0.04**	0.00***	1.26***	0.73	-0.55	-0.72***
Australia	0.40	0.48	0.00***	0.00***	0.88	0.85	0.22***	-0.13***
Austria	0.48	0.61	0.76	0.69	1.04	1.05	0.84	0.72
Azerbaijan	0.00***	0.07*	0.19	0.92	1.23***	1.45**	0.23*	0.75
Bangladesh	0.45	0.27	0.33	0.18	0.90	0.57	0.48	0.28
Belarus	0.15	0.62	0.60	0.17	1.10*	1.30	1.52	0.60
Belgium	0.70	0.46	0.05*	0.00***	1.04	0.97	0.10**	0.15***
Bolivia	0.23	0.89	0.00***	0.07*	0.94	0.88	-0.17***	-0.12**
Bosnia Herzegovina	0.00***	0.00***	0.17	0.01**	1.20***	2.24***	0.23	2.11
Brazil	0.05*	0.00***	0.03**	0.00***	1.31	2.18***	1.70	1.90***
Bulgaria	0.00***	0.00***	0.01**	0.30	1.12***	1.71***	10.23***	6.37
Canada	0.00***	0.07*	0.06*	0.09*	0.97	0.91**	0.80	0.73
Chile	0.24	0.00***	0.03**	0.00***	0.78	0.79***	-0.23**	0.83**
China	0.00***	0.02**	0.00***	0.00***	0.79***	0.71**	0.20***	0.08***
Colombia	0.49	0.00***	0.29	0.30	1.09	0.84***	0.60	0.94
Costa Rica	0.12	0.44	0.84	0.65	1.14**	0.64	1.28	1.29
Croatia	0.00***	0.00***	0.52	0.44	1.05**	1.25***	1.10	1.34
Cyprus	0.19	0.00***	0.35	0.13	1.10	1.72***	1.30	2.76
Czech Rep.	0.00***	0.02**	0.02**	0.26	0.96***	1.04*	1.01	0.92
Denmark	0.14	0.19	0.00***	0.00***	1.02	0.75	0.47	0.29***
Dominican Rep.	0.00***	0.00***	0.30	0.62	1.21***	2.57***	3.32	0.54
Ecuador	0.00***	0.00***	0.00***	0.00***	1.49***	0.81***	0.68***	0.58***
Egypt	0.71	0.58	0.66	0.19	0.86	1.15	0.94	0.49*
El Salvador	0.00***	0.00***	0.00***	0.00***	0.69***	0.76	0.65	1.37
Estonia	0.23	0.89	0.11	0.04**	0.88	1.00	0.35**	0.15**
Euro area	0.86	0.00***	0.93	0.83	1.01	1.25***	0.93	1.62
Finland	0.13	0.15	0.00***	0.00***	0.95	0.85	0.46***	0.33***
France	0.71	0.76	0.00***	0.01**	0.96	1.00	0.59**	0.53*
Georgia	0.01**	0.18	0.09*	0.00***	1.22***	1.19	-0.02	-0.78***
Germany	0.03**	0.02**	0.77	0.84	1.17**	1.22***	1.13	1.14
Greece	0.45	0.19	0.03**	0.15	0.98	0.91*	0.91	0.87
Guatemala	0.00***	0.02**	0.01**	0.00***	0.87	0.04**	0.48	-0.25***
Honduras	0.23	0.00***	0.00***	0.00***	0.92	1.54***	1.06	0.93
Hong Kong SAR	0.02**	0.03**	0.01**	0.03**	1.01	1.12	1.01	0.98
Hungary	0.47	0.46	0.51	0.26	0.96	0.97	1.08	1.11
India	0.26	0.25	0.54	0.25	1.20	0.61	0.72	0.40*
Indonesia	0.00***	0.14	0.00***	0.07*	0.78***	1.61*	0.53***	0.49**
Ireland	0.12	0.14	0.17	0.26	0.93	1.16	1.09	1.25
Israel	0.00***	0.27	0.17	0.16	1.07**	0.98	1.02	0.87
Italy	0.58	0.60	0.89	0.82	1.00	0.98	0.95	0.91
Japan	0.96	0.78	0.12	0.09*	1.00	1.05	0.84	0.89
Kazakhstan	0.97	0.64	0.00***	0.06*	1.01	1.12	0.43***	0.10*
Korea	0.00***	0.12	0.33	0.32	0.92**	0.78**	0.97	0.67
Latvia	0.59	0.08*	0.84	0.73	1.03	1.20*	1.18	1.06
Lithuania	0.07*	0.27	0.69	0.06*	1.08**	1.28	0.70	0.03**
Macedonia, FYR	0.02**	0.01**	0.18	0.04**	1.41***	2.33**	-0.56	1.32
Malaysia	0.00***	0.01**	0.00***	0.00***	0.89**	0.84**	0.31***	0.39***
Mexico	0.08*	0.00***	0.40	0.00***	1.04	0.50***	0.90	0.45***
Moldova	0.57	0.89	0.68	0.43	1.14	1.09	1.24	0.56

Table A29: **(continued).**

	MZ pvalue				beta			
	h=0,m9	h=0,m3	h=1,m9	h=1,m3	h=0,m9	h=0,m3	h=1,m9	h=1,m3
Netherlands	0.00***	0.01**	0.76	0.92	1.20***	1.32***	1.23	1.10
New Zealand	0.79	0.69	0.17	0.02**	0.99	1.06	0.73	0.39***
Nicaragua	0.00***	0.02**	0.00***	0.00***	1.60***	0.08	-0.47*	0.51
Nigeria	0.20	0.00***	0.01**	0.00***	0.47*	-0.21***	-0.02***	-0.19***
Norway	0.31	0.04**	0.00***	0.00***	0.93	0.76**	0.41***	0.29***
Pakistan	0.90	0.90	0.97	0.06*	0.95	1.09	0.94	0.02**
Panama	0.00***	0.83	0.01**	0.12	0.95	1.14	0.27***	0.09**
Paraguay	0.00***	0.91	0.93	0.55	0.93	0.92	1.02	1.45
Peru	0.75	0.00***	0.00***	0.00***	0.91	0.62***	-0.15***	0.45***
Philippines	0.15	0.00***	0.21	0.35	0.98	0.87	0.74	0.81
Poland	0.00***	0.89	0.18	0.65	0.84***	1.05	1.07	1.04
Portugal	0.00***	0.82	0.59	0.76	0.95***	0.98	0.90	0.90
Romania	0.00***	0.39	0.17	0.14	1.07***	1.37	1.72*	1.56*
Russia	0.62	0.23	0.00***	0.00***	0.82	1.11*	0.55***	0.30***
Saudi Arabia	0.15	0.39	0.00***	0.06*	1.04	1.07	0.58**	0.64
Serbia	0.25	0.46	0.86	0.92	1.09	1.26	1.33	1.54
Singapore	0.07*	0.08*	0.13	0.00***	1.02	1.00	0.52	0.10**
Slovak Rep.	0.00***	0.09*	0.38	0.65	1.00	0.98	1.09	1.09
Slovenia	0.82	0.95	0.56	0.83	1.01	1.01	1.12	1.08
South Africa	0.17	0.57	0.00***	0.00***	1.04	0.86	0.55**	0.35***
Spain	0.56	0.21	0.76	0.69	0.98	1.03	0.95	1.09
Sri Lanka	0.00***	0.25	0.13	0.20	1.11**	1.37	0.07*	-0.14*
Sweden	0.98	0.92	0.08*	0.04**	0.98	1.05	1.02	0.89
Switzerland	0.03**	0.11	0.00***	0.00***	1.04	1.15	1.14	1.12
Taiwan Prov. of China	0.00***	0.00***	0.00***	0.00***	0.97	0.85**	0.76	0.81
Thailand	0.00***	0.11	0.08*	0.05*	0.89***	0.81*	0.60*	0.27**
Turkey	0.00***	0.01**	0.12	0.01**	1.07***	1.13***	1.14	1.31***
Turkmenistan	0.00***	0.00***	0.00***	0.00***	0.51***	0.60***	-0.93***	-1.01***
Ukraine	0.00***	0.00***	0.00***	0.00***	1.02***	0.91***	0.44***	0.36***
United Kingdom	0.20	0.70	0.07*	0.22	0.98	1.13	0.97	0.69
United States	0.14	0.25	0.03**	0.01**	0.95	0.98	0.57*	0.65
Uruguay	0.18	0.00***	0.02**	0.00***	0.73	0.76***	0.93	0.85***
Uzbekistan	0.26	0.06*	0.07*	0.02**	0.74	0.72**	0.56**	0.69
Venezuela	0.00***	0.00***	0.00***	0.00***	0.42***	0.86***	2.21***	5.52***
Vietnam	0.04**	0.69	0.00***	0.00***	0.99	0.72	0.17***	-0.26***

Notes::The table presents results from Mincer-Zarnowitz (MZ) regressions of the actual inflation in individual countries on an intercept and the Consensus Economics inflation forecast. Under the null of forecast efficiency, the estimated intercept should be zero while the slope coefficient should equal one. For each of the four forecast horizons, the left-most columns report p-values from an F-test of this joint null. The four columns to the right report the estimated slope coefficient on the forecast, with p-values indicating deviations from the null that this coefficient equals one. ***: Significant at the 1% level, **: Significant at the 5% level, *: Significant at the 10% level.

Table A30: **Encompassing tests for inflation forecasts: WEO versus Consensus Economics**

	y= WEO forecast error				y=CE forecast error			
	h=0,m9	h=0,m3	h=1,m9	h=1,m3	h=0,F	h=0,S	h=1,F	h=1,S
25% quantile	-0.04	-0.06	-0.51	-0.51	-0.01	-0.07	-0.41	-0.53
50% quantile	0.01	0.02	-0.11	-0.09	0.04	0.11	-0.06	-0.10
75% quantile	0.04	0.15	0.15	0.25	0.15	0.31	0.18	0.22
mean	-0.00	0.05	-0.10	0.00	0.04	0.12	0.02	-0.03
Encompass Prob	0.25	0.32	0.11	0.19	0.08	0.04	0.18	0.10
Rejection Ratio	0.26	0.22	0.31	0.29	0.44	0.50	0.24	0.38
Albania	-0.17	-0.31	-0.86	-1.32	-0.03	0.29***	-0.94	-1.00
Argentina	-0.04***	-0.05	-1.16***	-1.33***	-1.48***	-1.08***	-0.89***	-0.36***
Armenia	-0.10	-0.28	-0.54	-0.51	0.26***	0.65**	1.98	1.63***
Australia	-0.08	-0.12	-0.66***	-0.93***	-0.08	-0.19	-0.89***	-1.24***
Austria	-0.01	0.09	-0.20	-0.14	0.05	0.19**	0.04	-0.11
Azerbaijan	0.06	-0.04	-1.10***	-0.84	0.20***	0.50***	-0.11	0.05
Bangladesh	-0.09	-0.34	-0.35	-0.56	-0.01	-0.09	-0.49**	-0.41*
Belarus	-0.04	-0.11	0.23	-0.11	0.11***	0.30	0.31**	-0.21***
Belgium	0.04	-0.05	-0.83**	-0.67**	0.06	0.29	-0.69*	-0.52*
Bolivia	-0.00	-0.16	-0.97***	-0.98	0.04	0.41***	0.13	-0.50***
Bosnia Herzegovina	0.10	0.73*	-1.31	0.52	0.17***	0.76***	-0.70	0.98
Brazil	0.03	1.14***	0.84	1.67***	0.40***	1.13***	-0.32	4.01***
Bulgaria	0.02***	0.49***	9.49***	5.97*	0.11***	0.58***	13.28***	17.29*
Canada	-0.05***	-0.08	-0.18**	-0.13	-0.01	-0.07	-0.06	-0.22
Chile	0.03	0.06**	-2.14***	0.08	0.15	-0.05	-0.31	-0.22**
China	-0.17***	-0.04	-0.65***	-0.45**	-0.19***	-0.30**	-0.80***	-1.56***
Colombia	0.03	-0.03**	-0.27	0.39***	0.14**	-0.14***	-0.27	-0.11
Costa Rica	0.09*	-0.05	0.02	0.55***	0.17***	0.12	0.44*	0.86***
Croatia	0.00	0.25*	0.29	0.48	0.04*	0.24***	0.22	0.73**
Cyprus	0.05**	0.43***	0.18	1.40	0.14**	0.56***	0.40	1.32*
Czech Rep.	0.00	0.07*	0.04	-0.00	-0.03***	0.04	0.02	-0.01
Denmark	-0.04	-0.12	-0.17	-0.45	0.04	-0.12	-0.40	-0.64***
Dominican Rep.	-0.07***	1.23***	1.21	-0.17	0.17***	1.22***	0.95	-2.52*
Ecuador	-0.10***	-0.12***	-0.08	0.17***	0.34***	-0.19***	-0.34***	-0.92***
Egypt	-0.03	-0.00	-0.24	-0.60**	0.20*	0.38***	0.19	0.01
El Salvador	-0.26***	-0.10	-1.14**	0.88	-0.14	0.21	-0.00	-0.44*
Estonia	-0.06	0.08	-0.59**	-0.48	-0.09	0.22	-0.45	-0.08
Euro area	0.03	0.23***	-0.08	0.14	0.01	0.25***	0.32	0.33
Finland	-0.03	-0.05	-0.23	-0.51*	-0.01	-0.04	-0.65***	-0.65***
France	-0.01	0.07	-0.24	-0.30	-0.02	0.05	-0.27	-0.34
Georgia	0.03	-0.32	-0.95	-1.42**	0.23***	0.49***	-0.04	-1.66***
Germany	0.03	0.12	0.00	0.00	0.16***	0.22***	0.19	0.18
Greece	0.00	-0.00	0.03	-0.00	-0.00	-0.06	0.03	-0.05
Guatemala	0.08***	-0.39	-0.43	-1.25***	0.13	-0.30	-0.93***	-1.21***
Honduras	-0.13	0.15	0.78**	0.14	0.41	0.54***	-0.01	-0.04
Hong Kong SAR	0.09	0.06	0.08	-0.07	0.00	0.10	0.02	-0.03
Hungary	0.01	0.06	0.21***	0.34**	-0.02	0.00	0.22	0.22
India	0.13	-0.17	-0.01	-0.46	0.29***	-0.10	0.02	-0.70**
Indonesia	-0.01*	0.21	-0.33***	-0.79***	-0.26***	0.50***	-0.53***	-0.06
Ireland	0.04	0.09	0.04	0.19	-0.01	0.23***	0.10	0.20
Israel	-0.04	-0.00	0.07	0.10	0.08***	0.03	0.06	-0.00
Italy	-0.01	-0.02	-0.06	-0.12	0.00	-0.01	-0.02	-0.08
Japan	-0.00	-0.06	-0.20	-0.14	0.00	0.06	-0.11	-0.11
Kazakhstan	0.03	0.22*	-0.10	-0.53	0.14***	0.28***	-0.56	-0.92
Korea	-0.04	-0.12	0.19	0.04	-0.06**	-0.18	-0.13	-0.35**
Latvia	0.01	-0.00	-0.22	-0.54	0.03	0.19**	0.18	0.22

Table A30: **(continued).**

	y= WEO forecast error				y=CE forecast error			
	h=0,m9	h=0,m3	h=1,m9	h=1,m3	h=0,F	h=0,S	h=1,F	h=1,S
Lithuania	0.04	0.21	-0.18	-0.68*	0.10**	0.38*	-0.06	-0.22
Macedonia, FYR	0.07	0.40	-1.21	0.77	0.40***	0.88***	1.72	0.78
Malaysia	-0.07	-0.03	-0.81**	-0.37	-0.11**	-0.12*	-0.41***	-0.45*
Mexico	0.08**	0.14***	0.13	0.03	0.33***	-1.07***	0.36	-1.19***
Moldova	0.23***	0.49*	1.07	0.33	0.20	0.24*	-2.12***	-3.08***
Netherlands	0.14***	0.15	-0.22	0.06	0.18***	0.29***	0.07	0.62**
New Zealand	0.01	0.17*	-0.38	-0.26**	0.05	0.08	-0.12	-0.14
Nicaragua	0.21	-0.27	0.90	0.89	0.54***	0.44*	0.42**	0.85**
Nigeria	-0.31**	-0.59***	-0.51	-0.13	0.34**	0.38	-0.18	1.29**
Norway	0.01	-0.05	-0.33**	-0.30**	-0.06	-0.24*	-0.43**	-1.12***
Pakistan	-0.02	-0.04	-0.49	-0.74	0.27*	0.54***	0.29	-0.03
Panama	0.02	-0.06	-0.41*	-1.00**	0.00	0.39**	-0.65*	-0.60**
Paraguay	-0.10	-0.06	0.55	0.84	0.00	0.00	-0.53***	-0.12
Peru	0.16**	0.27***	-1.06***	0.15***	0.34**	-1.04***	-0.90***	-1.74***
Philippines	-0.04	0.08	-0.05	0.25	-0.01	-0.07	-0.22	-0.46
Poland	0.12**	-0.06	0.47***	0.27*	-0.17**	0.04	0.14*	-0.01
Portugal	0.03**	0.01	0.00	-0.08	-0.04**	0.00	-0.05	-0.09
Romania	0.25***	0.29**	1.04**	0.92***	0.08***	0.50***	0.34	0.55**
Russia	-0.01	0.19**	0.13***	0.21*	0.02	0.14***	-0.73***	-3.22**
Saudi Arabia	-0.02	0.05	-0.52**	-0.32	0.05	0.31	-0.09	0.00
Serbia	-0.02	0.03	0.34	0.32	0.09**	0.29**	0.92*	0.33
Singapore	0.09	0.13	-0.02	-0.32	0.01	0.05	-0.39	-1.03
Slovak Rep.	0.04*	0.11**	0.30*	0.40*	0.01	0.02	0.20	0.31
Slovenia	0.02	0.39***	0.43***	0.72***	0.01	0.14**	0.22	0.30
South Africa	0.00	-0.09	-0.04	-0.26	0.04	0.04	-0.53**	-0.83**
Spain	-0.04	0.02	-0.06	0.19	-0.01	0.05	-0.02	0.08
Sri Lanka	0.01	0.62*	-0.80	-0.53	0.22***	0.75***	-0.18	-0.50*
Sweden	-0.00	0.09	0.07	-0.13	0.03	0.05	0.13	0.07
Switzerland	0.06	0.09	0.15	0.17	0.04	0.19*	0.22	0.35
Taiwan of China	0.03	-0.14	0.00	-0.00	-0.04	-0.16**	-0.21	-0.12
Thailand	-0.09***	-0.22**	-0.30	-0.67**	-0.08*	-0.15	-0.21	-0.53
Turkey	0.10***	0.05	0.18	0.05	0.07***	0.12***	0.14***	0.15
Turkmenistan	0.10***	0.19*	-1.80***	-1.70***	-0.18	-1.24***	-1.17*	-2.36***
Ukraine	0.13***	-0.02***	0.30***	0.30***	0.03***	-0.07***	-1.81***	-4.39***
United Kingdom	0.03*	0.11*	-0.12	-0.41	0.11**	0.26***	0.00	-0.09
United States	-0.03	-0.06	-0.52**	-0.51**	-0.04	0.00	-0.13	-0.07
Uruguay	-0.57***	0.16**	-2.90***	0.73***	-0.09	-0.37***	0.00	-0.40***
Uzbekistan	0.06	-0.07	0.20	0.07	0.06	-0.24***	-0.39	0.24**
Venezuela	-0.38***	-0.77***	0.55***	4.13***	-0.69***	-0.09***	0.70***	2.76***
Vietnam	0.00	0.03	-0.47	-0.66*	0.00	0.49	-0.17	0.33

Notes:: The table reports the estimated slope coefficient from a regression of the WEO forecast error on the CE forecasts (left columns) or from regressions of the CE forecast error on the WEO forecast (right columns). ***: Significant at the 1% level, **: Significant at the 5% level, *: Significant at the 10% level.Numbers in the fifth row denote the proportion of countries for which the WEO forecast is a Significant predictor of the CE forecast errors, but not vice versa (first four columns) or for which the CE forecast is a Significant predictor of the WEO forecast errors, but not vice versa (columns 5-8). Number in the sixth row reports the ratio of betas significantly different from zero.