

An Assessment of the IMF's Forecasts of Unemployment for Advanced and Developing Economies

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Forecasting Issues in Developing Economies

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Disclaimer: The views expressed are those of the authors and do not necessarily reflect those of the International Monetary Fund.

Estimating Okun's Law: Data and Forecasts

$$(1) U_t - U_t^* = \beta(Y_t - Y_t^*) + \varepsilon_t \quad \beta < 0$$

- U_t is the unemployment rate, Y_t is the log of output
- * indicates a long-run level

$$(2) \Delta U_t = \alpha + \beta \Delta Y_t + \omega_t$$

- Δ is the change from the previous period
- the natural rate U_t^* is assumed to be constant
- potential output Y_t^* is assumed to grow at a constant rate

$$(3) E_h \Delta U_t = \alpha + \beta E_h \Delta Y_t$$

- $E_h \Delta U_t$ and $E_h \Delta Y_t$ are the forecasts made at horizon h of the change in unemployment and real GDP growth
- h takes the values 3, 9, 15 and 21, corresponding to the Oct[t], Apr[t], Oct[t-1] and Apr[t-1] forecasts

Results: High-income Countries

Country	Actual	Apr[t-1]	Oct[t-1]	Apr[t]	Oct[t]
Australia	-0.37	-0.31	-0.42	-0.49	-0.54
Belgium	-0.31	-0.41	-0.42	-0.39	-0.30
Canada	-0.35	-0.30	-0.25	-0.45	-0.37
France	-0.27	-0.32	-0.37	-0.38	-0.41
Germany	-0.21	-0.36	-0.47	-0.28	-0.28
Greece	-0.36	-0.18	-0.32	-0.35	-0.44
Hong Kong SAR	-0.26	-0.25	-0.21	-0.32	-0.31
Italy	-0.32	-0.28	-0.29	-0.37	-0.43
Japan	-0.11	-0.06	-0.14	-0.08	-0.11
Korea	-0.17	0.13	-0.10	-0.16	-0.17
Netherlands	-0.25	-0.24	-0.40	-0.31	-0.34
Portugal	-0.33	-0.10	-0.21	-0.34	-0.36
Spain	-0.86	-0.41	-0.66	-0.83	-0.99
Sweden	-0.36	-0.51	-0.42	-0.37	-0.33
Switzerland	-0.28	-0.43	-0.45	-0.37	-0.46
Taiwan POC	-0.11	0.01	-0.02	-0.14	-0.15
United Kingdom	-0.29	-0.40	-0.42	-0.33	-0.35
United States	-0.30	-0.26	-0.33	-0.31	-0.32

Results: Middle-income Countries

Country	Actual	Apr[t-1]	Oct[t-1]	Apr[t]	Oct[t]
Argentina	-0.22	-0.25	-0.26	-0.43	-0.41
Chile	-0.29	-0.23	-0.04	-0.34	-0.44
Costa Rica	-0.25	-0.17	-0.20	-0.29	-0.08
Croatia	-0.31	-0.22	-0.08	-0.36	-0.27
Czech	-0.20	0.01	-0.11	-0.16	-0.29
Hungary	-0.14	-0.15	-0.11	-0.14	-0.16
Malaysia	-0.06	0.06	-0.02	-0.13	-0.22
Mexico	-0.18	0.01	-0.02	-0.13	-0.10
Panama	-0.23	0.00	0.02	-0.12	-0.11
Poland	-0.49	-0.02	-0.04	-0.19	-0.11
Romania	-0.04	-0.04	0.04	-0.47	-0.37
Russia	-0.15	0.13	-0.07	-0.18	-0.17
Slovakia	-0.29	-0.14	-0.12	-0.28	-0.21
South Africa	-0.32	-0.28	-0.38	-0.57	-0.58
Turkey	-0.15	-0.16	-0.14	-0.24	-0.30
Uruguay	-0.27	0.14	-0.06	-0.09	-0.16
Venezuela	-0.22	-0.05	-0.04	-0.09	-0.11

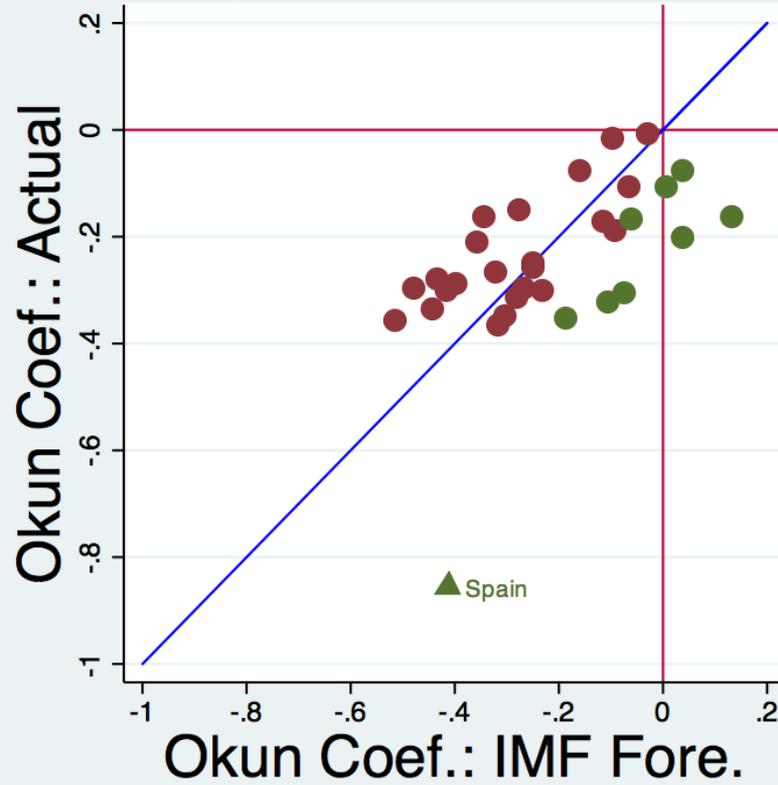
Results: Low-income Countries

Country	Actual	Apr[t-1]	Oct[t-1]	Apr[t]	Oct[t]
Algeria	-0.22	-0.51	-0.35	-0.36	-0.68
Belarus	-0.04	-0.31	0.02	-0.05	0.08
Brazil	-0.30	0.09	-0.01	-0.10	-0.20
Bulgaria	-0.16	0.04	-0.09	-0.12	-0.11
China	-0.01	-0.04	0.02	-0.01	-0.05
Colombia	-0.37	0.10	0.10	0.05	-0.39
Egypt	-0.35	-0.15	-0.25	-0.20	-0.19
Indonesia	-0.13	0.83	-0.08	-0.24	-0.37
Iran	-0.12	-0.17	-0.09	-0.04	-0.04
Jordan	0.02	-0.10	-0.07	-0.05	-0.06
Kazakhstan	-0.10	-0.08	-0.09	-0.06	-0.10
Morocco	-0.18	-0.30	-0.14	-0.45	-0.33
Pakistan	-0.14	-0.11	0.00	0.01	0.01
Peru	0.03	0.06	0.09	0.04	0.00
Philippines	-0.06	-0.32	-0.06	-0.25	-0.07
Sudan	0.00	-0.04	-0.03	0.00	-0.02
Thailand	-0.04	0.02	0.02	-0.01	0.00
Ukraine	-0.09	-0.32	-0.09	-0.21	-0.21
Vietnam	-0.06	0.00	-0.07	-0.27	-0.19

Okun Coefficients in Actual Data vs. IMF Forecasts

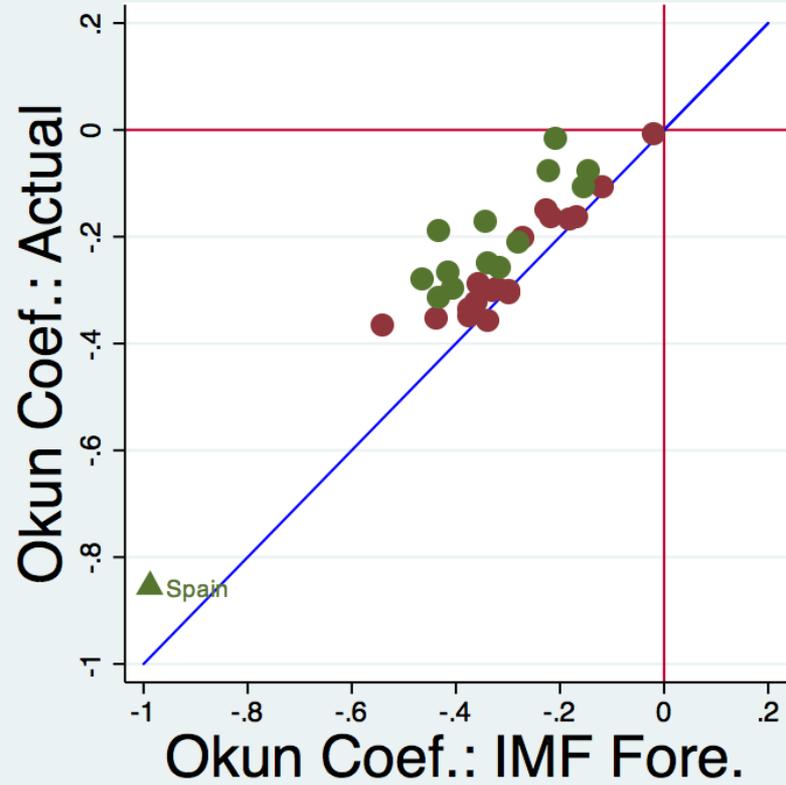
High income (33)

Apr[t-1], Horizon=21



$$y = -0.13 + 0.60x \quad R^2 = 0.41$$

Oct[t], Horizon=3

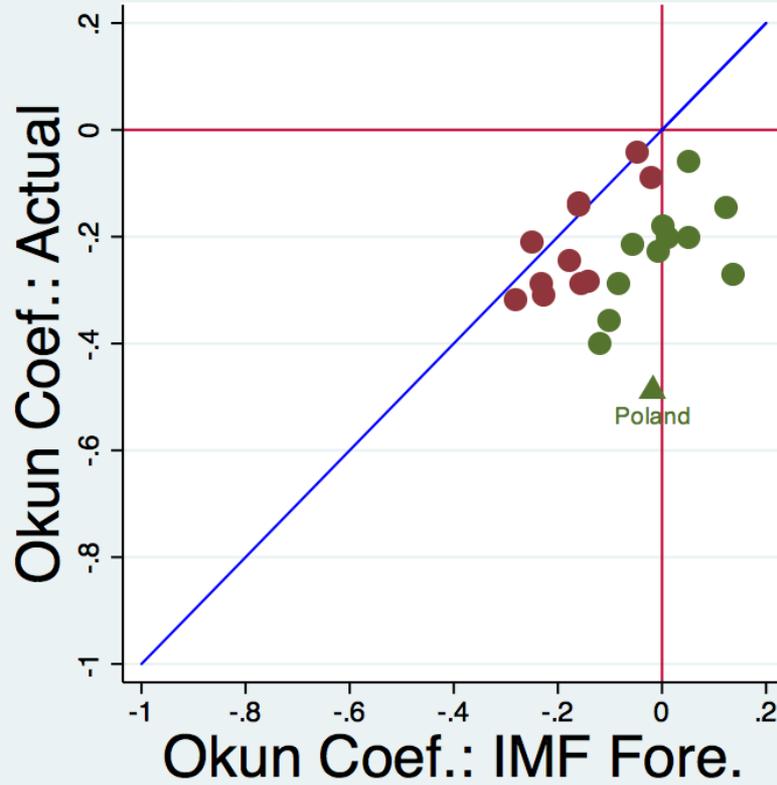


$$y = 0.02 + 0.88x \quad R^2 = 0.71$$

Okun Coefficients in Actual Data vs. IMF Forecasts

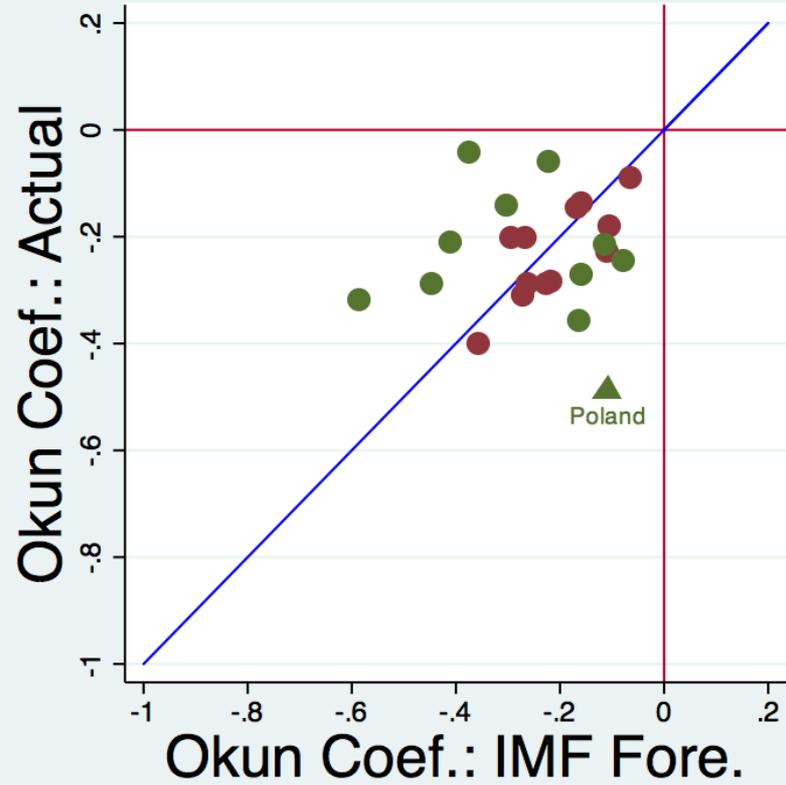
Middle income (23)

Apr[t-1], Horizon=21



$$y = -0.22 + 0.27x \quad R^2 = 0.09$$

Oct[t], Horizon=3

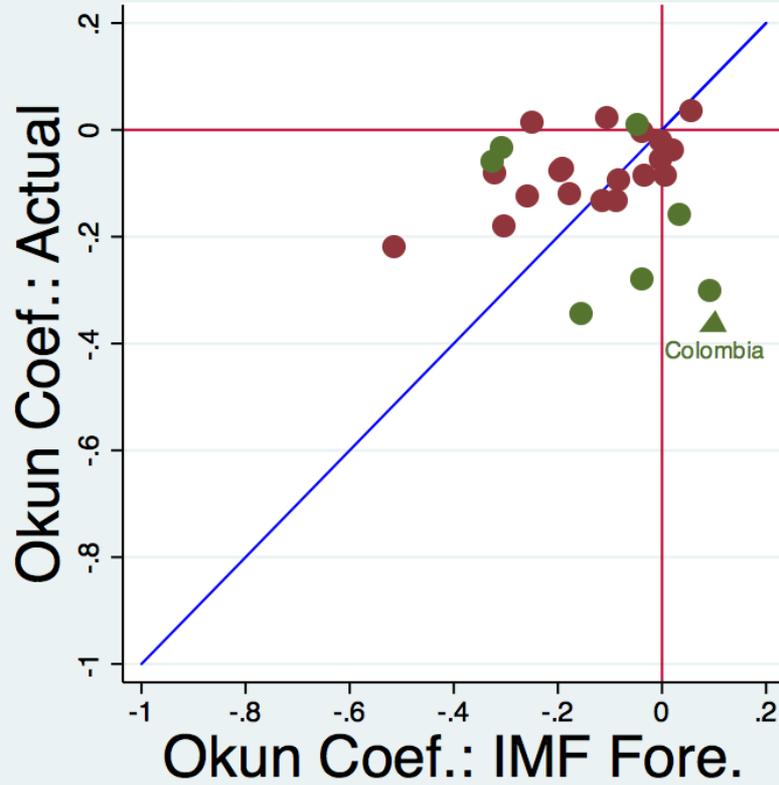


$$y = -0.22 + 0.08x \quad R^2 = 0.01$$

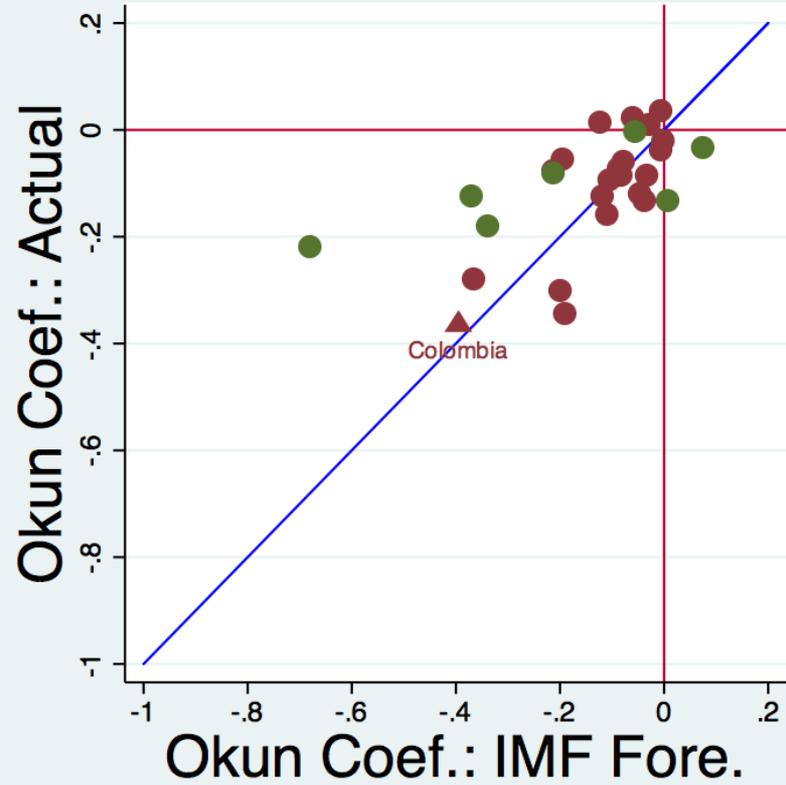
Okun Coefficients in Actual Data vs. IMF Forecasts

Low income (28)

Apr[t-1], Horizon=21



Oct[t], Horizon=3



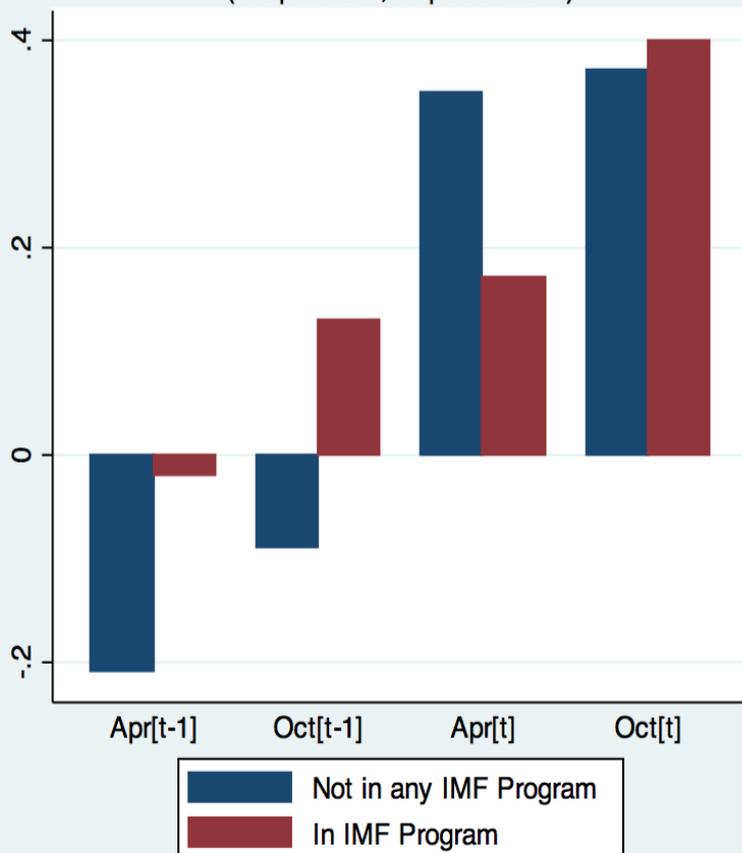
RMSE and Deviation in Okun Coefficient

		(1) All	(2) High	(3) Middle	(4) Low
Apr[t-1]	Deviation	2.06*	3.92***	2.74*	-1.49
		(1.05)	(0.98)	(1.38)	(1.73)
	Cons	1.95***	1.16***	2.21***	2.84***
		(0.21)	(0.14)	(0.33)	(0.43)
	Obs	83	33	23	27
	R-squared	0.04	0.26	0.12	0.02
Oct[t]	Deviation	1.97*	1.37	1.27	2.25
		(1.11)	(1.87)	(1.62)	(1.50)
	Cons	1.27***	0.72***	1.34***	1.95***
		(0.17)	(0.20)	(0.28)	(0.31)
	Obs	84	33	23	28
	R-squared	0.03	0.03	0.03	0.03

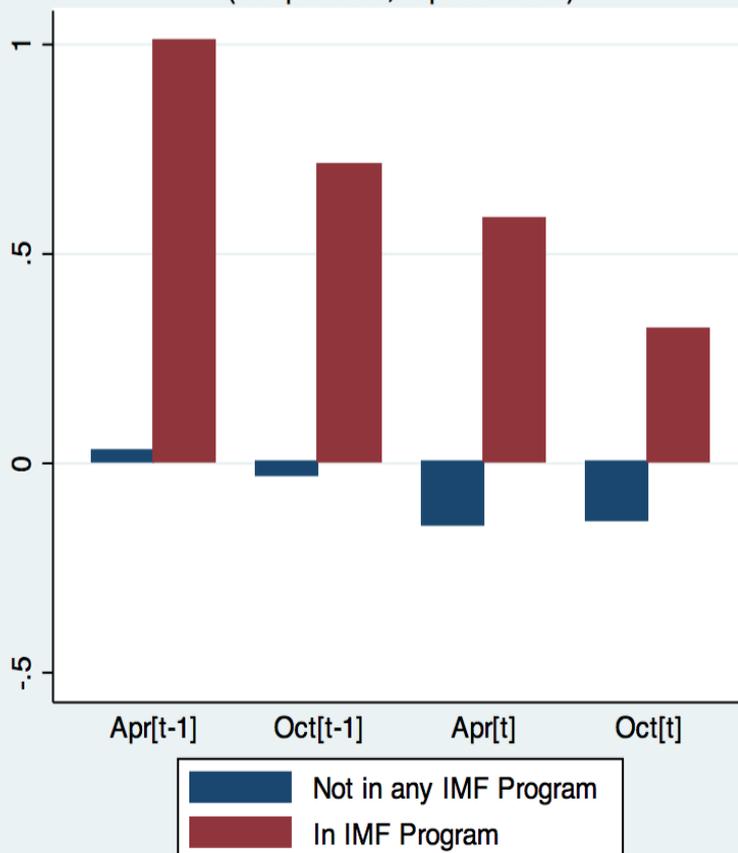
Unemployment Forecasts during IMF Programs

IMF Mean Forecast Error

Real GDP Growth
(-: optimism; +: pessimism)



Unemployment Rate
(+: optimism; -: pessimism)



Unemployment Forecasts during IMF Programs

IMF Mean Forecast Error in Middle-income Countries

