CPB Netherlands Bureau for Economic Policy Analysis

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An update of Blanchard's and Leigh's estimates in Growth Forecast Errors and Fiscal Multipliers

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1. Introduction and conclusions

Blanchard's and Leigh's IMF working paper 'Growth Forecast Errors and Fiscal Multipliers'[1] and its preceding Box in the IMF World Economic Outlook[2] have been widely discussed, have clearly influenced the policy debate and possibly the policy stance in some countries. For many, the work of Blanchard and Leigh presents convincing evidence that during crisis multipliers were larger than expected.[3] Their results support other research indicating larger multipliers when the output gap is strongly negative.[4] However, the OECD suggests this result depends on the inclusion of Greece in the sample and that a more important explanation for the forecast errors is the assumption that the euro crisis would dissipate and sovereign bond yields would narrow.[5]

In this background document, we extend the estimates of Blanchard and Leigh up to 2015 and update their estimates on the basis of more recent actual data on economic growth (October 2015). We use their selection of 28 countries (EU27, excluding Estonia and Latvia, including Iceland, Norway and Switzerland).[6] Our results for 2009-2010 and 2010-2011 are in line with those of Blanchard and Leigh and can be seen as an indication of larger than expected multipliers during the credit crisis. For the two added periods, 2013-2014 and 2014-2015, we do not find any indication of larger multipliers. We do find a statistically significant coefficient for the whole sample period 2009-2015, but this result disappears when we only look at the period after the financial crisis (2011-2015).

The policy relevance of this result is that on the basis of the Blanchard-Leigh approach there is no evidence that during all recent crises fiscal multipliers were higher than expected. There are indications this is true for the credit crisis (2009) but the evidence is less convincing for the sovereign debt crisis (2012-2013). While the drop in output in the euro area was smaller during the sovereign debt crisis, the output gap was almost as severe as in 2009 (see Figure 1.1). These results indicate that, using the Blanchard-Leigh approach, there is no evidence that multipliers are currently higher than before the crisis.[7]

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[1] Blanchard, O. and D. Leigh, 2013, Growth Forecast Errors and Fiscal Multipliers, International Monetary Fund Working Paper 13/1. (link); Blanchard, O. and D. Leigh, 2013, Growth Forecast Errors and Fiscal Multipliers, *American Economic Review: Papers and Proceedings*, vol. 103(3), pp. 117-120. (link)

[2] IMF, 2012, Are We Underestimating Short-term Fiscal Multipliers?, Box 1.1 in World Economic Outlook, October. (link)

[3] Fatás, A. and L.H. Summers, 2015, The Permanent Effects of Fiscal Consolidations, CEPR Discussion Paper 10902. (link); Krugman, P., 2012, The IMF and the GOP, NYT blog. (link); Davies, G., 2012, High Fiscal Multipliers Undermine Austerity Programmes, FT blog. (link)

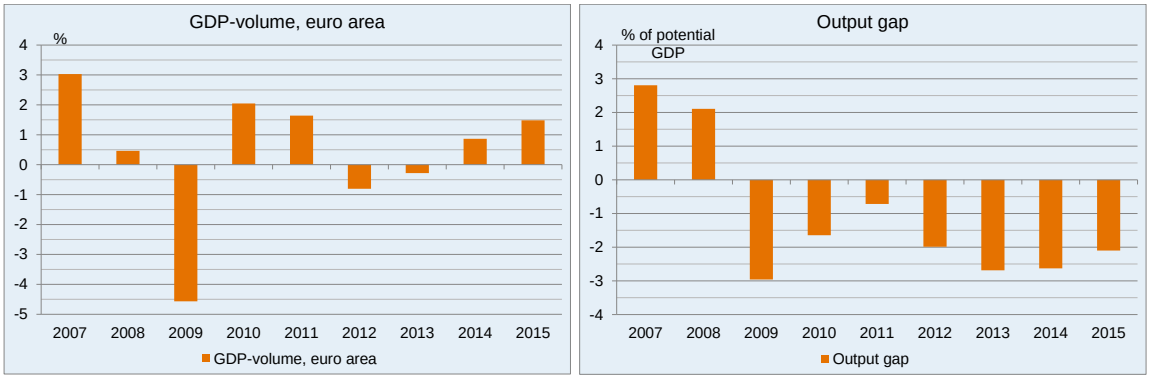
[4] See for instance Auerbach, A. and Y. Gorodnichenko, 2012, Measuring the Output Responses to Fiscal Policy, *American Economic Journal: Economic Policy*, vol. 4(2), pp. 1-27. (link); Auerbach, A. and Y. Gorodnichenko, 2013, Fiscal Multipliers in Recession and Expansion, in Alesina A. and F. Giavazzi (eds.), *Fiscal Policy after the Financial Crisis*, University of Chicago Press. (link); Baum, A., M. Poplawski-Ribeiro and A. Weber, 2012, Fiscal Multipliers and the State of the Economy, International Monetary Fund Working Paper 12/286. (link)

[5] OECD, 2014, OECD Forecasts During and After the Financial Crisis: A Post Mortem, OECD Economics Department Policy Notes No. 23. (link)

[6] The 28 countries are Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, United Kingdom.

[7] Assuming a similar monetary policy reaction function.

Figure 1.1 Economic growth and the output gap, the euro area, 2007-2015



Source: IMF World Economic Outlook October 2015 (link)

2. Results

The equation estimated by Blanchard and Leigh and by us is:

$$Forecast\ Error\ of\ \Delta Y_{i,t:t+1} = \alpha + \beta\ Forecast\ of\ \Delta F_{i,t:t+1|t} + \varepsilon_{i,t:t+1},$$

where ΔY represents the cumulative change in real GDP in country i $\left(\frac{Y_{i,t+1}}{Y_{i,t-1}} - 1\right)$and ΔF represents the change in the general government structural fiscal balance in percent of potential GDP. The forecasts are made using information available early in year t. A negative sign for β indicates that countries which were expected to improve their structural fiscal balance performed worse than expected by the forecasts. This would suggest that fiscal multipliers were underestimated in the forecasts.

Table 2.1 Estimated β-coefficient

	Möhlmann and Suyker			obs	Blanchard and Leigh		
	Estimate		s.e.		Estimate		s.e.
2009-2010	-0.674	***	(0.208)	26	-0.699	***	(0.185)
2010-2011	-1.311	***	(0.439)	26	-1.095	***	(0.255)
2011-2012	-0.477		(0.536)	25	-0.467		(0.450)
2012-2013	-0.502	*	(0.285)	28	-0.358	**	(0.147)
2013-2014	0.092		(0.279)	27			
2014-2015	0.037		(0.932)	27			
2009-2013	-0.746	***	(0.223)	105	-0.667	***	(0.161)
2011-2015	-0.321		(0.264)	107			
2009-2015	-0.619	***	(0.213)	159			

Note: table reports point estimates and Newey-West standard errors in parentheses (corrected for heteroskedasticity and autocorrelation up to one year). Statistical significance levels of 1%, 5% and 10% are indicated by ***, ** and *, respectively. Due to data availability Lithuania and Luxembourg were not included in 2009-2010, 2010-2011, 2011-2012; Romania was not included in 2011-2012; Cyprus was not included in 2013-2014, 2014-2015.

Table 2.1 shows our estimation results and the results of Blanchard and Leigh. While actual economic growth, used to calculate the forecast error, is based in Blanchard and Leigh on the World Economic Outlook database of October 2012, we use the October 2015 version of this database.[8] As Blanchard and Leigh, we find a negative and statistically significant coefficient for 2009-2010 and 2010-2011 and not for 2011-2012. Our estimated coefficient for the period 2010-2011 is even larger than the original estimate (although the difference is not statistically significant). For 2012-2013 we find a larger estimate than Blanchard and Leigh, but due to the higher standard error the estimated coefficient is no longer significant at the 5% level. For this period, the Blanchard and Leigh estimate was rather premature as the predictions in October 2012 were applied as outcomes. In the two periods we added, our estimated coefficients are close to 0. No negative coefficient for recent years could be seen consistent with the end of the crisis as indicated by the pick-up in economic growth, although the output gap has remained sizable (Figure 1.1). However, it could also indicate learning by IMF forecasters. As Blanchard and Leigh, we find a statistically significant negative coefficient in the panel forecast for 2009-2013. This result holds for the prolonged period 2009-2015. However, we do not find a statistically significant coefficient when we perform the panel analysis on the period 2011-2015.

[8] We were able to reproduce the Blanchard and Leigh estimates using the October 2012 data.

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