Strategies for Fiscal Consolidation after the International Financial Crisis

Incomplete draft — Please do not quote

Ada Jansen, Lara Marais and Krige Siebrits
(Department of Economics, Stellenbosch University)

Paper prepared for the Biennial Conference of the Economic Society of South Africa
(Grahamstown, 30 August—1 September 2017)

This version: 21 August 2017

ABSTRACT

This paper presents initial findings of an ongoing investigation into fiscal consolidation attempts worldwide since 2007. We use data from the International Monetary Fund's Fiscal monitor database and methods derived from those of Alesina and Ardagna (2010) to explore basic features and the success rates of fiscal consolidation attempts in three groups of countries (advanced economies, emerging markets and middle-income economies, and low-income developing countries). The diversity of the findings and the evident influence of concurrent rates of economic growth on the durability of fiscal consolidation attempts underscores the dangers of anchoring policymaking in stylised facts derived from cross-country studies.

JEL Codes: H30, H63.

1 INTRODUCTION

The terms "fiscal consolidation" and "fiscal adjustment" refer to attempts on the part of fiscal policymakers to reduce budget deficits. The aims of attempts of this nature are to prevent or to reduce unsustainable levels of government debt. This paper reports initial findings of an ongoing investigation into fiscal consolidation attempts worldwide since 2007. Two considerations motivated this investigation. The first was the topicality of the issue: The international financial crisis of 2007–08 and the subsequent Great Recession left many countries with large budget deficits and government debt burdens. Hence, many governments have been attempting to reduce budget deficits during the past ten years, and it is an opportune time to explore the effects of such efforts. The second was the possibility that experiences during this period might have yielded important lessons about the efficacy of particular fiscal consolidation strategies. In principle, policymakers can reduce budget deficits by raising more government revenue, by reducing government spending, or by a combination of these two measures.[1] Studies of the effects of fiscal consolidation attempts from the mid-1990s onwards have suggested several stylised facts about the effectiveness of these three strategies. It is important to ascertain whether the findings of these studies are borne out by the results of fiscal consolidation attempts in the post-crisis period.

The remainder of the paper is structured as follows. Section 2 briefly reviews the findings of empirical studies of the effects of fiscal consolidation attempts. Section 3 contextualises the analysis by summarising broad trends in economic growth and key fiscal aggregates advanced and developing economies from 2001 until 2016. Section 4 discusses the empirical method and data sources used in the subsequent analysis, while Section 5 presents preliminary results. Section 6 contains concluding comments.

2 EMPIRICAL FINDINGS ON FISCAL CONSOLIDATION STRATEGIES

Attempts at fiscal consolidation have been studied intensively during the past three decades. The first contributions to this area of research were studies of the experiences of OECD countries published in the mid-1990s. From the early 2000s onwards, a few authors expanded the scope of this research programme by publishing papers about fiscal consolidation in developing countries. Writings on fiscal consolidations have focused on two sets of issues: The effectiveness of particular mixtures of fiscal policy instruments for achieving durable reductions in fiscal deficits and public debt burdens, and the effects of fiscal consolidation on output and employment. The following review of research on fiscal consolidation efforts focuses on the first of these issues.

[1] Budget deficits and public debt burdens are usually expressed as ratios of gross domestic product (GDP). This implies that fiscal consolidation does not always require absolute reductions in government spending. Reducing the rate of growth of government expenditure to below that of the GDP sometimes suffices.

Most analyses of attempted fiscal consolidations in OECD countries found that efforts based mainly on cuts in transfer payment and the government wage bill were more likely to have achieved significant reductions in fiscal deficits than those based mainly on tax increases (Alesina and Ardagna, 1998; 2010; 2013; Alesina and Perotti, 1997; Ardagna, 2004; Guichard, Kennedy, Wurzel and André, 2007; McDermott and Wescott, 1996; Molnar, 2012; Von Hagen and Strauch, 2001). Another key result of the majority of these studies was that episodes of deficit reduction based mainly on reductions in the same categories of government spending were more durable (that, less likely to have been overturned within a few years after satisfying the chosen criteria for a successful consolidation) than ones that relied mainly on revenue increases.

Analyses of emerging market and other developing economies (Adam and Bevan, 2003; Baldacci, Clements, Gupta and Mulas-Granados, 2004; 2006; Gupta, Baldacci, Clements and Tiongson, 2003; Gupta, Clements, Baldacci and Mulas-Granados, 2004) also linked the success and persistence of fiscal consolidations to the extent of cutbacks in current government spending. In such countries, however, revenue increases were seemingly also important elements of durable reductions in fiscal deficits. As was pointed out by Baldacci et al. (2004: 60), developing countries usually had considerable scope for increasing tax revenues without the need to raise tax rates, for example, by improving the administration of the tax system and by curbing tax evasion. Furthermore, Baldacci et al. (2004) and Gupta et al. (2003) found that protecting or increasing the share of capital spending in total government expenditure during consolidation episodes increased the probabilities of success and persistence. This finding was related to Easterly's (1999: 57) pronouncement that "fiscal adjustment is an illusion when it lowers the budget deficit or public debt but leaves government net worth unchanged". According to Easterly (1999), the fiscal adjustments required until then by the International Monetary Fund and the World Bank as elements of adjustment programmes often turned out to be illusory: Many governments reduced deficits in part by reducing asset formation and by accumulating hidden liabilities. Milesi-Ferretti and Moriyama (2006) found evidence of the same phenomenon in European countries from 1992 to 1997 (that is, while these states were reducing fiscal deficits and public debt levels to meet the Maastricht Treaty convergence criteria for membership of the European Monetary Union).

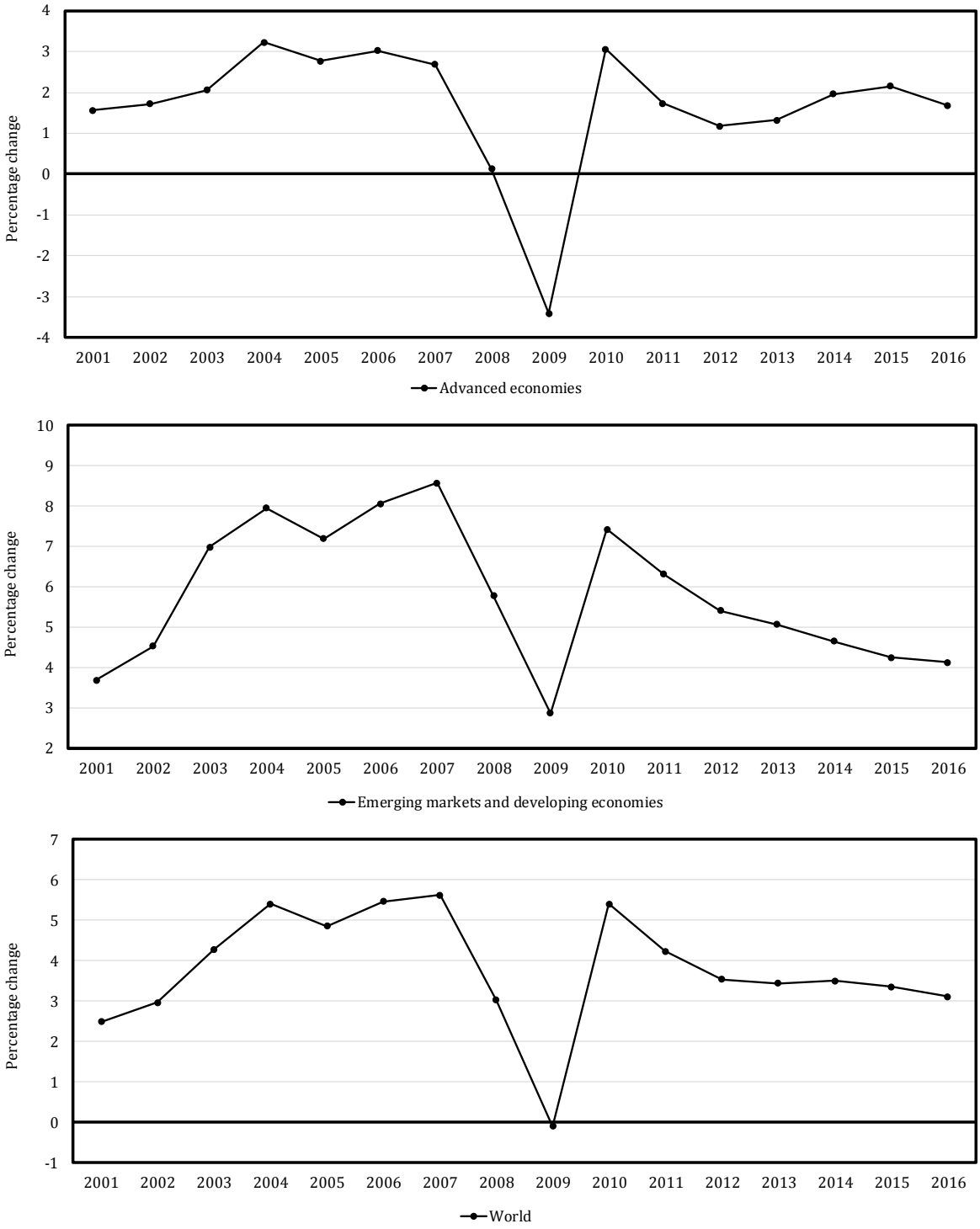
3 GLOBAL TRENDS IN KEY FISCAL AGGREGATES FROM 2000 TO 2016

This section provides context to the analysis in Section 5 by summarising global trends in output and major fiscal aggregates from 2001 to 2016. The data are from the April 2017 version of the World Economic Outlook database (International Monetary Fund, 2017a). All the numbers are arithmetically weighted averages for the individual countries in each group, with the weightings based on GDPs valued at purchasing power parities as shares of total group GDP used as the basis for the weightings. Figure 1 depicts real GDP growth rates in advanced economies, emerging markets and developing economies, and the world economy as a whole. Figures 2 and 3 show general government revenue,

expenditure, net lending or borrowing and gross debt (all as percentages of GDP) in advanced economies and emerging market and developing economies, respectively.

Figure 1

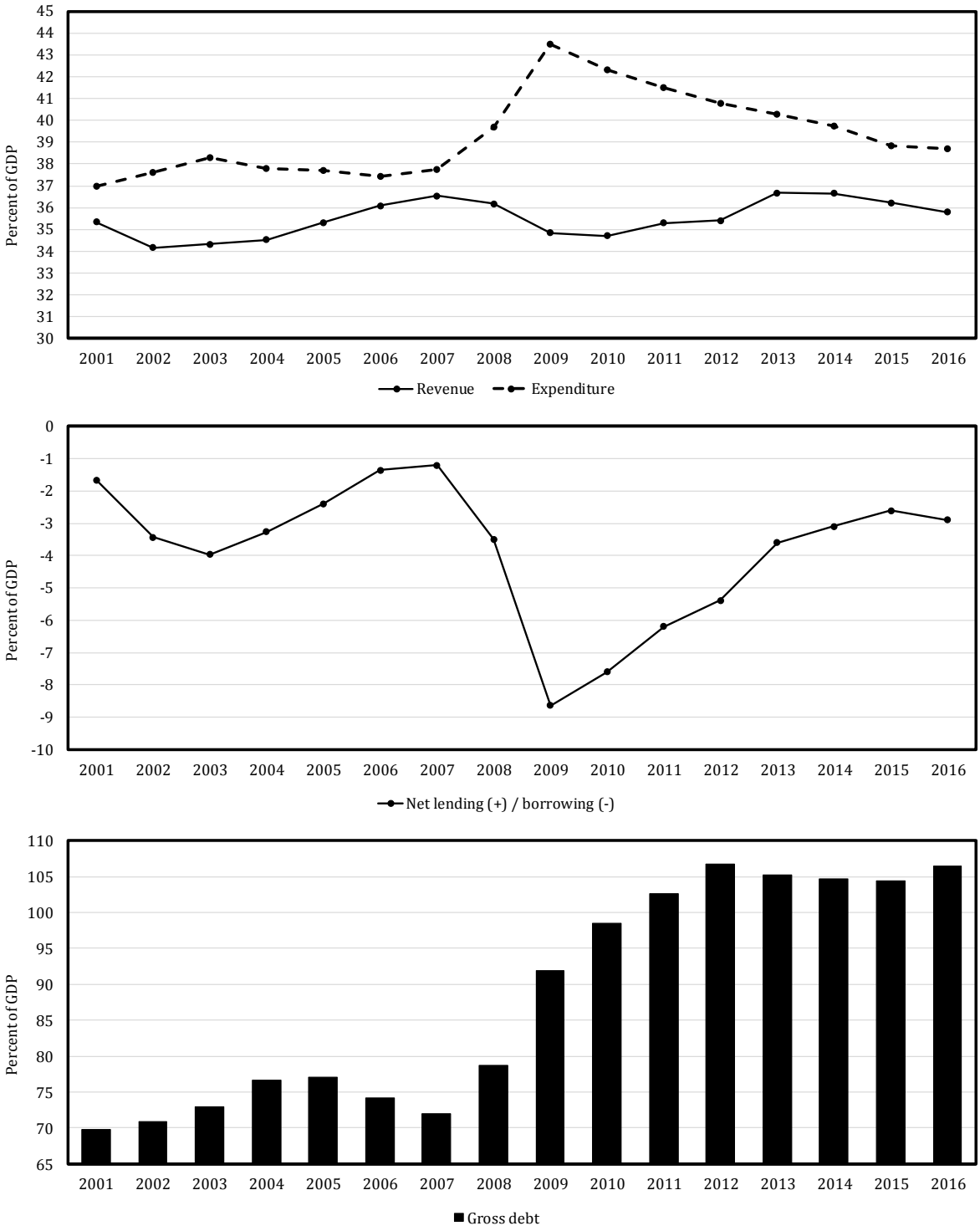
Weighted average annual real GDP growth rates in groups of countries (2001-2016)



Source: International Monetary Fund (2017a).

Figure 2

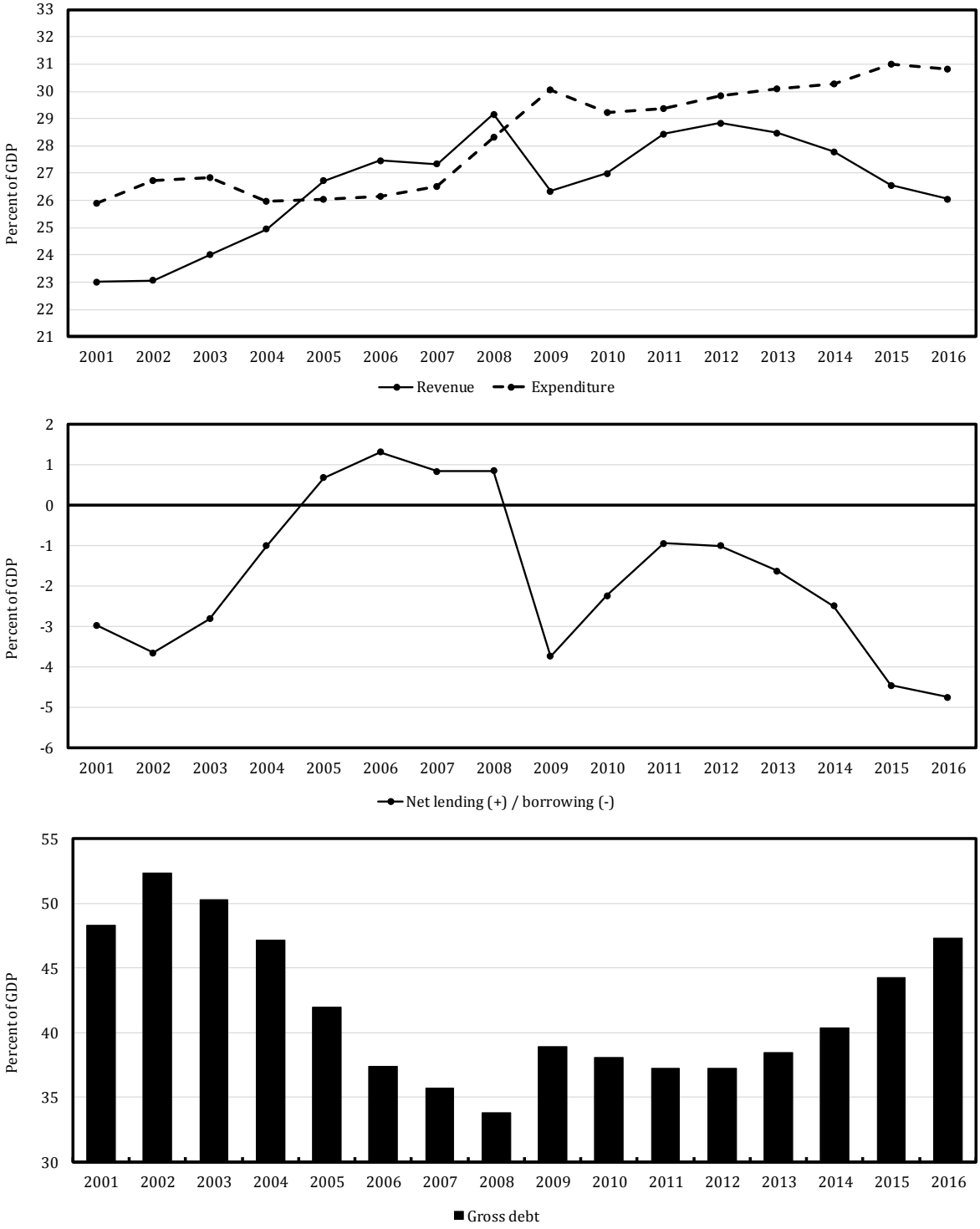
Key fiscal aggregates for advanced economies (2001-2016)



Source: International Monetary Fund (2017a).

Figure 3

Key fiscal aggregates for emerging market and developing economies (2001-2016)



Source: International Monetary Fund (2017a).

A detailed discussion of the growth trends summarised in Figure 1 falls outside the scope of this paper.[2] A brief review is required, however, because these trends have had major ramifications for the evolution of key fiscal aggregates. The world economy experienced rapid GDP growth from 2003 to 2007, largely because of booming conditions in China and several other emerging markets and developing economies. The international financial crisis brought a sharp slowdown in 2008 and 2009—in fact, global output contracted slightly in real terms in 2009—but the world economy rebounded strongly in 2010. From 2011 onwards, emerging markets and developing economies have been the main drivers of world output growth. Real GDP growth in these economies have decreased steadily, though—a trend that has been mirrored in world output growth. The modest growth performance of advanced economies have reflected longer-term effects of the crisis.

Figures 2 and 3 show significant differences in the fiscal situations of the two groups of countries before the eruption of the international financial crisis and the Great Recession. Many advanced economies had been engaged in fiscal consolidation in the previous few years. On balance, these efforts consisted of increases in government revenue-to-GDP ratios as well as decreases in government expenditure-to-GDP ratios. By 2007, net borrowing by the advanced economies amounted to 1.2 percent of GDP. Gross debt ratios had also begun to decrease, but had remained relatively high: In 2007, the weighted average for this group of countries was 71.9 percent of GDP. In the same period, many emerging markets and developing economies experienced large improvements in their fiscal positions. On balance, this reflected sustained increases in government revenue-to-GDP ratios that more than compensated for slight increases in government expenditure-to-GDP ratios. Net lending by this group of countries amounted to 1.3 of GDP in 2006 and 0.8 percent in 2007, while the average gross debt-to-GDP ratio was 35.7 percent in 2007.

The crisis and the Great Recessions clearly had large effects on fiscal conditions in both sets of countries.[3] The initial contractions in economic activity depressed government revenue-to-GDP ratios, while automatic stabiliser effects and discretionary policy actions raised government spending-to-GDP ratios. By 2009, weighted average net borrowing reached 8.6 percent of GDP in advanced economies and 3.7 percent of GDP in emerging markets and developing economies. The average level of net borrowing fell steadily in advanced economies thereafter, and amounted to 2.6 percent of GDP in 2015 and 2.9 percent of GDP in 2016. Recoveries in government revenue-to-GDP ratios contributed to this improvement (the average of such ratios had returned to its pre-crisis level in 2013), but large decreases in government expenditure-to-GDP ratios were significantly more important. Gross debt-to-GDP ratios increased sharply from the onset of the crisis, and the average of such ratios peaked at 106.7 percent of GDP in 2012. On balance, it

[2] For a discussion of output trends in various groups of countries during and in the first few years after the international financial crisis, see Didier, Hevia and Schmukler (2012).

[3] The October 2012 edition of the *Fiscal Monitor* (International Monetary Fund, 2012) contains a useful discussion of fiscal consolidation strategies and outcomes in the first few years after the international financial crisis.

changed little from 2012 to 2016. The weighted average of the net borrowing-to-GDP ratios of emerging markets and developing countries fell to 0.9 percent in 2011. Thereafter it increased steadily to 4.8 percent of GDP in 2016—a level greater than that at the height of the Great Recession. Sustained increases in government-expenditure-to-GDP ratios and, especially, decreases in government revenue-to-GDP ratios contributed to this development. One of its outcomes was an increase in the weighted average of gross debt-to-GDP ratios from 37.2 percent in 2011 to 47.3 percent in 2016.

4 EMPIRICAL METHOD AND DATA

Two methods have been used in empirical studies of fiscal consolidation attempts. Some authors (e.g. Gupta et al., 2005; Molnar, 2012) have used econometric methods to identify revenue and expenditure components as well as other factors linked to the success and persistence of fiscal consolidations.[4] Others (e.g. Alesina and Perotti, 1995; Alesina and Ardagna, 2010) have used a simple descriptive method based on four steps.[5] The first of these steps is to formulate empirical criteria for judging fiscal consolidation efforts. Next, the criteria are applied to distinguish those efforts that brought significant reductions in fiscal deficits and public debt burdens from those that did not. Third, a further distinction is made between durable successful efforts and episodes in which reductions in budget deficits were soon reversed. The fourth and final step is to identify characteristics associated with successful and durable consolidation efforts by comparing changes in the average values of key fiscal aggregates in the groups of episodes.

Econometric methods evidently provide more rigorous bases for causal inferences than descriptive ones. The method pioneered by Alesina and Perotti (1995) has also been criticised for its failure to model and, hence, to provide model-based assessment of the determinants of the duration of fiscal consolidation episodes (Gupta et al., 2005: 308). The descriptive approach has remained popular, though, in part because of its simplicity and modest data requirements. The analysis in Section 5 in the present paper largely relies on this method, as applied in Alesina and Ardagna (2010). The main reason for choosing this method is to facilitate comparison with the "stylised facts" derived from research by Alesina and various co-authors.

The main source of data for the analysis is the Fiscal Monitor database (International Monetary Fund, 2017b). This source contains selected fiscal data series for the general government sectors of 35 advanced economies, 40 emerging market and middle-income economies and 40 low-income developing countries from 2007 to 2016.[6] The country coverage as well as the broad definition of government render the database useful for the

[4] Gupta et al. (2005) employed on survival analysis, while Molnar (2012) used probit, duration, truncated regression and bivariate Heckman selection methods.

[5] Alesina and Ardagna (2010) complemented this method with simple OLS regressions to explore the effects of changes in fiscal policy on economic growth in OECD countries.

[6] Appendix Table A.1 lists these countries.

purposes of this paper. Yet it has two shortcomings that restrict the scope of the analysis. The first is that it lacks cyclically adjusted government and expenditure figures, which hinders attempts to identify discretionary policy changes. The second is that it does not provide components of government revenue or expenditure. The result of this is that the analysis in Section 5 cannot shed light on critical aspects of the findings of Alesina and Ardagna (2010; 2013) and other similar studies.

5 RESULTS AND IMPLICATIONS

The limitations of the Fiscal Monitor database restrict the following descriptive analysis of fiscal consolidation attempts from 2007 to 2016 to five questions:

- How many attempts did the 115 countries make to effect fiscal consolidation?
- Were the fiscal consolidation attempts based mainly on increases in government revenue-to-GDP ratios, decreases in government expenditure-to-GDP ratios, or a combination of both?
- Which proportion of these fiscal consolidation efforts proved to be durable, and did the durability of revenue-based and expenditure-based efforts differ?
- Were revenue-based or expenditure-based fiscal consolidations efforts more likely to have been accompanied by positive real GDP growth?
- Were fiscal consolidation efforts accompanied by positive real GDP growth more likely to have been durable than efforts in contracting economies?

Section 4 indicated that the first steps in analyses of this nature are to determine appropriate criteria and to use these to identify episodes of fiscal consolidation. In this study a fiscal adjustment episode is defined as a year in which the primary balance of the general government improved by at least 1.5 percent of GDP. Alesina and Ardagna (2010: 41) defined such episodes with reference to improvements of similar size, but worked with the cyclically adjusted primary balance. This measure is superior to the conventional primary balance for the task at hand, because it is an indicator of discretionary policy changes that is not distorted by the influence of cyclical factors. Unfortunately, the Fiscal Monitor database does not provide cyclically adjusted primary balances for low-income developing countries nor for a significant number of emerging markets and middle-income economies. Some writers (e.g. Gupta et al., 2005: 308) have criticised Alesina and his co-authors for choosing arbitrary criteria to identify fiscal consolidation episodes. This criticism is valid, but it is hard to think of a satisfactory alternative. As was pointed out by Alesina and Ardagna (2010: 42), it seems reasonable to assume that improvements in budget balances of at least 1.5 percent of GDP represent instances of large changes in the fiscal policy stance.

Table 1 confirms that fiscal consolidation efforts were common during and after the international financial crisis. During the ten-year period from 2007 to 2016, at least one improvement of 1.5 percent of GDP or more in the primary deficit occurred in 29 of the

advanced economies, 31 of the emerging markets and middle-income economies and 36 of the low-income developing countries. The 215 fiscal consolidation efforts were distributed almost equally across the three groups of countries. The majority (137 or 63.7 percent) were one-year episodes, but 28 multi-year episodes of successive large improvements in primary balances were recorded. These ranged from two to six years.

Table 1

Numbers of fiscal consolidation episodes (2007-2016)

	Advanced economies	Emerging market and middle-income economies	Low-income developing countries	All sample countries
One-year consolidations	36	46	55	137
Two-year consolidations	5	5	9	19
Three-year consolidations	1	1	0	2
Four-year consolidations	4	0	0	4
Six-year consolidations	1	2	0	3
All consolidations	71	71	73	215

Source: Compiled from information in International Monetary Fund (2017).

The fiscal consolidation episodes ran the gamut of strategies identified in Section 1 (cf. Table 2). In 28 episodes (13.0 percent of all cases) the improvement in the primary balance came exclusively from an increase in the government revenue-to-GDP ratio. Improvements that only reflected a decrease in the government primary expenditure-to-GDP ratio were more common: 57 consolidation episodes (26.5 percent of all cases) took this form.[7] The remaining 130 episodes (60.5 percent of all cases) involved increases in government revenue-to-GDP ratio and decreases in government primary expenditure-to-GDP ratios. In a few cases the contributions of the two sets of measures to the total impulse on the primary balance were of very similar magnitude. It was far more common, however, for one to provide at least 60 percent of this impulse—in fact, this was the case in 111 (or 85.4 percent) of these consolidation efforts. These episodes were split very evenly between those driven by increases in government revenue-to-GDP ratios and those driven by decreases in government primary expenditure-to-GDP ratios. Arguably the most surprising aspect of these patterns is the extent of reliance on tax-driven fiscal consolidation efforts in a period of unusual economic weakness.

[7] The primary expenditures of the general government consist of total expenditures minus interest payments on public debt.

Table 2

The nature of fiscal consolidation attempts (2007-2016)

	Advanced economies	Emerging market and middle-income economies	Low-income developing countries	All sample countries
Revenue increase only	6	7	15	28
Expenditure decrease only	17	15	25	57
Both:	48	49	33	130
Of which mainly:				
Revenue increase	20	26	11	57
Expenditure decrease	21	18	15	54
Total	71	71	73	215

Source: Compiled from information in International Monetary Fund (2017).

Table 3 contains information about successful fiscal consolidation episodes. This paper follows Alesina and Ardagna (2010: 43) in defining a successful episode as one in which the cumulative reduction of the gross debt-to-GDP ratio three years after the initiation of the fiscal consolidation effort was greater than 4.5 percentage. Hence, this definition strongly links the success of fiscal consolidation efforts to their durability. Table 3 starkly underscores the difficulty of achieving durable fiscal consolidations: Only 29 of the 177 episodes in the period from 2007 to 2014 met the criterion for success. This implies a success rate of fiscal consolidations of 16.4 percent. Clearly, even sizeable improvements in primary balances are hard to maintain for any length of time, especially in tough economic environments such as the years during and after the international financial crisis and the Great Recession.

The findings regarding consolidations based mainly on revenue increases and expenditure reductions are in line with those of Alesina and Ardagna (2010) for advanced economies and those of Gupta et al. (2005) for emerging markets and middle-income middle Apart from this, the table provides scant evidence of significant differences in the durability of fiscal consolidations based on increases in government revenue-to-GDP ratios and those driven by decreases in government primary expenditure-to-GDP ratios. On balance, the stylised facts identified in earlier research on fiscal consolidation efforts are not borne out by efforts in the past few years. Unfortunately, the Fiscal Monitor database precludes analysis of the success and influence on economic growth of specific component of government revenue and expenditure.

Table 3

The numbers and nature of successful fiscal consolidation attempts (2007-2016)

	Advanced economies	Emerging market and middle-income economies	Low-income developing countries	All sample countries
Successful consolidations	10	9	10	29
Of which:				
Revenue increase only	1	1	2	4
Expenditure decrease only	1	1	1	3
Both:	8	7	7	22
Of which mainly:				
Revenue increase	2	5	2	9
Expenditure decrease	6	1	4	11

Source: Compiled from information in International Monetary Fund (2017).

6 CONCLUDING COMMENTS

…

REFERENCES

Adam, C.S. and D.L. Bevan. 2003. Staying the course: Maintaining fiscal control in developing countries. *Brookings Trade Forum* (2003): 167-214.

Alesina, A., and S. Ardagna. 1998. Tales of fiscal adjustment. *Economic Policy*, 13(27): 487-545.

Alesina, A. and S. Ardagna. 2010. Large changes in fiscal policy: Taxes versus spending. In *Tax Policy and the Economy* (volume 24) (edited by J.R. Brown). Cambridge & Chicago: National Bureau of Economic Research & University of Chicago Press: 35-68.

Alesina, A. and S. Ardagna. 2013. The design of fiscal adjustments. In *Tax Policy and the Economy* (volume 27) (edited by J.R. Brown). Cambridge & Chicago: National Bureau of Economic Research & University of Chicago Press: 19-68.

Alesina, A. and R. Perotti. 1997. Fiscal adjustments in OECD countries: Composition and macroeconomic effects. *IMF Staff Papers*, 44(2): 210-248.

Alesina, A., O. Barbiero, C. Favero, F. Giavazzi and M. Paradisi. 2017. *NBER Working Paper No. 23385*. Cambridge: National Bureau of Economic Research.

Ardagna, S. 2004. Fiscal stabilizations: When do they work and why? *European Economic Review*, 48(5): 1047-1074.

Baldacci, E., B. Clements, S. Gupta and C. Mulas-Granados. 2004. Persistence of fiscal adjustments and expenditure composition in low-income countries. In *Helping Countries Develop: The Role of Fiscal Policy* (edited by S. Gupta, B. Clements and G. Inchauste). Washington, D.C.: The International Monetary Fund: 48-66.

Baldacci, E., B. Clements, S. Gupta and C. Mulas-Granados. 2006. The phasing of fiscal adjustments: what works in emerging market economies? *Review of Development Economics*, 10(4): 612–631.

Didier, T., C. Hevia and S.L. Schmukler. 2012. How resilient and countercyclical were emerging economies during the global financial crisis? *Journal of International Money and Finance*, 31: 2052-2077.

Easterly, W. 1999. When is fiscal adjustment an illusion? *Economic Policy*, 14(28): 57-76.

Guichard, S., M. Kennedy, E. Wurzel and C. André. 2007. What promotes fiscal consolidation: OECD country experiences. *Economics Department Working Paper No. 553*. Paris: Organisation for Economic Cooperation and Development.

Gupta, S., E. Baldacci, B. Clements and E.R. Tiongson. 2005. What sustains fiscal consolidation in emerging market economies? *International Journal of Finance and Economics*, 10: 307-321.

Gupta, S., B. Clements, E. Baldacci and C. Mulas-Granados. 2004. The persistence of fiscal adjustments in developing countries. *Applied Economics Letters*, 11: 209-212.

International Monetary Fund. 2012. *Fiscal Monitor (October 2012)*. Washington, D.C.: The International Monetary Fund.

International Monetary Fund. 2017a. World Economic Outlook database (April 2017). Available at: https://www.imf.org/external/pubs/ft/weo/2017/01/weodata/index.aspx. (Accessed on 25 July 2017).

International Monetary Fund. 2017b. Fiscal Monitor database (April 2017). Available at: http://www.imf.org/en/Publications/FM/Issues/2017/04/06/fiscal-monitor-april-2017. (Accessed on 25 July 2017).

McDermott, J. and R. Wescott. 1996. An empirical analysis of fiscal adjustments. *IMF Staff Papers*, 43(4): 723-753.

Milesi-Ferretti, G.M. and K. Moriyama. 2006. Fiscal adjustment in EU countries: A balance sheet approach. *Journal of Banking and Finance*, 30: 3281–3298.

Molnar, M. 2012. Fiscal consolidation: Part 5. What factors determine the success of consolidation efforts? *Economics Department Working Paper No. 936*. Paris: Organisation for Economic Cooperation and Development.

Von Hagen, J. and R. Strauch. 2001. Fiscal consolidations: Quality, economic conditions, and success. *Public Choice*, 109(3–4): 327–346.

Appendix Table A.1

Countries included in the analysis

Advanced economies: Australia, Austria, Belgium, Canada, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hong Kong SAR, Iceland, Ireland, Israel, Italy, Japan, Korea, Latvia, Lithuania, Luxembourg, Malta, Netherlands, New Zealand, Norway, Portugal, Singapore, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, United Kingdom, United States.
Emerging market and middle-income economies: Algeria, Angola, Argentina, Azerbaijan, Belarus, Brazil, Chile, China, Colombia, Croatia, Dominican Republic, Ecuador, Egypt, Hungary, India, Indonesia, Iran, Kazakhstan, Kuwait, Libya, Malaysia, Mexico, Morocco, Oman, Pakistan, Peru, Philippines, Poland, Qatar, Romania, Russia, Saudi Arabia, South Africa, Sri Lanka, Thailand, Turkey, Ukraine, United Arab Emirates, Uruguay, Venezuela.
Low-income developing countries: Bangladesh, Benin, Bolivia, Burkina Faso, Cambodia, Cameroon, Chad, Democratic Republic of the Congo, Republic of Congo, Côte d'Ivoire, Ethiopia, Ghana, Guinea, Haiti, Honduras, Kenya, Kyrgyz Republic, Lao P.D.R., Madagascar, Mali, Moldova, Mongolia, Mozambique, Myanmar, Nepal, Nicaragua, Niger, Nigeria, Papua New Guinea, Rwanda, Senegal, Sudan, Tajikistan, Tanzania, Uganda, Uzbekistan, Vietnam, Yemen, Zambia, Zimbabwe.