**Part I: Chapter 10**

**Fiscal Sustainability in G-7 Countries**

**Ece H. Guleryuz[[1]](#footnote-1),**

**Abstract** The main objective of this chapter is to assess the fiscal sustainability performance of G-7 countries before, during, and after the global financial crisis. We examine the movement of various socio-economic and fiscal indicators before, during, and after the crisis period in G-7 countries. We find out that the trends of key fiscal balances indicators clearly reflect the negative effects of the crisis in G-7 countries. Furthermore, the ageing population and increases in public health expenditure bring about additional fiscal strain. Yet, Germany has been able to achieve a good financial standing compared to other G-7 countries.

**1.10.1 Introduction**

The 2008-2009 global financial crisis has critically challenged the world economy in terms of maintaining plausible economic growth rates and fiscal sustainability. The crisis has affected not only emerging and developing markets but also G-7 advanced economies in a negative way. Figure 1.10.1 shows real GDP per capita changes in G-7 countries in two periods: 1997-2006 and 2007-2016 (period averages). The 2007-2016 period overlaps with the during- and after- the global financial crisis time range. Except Germany and Japan, the remaining five G-7 countries have experienced substantial reductions in real GDP per capita growth rates in the second period. For instance, it has decreased from 1.3% to -1.1% in Italy, from 2.7% to 0.4% in the United Kingdom. The United States, Canada and France have also gone through big economic growth deterioration.

(Insert Figure 1.10.1 Here)

In this chapter we try to assess the fiscal sustainability performance of G-7 countries during and in the aftermath of global financial crisis. To achieve this purpose we compare the trends of crucial socio-economic and fiscal balances indicators in two distinctive periods: Before-, and during- and after the global financial crisis. We find that the debt balances in G-7 countries substantially worsened, aggregate production deteriorated during the crisis. Germany has been putting forward a better fiscal sustainability performance compared to other G-7 countries.

The chapter continues as the following. Section 1.10.2 discusses the relative related literature. Section 1.10.3 carries out a detailed analysis of the movements of significant socio-economic and fiscal indicators, and section 1.10.4 presents the conclusion.

**1.10.2 Literature Review**

There is a rich body of literature which analyzes fiscal sustainability for different country groups. Chalk and Hemming (2000) give an overview of various approaches for fiscal sustainability analysis based on IMF studies. Some of the studies use panel unit root and panel cointegration tests. Afonso and Jalles (2015) examine fiscal balances of an OECD subgroup countries. They find no strong cointegration between government revenues and expenditures, and causality from debt to primary balances. They observe that primary balances improve after debt ratios rise higher. Afonso (2005), and Afonso and Rault (2010) try to assess fiscal sustainability for a group of European Union (EU) countries in different time periods. They argue that the high indebtness levels challenge the EU governments to maintain plausible fiscal balances and policy.

Mahdavi and Westerlund (2011) examine the ability of running budget deficits and debt financing at the state-local government level in the U.S. while taking into account strict, formal fiscal rules. Kia (2008) investigates fiscal sustainability for Iran and Turkey using cointegration and tax smoothing techniques. He also concludes that Iran’s over reliance on oil and natural gas income risks the responsibility of its fiscal policy. In another paper, Alexis (2014) argues that high primary fiscal deficit levels of 18 developing and emerging countries contribute to their fiscal unsustainability.

There is a large group of related work done about advanced and G-7 economies. Ghosh et al. (2013) use a fiscal reaction function for 23 advanced economies to compute their ability to increase primary balances in an environment of rising debt. Chen (2014) examines fiscal sustainability performance of G-7 and various European countries by using debt-to-GDP ratio as the primary indicator. In another study, within G-7 countries Feve and Henin (2000) uses the Feedback Augment Dickey Fuller Statistic for the fiscal sustainability test. Cottarelli and Schaechter (2010) emphasize the necessity of sustainable fiscal adjustment, macro-prudent structural reforms, and better functioning fiscal institutions to fight against the high debt levels in G-7 countries. Hanner et al. (2007) argue increasing ageing-related government spending creates a big challenge for fiscal sustainability in G-7 economies. They also support immediate fiscal adjustment rather than a delayed one.

**1.10.3 Key Indicators before, during, and after the Global Financial Crisis**

In this section we examine the before-, and during- and after- the global financial crisis trends of important socio-economic, general government fiscal balances and debt indicators. The data sources we obtain data from are the World Bank’s World Development Indicators and the IMF’s World Economic Outlook (WEO) reports. For the indicators depicted through Figures 1.10.2-1.10.7, we identify the first time range as the before-the global financial crisis, and the 2008-2014 range as the during- and after- the global financial crisis period.

All of the G-7 countries have experienced cash deficits between 1999 and 2014 as can be seen in Figure 1.10.2. Only in Canada and Germany cash deficit decreased in the 2008-2014 period. On the contrary, we see distinctive increases, and even sharp jumps of cash deficit during the second period in the rest of the G-7 countries, more than 4% in Japan, and around 5% in the United Kingdom and United States.

Figure 1.10.3 shows the increase in old population rate. Compared to the 1980-2007 period, old population ratio increased in G-7 countries during the 2008-2014 period. This indicates that the G-7 countries have possibly faced a challenge in ageing-related expenditures during and after the global financial crisis. For example, Germany and Italy experiencing almost 5%, and even more than them Japan experiencing an over 9% surge in old population ratio, have already positioned themselves to confront an aging population problem in the medium run.

Figures 1.10.4, 1.10.5, and 1.10.6 depict movements of government expenditure on education, public health expenditure, and military expenditure respectively. Government expenditure on education shows more balanced trends with small ups and downs between the two periods. Only Canada experienced a more than 1% decline in the 2008-2014 period compared to the 1980-2007 period. Public health spending increased in all the G-7 countries by 0.35%-2% during and after the global financial crisis. This change in public health spending put an additional strain on the fiscal balances of G-7 countries. The biggest increases took place in Japan, United Kingdom, and United States. During the 2008-2014 period only Japan and the United States increased military expenditure. In the other five G-7 countries military spending declined during and after the crisis. Figure 1.10.7 shows that tax revenue decreased in G-7 countries, except Germany in the 2008-2014 period. This reduction in tax revenues might bring forth additional difficulties to achieve and maintain fiscal sustainability.

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The analysis period for the general government fiscal balances debt indicators is 2006-2016 (2015 and 2016 values are projected), and the IMF WEO October 2012 and October 2015 reports are used. The G-7 countries experienced lowest government net lending levels (mostly negative) in the years of 2009 and 2010 which correspond to the highlighted period of the global financial crisis. The government net lending/borrowing graphs in Figure 1.10.8 depict deep V-shaped trends for G-7 countries between 2008 and 2011 (for the United States this period extends to 2013). Only Germany managed to sustain positive government net lending values starting in 2012.

Most of the G-7 countries experienced lowest output gaps (mostly negative) in 2009 (the United Kingdom had a -3.0% output gap in 2012) which can be seen in Figure 1.10.9. By the end of 2016 it is projected that except Germany in the other G-7 countries the output gap levels will still be negative. This indicates that during the global financial crisis the real aggregate output values remained lower than the potential aggregate output values.

We see a V-shaped movement, first worsening and then improving, of the structural balance in the United States, Germany, France, United Kingdom, and Canada in Figure 1.10.10. Japan has performed poorly, forecasted to have a -4.3% structural balance (as percentage of GDP) which is even worse than Japan’s 2006 score of -3.5%. Germany and Italy have improved a lot, with Germany achieving positive structural balance values starting in 2013.

The graphs in Figure 1.10.11 show that the net debt (as percentage of GDP) has increased in all G-7 countries between 2006 and 2016. In Italy and Japan, it is expected to definitely surpass 100% of GDP by the end of 2016. We also find out that the gross debt (as percentage of GDP) has inclined substantially in the United States, France, Italy, Japan, and United Kingdom (Figure 1.10.12). Interestingly in Germany the gross debt has only changed in a band of 13% reaching its highest value of 80.6% of GDP in 2010. Regarding the current account balance (Figure 1.10.13), the United States, Germany, France, and Italy have experienced improving records, while Japan, United Kingdom, and Canada have had worsening records. Italy managed to achieve current account surplus starting in 2013, and Germany has experienced a current account surplus since 2006.

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**1.10.4 Concluding Remarks**

The primary aim of this chapter is to assess the fiscal sustainability performance of G-7 economies by examining the trends of important socio-economic and fiscal indicators before, during, and after the 2008-2009 global financial crisis. We find that cash deficit inclined substantially in France, Japan, the United Kingdom, and United States with the onset of the crisis between 2008 and 2014. The increases in old population ratio and public health expenditure during the same above mentioned period in all G-7 countries have added more burden onto ageing-related expenditures and labor market rigidities. These factors made it more difficult for G-7 economies to maintain fiscal sustainability after the crisis started.

The fiscal sustainability challenges G-7countries have faced are clearly revealed when we examine the movements of various fiscal balances and debt indicators. The government net lending levels plunged in all G-7 countries with lowest levels (most negative) recorded in 2009, 2010, and 2011. During the same period the output gap deteriorated to very low, negative values. Between 2006 and 2016 net debt and gross debt increase steadily. Overall, during and in the aftermath of the global financial crisis G-7 countries have experienced challenging fiscal vulnerabilities. Germany has stood out as the strongest G-7 economy being able to waiver the negative effects of the crisis with mild and temporary volatilities, and maintain fiscal sustainability. Japan, on the other hand, has appeared to be an economy where the negative impacts of the crisis have lingered much longer making the recovery path more painful and longer.

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Figure 1.10.1: Real GDP per Capita Growth Rate Figure 1.10.2: Cash Deficit

Source: Author’s own calculations. Source: Author’s own calculations.

Figure 1.10.3: Old Population Rate Figure 1.10.4: Government Expenditure on Education

Source: Author’s own calculations. Source: Author’s own calculations.

Figure 1.10.5: Public Health Expenditure Figure 1.10.6: Military Expenditure

Source: Author’s own calculations. Source: Author’s own calculations.

Figure 1.10.7: Tax Revenues

Source: Author’s own calculations.

Figure 1.10.8: Government Net Lending / Borrowing

Figure 1.10.9: Output Gap

Figure 1.10.10: Structural Balance

Figure 1.10.11: Net Debt

Figure 1.10.12: Gross Debt

Figure 1.10.13: Current Account Balance

1. E. H. Guleryuz (Corresponding author)

   Department of Economics,

   Istanbul 29 Mayis University, Dr. Fazil Kucuk Cad. No:6 Yamanevler-Umraniye, Istanbul

   Turkey

   E-mail: eguleryuz@29mayis.edu.tr [↑](#footnote-ref-1)