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Abstract

The New View on fiscal policy (as coined by Furman 2016) represents a rethinking of the main-stream consensus on the optimal macroeconomic policy mix. It focuses on a reassessment of the relative effectiveness of fiscal policy and its ability to stabilise the economy when monetary policy reaches its limit. This paper aims to present in detail the main principles of the New View as proposed by Furman (2016), to extend them, bring additional theoretical and empirical evidence, as well as concrete policy implications for the architecture of the European Monetary Union. The New View builds upon five core principles: Firstly, fiscal policy is a significant and efficient complement to monetary policy at the zero lower bound on theoretical grounds. Secondly, we take a closer look at the empirical evidence on government spending multipliers in a recession, both in the DSGE and in the VAR literature, and show it points to much higher multipliers than in normal times. Thirdly, we provide evidence to why fiscal space is actually higher than normally perceived in a recession, because fiscal stimuli can pay for themselves by enhancing current growth and potential output. We shortly discuss whether it is not better to have a sustained stimulus rather than a short one and whether enhanced global spillover effects in an environment of insufficient aggregate demand further enhance fiscal policy effectiveness. All of the above arguments point to the welfare enhancing effects of fiscal stimulus during a zero lower bound episode and that an approach, led by the New View, would have delivered better macroeconomic outcomes during the Eurozone crisis. We then discuss what such an approach could mean for a more resilient EMU architecture and for stabilisation mechanisms in the Euro Area.

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Abstract

The New View on fiscal policy (as coined by Furman 2016) represents a rethinking of the mainstream consensus on the optimal macroeconomic policy mix. It focuses on a reassessment of the relative effectiveness of fiscal policy and its ability to stabilize the economy when monetary policy reaches its limit. This paper aims to present in detail the main principles of The New View as proposed by Furman (2016), to extend them, bring additional theoretical and empirical evidence, as well as concrete policy implications for the architecture of the European Monetary Union. The New View builds upon five core principles. Firstly, fiscal policy is a significant and efficient complement to monetary policy at the zero lower bound on theoretical grounds. Secondly, we take a closer look at the empirical evidence on government spending multipliers in a recession, both in the DSGE and in the VAR literature, and show it points to much higher multipliers than in normal times. Thirdly, we provide evidence to why fiscal space is actually higher than normally perceived in a recession, because fiscal stimuli can pay for themselves by enhancing current growth and potential output. We shortly discuss whether it is not better to have a sustained stimulus rather than a short one and whether enhanced global spillover effects in an environment of insufficient aggregate demand further enhance fiscal policy effectiveness. All of the above arguments point to the welfare enhancing effects of fiscal stimulus during a zero lower bound episode and that an approach, led by the New View, would have delivered better macroeconomic outcomes during the Eurozone crisis. We then discuss what such an approach could mean for a more resilient EMU architecture and for stabilization mechanisms in the Euro Area.

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And today, the G-20 is no longer debating growth versus austerity, but rather how to best employ fiscal policy to support our economies, and increasingly how to make sure the benefits of growth are more widely shared, while continuing to focus on sustainable long term fiscal policies.

Jack Lew, August 2016

To increase the effectiveness of monetary policy, fiscal and structural policies are needed to reinforce growth and make it more inclusive.

Mario Draghi, November 2016

The academic consensus on austerity solidifies, but policymakers go their own sweet way

Simon Wren Lewis, February 2017

I.   Introduction

Fiscal policy and its effectiveness have taken central place in economic policy debates since the global financial crisis. While there seems to be a relative consensus on the ability of monetary policy to affect the economy after a macroeconomic shock, the fact that it is naturally limited by the zero or effective lower bound has focused attention recently on its interactions with fiscal policy in such periods. The effects of fiscal policy on the other hand have been subject to a heated and long-lasting debate with starkly opposing views and no ensuing consensus up to date. We present in detail in this paper what has been called by Jason Furman (2016) The New View on Fiscal Policy. Our goal is to extend and iterate some of the pillars of this New View, as well as to embed the vast recent literature on fiscal policy in it. Furthermore, we discuss the implications from all of this for the European Monetary Union and its future institutional set-up. The Eurozone crisis and the prolonged European malaise from 2014 to 2017 can be perceived through the lens of the New View, which could therefore deliver important conclusions on how to improve the current EMU architecture and make it more crisis-resilient in the future.

The New View on fiscal policy, a term coined by the then Chair of the Council of Economic Advisers of President Obama Jason Furman, represents a rethinking of major points of the consensus in academia and policy-making circles on the optimal policy mix between monetary and fiscal policy in a recession, at times of low growth and prolonged low inflation (lowflation) and especially when nominal interest rates are at zero. It is a refinement of the theory how to best manage the boom and the bust of the business cycle given recent evidence, both theoretical and empirical. Since the 1980s, the economic discipline has been dominated by the idea that monetary policy is the superior instrument of economic policy makers, while discretionary fiscal stimulus should be avoided with fiscal policy constraining itself mostly to automatic stabilizers (Taylor 2000). The stabilisation of output and inflation has been exclusively preserved to monetary policy - an arrangement that Kirsanova, Leith and Wren-Lewis (2009) refer to as the "consensus assignment". But there were also important critiques to this consensus. The New View challenges this idea and points to the important benefits

of using discretionary fiscal stimulus for stabilization purposes, especially at the zero lower bound. As remarked by Shambaugh (2017), most of current macroeconomic models start by the assumption that if left to themselves, governments will run inconsistent and fiscally irresponsible policy. Conceptually, the opposite case is assumed out. But what the prolonged Eurozone crisis partly showed is that instead of thinking only about the problem of dynamic inconsistent, profligate governments that are inherently eroding fiscal sustainability, there is the possibility that in a deep recession governments can also be insufficiently present biased - and actually spend less than would be optimal from a macroeconomic point of view.

The importance of this topic is two-fold. On one hand, it adds to the theoretical knowledge on the optimal macroeconomic policy mix and attempts to develop it further, especially based on current trends such as the observed decrease in the equilibrium interest rate. But it also makes practical recommendations on what could be an optimal response to a deep and prolonged economic weakness. In the final part we use the theoretical channels of the New View to discuss its direct implications for the European Union institutional set-up - a topic that is currently under rigorous debate.

The New View has a major importance because it addresses issues at the heart of the meager economic performance of the Eurozone in the 2011 - 2017 period. This Eurozone malaise has been a period of poor economic performance for Eurozone countries, even though the global financial crisis did not start there and even though most of the EU countries had stronger fundamentals in comparison to the US in 2008. Still, the European economy suffered from low economic growth and constant stress in financial markets for a number of years after the US economy had already recovered from its most significant shock for the past decades. The New View explains this diverging performance with the lack of a sufficient stabilization policy in the Eurozone and the missing fiscal support to the central bank in ensuring a faster recovery. In this paper we summarize the reasons behind this explanation and provide additional empirical evidence and theoretical explanations for the channels of the New View of fiscal policy. We also iterate the question how such an approach can be implemented in the European Monetary Union, where the fiscal-monetary mix is further complicated by the fact that monetary policy is commonly decided for the whole Eurozone, whereas fiscal policy is discretionary at the country level, governed by some limiting rules. We briefly sketch out some of the latest proposals on further Eurozone reforms and comment whether they suit the conclusions of the New View.

This paper is organized as follows. Section 2 gives a short historical background on the debate on the optimal policy mix and some recent assessments of the policy mix in the Eurozone in the past years. It also comments why a zero lower bound episode has become much more probable and therefore more problematic for the near future than previously assumed. Section 3 then presents the New View and its five pillars in detail. Section 4 looks into some of the latest proposals in the debate on possible further reforms of the EMU architecture and seeks to analyze whether they are in line with the insights of the New View. Section 5 concludes.

II. Background

From a historical perspective, the perception of the optimal macroeconomic policy has been subject to many changes throughout the last century. What we call The New View in this paper was still the dominating view until the late 60s, when monetary policy was seen as just an accompanying instrument to fiscal policy to steer the economy. Anecdotal evidence tells that President Kennedy only remembered that William McChesney Martin, the then Chairman of the Federal Reserve Board, was conducting monetary policy because both words started with M (Stein 1969). The then Chairman of the President's Council of Economic Advisers Walter Heller had a much more important position as he was in charge of setting the government spending direction. By the mid-80s this dominance was completely overturned in the opposite direction and discussion on fiscal policy under US policymakers has almost disappeared, as the stagflation period gave monetarists many arguments in favor of setting their preferred approach to policy-making and pursuing economic stabilization only through monetary policy operations.

In its essence, the New View resembles much of the old "Old view" - the Keynesian aggregate demand management by fiscal policy of the 50s and 60s, but enhances it with insights from New Keynesian thinking and latest empirical evidence. In that period, fiscal policy was still seen as a main tool for macroeconomic management. Starting from the 70s and getting strength through the 80s, the monetarist approach gained dominance and for a variety of reasons monetary policy was seen as the more appropriate tool for macroeconomic policy. The most pronounced of those reasons has been the commitment problem of fiscal policy being governed by elected officials, steering policy to gain short-run benefits without taking into account long-term fiscal sustainability. While politicians rationally would care about the election cycle and might bust spending in an effort to get re-elected, unelected central bank officials, especially at central banks, insulated by their independence from political pressure, should be able to analyze the business cycle and take more responsible and time-consistent decisions (either targeting only inflation or minimizing a loss function between inflation and unemployment in case of a dual mandate). This argument today still represents the basis for a view skeptical to fiscal policy as a macroeconomic management device.

The Global Financial Crisis, but mostly its aftermath, seem to have slowly changed this perception. In the direct aftermath of September 2008, policy action across the globe was coordinated and used fiscal stimulus actively to deal with the imminent threat for the global economy. The global economic crisis seemed to have produced a regime shift in thinking about fiscal policies. For a short period in 2009, the world examined a resurgence of discretionary spending. As the consequences of years of excess on financial markets and the underestimation of systemic risk and market pro-cyclicality resulted in a very large-scale economic shock, fiscal stimulus was used in large proportions for short-term stabilization. But this shift lasted shortly. The G20 meeting in Toronto in June 2010 signaled a shift in policy priorities and a renewed dedication to fiscal discipline. Fiscal consolidation was seen as an unpleasant, but needed medicine to overcome future crisis in public finances, produced by their active usage as a consequence of the global financial crisis. The New View on fiscal policy argues that this shift to fiscal sustainability awareness might be uncalled for and argues that in a period with high negative output gaps, low inflation and conventional monetary policy at its limits, active fiscal management would have reduced the economic costs of the crisis significantly. What is more, it evaluates that this fiscal activism during a prolonged recession does not endanger public

finances but can rather improve long-term outcomes. Figure 1 gives a first picture of the diverging paths in terms of economic performance that the US and the Eurozone have taken since 2011, with the latter having a much more restrictive fiscal policy stance post-2010, whereas the former continued applying, although in a reduced amount different policies that followed from or continued the American Recovery and Reinvestment Act (ARRA). We discuss in detail studies such as Blanchard and Leigh (2013), Blanchard, Erceg and Linde (2015) and House, Tesar and Proebsting (2017) which attribute a considerable part of these meager growth rates in the Eurozone to a large part to the excessive fiscal consolidation efforts undertaken there.

Figure 1: Real GDP USA and EU19 2002 - 2016; Divergent performance since 2011 (GDP in 2007 = 100), Source: Eurostat
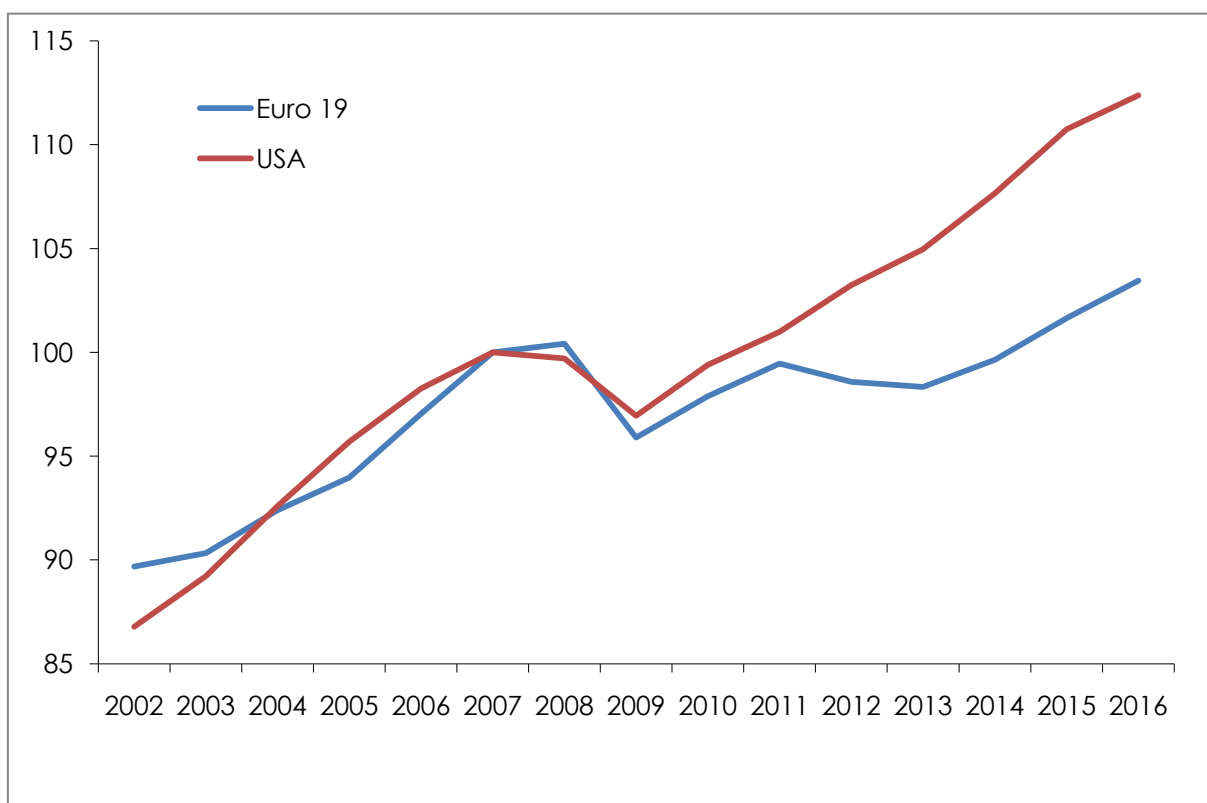
But why is this important now? After years of low growth, in 2017 and 2018 some of the main characteristics of the above described economic environment have faded away - inflation is slowly coming back to its target rate in Europe, and growth is strong and broadly based. Firstly, even though much of the arguments on the New View address the economic environment of the last few years, most of the underlying mechanisms are structural - they explain channels and interactions in the economy that are fundamental. Most of the arguments of the New View will be present also in a future low-growth, low-inflation environment, when the zero lower bound binds.

But what is even more important is that reaching the effective lower bound by central banks might be something we observe much more often in the future, as some recent evidence shows. This is exactly

the situation in which fiscal policy accommodation becomes highly beneficial. This means that our conclusions are not only an ex-post analysis of what could have been optimal in the aftermath of the global financial crisis, but rather give also a policy implication for policy-makers for the future. Long-term equilibrium interest rates have been declining across advanced economies gradually since the 80s as shown in Figure 2. This means that even after the normalization of the policy rates, the equilibrium rate will most probably stay at low levels, thus reducing the space for monetary policy to counteract any significant shocks and fight recessions when they occur. Dordal-i-Carreras et al. (2016) point to the fact that the zero lower-bound may be hit much more often than previously expected and largely conclude that the lack of historical data on episodes where monetary policy has been constrained are making it very hard to make suggestions both about the frequency of such episodes and their duration. In addition, the secular stagnation hypothesis, also predicts a prolonged period of low growth and low inflation, which automatically means low interest rates for a prolonged time. Whether the exact reasons for that are the increased global savings, the lack of global investment or the shortage of safe assets or all of the above, they all point to lower equilibrium interest rates in the future in comparison to the pre-crisis period. Therefore, not only was the European experience of the recent years an environment for fiscal policy to be more effective due to the inability of monetary policy to act, but all of the above arguments point out that this environment could be more often observed in the future as well.

Figure 2: Government Bond Yields - 10 Years in a historical perspective, Source: Eurostat
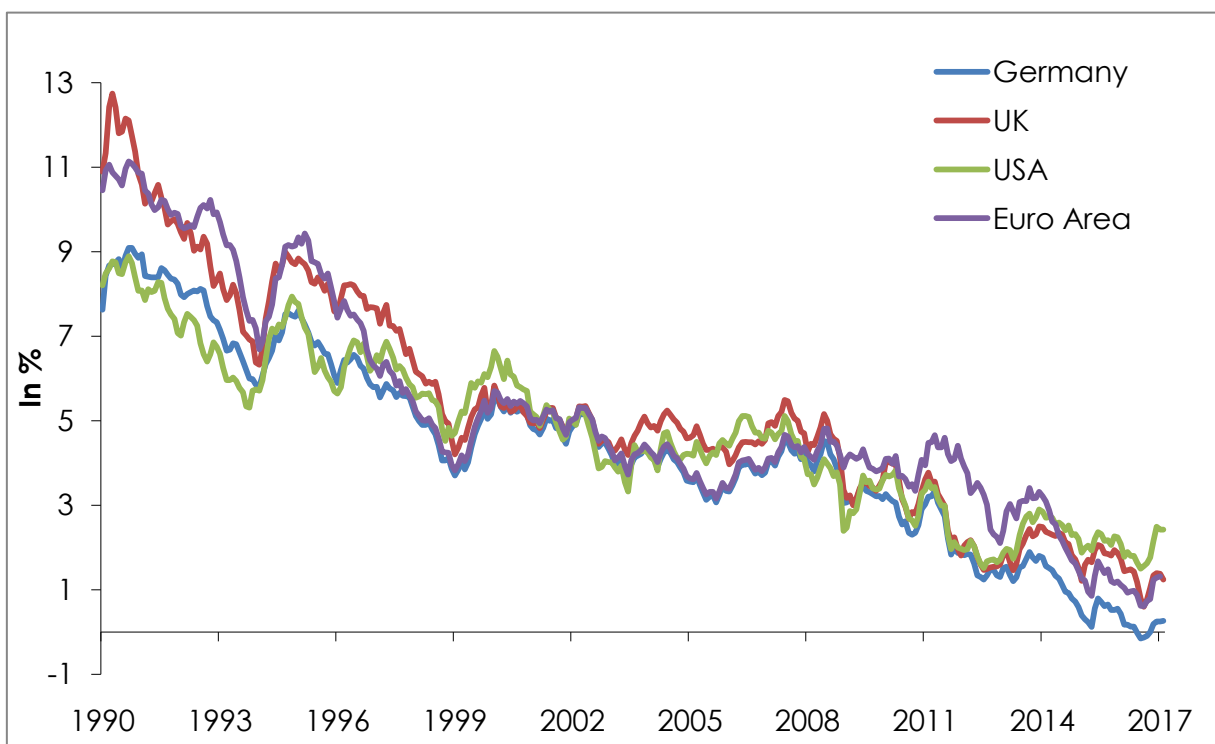
If these downward trends in long-term interest rates continue to hold, monetary policy will be more often constrained by the zero bound in the future, making the understanding of the policy mechanisms and effectiveness of fiscal policy under constrained monetary policy all the more crucial. Thus, the New View is not only an ex-post argument on what might have been optimal to solve the economic malaise in the EU in the past 5 years. It is also a theory with longer-lasting mechanisms that are fundamental to the working of the economy after a future significant shock. Rather than giving ex-post ideas of an optimal policy for the Eurozone crisis years, it also is a receipt how to handle future similar periods.

Below we present the pillars on which the overall idea of fiscal activism during a recession is built upon. But first, we briefly sketch some recent evidence on why the counterfactual scenario - a fiscal activist approach in e.g. the Eurozone in the recent years, would have led to a better macroeconomic performance. There has been a considerable literature trying to estimate the effects of the specific monetary and fiscal policy mix pursued in the aftermath of the Great Recession, both in the US and the EU. One of the most significant studies, conducted by Blanchard and Leigh (2013), pointed out to the correlation between fiscal consolidation efforts and downward forecasting errors of GDP, thereby signalling the possibility of much higher output multipliers from fiscal consolidations during a recession. We go into the evidence on the size of fiscal multipliers below. The more elaborate, structural DSGE model estimations of the optimal policy mix, that we also present below, report significant costs from fiscal consolidation efforts in terms of GDP growth as well.

As a very detailed study on the possible costs of pursuing a contractionary fiscal policy stance during the recession in the EU, we refer to House, Tesar and Proebsting (2017). The authors extend previous analyses of European austerity by building on the paper by Blanchard, Erceg and Linde (2015), which also aims to run counterfactual policy experiments for fiscal policy across the EU and to quantify their welfare effects. We present Blanchard, Erceg and Linde (2015) in detail below. In a first step, House, Tesar and Proebsting (2017) try to find the empirical relationship between austerity and economic performance in the EU. The core of their analytical approach is that they can then estimate in a multi-country model the different outcomes in terms of growth and debt-to-GDP ratios under different economic policy paths. In its empirical part, the study finds that austerity - defined as deviations from predicted government purchases amounts - is associated with declines in consumption, investment and GDP growth. Figure 3 shows the actual data, observed in the EU, and points to a negative correlation between the shortfall in government purchases (in comparison to their forecasted values) and the average forecast error in GDP for the period in question. This is an exercise similar to that of Blanchard and Leigh (2013) and shows the same results - that countries that pursued higher government spending cuts (in comparison to forecasted government expenditure) then suffered a starker downward revision of growth. Austerity in this case is defined as the government spending reductions in excess of what a reduced form, in-sample forecast would have predicted.

To be able to run a counter-factual scenario on what would have happened if no such cuts were introduced, the authors try to estimate the costs of fiscal consolidation by using a structural, multi-country DSGE model. Their model encompasses 29 countries, including all Eurozone countries, and aims to compare the model results with the empirics presented above. Their benchmark case, in which fiscal consolidation was pursued, delivers results that replicate the GDP outcomes in line with the data presented above (Figure 4), so they use this case to simulate for the counterfactual experiment where no fiscal austerity was pursued. By running the counterfactual case, the authors present a quantitative

Figure 3: Government Purchases Shortfall and Average Forecast Error as percent of GDP; Source: House, Tesar and Proebsting 2017
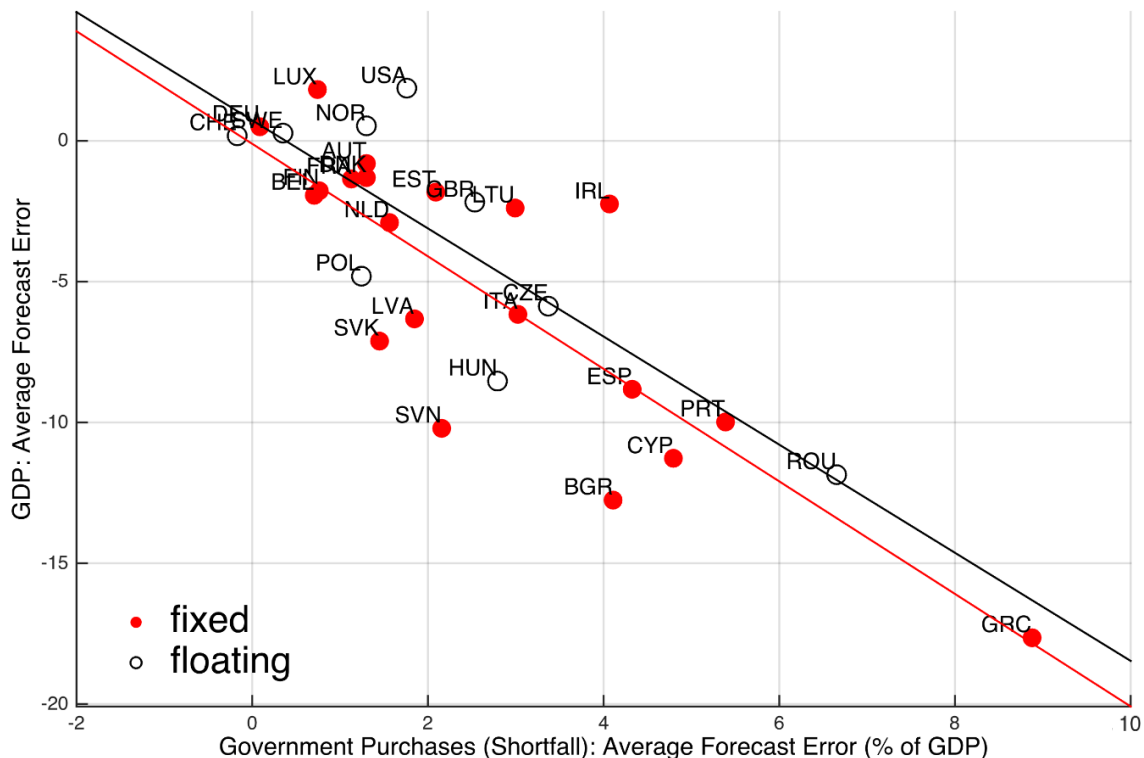
estimation of a more relaxed fiscal path in Europe. The first simulation eliminates spending-based consolidations - removing the negative government spending shocks that occurred as discretionary fiscal consolidation effort across the Eurozone. It finds out that the contraction in GDP for the GIIPS countries would have been only 1 percent on average in the absence of fiscal consolidation in comparison to the 18 percent drop in GDP that actually occurred (first column in Figure 5). Furthermore, the model with austerity also replicates well the unwelcomed rise in debt-to-GDP that was observed after fiscal consolidation was pursued and points out that this rise would have been halved in the case without consolidation (8 percent instead of 16 percent). The authors find a high government spending multiplier of about 2 percent in their model estimations. After assessing the relative importance of the different shocks included (government spending shock, monetary policy shock and credit shock), it seems that most of this multiplier is explained by the government purchases shock, with monetary and credit shocks just reinforcing it. They conclude that fiscal consolidation was counterproductive to reduce debt at the current point of the business cycle and that excessive government purchase reductions, especially in the periphery, have brought significantly higher output losses.

This first evidence concerning the negative effects of fiscal contractions summarizes well one of the core ideas - that fiscal policy had a very different role to play in the Eurozone crisis period in compari-

Figure 4: Government Purchases Shortfalls and Average Forecast Error as percent of GDP - Data versus Model; Source: House, Tesar and Proebsting 2017
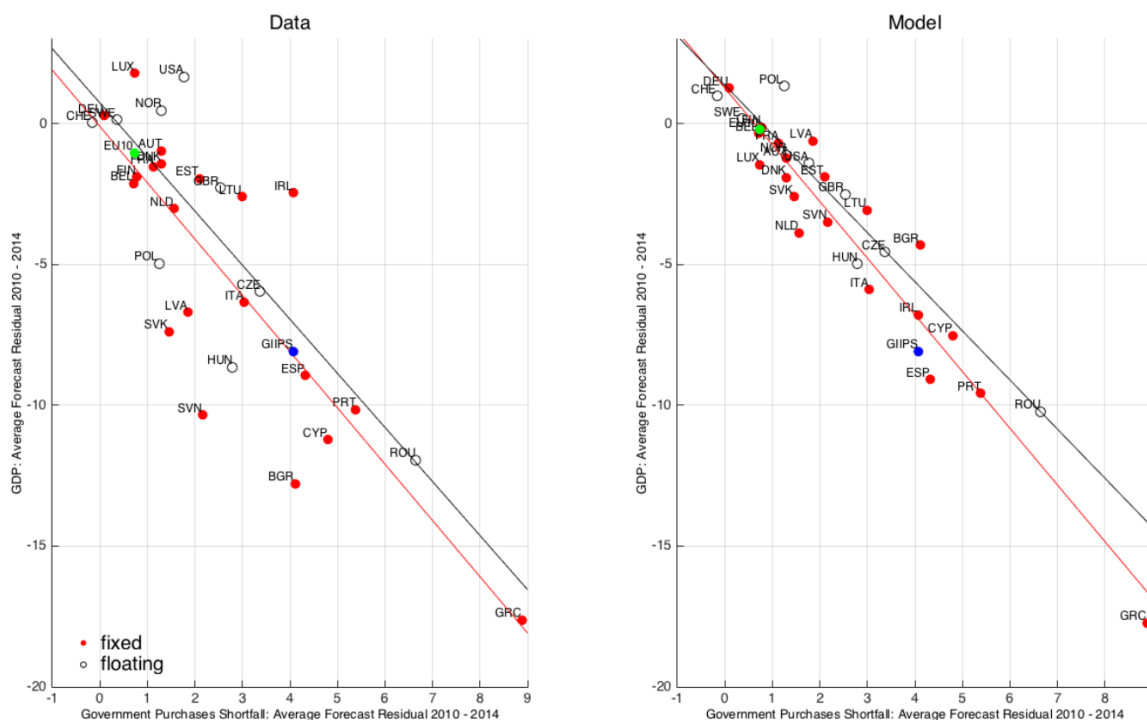
son to normal times and this role is explained mostly by the New View (Furman 2016). The New View revolves around five key principles, with the first four being in contrast to previous arguments used in favour of "'the consensus assignment"'(Kirsanova, Leith and Wren-Lewis, 2009) between monetary and fiscal policy, and the fifth principle coming as an addition. We also add another point - the high significance of taking into account heterogeneous agents with different propensities to consume for correctly addressing the effects of fiscal policy. In what follows, we first present these principles as stated by Furman (2016) and complement his analysis with additional evidence and some illustrative examples. We examine what the implications of his theory are and where do they touch upon other influential contributions and policy suggestions on the optimal policy mix in a low-growth ZLB environment. In the following section we examine what would this New View mean for the EMU architecture of the European Union.

Figure 5: Counterfactual policy estimations: First column (No Austerity) shows counterfactual scenario of no fiscal consolidation in the Euro area - when government purchases follow their trend (black bolded line) compared with actual data (grey line); Source: House, Tesar and Proebsting (2017)
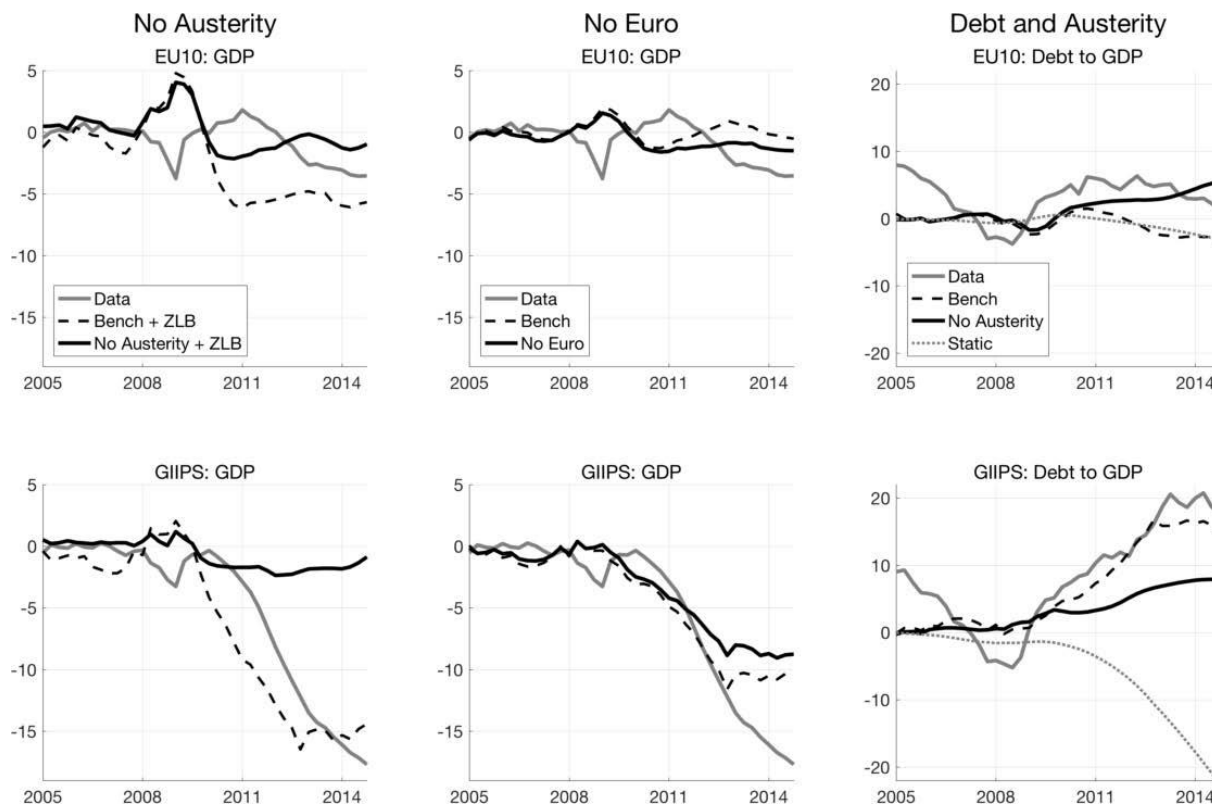
III.   The New View

The New View steps on five ground principles as stated by Furman (2016), which are summarized in Table 1, and we explain in more detail each of them in the next sections.

1.   Fiscal policy is a significant and efficient complement to monetary policy at the zero lower bound

The existence of positive complementarity between monetary and fiscal policy has been brought up by a number of important contributions in recent years. Some of them, in the New Keynesian DSGE tradition, focus on the temporary complementarity during the zero lower bound period when monetary policy is constrained. Another strand of the literature has also been gaining renewed attention across both academic economists and practitioners since the Jackson Hole address by Chris Sims (2016) - the fiscal theory of the price level as introduced by Leeper (1991), which implies that these complementarities hold throughout the business cycle and not only at the ZLB.

We first explore the complementaritiy between fiscal and monetary policy and how the two interact

	Explanation	Main Contributions
At the ZLB, there are important complementarities between monetary and fiscal policy	(Structural) effects at the liquidity trap	Werning 2011, Coenen et. al 2011, Blanchard, Linde and Erceg 2015, Sims 2016
Discretionary fiscal policy can be very efficient	Empirical state-dependent SVAR models (which better address non-linearities) show that multiplicators differ significantly between an expansion and a recession	Auerbach and Gorodnichenko 2012, Caggiano et. al 2015
Fiscal space is higher than perceived	Static debt sustainability analysis ignores important effects of stimulus	Summers and De Long 2012, Auerbach and Gorodnichenko 2017
Important Spillover Effects	The stimulus affects not only the country in question but also its trading partners, especially when aggregate demands is insufficient	Blanchard, Linde and Erceg 2015, IMF 2016
Sustained rather than short-term stimulus	Long-term investment enhances potential output	Werning 2011, IMF 2016

Table 1: Pillars of the New View

with each other from a purely structural perspective - based only on theoretical mechanisms and no empirical evidence. The temporary effectiveness of fiscal policy when monetary policy is constrained at the lower bound is the most powerful and widely spread argument for the active use of discretionary fiscal policy in an economic environment of low-inflation and low-growth. It does not imply a comparison in the effectiveness of monetary and fiscal policy, but rather focuses on the fact that monetary policy is restricted by the zero lower bound on the nominal interest rate or the so-called effective zero lower bound. Negative interest rates can be implemented, but they are still subject to academic debates and are not uncontroversial. In this situation of a liquidity trap, unconventional monetary policy can be used as an additional measure to sustain the recovery and help inflation return back to the target, but its additional effects might lead to increased risk to financial stability. This makes it difficult for unconventional monetary policy to be extended indefinitely if the size of the shock and the recession requires it. Unconventional monetary policy measures are furthermore often at the core of a political dispute. In such a case, where monetary policy is either already used up to its limits or its further extension is controversial, fiscal policy is not only a more efficient way to stimulate demand and inflation, but possibly the only way.

There are powerful synergies between fiscal and monetary policy which can be used in managing recessions, especially when monetary policy is at the zero lower bound. In the sense of the current view, this relation is either non-existent or actually self-defeating. In the current view on fiscal policy with Ricardian equivalence, fiscal policy becomes irrelevant, since any fiscal action today with bud-

get consequences should be irrelevant for an optimizing agent as it will be offset in the future (e.g. by raising taxes). However, the assumption of Ricardian equivalence, especially for the whole set of agents in the economy, is very limiting and especially so in a recession, when even more agents become credit-constrained.

More importantly, however, monetary policy can offset positive effects from fiscal stimulus in normal times by reacting to future expected inflation by raising interest rates. This is where the complementarity between monetary and fiscal policy of the zero-lower bound becomes crucial, because as we explain below, monetary policy stops counter-reacting to fiscal stimulus. Similarly, the ZLB erodes also the other main argument against fiscal activism - that government spending will just crowd out private investment. Again, this does not hold during the zero-lower bound episode, when we actually observe crowding-in of private investment instead.

We call this a structural view of the economy, because it is mainly discussed in structural New Keynesian DSGE macromodels. From a simplified perspective, both of the effects of the zero lower bound period on the effectiveness of monetary and fiscal policy are demonstrated by the following two equations. Firstly, we have the GDP identity equation, which describes the classical Keynesian effects of government stimulus:

$$Y = C + G + I$$

Through the classical IS-LM perspective, this is how government spending increases output directly. Neoclassical counter-arguments against this revolve around the fact that government spending thus extracts important resources and leads to less private investment, thus just crowding-in and reducing I. But at the zero lower bound these arguments become invalid, as can be seen by the fundamental identity equation of the real interest rate:

$$r_t^f = i_t - E(\pi_{t+1}) + \epsilon_t$$

Woodford (2010) provides a convincing analysis of how this equation implies a significantly enhanced size of the fiscal multiplier. First, a big negative shock, e.g. a taste shock, implies that the nominal interest rate should be negative for the economy to return back to potential. Since central bank policy makers may have difficulties enforcing this negative rate, the nominal interest rate i_t stays at zero. On the other hand, the fiscal stimulus induces through its effects on aggregate demand and upward pressure on marginal costs a push upwards for inflation. This means that the inflation expectations π_{t+1} in the above equation increase. In normal times, this increase in inflation (and the expected closure of the output gap) will be off-set via the Taylor rule with an according nominal interest rate increase. But since the central bank had to have in practice an even lower, negative interest rate, it does not react immediately and will not start increasing the nominal interest rate.

As is obvious, keeping the nominal interest rate i_t at zero, while raising the expectations term $E(\pi_{t+1})$ results into a decrease of the real interest rates. This affects the intertemporal decision problem of the consumers (as well as firms). The decreases in real interest rate lead to higher private spending. As this induces further inflation, but the nominal interest rate stays at zero, we have a second round of decreases of the real interest rate. This captures the main mechanism through which New Keynesian DSGE models estimate a significantly higher multiplier from government activism during recessions in comparison to normal times.

The argumentation of proponents of the idea that government spending multipliers are low or even zero and thus fiscal policy is suboptimal way of steering the economy is usually based on crowding-out effects, plus adverse effects when government debt is already at a high level. This is famously summarised by a quote from John Cochrane: *"If the government borrows a dollar from you, that is a dollar that you do not spend, or that you do not lend to a company to spend on new investment. Every dollar of increased government spending must correspond to one less dollar of private spending. Jobs created by stimulus spending are off-set by jobs lost from the decline in private spending. We can build roads instead of factories, but fiscal stimulus can't help us to build more of both. This is just accounting."*

But during a liquidity trap, by boosting demand and thus expectations on future inflation, stimulus spending at the ZLB actually crowds-in investment, which would otherwise stay idle, waiting for signals of a recovery. This is not the case only in Woodford (2010), but in many other New Keynesian model estimations that became prominent in the past years. They also make predictions of large fiscal multipliers (Christiano et. al 2011, Eggertson 2011 and Calmstrom et. al 2014), as well as multipliers that increase with the duration of the government stimulus. The latter also comes directly from the above equation, as a longer fiscal stimulus means increased inflation expectations for longer and therefore even higher effect on the current consumption and investment decision through a larger decrease in the real interest rate. Cristiano, Eichenbaum and Rebello (2011) present these results hold in a medium-sized DSGE model based on Altig, Cristiano, Eichenbaum and Linde (2011), that can well replicate the macroeconomic aggregates of the post-crisis period in the US. They study the timing of the government spending to achieve optimal effect and find that it is optimal to induce as much as possible of the government spending during the ZLB episode, as this is when the multiplier is much higher.

A recent critique to most of these approaches has been expressed by Cochrane (2017) by pointing to the fact that a feature of this tradition of New Keynesian models is multiple equilibria. Cochrane (2017) aims to show that the selection of the equilibria and the interest path influence significantly the outcomes. Thus, according to Cochrane, the policy proposals derived from these models are crucially depending on the selection of equilibrium. Monacelli et al. (2014) on the other hand also criticizes these results, but does not doubt the effectiveness of the government spending or the size of the multiplier per se, but rather puts into question how much welfare enhancing such an intervention is.

Erceg and Linde (2014) try on the other hand to estimate in a similar DSGE framework what the budget implications are from the government stimulus and if there is "fiscal free lunch" indeed - if the government spending increase can finance itself, as we will argue also below. The authors show that this might be true, but also show that the size of the multiplier is a step function of the government spending increase. They find that for some levels of increased spending the stimulus pays for itself. Conversely, they also find the symmetric response for a fiscal consolidation episode - that it prolongs a recession and boosts government indebtedness rather than decreasing it. But these effects depend crucially on the size of the stimulus. As the stimulus gets higher and higher, the economy escapes the liquidity trap faster - and from this moment on the multiplier drops to low levels. The authors start with a toy model similar to Woodford (2003), but extend their estimations and show similar results in more sophisticated models, which are often used for policy simulations - e.g. the

seminal Smets and Wouters (2007) and Christiano, Eichenbaum and Evans (2005). The authors also include another estimation with a further extension that we will come back to below - introducing non-Ricardian, hand-to-mouth agents, as in Gali, Lopez-Salido and Valles (2005). Hand-to-mouth consumers are both a more realistic presentation of part of the households and also become much more important during a recession period, when more households are credit constrained. The inclusion of hand-to-mouth consumers automatically enhances the multiplier effects, because these households, also known as Keynesian agents, consume immediately everything they become additionally as income.

Already from this first set of evidence we can present the so-called "paradox of austerity". This is the paradoxical situation that politicians and policymakers who were normally considered as too lax on fiscal sustainability might have been throughout the Eurozone crisis excessively tight on fiscal policy, while scholars and academics have raised concerns that a more positive fiscal stance would be appropriate. This is paradoxical, as many of the current standard macroeconomic models start from the assumption that the government is always present-biased in terms of public spending. In relation to the political and economic reality, this is also why the Maastricht criteria are aimed at providing limits to government spending on the negative side (limiting excessive deficits). But our analysis in this paper and the large literature that we base it upon, implies that spending was actually insufficient given the size of the macroeconomic shock we were facing. As summarized by Jay Shambaugh at the Peterson Institute of International Economics Conference: Rethinking Macroeconomics IV (12. October 2017) recently, the question thus may actually be: *"How do we prevent the government from being insufficiently present biased when it is needed".*

A similar argument has been formalized in a theoretical DSGE paper by Schmidt (2017). Schmidt (2017) uses an approach similar to the argumentation about the necessity to have a conservative central banker (Rogoff 1985), to assess the optimal weight that a fiscal authority should put on current output stabilization in comparison to long-term public finances sustainability. He shows that during a liquidity trap, the fiscal policymaker should become more activist and put more weight on the goal of output and inflation stabilization relative to public finance sustainability than the private sector does since that reduces the welfare costs of the zero-bound period. Because at the ZLB the policymaker ignores the expectations channel effects of fiscal policy, he tends to have a subdued willingness to use government stimulus as a stabilization tool - as we have observed during the Eurozone malaise. Schmidt (2017) shows that by putting higher weight on inflation stabilization in the preferences of the authority, the policymaker reaches all its goals faster - output and inflation stabilization and a reduction of debt-to-GDP ratios. This delivers a first possible explanation on the "paradox of austerity" and why even if it was economically optimal, policymakers did not pursue an activist fiscal policy regime when monetary policy reached its limits.

The fiscal theory of the price level

There is another powerful defense of fiscal activism, which has recently been revived on a theoretical basis - the fiscal theory of the price level. It does not strictly require the zero lower bound to be reached and could therefore be understood as a theory of the underlying characteristics of the economy, not a temporary relationship. Christopher Sims used the fiscal theory of the price level at the Jackson Hole Symposium in 2016 (Sims 2016), advancing further ideas started by Leeper (1991), to give practical suggestions especially for fiscal policy during a liquidity trap. The fiscal theory of

the price level goes contrary to the common view that inflation is mainly a monetary phenomenon (Friedman 1970). The FTPL suggests that the price level is not only dependent on the money supply and the interest rate, but also on tax and expenditure policy, because government liabilities and their real value have a significant influence on inflation - a feature left out of standard New Keynesian macroeconomics. Thus, every monetary policy action has fiscal consequences (Sims 2016), although it seems more relevant that the opposite is also implied in this view. The implications from this according to Sims for the cases of Europe (as well as US and Japan) are that the general explanation for the low interest rates, large central bank balance sheets and low inflation in these countries is the failure of effective fiscal expansion to take over from monetary policy as the zero lower bound was approached. Although this is a largely accepted notion by many academics, especially the ones that subscribe to the New View on fiscal policy, Sims gives it a new twist. According to the FTPL, it is the fact that inflation will actually inflate away part of the nominal government debt that is most crucial for reviving output growth. If agents realize that inflation in next period will erode nominal debt, they feel less constrained by Ricardian equivalence and will indeed expand their consumption/investment without worrying over future government liabilities. Thus, fiscal stimulus should explicitly imply that it will generate inflation - this makes its repayment easier in the future, eroding Ricardian equivalence constraints. When fiscal stimulus is combined with discussions of future tax increases or government cuts as inevitable, it automatically makes the fiscal stimulus ineffective, according to Sims. The key is thus to make explicitly clear that part of the new government debt will automatically be inflated away when inflation returns to its target. This might even mean making future fiscal contraction conditional on maintaining the inflation target - which in effect means switching off Ricardian equivalence to make macroeconomic policy more effective in the short-run. For Sims this is explicitly important at the zero lower bound, but his conclusions seem to hold for monetary policy in all periods *"Reductions in interest rates can stimulate demand only if they are accompanied by effective fiscal expansion. For example, if interest rates are pushed into negative territory, and the resources extracted from the banking system and savers by the negative rates are simply allowed to feed through the budget into reduced nominal deficits, with no anticipated tax cuts or expenditure increases, the negative rates create deflationary, not inflationary, pressure."* Thus, in a sense, Sims makes a conclusion on the overall importance of the monetary-fiscal interactions, not only during zero lower bound periods, but at any point of the business cycle.

Bianchi and Melosi (2017) show how the policy intervention proposed by Sims (2016) works in a New Keynesian framework and point to the importance of the coordination between monetary and fiscal policy after large contractionary shocks. By accepting and actively communicating that a portion of the debt accumulated during the recession would be purposefully inflated away by larger inflation, policymakers attenuate the recession in the first place and public debt raises less. Thus the promise to inflate away debt through inflation works as an automatic stabilizer to boost inflation expectations when monetary policy cannot do so because it has reached its limit. By separating long-run fiscal sustainability and short-term stabilization policies, policymakers manage to reach a welfare enhancing outcome. The strand of the literature focused on monetary-fiscal interactions mainly concentrates on the optimal policy mix to hit the inflation target after large deflationary shocks, but it has important policy conclusions for the New View, as it recommends a regime-switch to an active fiscal policy as soon as the monetary policy becomes passive. In a similar way, Mackowiak and Jarocinski (2017) show how a non-defaultable Eurobond could have been used to overcome faster the low-growth, low-inflation

environment in the Euro area of the recent years. They build a model of two countries in a monetary union - representing the North and South, and show that after a large shock sunspot equilibria occur and therefore the true equilibrium in terms of inflation and output is undetermined. The model in its bad equilibrium outcome replicates the Euro area data well. In the model, coordination between monetary and fiscal policy is decisive for the macroeconomic outcome. Concrete policy actions such as the introduction of an Eurobond and its active use might mean switching from the bad equilibrium of low-flation to a higher inflation equilibrium with better welfare outcomes.

2.   Discretionary fiscal stimulus can be very effective

Whereas the previous arguments have been mostly theoretical and structural channels through which the economy functions during a liquidity trap, it is important to take empirical evidence on this seriously. When discussing the effectiveness of fiscal policy, one inadvertently refers back to the debate on the fiscal multiplier as it is the most prominent measure of fiscal policy effectiveness. The debate on the fiscal multiplier has been controversial, since there is a plethora of different approaches to estimating it and the estimates vary widely dependent on the country, its institutional arrangements, the historical period and the point of the business cycle in question. Even if one focuses solely on empirical long-run methods, the differences are huge - as summarized by Caldara and Kamps (2008): *"The empirical literature using VAR models to assess the effects of fiscal policy shocks strongly disagrees on even the qualitative response of key macroeconomic variables to government spending and tax shocks."*

Corsetti et. al (2012) summarize the ambiguity of multipliers in its essence: *"From a theoretical perspective, however, there is no such thing as the multiplier. Instead, fiscal multipliers are likely to depend on a number of factors which vary both across countries and time."* Furthermore, Perotti (2007) also iterates on this by stating: *"...perfectly reasonable economists can and do disagree on the basic theoretical effects of fiscal policy and on the interpretation of existing empirical evidence."*

There is no single estimate of the multiplier that can be used with general validity, but rather an infinite number of estimates based on the specifics of the economic environment, the country in question, its size, openness to trade and other characteristics. Still, on the specific topic we are addressing the effectiveness of fiscal policy during times of low/negative growth and/or at the zero lower bound, there is considerable evidence for the fact that the multiplier is at the upper end of its range, coming both from a purely empirical time series estimation as well as from the theoretical considerations in the previous section.

Multipliers in empirical time series models are much higher in a recession

Although the academic debate is still ongoing, a considerable part of the literature on fiscal multipliers agrees that there is a difference in the size of the multiplier during an economic boom and a recession. The multiplier thus has a time-varying character. Theoretically this could be explained via the already mentioned standard Keynesian channel - in a recession government spending is not crowding-out private investment and therefore plays an active role of a stimulus for the economy. The effect is even more significant if government spending actually crowds-in further economic activity during the slump, as explained above.

A famous survey by Ramey (2011) concluded that during a recession, the multipliers on govern-

ment spending are around the upper bound of the range of estimates - which vary between 0.8 and 1.5 - and that reasonable people could argue that the multiplier is 0.5 or 2.0. Romer (2011) points to a government spending multiplier of around 1.5 on government purchases using the narrative approach, which is in line with previous findings from Romer and Romer (2007). A literature survey and estimations building upon it by Corsetti and Mueller (2015) also show similar evidence - while they imply multipliers are around zero in normal times, they find much higher government spending multipliers in a recession or especially in a financial crisis. These findings are also iterated by Born et al. (2015). What is more, since a lot of the observations come from the Great Recession period, where fiscal consolidations have been initiated, the larger size of the multipliers point even more to the harsh contractionary effects of government spending consolidations. Corsetti and Mueller (2015) also make it clear that the multipliers estimated in their survey are focused around periods of recessions, but the sample on the other hand does not include an appropriate size of periods where the zero-lower bound was actually binding. Based on the structural assessments made in the previous section, we can expect even higher multipliers in the case of the ZLB, since monetary policy then does not offset in any way the effects of the stimulus.

The question how to analyze the difference between recessionary and expansionary periods of the business cycle has been addressed by the literature in non-linear, time-varying parameter VARs and regime switching VARs. The seminal paper in this branch by Auerbach and Gorodnichenko (2012) uses a regime switching VAR to analyze the variability of the multiplier during booms and recessions. The authors find significant differences, which are ignored if a purely linear approach is used. When using their model that differentiates between an economic boom and a recession, the authors find a relatively small multiplier on government spending in a boom period, but they indicate a much larger multiplier in the recession. Figure 6 shows the important differences between the linear, the expansionary and the recessionary cases. While for the linear case the multiplier peaks at around 1 and then decreases (black line), the multiplier estimated for recession periods (blue line) is much higher and even exceeds 2.

Caggiano, Castelnuovo, Colombo and Nodari (2015) use a more robust approach and find out results similar to Auerbach and Gorodnichenko (2012) - a multiplier consistently over 1 in a recession. They enhance the method of Auerbach and Gorodnichenko (2012) by accounting for anticipation effects of tax changes. This is an issue raised by Gambetti and Forni (2011) - the fact that fiscal policy changes are normally announced, but then implemented at a later period. This means that agents have already reacted to expected policy changes at the point when the change is actually implemented, thus making the estimation of the effect more difficult. Caggiano et. al (2015) account for this problem and still find relatively high fiscal multiplier in the Auerbach and Gorodnichenko framework. Valerie Ramey has tried to reconcile these higher spending multipliers by Auerbach and Gorodnichenko with her lower estimates and found that using the Jorda (2005) method on the Auerbach and Gorodnichenko (2012) data leads to multipliers below 1. Ramey and Zubairy (2014) used much longer data from the US from 1889 until 2015 to further inspect the question and find multipliers below 1 in bad times, but a common critique to this result has been that it includes the rationing period following the World War II. Indeed, when excluding the period of WWII rationing, Ramey and Zubairy (2014) find multipliers for ZLB periods of around 1.5 - the same size that was assumed in the plans of the American Recovery and Reinvestment Act (ARRA) and that has been reported in different studies by

Figure 6: Output responses to a government spending increase (black line - linear case; blue line - recession; red line - expansions); Source: Auerbach and Gorodnichenko 2012
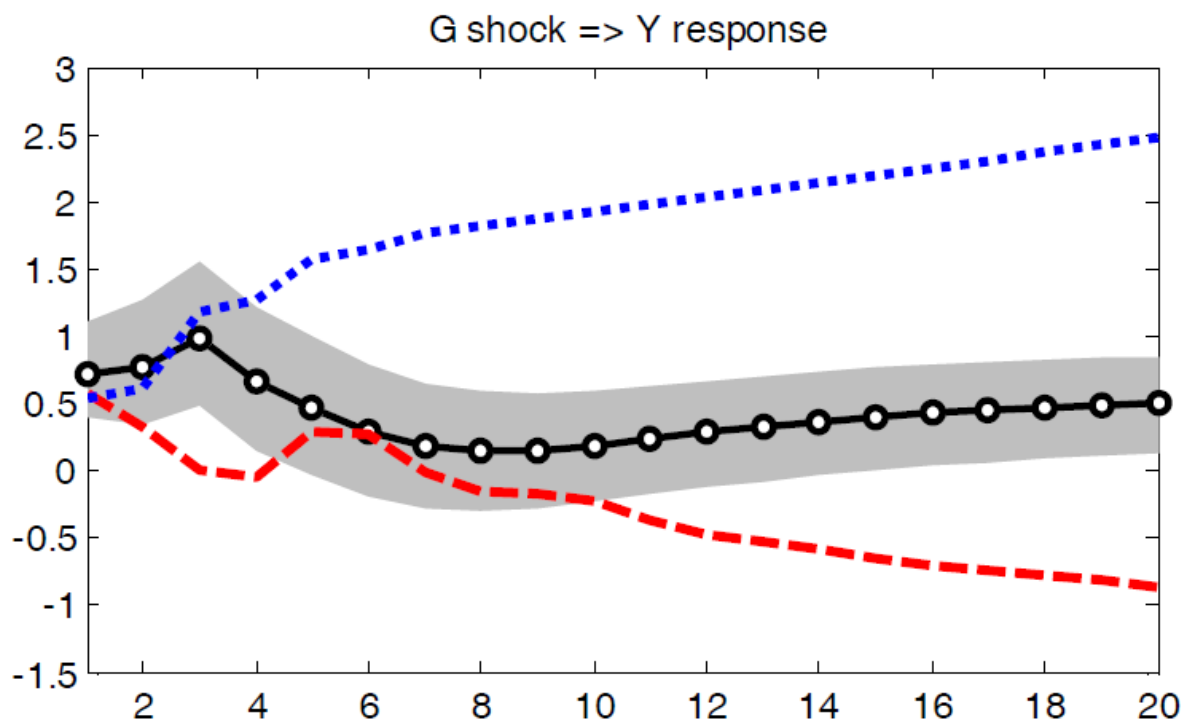
Romer (2011). Similarly, a recent study focuses on the unexpected changes in government spending in Japan - the country with arguably the longest available dataset where the zero-lower bound was binding (Miyamoto et. al 2017). The authors report an impact multiplier of 1.5 and also point to government spending crowding-in private consumption and investment.

There is yet another approach to estimating fiscal multipliers that has been gaining prominence in recent years - the use of cross-sectional fiscal spending changes to estimate local multipliers. It uses the variation in spending and transfer programs across countries in a monetary union or across US States to estimate the effects of fiscal policy changes. This approach, which is based on quasi natural experiments, can deliver more up-to-date estimates of fiscal multipliers without the need of very long time-series. Although there are important caveats in transforming local multipliers to an aggregate multiplier, some results also point to a similar size of government spending multipliers as above - for example Nakamura and Steinsson (2014) find high fiscal multipliers on government spending for the US. Similarly, Coelho (2016) finds a relatively high local multiplier across the EU of around 1.7 on impact and around 4 after three years at the EU cross-regional level. A significant study by Chodorow-Reich (2017) aims at estimating the nationwide aggregate multipliers from a cross-sectional multiplier. He also finds a zero lower bound deficit-financed multiplier on government spending of 1.7 or above. His estimates on the multiplier from the American Recovery and Reinvestment Act are even above this range with a mean output multiplier of 2.1. Most of the literature on cross-sectional multipliers thus also points to large values for government spending multipliers of between 1.5 to 2. But as this

literature is currently evolving, there are still significant issues with transforming robustly the local multipliers into aggregate output multipliers.

Returning to the focus on zero lower bound episodes, DeLong and Summers (2012) seem very skeptical to the empirical literature estimates of the fiscal multiplier for policy implications for liquidity trap episodes. They re-iterate that most of the data comes from periods when monetary policy has not been constrained and fiscal policy effects have therefore been offset, making the multiplier estimates significantly lower than in the current period. To get a conclusion on the multiplier they rather concentrate on the equation about the real interest rate:

$$r_t^f = i_t - E(\pi_{t+1}) + \rho_t + \epsilon_t$$

Where ρ_t is the sum of the default and risk premia over the short-term rate that firms pay and the rest of the equation is the same as in the New Keynesian DSGE literature presented above. The inflation expectation raises with the fiscal stimulus as we have discussed in the previous section and the premia ρ_t should decrease with a stronger economy. From a theoretical point of view then, real interest rates get lower after a fiscal stimulus, strengthening the multiplier effects. Thus, Summers and de Long, even though they criticize a purely empirical approach to estimating the multiplier in a liquidity trap, imply the same mechanisms are at work that explain the empirical results above. In the next sub-section we present a large branch of DSGE models that have come to the same conclusions using the same structural mechanisms as an explanation that we have explained in the first section.

Fiscal Multipliers from structural models

The conclusions made above from the empirical time-series literature and the practical findings for the Eurozone (e.g. from House, Tesar and Proebstig (2017)) on the size of fiscal multipliers at the zero-lower bound periods have are also documented in structural models. Motivated by the large dispersion of results and methodological questions in the time-series literature, international institutions did an exhaustive survey on the size of fiscal multipliers in structural models (Coenen, Erceg et. al 2012). They use seven well known macromodels that are in use in international organizations (QUEST, GIMF, FRB-US, SIGMA, BoC-GEM, NAWM, OECD Fiscal) to find common conclusions of the effectiveness of different types of temporary (and permanent) fiscal measures, in models that could properly address the complexity of the current economic set-up. Their overall findings point to the importance of the choice of fiscal instruments and the stance of monetary policy for the effectiveness of fiscal policy, but are largely in line with the time-series studies above. The authors find that the most efficient temporary fiscal stimulus comes in the form of spending or well-targeted transfers and is much more powerful when monetary policy is accommodative, but also becomes counter-productive if it switches from a temporary to a permanent deficit increase. When monetary policy does not contract, because it is stuck at the zero lower bound (they use the term monetary accommodation for this), the fiscal stimulus has a considerably larger effect than in normal times. For the basic case of a one year fiscal stimulus without monetary accommodation they find a range of the multiplier between 0.9 and 1.3, which starts raising gradually when increasing the duration of the fiscal stimulus up to two years and when activating and extending the duration of monetary accommodation also up to two years. The largest multiplier for the case where both fiscal stimulus and monetary accommodation last for two years reaches 2.2 in the simulation with GIMF. The overall conclusion is that stimulus should be intermediate, for example over two or three years, but not permanent. In the case of the

simulations with a permanent increase in fiscal spending, the authors find a negative effect on GDP as the crowding-out effects set in in the long-run, because with a permanent spending increases the wealth effects coming from Ricardian behaviour may weigh in and overturn the positive effects coming from boosting demand and generating additional demand in the short and medium run. Thus, the authors point out that there is a strong case for a short or intermediary discretionary fiscal stimulus, but not for a permanent increase in government expenditure.

These two sections have given an overview of the discussion about the effectiveness of government stimulus in a liquidity trap, which is in no way exhaustive, as this debate has been very significant throughout the past decade. But besides providing important insights on the benefits of active economic stimulus in a recession, the New View also revolves around the fact that the alleged costs of fiscal policy activism might be much lower than have often been assumed. In such a case, the often provided counter-argument - that public finance sustainability issues limit the space to engage in large government expansionary policies, becomes invalid, as a dynamic approach to assessing debt sustainability, taking into account properly all the repercussions of a recession, might show a different picture, as we argue in the next section.

3. Fiscal space is higher than normally perceived, because the stimulus can actually pay for itself

Leaving the debate on its effectiveness behind, a strong argument against fiscal spending, especially in the face of rigorous evidence that it would be beneficial in a specific point of the business cycle and under given circumstances, was always about whether there was enough fiscal space to do the stimulus. In its essence, this argument focuses not on the impact itself of government spending, but on the unsustainability of such a policy, especially in countries which already have fiscal problems. But this argument might be self-defeating if fiscal policy actually leads to higher growth that is enough to make the fiscal constraint less binding rather than more. As Gaspar, Obstfeld and Sahay (2016) point out: *"With long-term nominal bond rates at extremely low levels, and with the boost to nominal GDP growth, a short-term fiscal stimulus need not weaken the public balance sheet"*.

This argument has been convincingly explained in DeLong and Summers (2012). They present the cases and the channels through which fiscal policy, if implemented efficiently, actually reduces debt problems by increasing output more than the initial growth of debt due to the stimulus. This seminal paper presents a basic arithmetic to show that rather than meaning longer term excessive burden on the public finances, fiscal stimulus at the zero lower bound actually eases the public finance constraint. Besides the economy being at the zero lower bound, this only requires the presence of three additional effects - a high multiplier effect, a hysteresis effect in the downturn and low real interest rates with rather plausible parameters. In a sense, Summers and de Long make the most practical case for the New View, as they do not build their case purely on empirical econometric estimation or structural models, but rather on basic public finance calculations.

Some pleasant fiscal arithmetic

To give evidence on the fiscal stimulus outcomes for national budgets, DeLong and Summers (2012) observe the characteristics of four different channels. The outcomes depend on the Keynesian multi-

plier, the hysteresis effect and the additional revenue and expenses from the increase in nominal debt from a stimulus.

The first is the already mentioned and described channel of the short term fiscal multiplier μ, which can activate a higher than 1 effect on output during the liquidity trap:

$$\Delta Y_n = \mu \Delta G$$

We have already discussed the multiplier effect in the above sections and have concluded that in a zero lower bound period, especially when the liquidity trap is expected to last long, it has much higher values than in normal times and can often significantly exceed 1 or even 1.5.

Secondly, there is a hysteresis effect that plays both through under-investment (such that capital stock is growing too slow) and through the classical labour-market hysteresis scar, where unemployed workers today lose their skills, the opportunity to match to the relevant positions and their morale to continue looking for jobs. We describe this case by the parameter η:

$$\Delta Y_f = \eta \Delta Y_n$$

The hysteresis effect is one of the most important mechanisms to properly assess the costs of a prolonged recession. It is a phenomenon that comes into attention after a severe economic downturn. The hysteresis scar is the simple notion that current cyclical problems of economic activity can actually turn out to have a long-lasting, structural impact on economic potential. There are two channels through which that happens. On one hand, the underinvestment during a recession, when agents do not want to make the necessary investment to keep the capital stock growing at the previous level erodes long-term potential output. Firms halt their investment in the downturn because they become more financially constrained after the macroeconomic shock or because they purposefully deleverage. But firms also do not see much sense in expanding or investing in their future production if they have excess capacity, as is often the case in an economic slump. This argument has already been touched upon and is the very core of why there would be a wish for a fiscal stimulus to increase investment today so that it can activate extra investment from the private sector.

The more interesting argument is the second one though the labour-market hysteresis, as explored by Blanchard and Summers (1986), that also puts attention to the idea that cyclical unemployment through its effects on the working force actually also affects the structural, natural rate of unemployment and increases it. Labor market hysteresis erodes long term potential output through the loss of skills and knowledge of workers, through their demotivation to re-enter the labour force after a long-term cast of unemployment and through the pure loss of matching opportunities to get a job that is in line with their skills. Relating the above considerations to the situation in the Eurozone, there are more than good reasons to believe there were hysteresis scars in the periphery countries. A policy maker focused on Euro area potential output would thus want to fight more effectively unemployment not only because it is an unpleasant temporary phenomenon, but also because the hysteresis shadow on the labour force also erodes future potential output.

The importance of the hysteresis effect is an important branch in the literature seeking to explain the duration of the Great Recession. Important evidence on the presence of strong hysteresis effects from the shock in 2008-2009 in the aftermath of the Great Recession across OECD countries has been

brought by Ball (2014). He points to significant losses to potential output, which exceeded 30 % in some countries (Greece, Hungary and Ireland), induced from strong hysteresis effects.

Fatas and Summers (2016) also provide evidence on the presence of strong hysteresis effects of fiscal consolidation periods in a recession. They start off their analysis by considering the available empirical evidence that considerable downward revisions of expected growth and potential output have been a consistent feature of economic forecasts by the IMF for the past decade (Figure 7). The figure shows that with each further forecast it was not only actual output, but also potential output that has been revised downwards. If the global financial crisis was the only reason behind that, the revisions should have happened just in the quarters following it. But even when the recession was over in the US, it was continuing in the Eurozone and output for the Eurozone continued to be revised down. The authors explain this with the permanent effects that the long and deep Eurozone recession has brought to potential output through different hysteresis channels. To proof this, they extend the approach of Blanchard and Leigh (2013) and assess how excessive fiscal consolidation efforts are consistently correlated with higher downward revisions of GDP. Thus they point to the fact that fiscal consolidations have indeed been self-defeating and resulted in higher debt-to-GDP ratios through permanent negative impacts on potential output. In their estimations the revisions of potential output are correlated with large revisions of actual GDP - thus the losses from the recession were permanent - and they find the largest coefficients for that for the Eurozone countries.

From a structural point of view, van Aarle (2016) shows that the inclusion of a hysteresis effect in the output equation in an otherwise standard New Keynesian DSGE model a la Woodford (2003) or Gali (2008) has significant implications for outcomes and therefore for policy conclusions. It makes the model much better suited to explain why The Great Recession was as deep and prolonged - and why output did not recover much faster. Including path-dependency in potential output - meaning that a temporary shock to output also has effects on potential output - makes the role of stabilization policy much more crucial - as it means that the longer the output gap stays negative, the more potential output suffers from that. Gaspar, Obstfeld and Sahay (2016) also point to the important effects that including hysteresis effects has for outcomes in macromodels.

On the empirical side, further to previous classical contributions to the labour market hysteresis effect hypothesis by Blanchard and Summers (1986), Yagan (2017) finds significant employment effects in the US. According to the author, exposure to a 1-percentage point larger local unemployment shock in the global financial crisis caused working-age individuals to be 0.4 percentage points less likely to be employed in 2015, with the major reasons behind that being general human capital decay and persistently low labor demand - with the latter obviously related to the negative output gap. And this survey is US focused - we can expect even higher effects for the EU case since the negative output gap there lasted much longer.

The final part of the estimation of DeLong and Summers concerns the additional costs but also revenues from the additional government debt. Additional output in the future coming from the increased government spending today would also mean extra revenues in the future. But the increased government spending today also means excess tax burden in the future. The effects of those channels

Figure 7: Revisions to Euro GDP and Potential Trend; Source: Fatas and Summers 2016
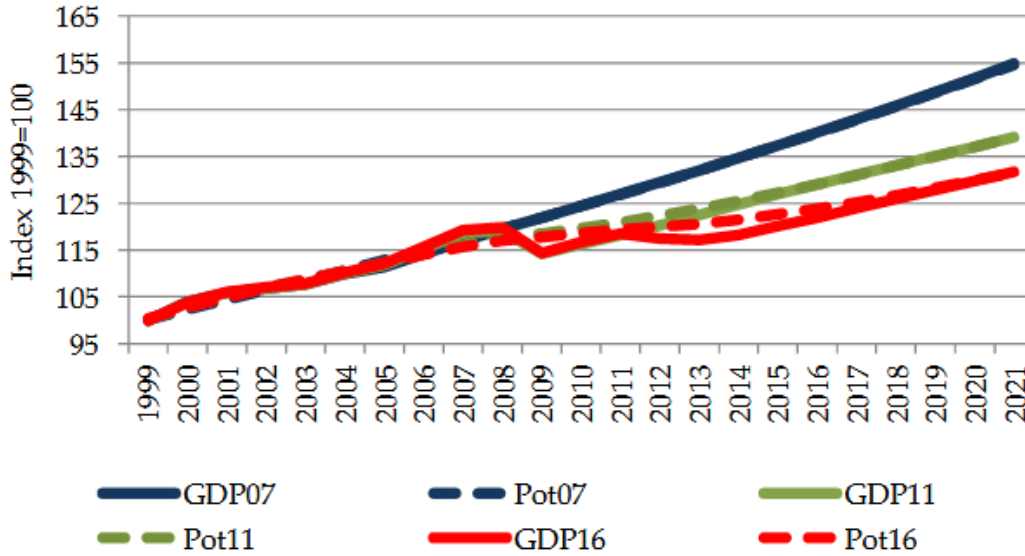
on government's future period cash flows are:

$$- (r - g)(1 - \mu\tau) + \eta\mu\tau$$

where the first part describes the excess costs for the additional debt, spurring from the fact that the difference between the government real interest rate r and the rate of potential growth g has to be financed. The second part of the above term comes from the fact that by addressing the depression faster and thus minimizing the hysteresis scar on output η, governments are able to ensure more revenues in the future due to higher economic activity in comparison to the baseline case without stimulus. In their essence, these are supply-side effects - making investment today means a bigger economy and thus more tax revenue in the future.

Given those effects, it is absolutely sufficient that the condition

$$r < g + \frac{\eta\mu\tau}{(1 - \mu\tau)}$$

is fulfilled so that a fiscal expansion does not burden the budget. If this condition is fulfilled, then a fiscal expansion today improves the government budget balance later and future debt burdens (in terms of a debt-to-GDP ratio) will actually be lower with stimulus rather than with no policy action. This basically addresses the idea of the fiscal unsustainability of government expenditure increases. When this equation holds, there is basically no need to even do a cost-benefit analysis - there is simply no additional burden on taxpayers due to the extra government spending. This is the case for which government stimulus finances itself. It should be also noted that even if the government financing interest rate is very small, this equation does not imply that fiscal stimulus is always good. In normal times, the parameters of the multiplier and the hysteresis effect tend to be small and therefore the

equation will not hold.

If the above equation does not hold, we need to explore the different values the crucial parameters can take to assess the long-run budget implications of an expansion. The following equation gives the overall assessment on the net present value of the fiscal stimulus for the government budget:

$$\Delta V = \left[\mu + \frac{\eta\mu}{r-g} + \xi\frac{\eta\mu\tau}{r-g} - \xi(1-\mu\tau) \right] \Delta G$$

where we have included all four channels discussed above.

Through this equation, the authors iterate that fiscal stimulus is not purely a temporary policy with short-run implications, but it has rather long-run consequences in a way defying the old Keynesian notion that government stimulus is a remedy for the short-run. Thus, according to Summers and DeLong (2012), a fiscal stimulus in a depressed economy should not be presented as a policy that has little regard for long-run public finance sustainability. There is a standard critique on the fact whether if it brings positive effects, temporary stimulus will not transform into permanent higher government spending. In a sense, if policies work well, it is difficult for policy-makers to get rid of them. We address this in the next section, but this should not be a reason to refute any welfare-enhancing efforts for short-term output stabilization. The authors state that if a long run fiscal position is unsustainable or if the policies pursued are inconsistent, this would of course be problematic. But if properly conducted - by aiming at the most efficient fiscal policy measures, fiscal activism does not increase fiscal burdens, but rather eases them and the political economy complications from them do not change that assessment.

There are a number of additional arguments for not concentrating on the deficit in a current year and therefore on the current government spending when thinking about long-term public finance sustainability. Firstly, for highly indebted countries, the primary balance gets much less important for debt sustainability and the difference between interest rates and the growth rate is more important. Therefore, if one can affect the rate of growth of output without raising nominal interest rates (which can be the case in a liquidity trap), this improves sustainability considerably more than just limiting the deficit. All of this depends on market interest rates of refinancing not raising much after a fiscal stimulus. This is both dependent on fiscal policy (which needs to have a reliable long-term fiscal plan) and monetary policymakers (who need to take an accommodative stance towards the stimulus). In the Great Recession, negative market reaction seem to have been much more significantly correlated with downward revisions of growth forecasts rather than with reports of fiscal irresponsibility or with the reporting of fiscal stimulus plans (Furman 2016). Hall and Sargent (2010) document this for the United States. Furthermore, in terms of long-run budget sustainability the health and pension spending, which in many countries requires careful reforms, indeed has a much bigger place in terms of fiscal burden in comparison to the size of current deficits or the amount of current investments.

The discussion about long-run fiscal sustainability and fiscal stimulus has been further reiterated by the recent paper by Auerbach and Gorodnichenko (2017). The authors use the local projection approach by Jorda (2005) to show how government spending shocks affect economic outcomes and fiscal sustainability. They do not find evidence that fiscal activism during a recession leads on average to increased debt-to-GDP ratios neither to heightened costs of borrowing. The results are similar when

using the CDS spreads as a measure of sustainability. When accounting for the different regimes, the authors even find that a government spending shock reduces CDS spreads in a recession - implying that the stimulus actually improves business expectations and therefore leads to better outcomes. By using discretionary fiscal policy for stabilization, countries can actually improve their longer fiscal sustainability and even for countries with high debt this does not come with excessive costs but rather with a small penalty. A similar study by Born et. al (2017) uses default premia as a measure of fiscal sustainability and find that fiscal consolidations lead to an increase in these premia in the short-term and only decrease them in the long-run - which is in line with Auerbach and Gorodnichenko (2017). These studies clearly point to the above thesis of DeLong and Summers (2012) that in a recession the fiscal stimulus might pay for itself in that it decreases the debt ratio through its dominant effects on higher nominal GDP in comparison to the increase in nominal debt.

4.   A stimulus during a recession has global spillovers - and if it is coordinated, it is even more effective

The fourth pillar of the New View thesis points to the fact that in a world of inadequate demand, as pictured by Eggertson et al. (2016), the spillovers of fiscal policy can be much more powerful and can affect demand across borders. What is more, a coordination of fiscal stimulus across countries therefore makes it more efficient. This is the message of Gaspar, Obstfeld and Sahay (2016) - they propose a three pronged strategy in line with the IMF approach for a comprehensive, consistent and coordinated approach to policy making and underscore how significant that is especially for fiscal policy considerations. Simulations using the IMF's GIMF model of an internationally coordinated stimulus produce a considerable GDP boost in a recession, which is mainly driven by the high fiscal policy spillovers. The implications from this are especially important for the case of a monetary union. Evidence from the IMF (2017) points that coordinated stimulus across regions was important to speed up the recovery after the financial crisis. The IMF World Economic Outlook 2017 also pointed that fiscal policy spillovers as still relevant although they differ in size by country. Their impact is particularly high when either the source or the recipient country have a large negative output gap or is still being supported by accommodative monetary policy - which is exactly the situation when multipliers are large as explained in the previous sections. Furthermore, government spending multipliers have a stronger transmission when there is a fixed exchange rate between the countries - as is the case in the Eurozone.

In their paper "Jump Starting the Euro Recovery" Blanchard, Erceg and Linde (2016) use a rich New Keynesian open economy model to show in a theoretical DSGE setting the positive effects that a government spending increase in core European countries can have on both the core and the periphery. In comparison to the New Keynesian DSGE studies from section 1, the focus here is not on aggregate outcomes, but much more on the distribution of the effects between different economic regions - in this case the core and periphery of the Eurozone. It is important to find out whether a fiscal boost in core European economies can deliver not only positive effects in the core, but also have large positive effects on the periphery as well. Farhi and Werning (2012) e.g. find that periphery GDP falls after a fiscal boost in the core in normal times, but rises during a liquidity trap. This paper is therefore relevant both to the multipliers debate presented above, as well as for assessing spillovers. Here there is a clear case that the results of the study are dependent on the zero lower bound constraint and the

multiplier depends on the duration of this constraint being binding.

Blanchard, Erceg and Linde (2016) use two models to assess this question - a simple extension of the classical Gali and Monacelli (2008) model and a large scale calibrated DSGE model to present empirically relevant estimates. They find out that conditional on the economy being in a liquidity trap, the spillovers to periphery output from government spending boost in the core are significant in both models. They depend on the expected duration of the liquidity trap, but also on the responsiveness of inflation (the steepness of the Philips curve) and on the amount of imports as part of government spending in the core economy. In reality, expectations in Europe were already in 2014 for monetary policy to be constrained for a prolonged period, making the estimates from this paper very relevant for policy conclusions. For example, the periphery gets half as much as the GDP boost in the core when fiscal stimulus is implemented in a liquidity trap lasting 12 quarters in the baseline model. In the large-scale model, the authors find a cumulative multiplier for the aggregate euro area higher than unity mainly due to the strong spillover effects. The effects are based on three channels - a high periphery net export, lower real interest rates as periphery inflation rises and Keynesian multiplier effects. Firstly, part of the core government spending is spent on imports of goods and services from the periphery and thus boost growth there from a national accounting perspective. Secondly, as the expected duration of the liquidity trap is longer, so the nominal interest rate would stick at the ZLB for longer and the effect of inflation on the real interest rate is larger, thus unlocking higher consumption and investment. In addition, the authors assume a very conservative, almost flat Philips curve, which if steeper in reality, would mean even more inflation and thus even lower real interest rate. All of this implies both a significant Keynesian and a New Keynesian multiplier effect and a crowding-in of domestic demand, in line with the above explained crowding-in argument. The normative implications of these results show that both the core and the periphery economy can benefit from a fiscal boost. But if policymakers of the core economy are concerned only about welfare in the core economy they would do much less fiscal stimulus than would be optimal if they were addressing the monetary union-wide welfare. This points to a problem we come back to in the next section - that maximizing welfare via fiscal policy from a country perspective can differ significantly from maximizing welfare from an Eurozone/currency union perspective.

In his commentary on the paper by Blanchard, Erceg and Linde (2016), Ricardo Reis (2016) and building on his previous work on explaining the European crisis (Brunnermeier and Reis 2016), Reis points out that there are two additional positive channels of effect from the fiscal boost in the core. Firstly, the rise in domestic output in the periphery decreases the possible benefits of defaulting and exiting the Euro and the default channel further strengthens the expansionary effects of the stimulus through lower periphery real interest rates. In his framework, where the spreads between German bonds and crisis countries have a high significance because they reflect the sovereign bond default risk, this has important implications. Furthermore, the net export rise in the periphery would be beneficial to firms with high productivity, since they are exporting the most, and would thus also affect an important issue in the run-up to the crisis the misallocation of capital flows to sub-productive firms in the periphery and can therefore also help the supply side by raising productivity. A fiscal stimulus could further address the shortage of safe assets, but that might also have repercussions in terms of strengthening the diabolic loop between banks and sovereigns.

Further evidence from a modelling, time-series perspective for high spillovers is given by Hebous and Zimmerman (2012) in a GVAR framework - the authors show that coordinated fiscal consolidation in neighboring countries has very significant effects on GDP. During the European 2011-2013 crisis period, estimation using the QUEST model of the European Commission also reported very strong fiscal spillovers (In't Veld 2013). Similarly, Auerbach and Gorodnichenko (2012) pointed to important cross-country impacts from government purchases on output. Policy coordination between countries becomes especially important due to these strong spillover effects when aggregate demand is insufficient. A study by the Banque de France (2016) points to the economic costs of excessive fiscal consolidation during a recession based on this channel. The study suggests an alternative, slower-pace of consolidation for 2012 and 2013 in the big Eurozone countries, especially when coordinated, could have provided important support for insufficient aggregate demand, could have helped the central bank hit its target much faster and therefore could have led to a considerably better performance of the Eurozone as a whole.

Similarly, Mueller and Hetting (2017) point to the need of coordination between countries when monetary policy is at the effective lower bound. They use again the Gali and Monacelli (2008) open economy setup to show the mechanisms behind the fact that in a ZLB episode countries optimally choose to do insufficient government expenditure in terms of the currency union-wide welfare. According to the model then, in the absence of coordination, governments are "insufficiently present biased" (as assumed by Shambaugh 2017), although only from a Union wide welfare perspective. The reason for this is that they do not want their terms of trade to appreciate and to lose competitiveness - a point that we make clearly in the section regarding the implications of The New View for the European Monetary Union. The welfare loss due to the lack of coordination also increases with the duration of ZLB period. Thus the authors make also the case for coordinating fiscal policy stabilization in a currency union - an approach, which we reiterate on in the discussion on the future of the EMU below.

5.   It is actually better to have sustained stimulus rather than a short lived one

The last point made by Furman (2016) is about the duration of the stimulus. Normally it is perceived that even if it is optimal, fiscal stimulus needs to be only temporary, to address a current weakness in the economy. This is also the evidence from Coenen et. al (2012). The conventional wisdom states that government stimulus should not be extended to a prolonged period as it will endanger the economy with excessive inflation and unlock crowding-out effects when monetary policy normalizes. Furthermore, it might lead to unpleasant Ricardian effects as a normalization of higher government spending might lead to higher expectations of future tax increases and the accompanying incentive problems, while temporary fiscal stimulus does not. Even though some models in the New Keynesian framework, e.g. Werning (2011), find that a longer fiscal expansion is more effective in fighting of a recession, this still depends on the duration of the expansion being locked during the zero-lower bound period and not continuing after its end.

But the New View is also putting this recommendation under question by stating that a sustained stimulus might actually be better at locking in positive effects of the expansion both through expanding aggregate demand, as well as aggregate supply through ensuring productivity gains. In its essence, this means that as the government profits from low interest rates at the ZLB, it should lock-in credit for long-term projects that do not aim at purely short-term output stabilization in the classical "digging

holes" Keynesian way, but that ensure most efficient investment. The stimulus should try not only to boost aggregate demand with its spending measures, but actively aim at also enhancing the supply side - by increasing productivity and potential output. DSGE models that do not include government spending in the production function of firms can hardly capture the effectiveness of such an approach. But in practice, if there are investment projects that bring a higher return than the borrowing costs of the government, then the aggregate demand argument is irrelevant for this decision and the argument becomes a supply side one. Directing the government stimulus to infrastructure and R&D spending, even if that means keeping up the increased government purchases for longer than the liquidity trap, will be welfare enhancing either way if it manages to increase productivity sufficiently. The IMF Fiscal Monitor 2016 points to an estimation showing that a 0.4 % of GDP raise in research and development spending leads to a long-run increase in output of 5 % in advanced economies (IMF 2016).

6. Addendum: hand-to-mouth consumers, inequality and their importance for fiscal policy

In this section, we introduce a further point to the five pillars that Furman (2016) uses in his representation of the New View - the importance of hand-to-mouth consumers to properly assess the effects of fiscal policy. This topic was already mentioned before as it is an important part in DSGE models that want to take into account realistically the consumption patterns of the whole population. As with the spillover effects, it is one of the defining principles for an increased efficiency of fiscal policy, so we summarize some important findings from the last years.

The modelling of some part of the population as hand-to-mouth consumers is crucial to make correct assessment of the effects of different macroeconomic policies on aggregate outcomes. Hand-to-mouth consumers are normally liquidity-constrained households, which cannot borrow or save and therefore have to consume all their income in the current period. This has powerful implications, as it means that their rational expectations based, Ricardian behavior is limited and therefore their intertemporal decisions are bounded. A government transfer for the poor hand-to-mouth consumers turns immediately to consumption, both by construction in the models, but also when one examines this empirically. What is more, in a seminal paper Kaplan and Violante (2014) show that hand-to-mouth consumers are a much bigger part of the population than assumed by most current models. The authors observe asset-rich households in the US, which nevertheless cannot smooth their consumption in a recession or when hit with an idiosyncratic income shock, because their assets are illiquid - e.g. in the form of housing. They rather shrink their consumption than liquidate immediately their assets during a crisis. This makes them also susceptible in their consumption patterns to short-term volatility in income. This group of households deviates from Ricardian behavior and therefore its size has important implications for monetary and for fiscal policy considerations. The high marginal propensity to consume and the fact that these agents also become credit-constrained in a recession theoretically implies that both fiscal and monetary policy are strengthened by the inclusion of such wealthy hand-to-mouth consumers in the modelling perspective. Older models and evidence that do not include wealthy or even poor hand-to-mouth consumers run therefore the risk of underestimating the effects of both fiscal and monetary policies on aggregate outcomes.

Furthermore, the changes in the distribution of incomes across many advanced economies over the past decades, as documented by (Piketty 2003, Piketty and Saez 2003), may thus be one reason why the

efficiency of fiscal policy might be higher today. Auclert and Rognlie (2016) show how that can have important repercussions for macroeconomic outcomes. They combine the Bewley-Huggett-Ayiagary framework with New Keynesian nominal rigidities, which delivers a model in which a permanent rise in inequality can lead to a prolonged Keynesian recession. In such a situation, government spending and increasing government purchases help overcome the recession by crowding-in capital. The evolving literature on Heterogenous Agents in a New Keynesian framework (HANK) (Ahn, Kaplan, Moll, Winberry and Wolf 2017) therefore delivers an innovative and promising approach to analyse in more detail the aggregate effects of the macroeconomic policy mix through distributional channels. In the case of the New View, higher income inequalities may have led to more hand-to-mouth consumers in the population - and thus to a more efficient fiscal policy, when it is directed at lower income groups. This hypothesis calls for further economic evidence and might be a further argument for the New View on fiscal policy.

IV. Policy Implications of the New View in the European Union Context

The arguments stated in the previous sections point to the idea that fiscal policy is a very important tool for macroeconomic management in an environment of low growth, low inflation and interest rates already at the zero lower bound. This has significant implications for what constitutes an optimal policy mix for the European Union. Even though at the beginning of 2017, the European economy has returned to positive growth, these issues would become crucial again during the next recession at the latest. This is especially the case given the above presented evidence that monetary policy will be constrained more often in the future - making the next recession even harder to fight.

An upswing always presents policymakers with a window of opportunity to make difficult reforms, but all too often these windows of opportunity are just let to pass by. A reference to the underpinnings of the New View has already been made by policymakers in the EU context. The European Commission (2016) issued in 2016 a recommendation for a more positive fiscal stance to support monetary policy in line with the arguments presented above - arguing that the available fiscal space should be for investment and targeted programmes to support growth and employment and that it was heterogeneously distributed across the Euro Area, so some countries could clearly use this margin (Buti and Carnot 2016). Furthermore, even in 2017: *"...Past (equipment) and current (infrastructure) underinvestment is weighing on potential growth by reducing the level of the capital stock but also its quality"* (Buti and Doehring 2017) - in line with the points proposed in the section about hysteresis effects from underinvestment as a possible explanation for decreases in economic potential.

But the current EMU setup in itself is built along the lines of the current view and therefore fiscal policy is designed to concentrate mainly on deficit reduction as a way to stabilize public finances. As we showed above, looking only at the nominator in the debt-to-GDP measurement, may not always constitute an optimal approach to strengthen public finances. The current debate on the future of the European Monetary Union and its architecture, which is part of the wider debate following The White Paper on the Future of Europe (European Commission 2017b), gives an opportunity to make further advances in the economic and fiscal union. The Reflection Paper on the Deepening of the Economic

and Monetary Union (European Commission 2017a) has brought concrete proposals in this direction, but there have been many academic proposals in the previous years on how to construct a more stable and resilient overall Euro Area institutional framework.

The problem is that policy-making in the European context faces an even more difficult problem since the EMU is a monetary union without a state. Even if a consensus is reached on the need to have space to do stimulus in times of distress, as in the New View, how to implement this in the European Monetary Union set-up inevitably becomes a political economy problem, as many have already correctly perceived it. Obstfeld (2013) presents the economic problem at its core as the impossibility to retain the current Eurozone institutional set-up and to keep macroeconomic stability. Because of the size of the financial sector, there is a trilemma that implies that the Eurozone cannot have full financial integration, financial stability and lack of common fiscal policy - one of the three has to be sacrificed. Similar views are expressed in Tabellini (2015) and the Five President's Report (European Commission 2015). Many of the proposals lately have therefore involved the setting up of an arrangement for a common fiscal policy. But the degree with which this could happen is under question. The current set-up is one of soft coordination, where there are rules that aim to limit fiscal profligacy (as in the Fiscal Compact and the Stability and Growth Pact). The problem with the existing rules is that they are suboptimal through the New View framework - they neither recommend an expansion while the output gap is negative and monetary policy is bounded, when a stimulus could be efficient; neither are they symmetric - and thus they leave "positive" excesses such as a large current account surplus unaddressed. The way forward for EMU reform through the New View could thus be either amendment of the current rules and staying within a rules-based coordination mechanism or moving towards a true Euro area fiscal policy, implemented through a central fiscal institution - or any option between those two. We discuss different proposals along this divide below.

An important point to make here is that when discussing a centralized fiscal policy function to be introduced we mostly imply a Euro Area Treasury or a likewise entity that could take a fiscal activist position as would be necessary under The New View during recessions. There is a common argument against discretionary fiscal spending that says that automatic stabilizers should be enough while discretionary spending always brings the commitment problem with it. The second might be true, but the first argument is not necessarily true. Automatic stabilizers are mostly there for an insurance and redistribution purpose and not for overall macroeconomic stabilization although they also serve the role of the latter. They are often too small to guarantee such a stabilization. Not only that, but expanding them to be able to take into account shocks as large as the ones during the Global Financial Crisis, might have significant disincentive consequences.

There is a further major divide along the trade-off between the two positions currently governing the debate on EMU reform. This is the funding side of a future common fiscal policy - which could be implemented via the issuance of some type of a common Eurozone asset. A common European safe asset will have the beneficial effects of reducing the highly problematic home bias of banks holding their sovereign's government bonds and creating the sovereign-bank doom loop in the first place (Brunnermeier 2016, Farhi and Tirole 2016) and would ensure the funding of a common fiscal capacity for the Eurozone. Corsetti et. al (2016) propose a more detailed setup for "eurobonds", which involves a centrally operated Euro area fund that issues these bonds and assures they are non-defaultable - that

is they will be convertible at par into currency at maturity. Conditional on the state of the economy, there are different conditions, under which this new fund will be ready to buy national public debt and would therefore guard sovereigns from self-fulfilling creditor runs. This proposal is in line with the New View and addresses the immense pressure under which strained national public finances fall after a significant shock. Furthermore, such an approach will help determine market expectations about inflation, as shown by Mackowiak and Jarocinski (2017).

Devising such a safe asset while taking into account all specific concerns and the political considerations into account is not a trivial task. There are arguments on both sides of this debate. A risk-sharing setup and a more solidarity driven approach would help Eurozone periphery countries, in taking some of the pressure off their government bond yields. Opponents to this argue that it will erode the role of markets to act as a disciplining mechanism inducing governments to keep stable public finances and implement necessary reforms. For some of their opponents, creating "safe" common assets through pooling of national debt will join together government debt, which is currently priced differently, and thus might present a danger that will put structural reforms and the sustainability of public finance at risk. Brunnermeier et. al (2016) have called this divide "The Battle of Ideas", which is currently moving the debate on the future of the EMU - on one side, there is the federalist approach, leaning on the French tradition of an absolutist state, where a central institution has the power to act at its discretion versus a rules-based approach on the other hand, where the different parts of a federation retain their sovereign decision-making process, like in Germany, but these are strictly bounded by rules and market pressure. Buti (2017) similarly presents there are currently two competing models for EMU - a "back-to-Maastricht" approach with stronger enforcement of fiscal rules and/or through more market discipline or the further development of a federalist EMU, where a Euro Area Treasury enables the achievement of an aggregate fiscal stance.

An obvious constraint to big institutional changes is the political infeasibility of an unanimous support by Member states to reach a common agreement, let alone a Treaty Change. The reasons behind this are explained convincingly by Orphanides (2017):*"These paths towards escaping the current malaise involve either changes in the Treaties, which presupposes unanimous support by all EU member states, or the voluntary consent by the governments of all euro area member states. Neither of these conditions is likely to be met in the foreseeable future. The reason is simple. Although the current dysfunction has harmed the euro area overall, the distributional effects have been uneven. While most member states have suffered, a few member states have benefited from the crisis and continue to benefit from the persistent fragility. In this light, the political feasibility constraints required for advances that require unanimous support cannot be met. Member state governments that have been experiencing short-term benefits from the status quo do not have an incentive to accept changes that would be against their short-term interest."*. Orphanides (2017) clearly points to the core of the problem which is how and who implements a fiscal stabilization function and what happens with the common assets. This debate, with its two dimensions as presented above, is the central one for the future development of the European monetary union architecture.

Some authors such as Wyplosz and Eichengreen (2016) are sceptical to the idea that a centralized fiscal policy could achieve its goals. In their view, a centralized fiscal policy stance would be a further development of the Stability and Growth Pact, which they find suboptimal. Since EU member states

are too heterogeneous in their preferences and in the shocks they face and as fiscal policy involves detailed decisions about distributional questions, they propose fiscal policy to be "renationalized" again and left to sovereign governments. Even though fiscal policy can be treated as a public good and has cross-border effects, they doubt the spillovers are that large. We do not investigate much further this approach, since we find the possibility of scraping off of the SGP rules to be the most politically unrealistic way forward, but we point to the fact that this proposal touches upon the view that market discipline should guide public finances, since the authors propose an absolute no bail-out clause for governments to be the only restriction for sovereign debt after the rules currently at hand are abandoned. We further differentiate between the two other possible outcomes - change of the current rules by amending the SGP and the Fiscal Compact to reflect better the New View, but keeping fiscal policy at the national level, or a more centralised approach where there is a common Eurozone fiscal stance not only by communication from the European institutions, but in practice. The latter idea is for example pursued by Tabellini (2016) in his proposal of an European Fiscal Institute (EFI), similar to the predecessor of the European Central Bank - the European Monetary Institute.

Tabellini (2015) supports active fiscal management as in the New View, but only in exceptional circumstances and through a common stabilization function. Instead of having to coordinate national fiscal policies, such as in the fiscal spending boost in the core economies proposed by Blanchard et al. (2015), he proposes that stabilization is done by these new institutions ("*Without a common fiscal policy and without adequate institutions for aggregate demand management, European leaders have to constantly alter the rules.*"). Similarly to Blanchard et al. (2015), Tabellini finds a fiscal union or an arrangement to share some of the fiscal burden on an European level, efficient, but he does not foresee a large tax capacity behind it. Ideally, the new fiscal union would not mean a large tax extraction at once, but the commitment from all Member States to a contribution for a very long period. This commitment would be the backing for "stability bonds" to be issued by the Fiscal Institute and then used to retire the country government debt that is beyond the 60 % debt threshold. After excessive national debt is retired, during recessions the Fiscal Institute will transfer the funds from the bonds to national authorities to use them for counter-cyclical purposes at their discretion. Thus, the space for counter-cyclical stabilization would be provided, but the amount would be kept under the decision of a central authority. Such a step, would be crucial in addressing macroeconomic management on an European level when monetary policy is over-burdened and has reached its limit. This common fiscal policy does not induce risk-sharing in the way that e.g. a common unemployment insurance would, but still there would be a limited amount of risk-sharing as some countries would be more likely to lose market access and therefore to use the benefits of the common bonds. Tabellini (2015) builds upon and comments on the exact implementation of the proposals by Corsetti et. al (2015) and Ubide (2015). Corsetti et. al (2015) propose that a new European fiscal institution could collect its resources from member states, which pledge to transfer the funds from future revenues (either from seigniorage, a fraction of the VAT or from a wealth tax) for the next 50 years. To give an appropriate share of the responsibility to more indebted countries, they have to make higher pledges for future revenues to be transferred to the European authority. Ubide (2015) proposes that pledges of revenues as a percentage of the GDP should be equal across countries, but also that the bonds be used mainly for stabilization purposes to boost aggregate demand in cases of large crises rather than for retiring existing debt. Crucially, the Institute would have the ability to request additional funds at any point to be able to backstop any uncertainty around the stability bonds debt service. According

to Tabellini, since separate member states do not have the capacity to provide a commitment large enough to ensure efficient and sufficient crisis management, this common approach would be much better in the long-run to ensure stability.

The decision making process of such an institution is of crucial importance. Tabellini (2015) proposes that the unanimity principle be abandoned as it is widely believed that the unanimity procedure in the Eurogroup and the ability of nations to use their veto powers has been a major drawback and potentially has made it inefficient - a point already made previously by Piketty (2016). The common fiscal policy institution needs to have a democratic mandate (Piketty 2012), since it will affect both efficiency and distributional outcomes. Thus, there needs to be either a full participation of the European Parliament and Eurozone representatives in the decision making process of the fiscal institute or at least the participation of a specific committee, enabled by the Parliament to decide on its behalf.

Regarding the issuance of funds, the idea of Tabellini is to start gradually and transfer the proceeds to member states that then retire their own debts. But the reduction of old sovereign's debt is only a partial outcome of this arrangement, with the main one being the ability of the new institution to conduct macroeconomic demand management on a Eurozone level. By issuing additional amount of Stability bonds during recessions and then transferring the funds to member states (again in proportion to their GDP), this would give additional fiscal space for countries that need it and which they would have at their discretion. Furthermore, in the case of a systemic financial crisis, the EFI would overtake the current roles of the ESM lending to member states without market access under strict conditionality, recapitalize large financial institutions or providing funding for the national deposit insurance funds. In tranquil times, the role of the EFI would be to decide what is the necessary amount of outstanding debt and retire old debts by collecting the required transfers from the member states, without issuing new bonds.

This suggestion by Tabellini (2016) already shows the difficult path towards finding a common solution to designing an appropriate common stabilization function. It is along the lines of the New View as it has a clear priority for fiscal stabilization. But transferring the funds to the relevant government only means it will reduce the stress on national public finances - in a sense it is not symmetric and will not induce any Member State to contribute to pulling up Eurozone wide growth and inflation. The coordination problem, as described by Blanchard, Erceg and Leigh (2015) of national governments not doing what is optimal for the Euro area level will still persist. An individual government, which is already outside of recessionary and deflationary dangers, will have few incentives to boost government stimulus to contribute to the preferred Eurozone wide fiscal stance. This is at the core of the political problem here - there are positive spillover effects (externalities) from a boost in the core, but there are no internal incentives for the surplus countries to take them into account. On the other side, this suggestion is significantly helpful for crisis-hit countries to receive additional fiscal capacity to implement short-term fiscal stabilization - and these are the countries which are expected to have high multipliers from stimulus, but cannot implement it due to budget constraints.

On the other side of the debate there are multiple suggestions to amend the current rules and make them better suited to correspond to what is optimal from an Eurozone perspective. Benassy-Quere (2016) proposes a more soft approach that retains a coordination mechanism between national

governments, but with enhanced rules and an Eurozone wide fiscal stance rather than the creation of a separate new institution. According to Benassy-Quere (2016) the bottom-up approach of national fiscal policy should be kept in tact in normal times, while in "exceptional times" - after big shocks - the meaningful fiscal stance for the Euro should be coordinated according to the recommendations of an European Fiscal Board, as has already been envisioned in the Five Presidents' Report (2015). The European Fiscal Board constituted its first fiscal stance recommendation in June 2017, but it still has a purely recommendatory character and therefore does not necessary induce any action. The importance and possible benefits of embedding fiscal councils into the economic and institutional framework to guide fiscal policy decisions has been explored by Calmfors and Wren-Lewis (2011).

Since the forecasted output gap is often not well suited to predict and adjust to a truly optimal fiscal stance, Benassy-Quere (2016) proposes further that the output gap be augmented with the current account as an observed indicator. The current account has good explanatory power for current supply-demand imbalances. Based on these two indicators, a fiscal stance for the separate Member States, but also for the Eurozone as a whole should be issued. In "exceptional times" Member States have to explain how they contribute to achieving this stance and prove that they have followed the given recommendations. The proposal by Benassy-Quere, Ragot and Wolff (2015) therefore builds on the idea that in normal times decentralized policies within the rules of the SGP are sufficient, while in other times - for example in a state of recession or at the danger of a deflation - the subsidiarity principle should enable a centralized body to assert the needed collective action. This solution better reflects the ideas of the New View. By augmenting the rules and making it binding for governments to prove how do they contribute to a common fiscal stance that is deemed appropriate for the whole EU some form of the needed fiscal coordination will be in place. Most importantly all countries have to follow this proposed coordinated effort towards the common fiscal stance, addressing the asymmetry between deficit and surplus countries. The shortcoming of this is that countries with stressed public finances will still be limited due to lacking fiscal space - but at least it would mean they will not implement pro-cyclical fiscal consolidation just to comply with the Stability and Growth Pact. This proposal is worth considering, although amending the rules in this way constitutes again a political feasibility problem, as we see again limited incentives for surplus countries to agree to such a scheme.

Another important contribution to this debate is the recent paper by the 14 French and German economists seeking to establish a consensus between the risk-sharing and the market discipline view of the debate on EMU reform (Benassy-Quere et. al 2018). Interestingly, the paper begins with a very clear diagnosis on the problems of the fiscal policy arrangement in the Eurozone, touching upon some of the points of the New View: *"Fiscal rules are non-transparent, pro-cyclical, and divisive, and have not been very effective in reducing public debts. The flaws in the euro areas fiscal architecture have overburdened the ECB and increasingly given rise to political tensions"*. The authors propose improving the current set-up of the Stability and Growth Pact by changing the complex rules guiding it and including rather a simple rule that limits the annual government spending growth in nominal terms to not growth more than long-term nominal income (the sum of potential output growth and expected inflation). This indeed results in less pro-cyclical fiscal rules and would therefore be an improvement. But still, as the authors themselves point, it makes fiscal policy less pro-cyclical, or even a-cyclical, but not counter-cyclical and therefore is not completely in line with the importance of fiscal stabilization that the New View as we present it subscribes to. Given the political constraints, the proposal of the 14 French and German economists might be seen as a realistic consensus agreement, but it is still not optimal from the stabilization perspective that the New View takes on fiscal policy.

There is a plethora of further suggestions we have not discussed here, but we have summarized some clear points. There is a wide variety of opportunities to address the current European economic architecture and the problematic lack of an aggregate demand management devise for the whole Eurozone. These include trade-offs between sovereignty and centralisation and between sharing of risks versus a market discipline approach. But most importantly and regrettably, they are limited in their political feasibility. While the New View shows how a particular country can profit economically from using government stimulus when monetary policy is already bounded, the Eurozone set-up also involves the distribution of effects of macroeconomic policies across regions of the Euro area. Thus, any reform might induce not only winners, but also losers. The problem thus becomes not only how to devise an optimal EMU architecture to achieve an appropriate macroeconomic stabilization function, but how to take into account the political constraints in agreeing on it. In the end, some incentive might be needed to be given for surplus countries to bind themselves to rules that would be beneficial for the whole Eurozone, but may be seen by surplus countries as costing them competitiveness and degrading the disciplinary effects of markets. A fiscal stimulus in the core countries might be seen as a way for them to lose competitiveness through wage inflation for example. We leave a balanced solution to this double-constraint problem as an open question for future research.

V.   Conclusions

In this paper, we have summarized a wide range of literature through which a strong case can be built that active fiscal policy is an important part of the optimal policy mix, especially in a low-growth, low-inflation environment when monetary policy is already at its limit. Fiscal activism should not be ignored for stabilization purposes. This has important implications not only for the position in which the economies of the European Union have been throughout the 2012-2016 period, but also for the future - especially given the estimated higher probability of monetary policy reaching its limits faster and more often. The Eurozone institutional setup is still not in line with the New View and mainly reinforces a view of the world, where fiscal policy should only deal with the long-run concern about sustainable public finances. An approach better suited to fight off future recessions will combine a more balanced view on the short-term benefits of fiscal policy stimulus and would take into account these beneficial effects when deciding on the available fiscal space. This view will take seriously the long-term benefits of swiftly exiting recessionary periods to avoid casting a hysteresis shadow on output, but will also reflect the possible important spillover effects in a monetary union. In any case, fiscal policy activism is not always warranted - but it could be in specific situations, when tailored appropriately to have optimal effects. A better setup for the Eurozone, which takes into account the important heterogeneities between Member States and the existence of an optimal aggregate fiscal stance for the whole Eurozone, could be achieved and should reflect the principles of the New View. Ironically, the economic evidence points to the need of a more active approach, while policymakers in the past years have often decided to deviate from this and have taken a more passive stance. But of course, a purely economic view on optimal macroeconomic policy does not reflect the complexity of decision making at the political level. Even if the optimal proposals are not feasible though, policy makers in the Eurozone should strive to augment the current setup with a better and more reflective approach - this would also support the long-term economic development of the EU and would make it as a whole more crisis-resilient and growth-friendly.

References

[1] Ahn, S. and Kaplan, G. and Moll, B. and Winberry, T. and Wolf, C. "When Inequality Matters for Macro and Macro Matters for Inequality". In: *NBER Working Paper, (23494), (2017)*.

[2] Altig, D. and Christiano, L. and Eichbaum, M. and Linde, J. "Firm-specific capital, nominal rigidities and the business cycle". In: *Review of Economic Dynamics, (2011)*.

[3] Auclert, A. and Rognlie, M. "Inequality and Aggregate Demand". In: *Stanford University, (2016)*.

[4] Auerbach, A. "Fiscal Policy". In: *Peterson Institute of International Economics, Rethinking Macroeconomics IV Conference, (2017)*.

[5] Auerbach, A. J. and Gorodnichenko, Y. "Fiscal Multipliers in Recession and Expansion". In: *Fiscal Policy after the Financial Crisis, pages 63-98 National Bureau of Economic Research, Inc., (2012)*.

[6] Auerbach, A. J. and Gorodnichenko, Y. "Fiscal Stimulus and Fiscal Sustainability". In: *Federal Reserve Bank of Kansas City, (2017)*.

[7] Ball, L. M. "Long-Term Damage from the Great Recession in OECD Countries". In: *NBER, Working Paper Series, (20185), (2014)*.

[8] Banque de France. "Quaterly Selection of Articles". In: *Banque de France Bulletin, (46), (2017)*.

[9] Benassy-Quere, A. "Euro-Area Fiscal Stance: From Theory to Practical Implementation". In: *CESifo Working Paper Series, (6040), Group Munich, (2016)*.

[10] Benassy-Quere, A. and Ragot, X. and Wolff, B. "Which fiscal union for the euro area?" In: *Policy Contribution, (12893), Bruegel, (2016)*.

[11] Benassy-Quere, A., Brunnmeier, M., Enderlein, H., Farhi, E., Fratzscher, M., Fuest, C., Gourinchas, P.-O., Martin, P., Pisani-Ferry, J., Rey, H., Schnabel, I., Veron, N., Weder di Mauro, B., Zettelmeyer, J. "Reconciling risk sharing with market discipline: A constructive approach to euro area reform". In: *CEPR Policy Insight, 91, (2018)*.

[12] Bianchi, F. and Melosi, L. "The Dire Effects of the Lack of Monetary and Fiscal Coordination". In: *NBER Working Paper, (23605), (2017)*.

[13] Blanchard, O. J. and Erceg, C. J. and Linde, J. "Jump Starting the Euro Area Recovery: Would a Rise in Core Fiscal Spending Help the Periphery". In: *NBER Working Paper, (21426), (2015)*.

[14] Blanchard, O. J. and Leigh, D. "Growth Forecast Errors and Fiscal Multipliers". In: *NBER Working Papers 18779, National Bureau of Economic Research, Inc., ()*.

[15] Blanchard, O. J. and Summers, L. H. "Hysteresis and the European Unemployment Problem". In: *NBER Macroeconomics Annual, 1, pp. 15-90, (1986)*.

[16] Born, B. and Mueller, G. J. and Pfeifer, J. "Does austerity pay off?" In: *CEPR Discussion Paper, (DP10425), (2015)*.

[17] Brunnermeier, M. and Reis, R. "A Crash Course on the Euro Crisis". In: *LSE manuscript, (2016)*.

[18] Brunnermeier, M. K. and James, H. and Landau, J.-P. "Euro and the Battle of Ideas". In: *Princeton University Press, (2016)*.

[19] Buti, M. "Rethinking Macroeconomic Policy". In: *Panel Discussion: Rethinking Fiscal Policy,* (2017, Washington, DC.).

[20] Buti, M. and Carnot, N. "Fiscal space and low interest rates: A Eurozone perspective". In: *VoxEu, CEPR's Policy Portal,* (2016).

[21] Buti, M. and Doehring, B. "Continued growth in a changing policy context: The European Commission's autumn forecast". In: *VoxEu, CEPR's Policy Portal,* (2017).

[22] Buti, M. and Rodriguez Munoz, L. "Fiscal space and low interest rates: A Eurozone perspective". In: *VoxEu Article, 28,* (2016).

[23] Caggiano, G. and Castelnuovo, E. and Colombo, V. and Nodari, G. "Estimating Fiscal Multipliers: News From A Non-linear World". In: *The Economic Jounal, 125(584), pp. 746-776,* (2015).

[24] Caldara, D. and Kamps, C. "What are the effects of fiscal policy shocks? A VAR-based comparative analysis". In: *European Central Bank, Working Paper Series, (877),* (2008).

[25] Calmfors, L. and Wren-Lewis, S. "What should fiscal councils do?" In: *Economic Policy Vol. 26, pp. 649-695,* (2011).

[26] Carlstrom, C.T. and Fuerst, T. S. and, Matthias, P. "Fiscal multipliers under an interest rate peg of deterministic versus stochastic duration". In: *J. Money Credit Bank. 46, 12931312,* (2014).

[27] Chodorow-Reich, G. "Geographic Cross-Sectional Fiscal Spending Multipliers: What Have We Learned?" In: *NBER Working Paper, (23577),* (2017).

[28] Christiano, L. and Eichenbaum, M. and Evans, C. L. "Nominal Rigidities and the Dynamic Effects of a Shock to Monetary Policy". In: *Journal of Political Economy, The University of Chicago Press, 113(1), pp. 1-45,* (2005).

[29] Christiano, L. and Eichenbaum, M. and Rebelo, S. "When is the Government Spending Multiplier Large?" In: *Journal of Political Economy 119(1), pp. 78-121,* (2011).

[30] Cochrane, J. H. "The new-Keynesian liquidity trap". In: *Journal of Monetary Economics, 92, pp. 47-63,* (2017).

[31] Coelho, M. "Fiscal Stimulus in a Monetary Union: Evidence from Eurozone Regions". In: *Austrian National Bank, Working Paper 210,* (2016).

[32] Coenen, G. and Erceg, C. J. and Freedman, C. and Furceri, D., Kumhof, M., Lalonde, R., Laxton, D., Linde, J., Mourougane, A., Muir, D., Mursula, S., de Resende, C., Roberts, J., Roeger, W., Snudden, St., Trabandt, M., In't Veld, J. "Effects of Fiscal Stimulus in Structural Models". In: *American Economic Journal: Macroeconomics, American Economic Association, 4(1), pp. 22-68, January,* (2012).

[33] Corsetti, G. and Dedola, L. and Jarocinski, M. and Mackowiak, B. and Schmidt, S. "Macroeconomic stabilization, monetary-fiscal interactions, and Europe's monetary union". In: *ECB Discussion Paper 1988, December,* (2016).

[34] Corsetti, G. and Feld, L. and Lane, P. and Reichlin, L. and Rey, H. and Vayanos, D. and Weder di Mauro, B. "A New Start for the Eurozone Dealing with Debt". In: *CEPR Discussion Papers 9010, C.E.P.R. Discussion Papers,* (2015).

[35] Corsetti, G. and Meier, A. and Mueller, G. "What Determines Government Spending Multipliers?" In: *CEPR Discussion Papers 9010, C.E.P.R. Discussion Papers,* (2012).

[36] Corsetti, G. and Mueller, G. J. "Fiscal Multipliers: Lessons from the Great Recession for Small Open Economies". In: *Report to the Swedish Fiscal Policy Council,* (2015).

[37] DeLong, B. and Summers, L. H. "Fiscal Policy in a Depressed Economy". In: *BPEA Article,* ().

[38] Dordal i Carreras, M. and Coibion, O. and Gorodnichenko, Y. and Wieland, J. "Infrequent but Long-Lived Zero-Bound Episodes and the Optimal Rate of Inflation". In: *Annual Review of Economics 8(1), pp. 497-520,* (2016).

[39] Draghi, M. "Hearing of the Committee on Economic and Monetary Affairs of the European Parliament". In: *ECON Committee of the European Parliament, Brussels,* (2016).

[40] Eggertsson, G. B. "What Fiscal Policy is Effective at Zero Interest Rates?" In: *Daron Acemoglu and Michael Woodford, eds., NBER Macroeconomics Annual 2010, 59-112, Chicago: University of Chicago Press,* (2011).

[41] Eggertsson, G. B. and Mehrotra, N. R. and Summers, L. H. "Secular Stagnation in the Open Economy". In: *NBER Working Paper, (22172),* (2016).

[42] Erceg, C. and Linde, J. "Is There A Fiscal Free Lunch In A Liquidity Trap?" In: *Journal of the European Economic Association, European Economic Association, vol. 12(1), pp. 73-107, 02,* (2014).

[43] European Commission. "2017 European Semester: Communication on Fiscal Stance". In: *European Commission,* (2016).

[44] European Commission. "Completing Europe's Economic and Monetary Union". In: *European Commission, Report by: Juncker, J.-C. and Tust, D. and Dijsselbloem, J. and Draghi, M. and Schulz, M.,* (2015).

[45] European Commission. "Reflection Paper on the Deepening of the Economic and Monetary Union". In: *European Commission,* (2017a).

[46] European Commission. "White Paper on the future of Europe". In: *European Commission,* (2017b).

[47] European Fiscal Board. "Assessment of the prospective fiscal stance appropriate for the euro area". In: *European Fiscal Board,* (2017).

[48] Farhi, E. and Tirole, J. "Deadly Embrace: Sovereign and Financial Balane Sheets Doom Loops". In: *NBER, Working Paper Series, (21843),* (2016).

[49] Farhi, E. and Werning, I. "Fiscal Multipliers: Liquidity Traps and Currency Unions". In: *NBER, Working Paper Series, (18381),* (2012).

[50] Fatas, A. and Summers, L. H. "The Permanent Effects of Fiscal Consolidations". In: *NBER, Working Paper Series, (22374),* (2016).

[51] Fiavazzi, F. and Giavazzi, P. "Can Severe Fiscal Contractions Be Expansionary? Tales of Two Small European Countries". In: *NBER Macroeconomics Annual 1990, Volume 5, pages 75-122 National Bureau of Economic Research Inc.,* (1990).

[52] Forni, M. and Gambetti, L. "Fiscal Foresight and the Effects of Government Spending". In: *Center for Economic Research (ReCent), (049),* (2010).

[53] Friedman, M. "The Counter-Revolution in Monetary Theory". In: *Transatlantic Arts,* (1970).

[54] Furman, J. "The New View of Fiscal Policy and Its Application". In: *Conference: Global Implicatons of Europe's Redesign,* (2016).

[55] Gali, J. "Monetary Policy Design in the Basic New Keynesian Model". In: *Monetary Policy, Inflation, and the Business Cycle: An Introduction to the Keynesian Framework, Princeton University Press,* (2008).

[56] Gali, J. and Lopez-Salido, J. D., Valles, J. "Understanding the Effects of Government Spending on Consumption". In: *NBER Working Paper, (11578),* (2005).

[57] Gali, J. and Monacelli, T. "Optimal monetary and fiscal policy in a currency union". In: *Journal of International Economics, 76(1), pp. 116-132,* (2008).

[58] Gaspar, V. and Obstfeld, M. and Sahay, R. "Macroeconomic Management When Policy Space Is Constrained: A Comprehensive, Consistent, and Coordinated Approach to Economic Policy". In: *IMF Staff Discussion Note,* (2016).

[59] Hall, G. J. and Sargent, T. J. "Interest Rate Risk and Other Determinants of Post - WWII U.S. Government Debt/GDP Dynamics". In: *NBER, Working Paper Series, (15702),* (2010).

[60] Hebous, S. and Zimmermann, T. "Estimating the Effects of Coordinated Fiscal Actions in the Euro Area". In: *CESIFO Working Paper, (3912),* (2012).

[61] Hettig, T. and Mueller, G. "Fiscal policy coordination in currency unions at the effective lower bound". In: *CEPR Discussion Paper, (11780),* (2017).

[62] Holston, K. and Laubach, T. and William, J. C. "Measuring the Natural Rate of Interest: International Trends and Determinants." In: *Federal Reserve Bank of San Francisco Working Paper No. 2016-11,* (2016).

[63] House, C. L. and Proebsting, C. and Tesar, L. "Austerity in the Aftermath of the Great Recession". In: *NBER Working Papers 23147, National Bureau of Economic Research, Inc.,* (2017).

[64] In't Veld, J. "Fiscal consolidations and spillovers in the Euro area periphery and core". In: *European Economy, Economic Papers, (506),* (2013).

[65] International Monetary Fund. "Fiscal Monitor: Acting Now, Acting Together". In: *IMF,* (2016).

[66] International Monetary Fund. "World Economic Outlook 2017, Chapter 4". In: *IMF,* (2017).

[67] Jarocinski, M. and Mackowiak, B. "Monetary-fiscal interactions and the euro area's malaise". In: *ECB, Working Paper Series, (2072),* (2017).

[68] Jorda, O. "Estimation and Inference of Impulse Responses by Local Projections". In: *American Economic Review, 95(1), pp. 161-182,* (2005).

[69] Jorda, O. and Taylor, A. M. "The Time for Austerity: Estimating the Average Treatment Effect of Fiscal Policy". In: *NBER Working Paper Series 19414,* (2013).

[70] Kaplan, G., and Violante, G.V. "A Model of Consumption Response to Fiscal Stimulus Payments". In: *Econometrica, 82(4), pp. 1199-1239,* (2014).

[71] Kaplan, G., and Violante, G.V. "A Tale of Two Stimulus Payments: 2001 versus 2008". In: *American Economic Review: Papers and Proceeding, 104(5), pp. 116-121,* (2014b).

[72] Kirsanova, T, Leith, C and Wren-Lewis, S. "Monetary and Fiscal Policy Interaction: The current consensus assignment in the light of recent developments". In: *Economic Journal, 119,* (2009).

[73] Leeper, E. "Equilibria under "active" and "passive" monetary and fiscal policies". In: *Journal of Monetary Economics, Elsevier, 27(1), pages 129-147, February,* (1991).

[74] Lew, J. J. "From Pittsburgh to Hangzhou: The Past, Present, and Future of the G-20". In: *U.S. Department of the Treasury, Press Center,* (2016).

[75] Miyamoto, W. and Nguyen, T. L. and Sergeyev, D. "Government Spending Multipliers Under the Zero Lower Bound: Evidence from Japan". In: *Bank of Canada, Staff Working Paper, 2017-40,* (2017).

[76] Monacelli, T. and Bilbiie, F. O. and Perotti, R. "Is Government Spending At The Zero Lower Bound Desirable?" In: *NBER, Working Paper Series, (20687),* (2014).

[77] Mueller, G. and Hetting, T. "Fiscal policy coordination in currency unions at the effective lower bound". In: *CEPR Discussion Papers, (11780),* (2017).

[78] Nakamura, E. and Steinsson, J. "Fiscal Stimulus in a Monetary Union: Evidence from US Regions". In: *American Economic Review, 104(3), pp. 753-792,* (2014).

[79] Obstfeld, M. "Finance at Center Stage: Some Lessons of the Euro Crisis". In: *Economic Papers 493, European Commission, Director-General for Economic and Financial Affairs,* (2013).

[80] Orphanides, A. "The Fiscal-Monetary Policy Mix in the Euro Area: Challenges at the Zero Lower Bound". In: *European Economy, Discussion Paper 060,* (2017).

[81] Paris, P. and Wyplosz, C. "PADRE: Politically Acceptable Debt Restructuring in the Eurozone". In: *Geneva Report, Special Report 3, ICMB and CEPR,* (2014).

[82] Perotti, R. "In Search of the Transmission Mechanism of Fiscal Policy". In: *NBER Working Paper, (13143),* (2007).

[83] Piketty, T. "Income Inequality in France, 1901-1998". In: *Journal of Political Economy, (111), pp. 1004-1042,* (2003).

[84] Piketty, T. "Rethinking the European project and fast (22 November 2011)". In: *Chronicles On Our Troubled Times (2016),* (2016).

[85] Piketty, T. and Saez, E. "Income Inequality in the United States, 1913-1998". In: *Journal of Political Economy, (118), pp. 1-41,* (2003).

[86] Ramey, V. A. "Can Government Purchases Stimulate the Economy?" In: *Journal of Economic Literature, American Economic Association, vol. 49(3), pages 673-685, September,* (2011).

[87] Ramey, V. A. and Zubairy, S. "Government Spending Multipliers in Good Times and in Bad: Evidence from U.S. Historical Data". In: *NBER Working Paper, (20719),* (2014).

[88] Reis, R. "Comments on: "Jump-starting the euro area recovery: would a rise in core fiscal spending help the periphery"". In: *NBER Macroeconomics Annual 2016, June,* (2016).

[89] Rogoff, K. "The Optimal Degree of Commitment to an Intermediate Monetary Target". In: *Quarterly Jounal of Economics, 100, pp. 1169-1189,* (1985).

[90] Romer, C. "What Do We Know About the Effects of Fiscal Policy?: Separating Evidence from Ideology"". In: *Berkeley, CA: U.C. Berkeley,* (2011).

[91] Romer, C. and Romer, D. H., "The Macroeconomic Effects of Tax Changes". In: *Berkeley: CA: U.C. Berkeley,* (2007).

[92] Sapir, A. and Wolff G. "Euro Area Governance: What to Reform and How to Do it". In: *Bruegel, Policy Briefs, (870),* (2015).

[93] Schmidt, S. "Fiscal activism and the zero nominal interest rate bound". In: *European Central Bank Working Paper 1653,* (2017).

[94] Shambaugh, J. "Rethinking Macroeconomic Policy". In: *Panel Discussion: Rethinking Fiscal Policy.* (2017, Washington, DC,).

[95] Sims, C. "Jackson Hole Symposium 2016: Designing Resilient Monetary Policy Frameworks for the Future". In: *Fiscal Policy, Monetary Policy and Central Bank Independence,* (2016).

[96] Smets, F. and Wouters, R. "Shocks and Frictions in US Business Cycles: A Bayesian DSGE Approach". In: *American Economic Review, 97(3),* (2007).

[97] Stein, H. "The Fiscal Revolution in America". In: *IL University of Chicago Press,* (1969).

[98] Tabellini, G. "The Main Lessons to be Drawn from the European Financial Crisis". In: *The Eurozone Crisis: A Consensus View of the Causes and a Few Possible Solutions, by R Baldwin and F Giavazzi, eBook and VoxEU.org, 7 September,* (2015).

[99] Tabellini, G. "Which fiscal union?" In: *VOX CEPR's Policy Portal, April,* (2016).

[100] Taylor, J. B. "Reassessing Discretionary Fiscal Policy". In: *Journal of Economic Perspectives, 14(3), pp. 21-36,* (2000).

[101] Ubide, A. "Stability Bonds for the Euro Area". In: *Peterson International Institute for International Economics, (15-19),* (2015).

[102] Van Aarle, B. "Secular Stagnation: Insights from a New Keynesian Model with Hysteresis Effects". In: *CESifo Working Paper Series, (5797),* (2016).

[103] Werning, I. "Managing a Liquidity Trap: Monetary and Fiscal Policy". In: *NBER Working Paper, (17344),* (2011).

[104] Woodford, M. "Interest and Price". In: *Princeton University Press,* (2003).

[105] Woodford, M. "Simple Analytics of the Government Expenditure Multiplier". In: *Columbia University,* (2010).

[106] Wyplosz, C. and Eichengreen, B. "Minimal conditions for the survival of the euro". In: *VOX, CEPR's Policy Portal,* (2016).

[107] Yagan, D. "Employment Hysteresis from the Great Recession". In: *NBER, Working Paper Series, (23844),* (2016).