

Discussion Paper

No. 2014-29 | July 07, 2014 | <http://www.economics-ejournal.org/economics/discussionpapers/2014-29>

Please cite the corresponding Journal Article at
<http://www.economics-ejournal.org/economics/journalarticles/2014-38>

Systematic Fiscal Policy and Macroeconomic Performance: A Critical Overview of the Literature

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Abstract

The literature on systematic fiscal policy and macroeconomic performance in industrialized countries is large but fragmented. Based on a broad overview of that literature, several patterns emerge. The empirical literature points toward strongly anticyclical policy, which consists of procyclical tax revenues, acyclical tax rates and government purchases, and countercyclical transfer payments. Consolidation in response to the debt has come primarily through adjustments to taxes and possibly purchases. Furthermore, a large government is associated with reduced macroeconomic volatility. The theoretical literature on anticyclical fiscal policy, meanwhile, has gone from mostly focusing on government purchases and tax rates toward beginning to focus on transfer payments, although more quantitative work remains to be done in linking theory with empirics. At the same time, a policy literature has begun to develop, which has applied lessons from the theoretical literature in order to understand different consolidation scenarios and different proposed fiscal rules, particularly in Europe.

(Submitted as [Survey and Overview](#))

JEL E62 E63 H30

Keywords fiscal policy, fiscal rule, fiscal response function, deficits, taxes, government purchases, transfer payments

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The author wishes to thank Maik Wolters, Dennis Snower, Martin Plödt, and Tim Schwarzmüller for their helpful comments. All remaining errors are the responsibility of the author.

Citation Claire Reicher (2014). Systematic Fiscal Policy and Macroeconomic Performance: A Critical Overview of the Literature . Economics Discussion Papers, No 2014-29, Kiel Institute for the World Economy. <http://www.economics-ejournal.org/economics/discussionpapers/2014-29>

1 Introduction

Traditionally, macroeconomists have put great emphasis upon the macroeconomic effects of systematic fiscal policy, particularly automatic stabilizers. However, since Taylor (1993) proposed his eponymous monetary policy rule, more emphasis has gone instead into evaluating the effects of systematic monetary policy. This situation has begun to change recently. In particular, since the onset of the Great Recession and the arrival of interest rates at the zero lower bound, discussion has begun to swing back toward fiscal policy. While one part of this discussion has emphasized discretionary policy, another part of this discussion has emphasized systematic fiscal policy, particularly fiscal rules.¹ Given these developments, an appraisal of the current state of the literature is in order. Based on a broad overview of the literature, both the empirical and theoretical literature on this subject have begun to place an increased emphasis on the role of transfer payments and the role of rule-of-thumb consumers as a propagation mechanism, although more work remains to be done in this area. Additionally, a small but expanding policy literature has begun to apply the lessons of the theoretical literature to the current situation. Altogether, both the theoretical and policy literature can benefit from a closer integration with the empirical literature.

The literature on systematic fiscal policy is somewhat fragmented, although it is possible to synthesize a number of key points. The early literature on systematic fiscal policy focuses on fiscal sustainability and fiscal-monetary interactions, particularly on the fiscal prerequisites for price stability. Out of that literature stems a broader empirical literature, which has shifted its focus toward quantifying the strength of fiscal consolidation in response to the debt in addition to quantifying anticyclical fiscal policy.² Synthesizing the results from the current state of the empirical literature with respect to industrialized countries, fiscal authorities have tended to engage in strong anticyclical fiscal policy which featuring countercyclical adjustments to transfer payments and constant tax rates, while fiscal authorities have engaged in consolidation primarily through adjustments to taxes and possibly purchases. Additionally, a larger government or welfare state tends to be associated with less output volatility. While the empirical literature is rather fragmented, the key patterns in that literature seem to line up with each other.

¹For instance, Cogan, Cwik, Taylor, and Wieland (2010), Drautzburg and Uhlig (2011), and Coenen, Erceg, et al. (2012), among others, discuss the effects of different discretionary stimulus measures, while Alesina, Favero, and Giavazzi (2013) and Cogan, Taylor, Wieland, and Wolters (2013), among others, have discussed different discretionary consolidation scenarios.

²To avoid a potential source of ambiguity, "procyclical" and "countercyclical" here refer to a systematic positive or negative correlation with the output gap, while "anticyclical" refers the intended effects of fiscal policy.

The theoretical literature, meanwhile, has focused on a wider variety of issues such as basic fiscal transmission mechanisms, optimal fiscal policy, anticyclical policies, fiscal policy multipliers, and the role of government size. With the exception of the literature on the role of government size, the theoretical literature has not lined up closely with the empirical literature. Based on a comparison of the two literatures, the theoretical literature in general might benefit from an increasing emphasis on rule-of-thumb consumers and countercyclical transfer payments, rather than procyclical tax rates or countercyclical government purchases. This emphasis on rule-of-thumb consumers might go hand-in-hand with recent developments from the labor market literature. Additionally, a new and expanding policy literature could benefit from a stronger integration with the empirical literature in particular, to the extent that any proposed policy framework might wish to take actual historical behavior into account.

Because of the fragmented nature of the overall literature, a broad survey can help to uncover a few commonalities which would otherwise go undetected. Such a survey is designed to help guide readers toward the main findings from the different strands of the literature and to provide a synthesis of these different strands. It is not possible to provide a detailed listing of every paper within each strand, nor to discuss every single finding. Additionally, a focus on systematic policy by necessity omits an extensive discussion of fiscal multipliers, beyond basic transmission mechanisms and intertemporal considerations. The issue of fiscal multipliers is already a well-researched issue, and those interested in the state of the literature on multipliers should see Ramey (2011) on spending multipliers, Mertens and Ravn (2012) on tax multipliers, or Hebous (2011) on discretionary fiscal policy in general.

2 Testing for sustainability

The early empirical literature on systematic fiscal policy focuses on the issue of fiscal sustainability and its relationship with monetary policy. Sargent and Wallace (1981), Leeper (1991, 1993), Sims (1994), Woodford (1994, 1995, 2001), and others observe that the ability of central bankers to determine the price level depends on the presence of a fiscal policy regime which works to stabilize the public debt through consolidation in response to the debt (a "Ricardian" fiscal policy), absent default. This observation is based on the debt valuation equation, which implies that the real value of the public debt should equal the present value of real primary surpluses. When the systematic conduct of fiscal policy does not ensure that surpluses adjust to match the debt, something else (such as a change in the

price level) must adjust the real value of the government debt. In such a situation, it is not possible for monetary authorities to control the price level. This line of reasoning has come to be known as the "fiscal theory of the price level", and it is the basis for much of the literature on fiscal-monetary interactions. As a more general matter, changes in the price level affect the real stock of debt and hence have fiscal policy implications.

A fair amount of econometric work has therefore gone into developing tests for debt sustainability. Hamilton and Flavin (1986), Wilcox (1989), Kremers (1989), Trehan and Walsh (1991), and Hakkio and Rush (1991) all develop tests to see whether or not the U.S. public debt has followed a sustainable course. These tests test whether the debt has historically followed a stationary process, or else they test whether revenues and spending were cointegrated one-to-one. Bohn (1991) finds evidence that public deficits in the United States respond negatively to the debt stock based on an error correction model using a time series starting in 1791, which would imply sustainability. Bohn (1995) discusses issues related to the discounting of future cash flows when discussing debt sustainability in the presence of risk. Bohn (1998) discusses the regime-dependence of long-run fiscal policy in the United States, which has featured periods of debt instability caused by wars, followed by consolidation during peacetime. Canzoneri, Cumby, and Diba (2001) also argue that the U.S. data overall support a "Ricardian" view.

The subsequent literature on sustainability has also expanded to cover a wider range of countries. Afonso (2005) argues that the data do not support the Ricardian view for the EU-15 countries, while Mendoza and Ostry (2008) argue that on average, international fiscal policy is Ricardian. Altogether, the sustainability literature has led to mixed conclusions depending on the time sample (since the beginning of the Republic, the postwar period, or some other period) and notion of sustainability employed. Bohn (2007) critiques the literature on sustainability, by noting that a debt ratio of any finite order of integration may be compatible with the transversality conditions implied by the theoretical literature. With a finite sample, there is always an order of integration greater than the length of the sample which will allow for Ricardian fiscal policy. In practice, the patterns from the literature indicate that findings of debt sustainability are more likely to occur when looking at a long time series and when modeling the public debt as $I(1)$ rather than $I(0)$, although it is not truly possible to test for sustainability without other auxiliary assumptions.

3 Quantifying systematic fiscal policy

3.1 Quantifying systematic fiscal policy in the United States

Since the initial literature on sustainability, the subsequent literature has focused more on quantifying the ways in which fiscal policy responds to the debt and to the business cycle. One strand of literature has looked at systematic fiscal policy responses to past fiscal shocks and to other types of shocks. As with the sustainability literature, these early studies come to mixed conclusions. These early studies include those of Anderson, Wallace, and Warner (1986), Manage and Marlow (1986), and Ram (1988). These studies have sought to ascertain whether spending Granger caused taxes, or vice versa. Von Furstenberg, Green, and Jeong (1986), using a VECM, find that taxes have tended to carry most of the burden of fiscal adjustment in response to deficits based on a sample from 1954 through 1981. Miller and Russek (1990) report similar results, with some qualifications. Bohn (1991) looks at the behavior of total federal government spending and revenue beginning in 1792 using a VECM. He finds that adjustments to taxes and to total spending each have accounted for a significant share of fiscal consolidation in response to deficits.

More recently, emphasis has swung toward more parsimonious models of fiscal policy. Taylor (2000) follows the approach employed by Taylor (1993) by proposing a rule-of-thumb fiscal rule (or fiscal reaction function) whereby fiscal authorities automatically adjust the deficit-GDP ratio by 0.5 percentage points for every one percent fall in the output gap, and then comparing that rule against recent data. Auerbach (2002) estimates rules for revenue and spending formulated on this basis, and he comes up with similar results to Bohn (1991) for a sample beginning in 1984. Muscatelli, Tirelli, and Trecroci (2004a) find a strong positive response of the level of government spending to growth in the output gap when estimating a fiscal rule embedded within DSGE model, and they find a strong positive response of the level of the tax rate to the level of the output gap. They also find that government spending falls in response to lagged budget deficits and that taxes rise in response to lagged budget deficits. Romer and Romer (2009), on the other hand, find evidence that discretionary tax cuts "crowd in" government spending based on a narrative approach, while a large portion of tax policy is driven by future changes in spending. Reicher (2012, 2013) estimates a simple multi-instrument fiscal rule using postwar U.S. data where tax revenues, government purchases, transfer payments, and a balancing item may respond to either the public debt or to output, under the assumption that the driving process behind the residuals to these

items (for instance, foreign conditions or the demographically-driven demand for transfer payments) follows a unit root. Reicher finds that the entire government sector for the United States has adjusted taxes and, depending on the time period, government purchases in response to the changes in the debt ratio. Altogether, the evidence for the United States has pointed toward a strong response of taxes to the public debt and a possible response of government purchases to the public debt, with transfer payments and tax levels, but not tax rates, responding to the output gap.

3.2 Quantifying systematic fiscal policy outside the United States

A literature parallel to that for the United States has looked at systematic fiscal policy in industrialized countries outside of the United States. This literature has faced similar challenges and come to mixed conclusions. One strand of that literature has concentrated on measuring the cyclicalness of fiscal aggregates for industrialized countries. Van den Noord (2000) compiles evidence on how tax revenues relate to the output gap for a number of countries, using information regarding the tax system of each country. Based on that set of metrics, he describes the systematic differences in anticyclical fiscal policy across countries, and he describes the danger of stop-and-go fiscal policy whereby automatic stabilizers are offset by fiscal consolidation. Lane (2003) provides econometric evidence that political power dispersion may positively affect the procyclicality of various categories of government spending, using a regression approach to measure cyclicalness, while GDP per capita may negatively affect the procyclicality of government spending.

Other studies which discuss the measurement of the cyclical component of fiscal policy in industrialized countries include those of Bouthevillain et al. (2001), who adopt a hybrid approach, Girouard and André (2005), who update the approach of van den Noord and find a strong degree of anticyclical fiscal policy, Égert (2010), who finds a strong degree of anticyclical fiscal policy when a fiscal reaction function is estimated in first differences, and Bénétrix and Lane (2013), who find only a weak degree of anticyclical fiscal policy when a fiscal reaction function is estimated in levels. Additional studies on the response of fiscal policy to output or the debt include those of Galí and Perotti (2003), Ballabriga and Martinez-Mongay (2003), and Claeys (2006), who find a broad pattern of consolidation through deficit stabilization as well as anticyclical policy, without a clear pattern of stabilization in debt levels. Yet more studies include those of Fedelino et al. (2009), who discuss detrending, Golinelli

and Momigliano (2009), who discuss the role that model specification and data revisions play in the estimated degree of anticyclical policy, García, Arroyo, Mínguez, and Uxó (2009), who find that fiscal policy in Europe appears to be heterogeneous, Égert (2010) and Fatás and Mihov (2012), who find a wide range of results across econometric specifications, and Bénétrix and Lane(2013), who find a weak response of fiscal policy to output. This strand of the literature has come to contradictory conclusions, with econometric estimates often finding a lower degree of anticyclical fiscal policy than more structural approaches. Plödt and Reicher (2014) analyze the role of different econometric specifications in driving these results when applied to a common euro area data set, and they argue that taken together, the econometric evidence supports a specification which gives results more in line with those of Girouard and André (2005) and less in line with those of Bénétrix and Lane (2013).³

Less empirical work has related individual fiscal instruments to either the business cycle or to the debt in a cross-country setting. Végh and Vuletin (2012) measure the procyclicality of top and marginal statutory tax rates in a panel of countries using a regression approach. They find that tax rates are acyclical for industrialized countries (but countercyclical in developing countries). Reicher (2013) estimates a set of rich multi-instrument rules for a panel of twenty countries, finding that most industrialized countries have engaged in systematic fiscal policy in a broadly similar way to the United States, with a few cross-country differences as well. Interestingly, tax rates are acyclical in industrialized countries, while transfer payments are strongly countercyclical. The former finding is in line with the findings of Végh and Vuletin (2012), and both findings indicate that fluctuations in disposable income, rather than in tax rates or government purchases, are likely to be the main mechanism through which automatic stabilizers stabilize the economy.

3.3 Quantifying the stabilizing effects of government size

There is also a small but well-focused literature on the stabilizing effects of government size. Galí (1994) and Fatás and Mihov (2001, 2012) document that, in a cross section of countries and U.S. states, a higher share of government spending in GDP is associated with reduced volatility in GDP, employment, and private investment and consumption. Debrun and Kapoor (2010) regress volatility in output growth on measures of government size (fol-

³There is also a literature on the cyclicity of fiscal policy in developing countries which is not discussed here. Gavin and Perotti (1997) and Kaminsky, Reinhart, and Végh (2004), for instance, discuss the procyclicality of fiscal policy in Latin American countries.

lowing Fatás and Mihov (2001)) and on the anticyclicality of fiscal policy derived from a regression approach. They find that while government size seems to be associated with less volatility, measured strength in anticyclical fiscal policy seems not to be strongly related with volatility. Reicher (2013) finds that a large welfare state (expressed as a high rate of taxes or transfer payments, less so government purchases) seems to be associated with less volatility, although the evidence on the effects of anticyclical policy are ambiguous. Both Debrun and Kapoor (2010) and Reicher (2013) caution that attenuation bias might be an issue in these regressions. However, there does appear to be a clear, negative statistical relationship between government size (in particular the size of the tax and transfer state) and output volatility.

4 Understanding systematic fiscal policy in theory

4.1 Understanding standard fiscal policy transmission mechanisms

To understand the effects of fiscal policy rules in theory, an overview of the main fiscal policy transmission mechanisms is in order. A rather strong benchmark for understanding fiscal policy transmission remains the work of Barro (1974). If fiscal policy is financed entirely through nondistortionary taxes or transfers, the pricing of government debt ensures that a fiscal expansion today must be associated with a correspondingly large fiscal contraction tomorrow, in present value terms, which would lead households to feel no richer than before. In practice, there are three main mechanisms through which fiscal policy affects the macroeconomy in macroeconomic models. Government purchases might vary over time, operating through an income effect; taxes may be distortionary, operating through a substitution effect; and a share of consumers might spend transfer payments instead of saving them. A short overview of these main mechanisms is helpful in understanding how systematic fiscal policy might affect the macroeconomy.

On the spending side, Baxter and King (1993) set up an RBC-style model where fiscal policy actions are taken through adjustments to government purchases, which represent a component of final demand. In such models, an increase in government spending operates through an income effect. By making households feel poorer, an increase in government spending should cause workers to work harder, increasing total output but crowding out private consumption. The crowding-out of private consumption is a controversial proposition.

Linnemann and Schabert (2004) and Linnemann (2006) address this controversy and find that if preferences between private and government consumption are nonseparable, then an increase in government purchases can increase both private consumption and real output. In general, however, the transmission channel of government purchases in standard RBC-style models is best understood as operating through an income effect.

On the taxation side, Braun (1994), McGrattan (1994), and Chang (1995) analyze the effects of distortionary taxation on the business cycle. Their propagation mechanism relies upon the idea that distortionary taxes drive a wedge between the supply and demand for factors of production. When labor taxes are high, for instance, workers move inward along their labor supply curves and work fewer hours. This transmission channel for taxes reflects standard microeconomic reasoning whereby taxes operate through a substitution effect.

On the transfer side, rule-of-thumb consumers can generate an effect of taxes and transfer payments on real aggregate demand and on production, using some degree of old Keynesian logic. Mankiw (2000) and Galí, López-Salido, and Vallés (2007) obtain fiscal non-neutrality by assuming that a fraction of consumers consumes entirely from its disposable income, perhaps because they lack access to credit markets. An increase in transfers to households would result in an increase in consumption among these households, providing an additional channel through which fiscal stimulus may have real effects. Crowding out becomes less of an issue in this type of model than in models with homogeneous consumers, although Cogan, Cwik, Taylor, and Wieland (2010) caution that the results from New Keynesian models with this mechanism tend to look more like the results from RBC models than from old Keynesian models. This transmission channel reflects reasoning centered around market incompleteness or non-optimizing behavior.

4.2 Understanding optimal fiscal policy

Based on the types of transmission mechanisms outlined in the previous section, there is an extensive literature on optimal fiscal policy to mirror the literature on optimal monetary policy. Bohn (1992) demonstrates that an optimizing fiscal authority would adjust both real purchases and distortionary taxes in response to shocks. Chari, Christiano, and Kehoe (1994) and Benigno and Woodford (2006) derive an optimal fiscal policy path through a linear-quadratic approach in an RBC framework. They find that optimal labor taxes should fluctuate relatively little, since the distortions from labor taxes are large and convex. Siu

(2004) and Schmitt-Grohé and Uribe (2005) compute a Ramsey optimal fiscal and monetary policy path for a New Keynesian model, and they arrive at similar conclusions.⁴ Arseneau and Chugh (2008) caution that this set of results is not necessarily robust to different specifications of the labor market and of the wage bargaining process.

4.3 Understanding the stabilizing effects of anticyclical fiscal policy

Andersen (2005) presents a review of the early literature on the automatic stabilization effects of different fiscal rules. As with the optimal policy literature, studies have tended to focus on one fiscal instrument at a time. With respect to tax policy, Jones (2002) shows that procyclical movements in tax rates may have exerted an important stabilizing effect in postwar U.S. data, based on simulations conducted using an RBC model. Moldovan (2010) finds that procyclical tax rates can stabilize output but not increase welfare in an RBC model with monopolistic competition. This stabilization result appears because a larger tax wedge during good times can help to undo the effects of the original shock. However, the welfare properties of standard RBC models are such that deviations in allocations from the equilibrium allocation are necessarily welfare-reducing. While standard RBC models point toward a clear channel through which anticyclical movements in tax rates may stabilize output, they lack a clear motive for output stabilization in the first place. Muscatelli, Tirelli, and Trecroci (2004a, 2004b) find ambiguous effects of automatic stabilizers in a New Keynesian economy which features a motive for output stabilization. As with the RBC literature, Muscatelli et al. find that procyclical tax rates tend to exert a stabilizing role in their economy as well, particularly in the presence of rule-of-thumb consumers.

With respect to real government purchases, the literature has pointed toward a stabilizing effect in the case that these government purchases vary countercyclically. In most DSGE models, an increase in government purchases during bad times puts downward pressure on private consumption, shifting labor supply outward and increasing output. Andersen and Holden (2002), Andersen and Spange (2006), Andrés and Doménech (2006), Ratto Roeger, and in 't Veld (2006), Kirsanova, Satchi, Vines, and Wren-Lewis (2007), Colciago, Ropele,

⁴Results from studies using simple rules have tended to come up with similar results. See Aurelio (2005), Kirsanova, Satchi, Vines, and Wren-Lewis (2007), Schmitt-Grohé and Uribe (2007) for an analysis of simple fiscal policy rules. See Beetsma and Jensen (2005), Chadha and Nolan (2007), Adam and Billi (2008), Gali and Monacelli (2008), Ferrero (2009), Mankiw and Weinzierl (2011), and Bi and Kumhof (2011) for an analysis of fiscal-monetary interactions using optimal simple rules.

Muscatelli, and Tirelli (2008), and Kumhof and Laxton (2009) all find that countercyclical government spending based on this mechanism may stabilize total output. However, the stabilization of output through government purchases may destabilize private consumption through crowding out and hence reduce welfare. This should be the case unless the share of rule-of-thumb consumers is particularly high, or else some other mechanism such as nonseparable preferences helps to sufficiently mitigate crowding out.

More recently, the literature has begun to analyze the effects of countercyclical transfer payments. Kumhof and Laxton (2010) and Bi and Kumhof (2011) specify a fiscal rule where fiscal surpluses respond to the contemporaneous tax gap and to the public debt, in a model driven by technology shocks. This fiscal rule deviates from usual modeling of fiscal policy rules in that there are time t fiscal variables on the left-hand and right-hand sides of the rule. Bi and Kumhof find a large gain in welfare from an optimal simple rule which allows for transfers (or tax cuts) targeted to liquidity-constrained consumers to respond aggressively to the tax revenue gap. Motta and Tirelli (2012) find similar results. McKay and Reis (2013) find that institutional features of the U.S. transfer system, particularly unemployment insurance and safety-net programs, in the presence of rule-of-thumb consumers, may result in a certain degree of automatic stabilization. Since the empirical evidence points toward the importance of countercyclical transfer payments, more work in this direction may help to reconcile the theoretical and empirical literature in this area. One particular issue to take into account would be the way in which unemployment is modeled. Since countercyclical unemployment insurance payments can result in an elevated "outside option" during periods of labor market slack, countercyclical unemployment insurance payments may have two opposing effects. One effect would come through an increase in the outside option which would destabilize the economy, while an opposing effect comes through an increase in the incomes of credit-constrained consumers which would stabilize the economy. The simulations of McKay and Reis (2013) suggest that, for the United States, the latter effect wins out.

4.4 Understanding fiscal multipliers and systematic fiscal policy

The literature on fiscal multipliers in the presence of systematic fiscal policy has focused on the role of anticipated fiscal reversals in determining the effects of discretionary fiscal policy. Leeper, Plante, and Traum (2010) include a multi-instrument fiscal rule in a simple estimated DSGE model. Their model features a role for real government purchases and for distortionary taxes but not transfer payments. They find that the manner in which the

public debt is stabilized may play an important role in determining the size and time path of fiscal multipliers, with a tradeoff between the short-run and long-run effects of consolidation. Leeper, Walker, and Yang (2010), Uhlig (2010), Drautzburg and Uhlig (2011), and Coenen, Erceg, et al. (2012) also emphasize these short-run / long-run tradeoffs. Corsetti, Meier, and Müller (2012) include in their model a simple fiscal rule where the government adjusts purchases in response to debt levels. They find further evidence that systematic fiscal policy can affect the fiscal multiplier—in particular, that an aggressive response of government spending to the public debt can increase the government spending multiplier in the short run. Their findings sit somewhat in conflict with those of Leeper, Plante, and Traum (2010), which suggests that the choice of modeling assumptions may potentially play an important role in determining the multiplier effects of fiscal shocks under fiscal rules.

4.5 Understanding the stabilizing effects of government size

The theoretical literature on government size tends to line up well with the empirical literature. Galí (1994) shows that the RBC model produces mixed results when attempting to match the empirical relationship between government size and macroeconomic stability. On one hand, government purchases tend not to vary with the business cycle, and hence a larger government should stabilize total output (but not necessarily private consumption). On the other hand, a high tax rate should tend to destabilize the business cycle, which is not in line with the data. To reconcile this fact with theory, Andrés, Doménech, and Fatás (2008) include Keynesian rule-of-thumb consumers into an RBC model. Since consumers now consume partly out of current income, and current income is smoothed out through acyclical government purchases, private consumption is also smoothed out. Altogether, rule-of-thumb consumers help to bring the relatively small theoretical literature on government size into line with the empirical literature.

5 Informing the policy debate

Following the European debt crisis, an applied policy literature on systematic fiscal policy has begun to develop. Some of these results echo results from the theoretical literature. With respect to output stabilization following the Great Recession, Coenen, Straub, and Trabandt (2012) estimate the fiscal shocks to hit the Euro Area from 1985 onward, using

an extensive multi-instrument fiscal feedback rule. They find that discretionary anticyclical fiscal measures (particularly an increase in transfer payments) may have provided a fair amount of stimulus during 2009. With respect to consolidation, Coenen, Mohr, and Straub (2008) point out a tradeoff between the short-run and long-run effects of consolidation, in line with some of the literature on fiscal multipliers. Studies on different consolidation scenarios include those of Papageorgiu (2012) for Greece, Stähler and Thomas (2012) for Spain, and Cogan, Taylor, Wieland, and Wolters (2013) for the United States. All of these studies argue that cuts should come to public consumption and not to public investment.

Other work has gone into evaluating the issues surrounding the implementation and likely effects of proposed fiscal rules. Wyplosz (2005, 2013) discusses the institutional issues inherent in implementing fiscal rules, while Marattin and Marzo (2008) analyze the effects of the Stability and Growth Pact and other rules on macroeconomic outcomes. The recent Fiscal Compact proposes a binding short-run debt-GDP target for the Eurozone, whereby member states reduce their debt ratios by 1/20 of the excess debt ratio over 60% per year. Barnes, Davidsson, and Rawdanowicz (2012) point out that such a rule, combined with preexisting rules such as the Excessive Deficit Procedure, would require a rapid degree of consolidation in the short run and a very low debt ratio in the long run. To mitigate the pain that this would cause, Snower, Burmeister, and Seidel (2011) propose an alternative fiscal rule for the Euro Area countries which would allow for slower consolidation in the presence of strong anticyclical policy. In the German context, Truger and Will (2013) criticize Germany's debt brake as excessively procyclical, while Mayer and Stähler (2009) point out that a debt brake promotes less procyclicality in fiscal policy than a stricter balanced budget rule. Altogether, the policy literature has addressed issues regarding consolidation and fiscal rules using tools gained from the theoretical literature in particular. More work remains to be done to integrate the policy literature with the empirical literature.

6 Summary and conclusions

The main findings from the literature on systematic fiscal policy could be distilled down to the following main points:

1. In most industrialized countries, including the United States, procyclical tax revenues (but not tax rates) and countercyclical transfer payments comprise the main share of anticyclical policy. Meanwhile, government purchases are acyclical.

2. In most industrialized countries, adjustments to taxes and possibly purchases, in that order, but not transfer payments, account for most fiscal consolidation in response to the public debt.
3. A large government size and particularly a large welfare state appear to be associated with less output volatility in the cross section.
4. Most of the theoretical literature on systematic anticyclical fiscal policy, meanwhile, has focused so far on procyclical tax rates and countercyclical government purchases, while recent work has begun to look more at transfer payments. More work remains to be done in order to better link this strand of the literature with the empirical literature, and this work must take the structure of labor markets into account.
5. Systematic fiscal policy has important implications for the size and the time path of fiscal multipliers because of anticipation effects.
6. A rapidly-growing policy literature has begun to apply the insights found in the theoretical literature, in particular, toward the issues of consolidation and fiscal rules. As with the theoretical literature, the policy literature can benefit from a stronger link with the empirical literature.

In general, the literature on systematic fiscal policy has had several successes and faces several challenges. Empirical work has made some progress in characterizing the basic time-series behavior of fiscal aggregates and in understanding the relationship between fiscal policy and macroeconomic stability. Meanwhile, the theoretical literature has begun to focus less on purchases and taxes and more on transfer payments. Meanwhile, the insights from the theoretical literature in particular have begun to provide guidance toward researchers, particularly in Europe, who seek to understand the effects of different possible fiscal policy regimes. Altogether, the path forward seems to involve putting more quantitative structure onto future theoretical and policy-related work, to the extent that certain major patterns seem to hold in the data.

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