Testing for contemporary fiscal policy discretion with real time data

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Abstract:
We propose a method for indentifying discretionary fiscal policy with real time data. The starting point is the observation that automatic stabilizers should depend on true GDP, while discretionary fiscal policy depends on the information that policy makers have in real time. We approximate the information set of policy makers with GDP data released in real time. True GDP is approximated using the last GDP release. Accordingly, we can compute a real time measurement error. Discretionary fiscal policy can be expected to react to this measurement error, whereas automatic fiscal policy will not. We apply this identification approach in order to test the central identifying assumption of Blanchard and Perotti's (2002) seminal structural VAR. According to this assumption, fiscal policy makers do not react to GDP evolutions contemporaneously in a discretionary fashion. We find that government expenditure is adjusted upward if GDP in real time is lower than true GDP. This suggests that fiscal policy makers can use short-term funds to buy goods and services in response to GDP updates. Our results therefore call the identifying assumption of Blanchard and Perotti's (2002) SVAR into question.

Keywords: discretionary fiscal policy, real-time data, government spending, structural vector autoregression
JEL-Classification: E62, H30.

Non-technical summary

How does fiscal policy respond to economic developments? While the working of automatic fiscal policy as a reaction to the state of the economy is well established, discretionary fiscal policy is usually treated as a residual variable that we know relatively little about. This contrasts with statements from politicians, who aim to actively use fiscal policy to steer the macroeconomy and to address unfavorable macroeconomic evolutions. In this paper, we propose a method for identifying discretionary fiscal policy *reactions* to the macroeconomy. We apply this idea in order to test for contemporary fiscal policy discretion.

The basic idea behind our identification method relies on the fact that policy makers should react to the state of the economy as observed in real time. In contrast, automatic fiscal policy should react to the true state of the economy, as it is connected to unemployment, income developments and profits of corporate and non-corporate enterprises via legislation. Measurement errors in the calculation of GDP figures should be irrelevant for automatic fiscal policy, while for policy makers, the release of new GDP figures constitutes an important source of information in their decision making. We argue that the true state of the economy can be approximated using the final GDP release, while the state of fiscal policy makers' macroeconomic knowledge can be approximated using the published real time GDP data. The difference between final GDP and real time GDP identifies discretionary fiscal policy reactions.

Identification of systematic discretionary fiscal reactions is crucial when assessing the effects of fiscal policy on the macroeconomy. They have to be identified in order to separate them from purely exogenous shocks. The seminal paper in the structural VAR literature by Blanchard and Perotti (2002) treats discretionary fiscal policy as a residual, arguing that the part of the shock that cannot be explained by automatic fiscal policy reactions is discretionary. The central assumption needed to identify their SVAR is that fiscal policy makers cannot react in a discretionary fashion to the state of the economy within the same quarter.

We propose testing the assumed absence of contemporary discretionary fiscal policy. Our test is based on the fact that only discretionary fiscal policy should react to GDP measurement errors. Accordingly, we estimate a reduced form VAR as in the first step of Blanchard and Perotti's (2002) estimation procedure but include the revision error as an exogenous explanatory variable in the expenditure equation. If expenditure reacts within the same quarter to the GDP revision error, policy makers are apparently able to discretionarily change spending without long decision lags. Following Blanchard and Perotti, our estimations are based on US data.

Our main finding is that government expenditure reacts significantly to the revision error. Government expenditure is increased contemporaneously if GDP published figures are lower than the true ex-post figures. This suggests that fiscal policy makers do indeed look at published GDP figures and are able to react contemporaneously. We thus provide evidence of contemporaneous discretionary fiscal policy reactions.

Nicht-technische Zusammenfassung

Wie reagiert die Finanzpolitik auf wirtschaftliche Entwicklungen? Während es gut gesicherte Erkenntnisse über die Wirkungsweise der automatischen Stabilisatoren als Reaktion auf die konjunkturelle Lage gibt, wird die diskretionäre Finanzpolitik in der Regel als eine Restvariable behandelt, über die wir relativ wenig wissen. Dies widerspricht den Aussagen von Politikern, die die Finanzpolitik aktiv nutzen wollen, um die Gesamtwirtschaft zu steuern und gegen makroökonomische Fehlentwicklungen vorzugehen. In diesem Papier schlagen wir eine Methode vor, mit der sich "diskretionäre" fiskalpolitische *Reaktionen* auf die Gesamtwirtschaft identifizieren lassen. Wir verwenden dieses Konzept, um zu testen, ob zeitnahe diskretionäre Fiskalpolitik existiert.

Grundlegende Idee unserer Identifizierungsmethode ist die Tatsache, dass die politischen Entscheidungsträger auf die in Echtzeit beobachtete Wirtschaftslage reagieren sollten. Dagegen sollte sich die Reaktion der automatischen Finanzpolitik nach der wahren Wirtschaftslage richten, da diese via Gesetzgebung im Zusammenhang mit Arbeitslosigkeit, Einkommensentwicklung und Ertragslage von Kapital- und Personengesellschaften etc. steht. Messfehler in der Berechnung von BIP-Zahlen sollten für die automatische Finanzpolitik irrelevant sein, für die politischen Entscheidungsträger hingegen bildet die Veröffentlichung aktueller BIP-Daten eine wichtige Informationsquelle bei ihrer Entscheidungsfindung. Die wahre Wirtschaftslage dürfte sich näherungsweise an den endgültigen Ergebnissen zum Bruttoinlandsprodukt ablesen lassen, während das makroökonomische Wissen der finanzpolitischen Entscheidungsträger sich durch die veröffentlichten BIP-Echtzeitdaten näherungsweise erfassen lässt. Die Differenz zwischen endgültigem BIP und Echtzeit-BIP identifiziert diskretionäre fiskalpolitische Reaktionen.

Die Identifizierung systematischer "diskretionärer" fiskalpolitischer Reaktionen ist bei der Beurteilung der Effekte der Finanzpolitik auf die Gesamtwirtschaft von entscheidender Bedeutung. Sie müssen identifiziert werden, um "reine", d.h. exogene Schocks davon unterscheiden zu können. Die in der strukturellen VAR-Literatur wegweisende Studie von Blanchard und Perotti (2002) behandelt die diskretionäre Finanzpolitik als eine Restgröße und argumentiert, dass der Teil eines Schocks diskretionär ist, welcher sich nicht durch automatische fiskalpolitische Reaktionen erklären lässt. Die zur

Identifizierung ihres SVAR benötigte zentrale Annahme ist, dass finanzpolitische Entscheidungsträger nicht innerhalb desselben Quartals mit diskretionären Manahmen auf die konjunkturelle Lage reagieren können.

Wir schlagen vor, die Annahme einer *fehlenden* zeitnahen diskretionären fiskalpolitischen Reaktion auf den Prüfstand zu stellen. Unser Test basiert auf der Tatsache, dass nur eine diskretionäre Finanzpolitik auf BIP-Messfehler reagieren sollte. So nehmen wir – wie im ersten Schritt des Schätzverfahrens von Blanchard und Perotti (2002) – eine Schätzung der reduzierten Form des VAR vor, schließen jedoch den Revisionsfehler als eine exogene Erklärungsvariable in die Ausgabengleichung ein. Falls die Ausgaben innerhalb desselben Quartals auf den BIP-Revisionsfehler reagieren, sind die Entscheidungsträger offensichtlich in der Lage, die Ausgaben ohne lange Entscheidungsverzögerungen nach ihrem Ermessen zu verändern. Die Schätzungen basieren entsprechend Blanchard und Perotti auf US Daten.

Unsere wichtigste Erkenntnis ist, dass die Staatsausgaben signifikant auf den Revisionsfehler reagieren. Die Staatsausgaben werden zeitgleich erhöht, wenn die veröffentlichten BIP-Zahlen niedriger sind als die wahren Ex-post-Zahlen. Dies deutet darauf hin, dass die finanzpolitischen Entscheidungsträger durchaus auf die veröffentlichten BIP-Zahlen schauen und zu einer zeitnahen Reaktion fähig sind. Damit zeigen wir, dass zeitnahe diskretionäre fiskalpolitische Reaktionen vorliegen.

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1 Introduction

How does fiscal policy respond to economic developments? While the working of automatic fiscal policy as a reaction to the state of the economy is well established, discretionary fiscal policy is usually treated as a residual variable that we know relatively little about. For example, Taylor (2000) specifies a fiscal policy rule in which the actual budget surplus is a function of the output gap. Taylor calls the part of the balance that is explained by the output gap "automatic stabilizers". The residual of this regression is the structural part, which reflects, among other things, fiscal policy discretion. This distinction contrasts with statements from politicians, who aim to actively use fiscal policy to steer the macroeconomy and to address unfavorable macroeconomic evolutions. If the perception of politicians that they respond with discretionary measures to the output gap is right, then the estimates above would reflect not only automatic but also systematic discretionary fiscal policy.[2] In this paper, we propose a method for identifying discretionary fiscal policy *reactions* to the macroeconomy. We apply this idea in order to test for contemporary fiscal policy discretion.[3]

The basic idea behind our identification method relies on the fact that policy makers should react to the state of the economy as observed in real time. Discretionary fiscal policy is the result of conscious decisions based on the available information. In contrast, automatic fiscal policy reacts to the true state of the economy as it is connected to unemployment, income developments and profits of corporate and non-corporate enterprises via legislation. Measurement errors in the calculation of GDP figures should be irrelevant for

[1]Authors: Ulf von Kalckreuth, Deutsche Bundesbank, and Guntram B. Wolff, corresponding author, Deutsche Bundesbank, University of Pittsburgh and ZEI; email: guntram.wolff@bundesbank.de. The opinions expressed in this paper do not necessarily represent the views of the Deutsche Bundesbank or its staff. We thank Joerg Breitung, Carsten Burhop, Joern Tenhofen and participants of the Bundesbank research seminar for many helpful comments. The usual disclaimer applies.

[2]Blinder (2004) provides a historical overview of the change in public attitudes towards discretionary fiscal stabilization policy. Auerbach (2002) estimates whether the full employment surplus, which is calculated as residual, reacts to the state of the macroeconomy.

[3]We thereby distinguish systematic discretionary from systematic automatic fiscal policy reactions to the macroeconomy.

automatic fiscal policy, while for policy makers, the release of new GDP figures constitutes an important source of information in their decision making. We argue that the true state of the economy can be approximated using the final GDP release, while the state of fiscal policy makers' macroeconomic knowledge can be approximated using the published real time GDP data. The difference between final GDP and real time GDP is a variable that allows us to identify discretionary fiscal policy reactions.

Identification of systematic discretionary fiscal reactions is crucial when assessing the effects of fiscal policy on the macroeconomy. The seminal paper in the structural VAR literature by Blanchard and Perotti (2002) treats discretionary fiscal policy as a residual, arguing that the part of the shock that cannot be explained by automatic fiscal policy reactions is discretionary.[4] To identify their SVAR they make a crucial assumption: fiscal policy makers cannot *react* in a discretionary fashion to the state of the economy within the same quarter.[5] Consequently, reactions of fiscal policy to current developments only result from automatic responses, which are defined by existing laws and regulations. All fiscal policy developments in a given time period which do not reflect automatic responses are considered to be structural fiscal policy shocks exogenous to the macroeconomy. Accordingly, structural, i.e. exogenous, fiscal policy shocks can be identified using elasticities computed on the basis of existing legislation, capturing the working of the automatic stabilizers.[6]

We propose a test of the assumption of no contemporaneous fiscal policy discretion. Our test is based on the fact that only discretionary fiscal policy should react to GDP measurement errors. Accordingly, we estimate a reduced form VAR as in the first step of Blanchard and Perotti's (2002) estimation procedure but include the revision error as an exogenous explanatory variable in the expenditure equation. If expenditure reacts within the same quarter to the GDP revision error, policy makers are apparently able to discretionarily

[4]A different literature uses large exogenous events such as wars to identify significant changes of fiscal policy stances (Ramey and Shapiro (1998), Edelberg, Eichenbaum, and Fisher (1999) and Burnside, Eichenbaum, and Fisher (2004)). Here, fiscal policy discretion (going to war) is explicitly identified by news reports.

[5]This is justified by the statement that fiscal policy decision-making is a slow process, involving many agents in parliament, government, and civil society.

[6]This identification method has subsequently been employed in a great number of papers, e.g. Perotti (2005) for OECD countries, de Castro Fernández and de Cos (2006) for Spain, Biau and Girard (2005) for France, Giordano, Momigliano, Neri, and Perotti (2007) for Italy, and Heppke-Falk, Tenhofen, and Wolff (2006) for Germany.

change spending without long decision lags.

Our main finding is that government expenditure reacts significantly to the revision error. Government expenditure is increased contemporaneously if GDP published figures are lower than the true ex-post figures. This suggests that fiscal policy makers do indeed look at published GDP figures and are able to react contemporaneously. We thus provide evidence of contemporaneous discretionary fiscal policy reactions.

The remainder of the paper is organized as follows. The following section outlines the way we test for contemporaneous fiscal policy discretion in the fiscal VAR context. Section 3 describes the data and the revision process. Section 4 presents the estimation results and the final section concludes.

2 A test of discretionary fiscal policy reactions using real time data

In their benchmark specification, Blanchard and Perotti (2002) estimate a three variable SVAR for US data. In a first step, a reduced form VAR is estimated,

$$Y_t = C(L)Y_{t-1} + U_t, \qquad t = 1, \ldots, T, \tag{1}$$

where Y_t is a vector of endogenous variables (net revenue, government expenditure and GDP) (r, e, y), $C(L)$ is a 3×3 matrix lag polynomial, and U_t is a 3×1 vector of reduced-form innovations, which are independent and identically distributed with variance-covariance matrix $\Sigma_U = E(U_t U_t')$. The reduced-form innovations U_t and the objects of ultimate interest, the structural shocks V_t, are connected by $AU_t = V_t$, where the matrix A describe the instantaneous relationship between the variables.

The central identifying assumption needed to retrieve structural shocks in Blanchard and Perotti (2002) is that there are no "discretionary adjustments made to fiscal policy in response to unexpected events within the quarter" (p.1333). Therefore, as a second step, the structural shocks to revenue v_t^r and to expenditure v_t^e can be retrieved by using exogenous elasticities of the automatic response of fiscal policy to the state of the economy $(c_0^{A,r}, c_0^{A,e})$.

In a third step, the structural shocks are used as instruments in an IV regression to compute the contemporaneous effects of net revenue and direct government expenditure on output. Once these values are computed, we have all necessary parameters to compute the impulse response functions.

With real time data, we are able to directly test Blanchard and Perotti's (2002) identifying assumption. We start from the observation that "automatic" fiscal policy reacts to the true state of the economy and not to the observed state of the economy. The simple reason for this assumption is that, by definition, automatic fiscal policy is linked to expenditure and revenue laws. These laws state very specific links on a microeconomic basis; for example, spending on unemployment is a function of the number of unemployed applying for it. For these law-based microeconomic relationships, measurement errors in aggregate GDP should be irrelevant.

Politicians, in principle, react with fiscal policy actions to the observed state of the economy in real time. Thus, discretionary fiscal policy is a function of GDP in real time, while automatic fiscal policy is a function of the true state of the economy. Accordingly, we split direct government expenditure at time t into an automatically determined part (A) and a discretionary part (D). We can specify the following two equations for government expenditure:

$$e_t^A = a_1^A(L)e_{t-1} + b_0^A r_t + b_1^A(L)r_{t-1} + c_0^A y_t^* + c_1^A(L)y_{t-1}^* + v_t^A \quad (2)$$

$$e_t^D = a_1^D(L)e_{t-1} + b_0^D r_t + b_1^D(L)r_{t-1} + c_0^D y_t^t + c_1^D(L)y_{t-1}^t + v_t^D \quad (3)$$

where y^* is the true GDP of the economy, while y_t^t is GDP at time t as observed, or conjectured, at time t.[7]

Like Croushore and Evans (2006), we use the identity that real time GDP data reflect the true state of the economy plus a measurement error:

$$y_t^t = y_t^* + \eta_t \quad (4)$$

Collecting terms, the structural equation for total government expenditure is then:

$$\begin{aligned} e_t &= e_t^A + e_t^D \\ &= \left(a_1^A(L) + a_1^D(L)\right) e_{t-1} + \left(b_0^A + b_0^D\right) r_t + \left(b_1^A(L) + b_1^D(L)\right) r_{t-1} \quad (5) \\ &+ \left(c_0^A + c_0^D\right) y_t^* + \left(c_1^A(L) + c_1^D(L)\right) y_{t-1}^* + c_0^D \eta_t^t + c_1^D(L)\eta_{t-1}^t + v_t^A + v_t^D \end{aligned}$$

Writing the structural equation in this way shows that discretionary policy is identified by the effect of the GDP measurement error on government behavior.

[7] In the lag polynomial $c_1^D(L)y_{t-1}^t$, the time reference with respect to the information set stays constant. As a robustness check, we also let the information set vary. The results are presented in Table 1.

To test whether there is a systematic discretionary response of fiscal policy to contemporaneous output, i.e., $c_0^D \neq 0$, we estimate the following reduced form equation:

$$e_t = \alpha(L)e_{t-1} + \beta(L)r_{t-1} + \gamma(L)y^*_{t-1} + \delta_0\eta^t_t + \delta_1(L)\eta^t_{t-1} + u^e_t \qquad (6)$$

The reduced form residuals of the three variable VAR described above are, in principle, a linear combination of the three structural shocks to expenditure, revenue and output. Blanchard and Perotti (2002) use the value $c_0^A = 0$ as an exogenously determined elasticity for the automatic response of government direct expenditure to GDP. Moreover, they assume that $c_0^D = 0$. In addition, their ordering implies that government expenditure does not contemporaneously react to government revenue. Under these assumptions, the reduced form shock is equal to the structural shock, i.e. $u^e_t = v^e_t$.

We are able to include the GDP revision error η contemporaneously in the reduced form, as revisions are statistical measurement errors which are independent of government expenditure. Statistical offices observe cash figures of government spending contemporaneously and statisticians form rational expectations. The measurement error of GDP will then be uncorrelated with the structural shocks of the expenditure equation.

Given Blanchard and Perotti's values for the exogenous elasticity and the central identifying assumption, the coefficient of η^t_t should consistently be estimated as $\hat{\delta_0} = 0$. We test the null hypothesis $\delta_0 = c_0^D = 0$. If we are able to reject this hypothesis, Blanchard and Perotti's central identifying assumption of no contemporary discretionary response is violated.

To test whether anticipation of fiscal shocks matters, Blanchard and Perotti extend their assumptions on decision lags in Section 8 of their paper. To achieve identification of the system if fiscal shocks are anticipated one period ahead, they assume that there is "no discretionary response of fiscal policy to output shocks this quarter (the assumption we made until now) nor to output shocks last quarter (a stronger assumption than before)" (Blanchard and Perotti, 2002, p. 1352). We therefore also test whether $\delta_o + \delta_1(1) = 0$.

3 GDP revisions and data

We use the real time data set for the United States, which was compiled and described in detail by Croushore and Stark (2001, 2003). The data range from

1965:3 to 2005:3. Since we do not observe "true" GDP y^*, we can think of two alternatives to compute the revision error. First, we suppose that the final vintage T best reflects true GDP. Thus $y_t^T = y_t^*$. The measurement error can then be computed as $\eta_t^t = log(y_t^t/y_t^T)$. Figure 1 gives the log of the revision from first to last release.

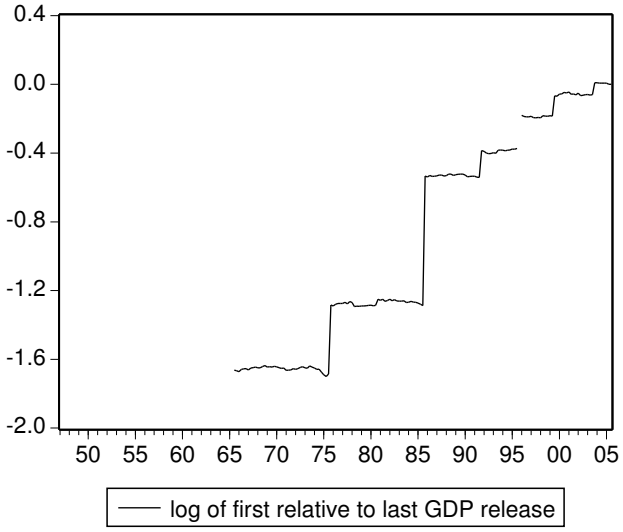

Figure 1: The log of the first relative to the last release of real GDP data.

Since η measured this way reflects many different data revisions, for example due to benchmark revisions or the introduction of chain weighting, it may not be the ideal measure for our analysis. Benchmark revisions do not constitute an improvement of the information set in the sense that anything new is learnt. We therefore clean this series for the large revisions, which can easily be detected as large shifts in the series. We do so by running a regression of η on a set of shift dummies, which capture the above jumps. The residuals of this regression provide the corrected series, which is depicted in Figure A-1.

Second, we approximate the measurement error with the first to the thirteenth vintage revision, i.e., $\gamma_t^t = log(y_t^t/y_t^{t+12})$. Again, the uncorrected series has some spikes due to benchmark revisions (Figure A-2), which we correct by performing a regression of γ on a constant, and dummies for 73q1-75q4, 78q1-80q4, 83q1-85q4, 89q1-91q4, 93q1-95q4, 96q4-99q3, 01q1-end. The residual from this series is our second cleaned revision process, which is used in the further analysis (Figure A-3).

The two measurement error series are depicted together in Figure 2. As can be seen, they have a relatively similar pattern, with two major differences.

In 1975, the first measure has a much stronger downward peak than the second one. In addition, in the early 1980s, the first measure is first smaller and then larger than the second measure. As a robustness check, we adjusted for these relatively large shifts by also including a dummy for this period when cleaning the data. Our results, presented below, remained unaltered.

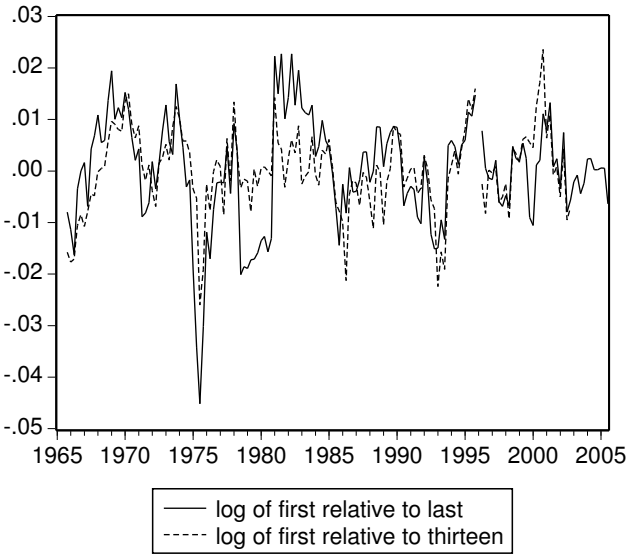

Figure 2: The two measures of the revision process.

We define government expenditure and net revenue exactly as Blanchard and Perotti (2002) have done. Figures A-4 and A-5 show the evolution of both as a percentage of GDP. Figure A-6 provides the three series as used in the estimation. Moreover, our reduced form equations include, like those of Blanchard and Perotti (2002), a trend, a quadratic trend, and a dummy for the third quarter of 1975. Excluding the trend, quadratic trend and/or the dummies does not change our results. The VAR includes 4 lags of each variable.

4 Empirical results

Table 1 gives our regression results on the response of fiscal policy variables to data revisions. For convenience, we do not report the regression coefficients on the other variables of the reduced form VAR. We report the results for the two different measures. The left side of the table shows these measures with the information set t fixed, whereas on the right side of the table the information set varies. If we use the first measure, η, which includes all revisions between

Table 1: Response of government expenditure to revisions

η_t^t	**-0.678****	g_t^t	**-0.166**	η_t^t	**-0.345****	g_t^t	**-0.151**
	0.00		0.50		0.01		0.38
η_{t-1}^t	**0.912****	g_{t-1}^t	**-0.272**	η_{t-1}^{t-1}	**0.535****	g_{t-1}^{t-1}	**-0.148**
	0.00		0.42		0.00		0.46
η_{t-2}^t	**-0.215**	g_{t-2}^t	**0.303**	η_{t-2}^{t-2}	**-0.066**	g_{t-2}^{t-2}	**0.120**
	0.41		0.39		0.71		0.53
η_{t-3}^t	**0.339**	g_{t-3}^t	**0.141**	η_{t-3}^{t-3}	**0.042**	g_{t-3}^{t-3}	**0.032**
	0.22		0.71		0.80		0.86
η_{t-4}^t	**-0.241**	g_{t-4}^t	**-0.186**	η_{t-4}^{t-4}	**-0.013**	g_{t-4}^{t-4}	**-0.159**
	0.27		0.57		0.92		0.35

Notes: p-values under coefficients. Dependent variable is the log of real per capita government consumption and investment (e). $^{**}(^{*})$ indicates significance on a 5 (10) percent level. We do not report the coefficient results on the lagged r, e, y^T, trend, and dummy variables.

the first and the last release, we find a strong reaction of government spending in real time. At time t, if the first release is smaller than the last release, policy makers will significantly increase government spending, suggesting an attempt to stabilize output. However, after one quarter, they significantly reduce government spending again. Apparently, governments can mobilize short term funding to buy goods and services, e.g. by accelerating authorized spending with presidential executive orders. Our results suggest that there is a significant one-off response to GDP evolutions in real time, which is non-permanent.

Regarding our second measure of the revision error, we find less strong effects. The reactions at t and t+1 go in the direction that we would expect. A joint significance test of the coefficients on $g_t + g_{t+1}$ allows a rejection of the null of no reaction at a 10 percent level. We therefore conclude that, with the second measure, we also find a significant response of expenditure to GDP as perceived in real time.

Overall, our findings suggest that fiscal policy makers react to GDP as measured in real time. This reaction is discretionary, as automatic fiscal policy should not react to measurement errors. The reaction is fast on the expenditure side, with a significant within-quarter reaction according to one measure of the error and a jointly significant reaction with the other measure after 1 quarter.

These results question the identifying assumption of Blanchard and Perotti (2002) that there is no fiscal policy discretion within the quarter or within

this and last quarter. Quantitatively, our results suggest that the values for the automatic stabilizers in Blanchard and Perotti's paper could be adjusted upward. This would reflect the average systematic fiscal policy discretion. But even if the elasticity is adjusted, we still face the problem that this only corrects for average discretion. The fact that it is discretion means that in some periods the response is larger than in others, which would affect the shocks series.

5 Conclusions

We have proposed a method for identifying discretionary fiscal policy reactions using real time data. We started from the observation that automatic stabilizers react to true GDP, while fiscal policy makers react to GDP as observed in real time. We approximate the difference between true and real time GDP according to the difference between last and first release of GDP figures. As a second approximation of the measurement error, we use the difference between vintage 1 and 13. These measurement errors are exogenous to fiscal expenditure actions and can therefore be used to test for contemporaneous discretionary fiscal policy actions. We applied this method in order to test the identifying assumptions in Blanchard and Perotti's (2002) seminal paper that there is no contemporaneous discretionary response of fiscal policy.

Our main finding is that government expenditure reacts significantly to the measurement error. Our results therefore cast doubt on the identifying assumption in Blanchard and Perotti's (2002) seminal paper. Expenditure is increased if GDP is perceived to be lower than it is in the last release. Overall, our results indicate that fiscal policy makers do have short term discretion and use this discretion to try to address seemingly unfavorable macroeconomic developments. They do so in response to GDP evolutions in real time.

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A Appendix

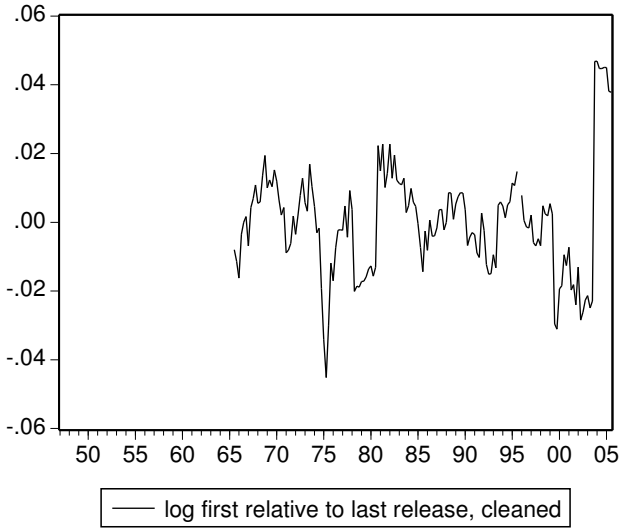

Figure A-1: The log of the first relative to the last release of real GDP data, corrected for benchmark revisions (η_t).

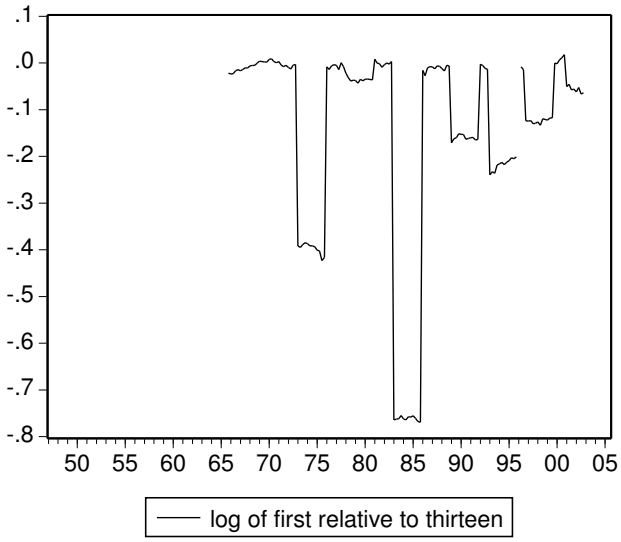

Figure A-2: The log of the first relative to the thirteenth release of real GDP data.

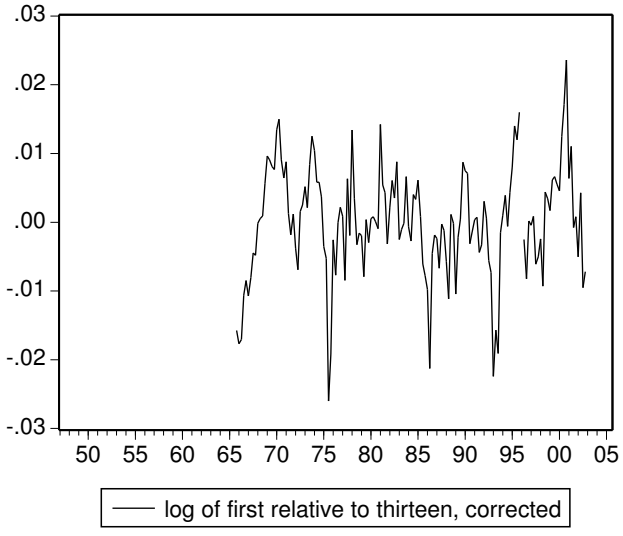

Figure A-3: The log of the first relative to the thirteenth release of real GDP data, adjusted for large benchmark revisions.

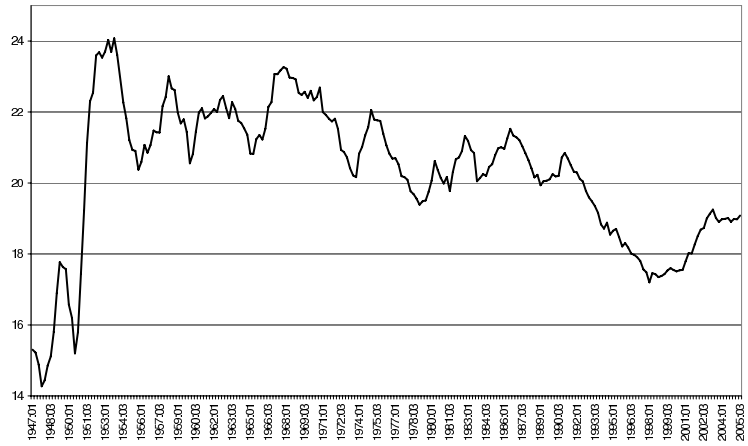

Figure A-4: Ratio of government spending to GDP.

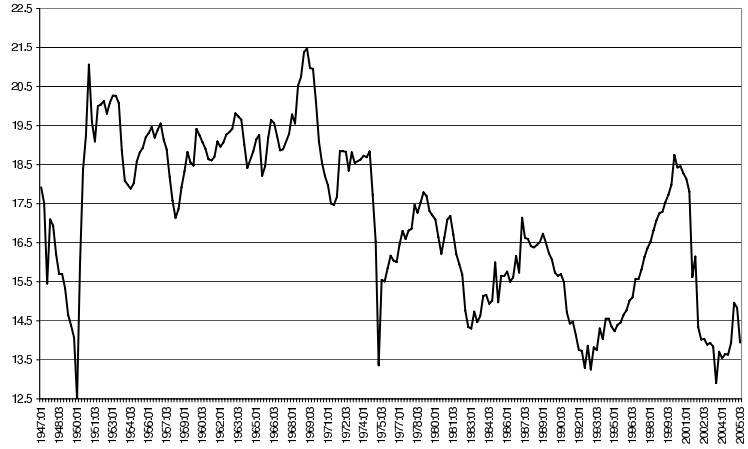

Figure A-5: Ratio of net revenue to GDP.

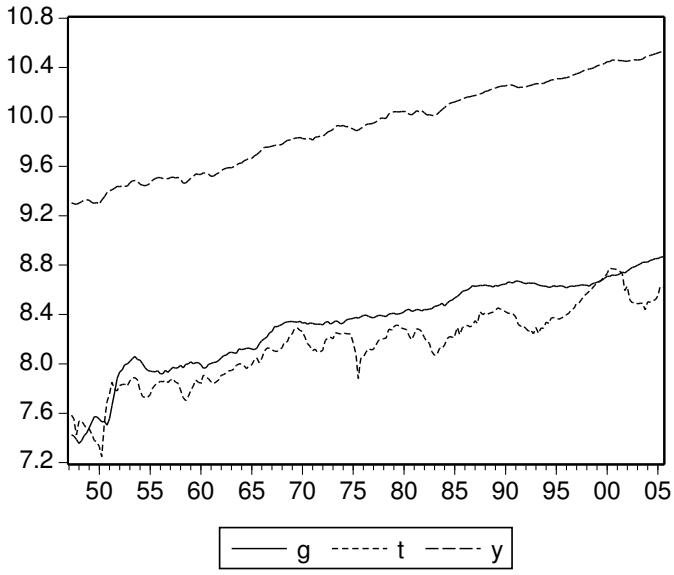

Figure A-6: Log of real government spending (g), net revenue (t) and GDP (y) per capita.

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