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Fiscal Transparency and Fiscal Policy Outcomes in OECD Countries

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FISCAL TRANSPARENCY AND FISCAL POLICY OUTCOMES IN OECD COUNTRIES*

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Abstract

It is widely believed and often argued that fiscal, or budgetary, transparency has large, positive effects on fiscal performance. However, the evidence linking transparency and fiscal policy outcomes is far from compelling. We present a career-concerns model with political parties to analyze the effects of fiscal transparency on public debt accumulation. To test the predictions of the model, we construct a replicable index of fiscal transparency. Simultaneous estimates of debt and transparency on 19-country OECD data strongly confirm that a higher degree of fiscal transparency is associated with lower public debt and deficits.

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I. Introduction

It is widely believed that fiscal transparency has large and positive effects on fiscal performance. Indeed, both the IMF and the OECD have recently developed Codes of Best Practice for Fiscal Transparency. According to the IMF, “transparency in government operations is widely regarded as an important precondition for macroeconomic fiscal sustainability, good governance, and overall fiscal rectitude” (Kopits and Craig (1998, p. 1)). Academics concur that more transparency leads to lower budget deficits and makes fiscal discipline and control of spending easier to achieve (Alesina and Perotti 1996; Poterba and von Hagen 1999). However, the effects are often asserted rather than explained and the evidence linking institutional transparency and fiscal policy outcomes is far from compelling. Links appear between some measures of fiscal transparency and fiscal performance in European countries, and between indirect measures of transparency and fiscal performance in Latin American countries. Many remain convinced of the importance of fiscal transparency, and attribute these weak results to measurement problems.¹

A key concern of this paper is to investigate whether a higher degree of fiscal transparency lowers public debt and deficits. To do so, we first develop a career-concerns model with political parties. The model builds on the career-concerns models of Persson and Tabellini (2000) and, in particular, Shi and Svensson (2001), but is extended to include political parties with preferences over public spending. This allows us to integrate into one model a number of results in the literature on political sources of debt accumulation. Second, we present a direct, replicable index variable measuring the transparency of budget processes of OECD countries, containing variables comparable though not identical to ones collected and analyzed in the American states (Alt, Lassen, and Skilling 2002). Third, we use this index to investigate conjectures from the model empirically. We find that fiscal transparency is indeed robustly associated with lower public debt and deficits. However, we also recognize that fiscal institutions are subject to change, and investigate reasons why governments change fiscal transparency. This allows us to correct transparency for possible endogeneity in the empirical analysis. We show that the empirical results are unchanged when estimating the empirical model simultaneously.

The theoretical literature on the causes and consequences of fiscal, or budgetary, transparency is small.² In an agency model, Shi and Svensson look at how fiscal transparency, interpreted as a share of informed voters, affects politicians’ incentives for creating political business cycles, and they show empirically that this modelling approach helps explain

differences in the magnitudes of political business cycles between developed and developing countries.³ Our model is also one of agency, but differs in that we include political parties, which allows us to investigate the effects of political polarization and partisan incumbency, alongside that of fiscal transparency, on debt accumulation.

Milesi-Ferretti (2000), in an interesting study, examines the effects of fiscal rules on fiscal outcomes when allowing for creative accounting. Fiscal adjustment programs, including some of those with the aim of satisfying Maastricht Treaty criteria, often employ creative accounting practices (Easterly 1999), and Milesi-Ferretti is the first to consider in a formal model the effect of transparency on government debt and deficits in a regime characterized by fiscal rules. Transparency, according to Milesi-Ferretti, affects the probability that budgetary tricks are revealed, resulting in a penalty for not meeting the formal budget rule requirement. Thus, in his model, transparency determines the scope for creative accounting vs. “true” fiscal adjustment and matters only because of the existence of fiscal rules. Finally, Ferejohn (1999) examines an agency model in which fiscal transparency affects voter trust in government and the size of government.

Theoretically, our analysis focuses on a different set of issues than that of Milesi-Ferretti, who considers fiscal adjustment in a regime characterized by fiscal rules. Our modelling environment differs from that of Shi and Svensson, and in contrast to Ferejohn we investigate the empirical implications of transparency for debt accumulation. The paper proceeds as follows. Section II defines fiscal transparency. Section III develops a model of how fiscal transparency affects debt accumulation in a career-concerns model of competing political parties. Section IV describes the construction of the transparency index, as well as other data, that will be used to test the hypotheses of the model set up in section III. Section V investigates the effects of fiscal transparency on fiscal performance. Section VI examines the causes of variation in fiscal transparency across the OECD, and the possible endogeneity of transparent institutions with respect to debt. Section VII concludes.

II. Defining Fiscal Transparency

Greater transparency eases the task of attributing outcomes to the acts of particular politicians. This helps voters distinguish effort from opportunistic behavior or stochastic factors “primarily by providing actors with greater or lesser degrees of certainty about the present and

future behavior of other actors” (Hall and Taylor 1996, p. 939).⁴ With respect to the budgetary process, the most comprehensive definition of fiscal transparency we have seen is the following:

“Fiscal transparency is defined ... as openness toward the public at large about government structure and functions, fiscal policy intentions, public sector accounts, and projections. It involves ready access to reliable, comprehensive, timely, understandable, and internationally comparable information on government activities ... so that the electorate and financial markets can accurately assess the government’s financial position and the true costs and benefits of government activities, including their present and future economic and social implications” (Kopits and Craig (1998, p. 1).⁵

The literature also provides specific examples of transparent budget reporting procedures:

“A transparent budget process is one that provides clear information on all aspects of government fiscal policy. Budgets that include numerous special accounts and that fail to consolidate all fiscal activity into a single ‘bottom line’ measure are not transparent. Budgets that are easily available to the public and to participants in the policymaking process, and that do present consolidated information, are transparent” (Poterba and von Hagen 1999: 3-4).

As features of non-transparent financial reporting, Alesina and Perotti (1996) identify optimistic predictions on key economic variables, optimistic forecasts of the effects of new policies, creative and strategic use of what is kept on or off budget, strategic use of budget projections, and strategic use of multi-year budgeting.

We believe procedures can be more transparent in four distinct ways. First, more transparent procedures should process *more information*, and, other things equal, in *fewer documents*. This speaks to openness and ease of access and monitoring. Second, transparency is increased by the possibility of *independent verification*, which has been shown experimentally to be a key feature in making communication persuasive and/or credible. Third, there should be a commitment to *non-arbitrary language*: words and classifications should have clear, shared, unequivocal meanings. The commitment to use generally accepted accounting principles in some of the American states is a good example of this. Finally, the presence of *more justification* increases transparency, reducing the optimism and strategic creativity referred to above. In the empirical work that follows, we operationalize multiple indicators of these characteristics into an index of budget transparency.

III. Model

Political agency models focus on the conflict of interest between voters and politicians, with voters using elections to select more competent incumbents or to discipline current incumbents. Another key role of elections is for voters to choose between different policies or party platforms. This section considers a model in which elections serve *both* to identify more competent politicians, regardless of ideology, *and* to choose among parties with different policy platforms.

The model is a career-concerns model of politics, following Shi and Svensson (2001) and Persson and Tabellini (2000, ch. 4), but extended to contain political parties.⁶ Parties have known preferences both over policy and exogenous office rents, and therefore value reelection. Politicians differ in their competence in providing public goods, but their competence is unknown by both voters *and politicians themselves* at the time of policy decision.⁷ Voters, who differ in their relative preferences over private vs. public goods, consider both (their inference of) incumbent ability and party platform when deciding whom to vote for. This approach integrates in one model a number of results found in the literature on deficit and debt accumulation: that transparency decreases debt accumulation (Shi and Svensson, 2001), that increasing political polarization (often, but not always) increases debt accumulation (Alesina and Tabellini, 1990) and that right-wing governments, at least for strategic reasons, tend to have higher deficits than left-wing governments (Persson and Svensson, 1989).

The intuition of the model is as follows: Voters want more competent politicians in political office, as they are able to provide more public goods for a given level of taxation and, hence, private consumption. However, the fact that ability is of value to voters creates incentives for incumbents to appear competent, even when they are not. In addition to financing public goods production by taxation or providing more through higher competence, incumbents can ‘buy now and pay later’ by issuing debt. The central assumption is that the degree to which debt can be observed by voters depends on the government’s degree of fiscal (or budget) transparency. If transparency is low, the probability that debt is observed before voters decide whether to reelect the current incumbent is also low -- and, hence, the incumbent can use debt to appear competent. More generally, optimistic forecasts, including lack of (independent) verification, complicated budget processes and lack of expenditure control makes it possible for

incumbents to increase spending without revealing, or, perhaps, knowing, the consequences for debt accumulation.

Voters' ability to choose more able politicians is complicated by the fact that voters have policy preferences over politicians. Suppose the incumbent is from party A , and this incumbent is perceived to be less competent than what could be expected from a random challenger from party B . In a standard agency model, this would cause all voters to vote for candidate B . However, some voters prefer A 's policy to B 's and, therefore, they will prefer B to A only if A is sufficiently incompetent that the loss of utility from having an executive with different preferences is outweighed by the utility gain from (possibly) having a more competent executive.

1 Model set-up

The economy consists of voters and political parties. Each voter i has preferences

$$U_t^i = \alpha^i g_t + u(c_t)$$

where g is a public good and c is private goods consumption. The function u is a standard strictly concave utility function. Private consumption must obey the private budget constraint $c_t = y - \tau_t$, where y is exogenous. An alternative, but equivalent, formulation would have a population with different incomes and similar preferences facing a linear income tax schedule. The parameter α^i represents the relative weight put on public goods consumption by voter i . We assume that α is distributed uniformly on

$$\left[1 - \frac{1}{2\xi}, 1 + \frac{1}{2\xi} \right]$$

with expected and median value equal to one and density ξ . Public goods production is provided by politicians, organized in two parties, A and B . Each party $j \in \{A, B\}$ has preferences

$$V_t^j = \alpha^j g_t + u(c_t) + \chi$$

where χ represents office- or ego-rents to the party, which can be construed as having proposal power over issues unrelated to fiscal policy.⁸ We designate A the high spending party, such that $\alpha^A > \alpha^B$. Furthermore, since the median (and average) voter has $\alpha = 1$, it is natural to assume that $\alpha^B < 1 < \alpha^A$ so that the two parties are positioned on either side of the median voter.

The production of public goods takes place under the budget constraint

$$g_t = \tau_t + d_t - D(d_{t-1}) + \eta_t^j.$$

Public goods can be financed by taxes τ and debt d , under consideration of last period debt retiring. D is the cost of repaying last period debt. We assume that $D(0) = 0, D' > 0, D'(0) \geq 1$ and that $D'' > 0$. This has the implication that no debt will be incurred under full information, as well as in the hypothetical case without elections. Finally, the higher is the ability η of the incumbent, the more public goods can be provided for given levels of taxes and debt. We assume that η is a moving average of shocks to ability in the current and previous period, such that

$$\forall t \eta_t^j = \mu_t^j + \mu_{t-1}^j, j \in \{A, B\}.$$

This has the plausible implication that some, but not all, ability is carried over from period to period. New issues, that have not been dealt with before, surface, and incumbent ability to address such new problems is only partly correlated with the ability to cope with past policy issues. We assume that μ is distributed according to the distribution function F with mean zero and is serially uncorrelated.

2. Timing and Benchmark

Elections take place every other period. The timing of the model is as follows: At the beginning of an election period, t , the incumbent observes past debt and past ability. At this point, the incumbent chooses policy (τ, d) . Thereafter, current competence, a function of past and current ability, is realized and with it the outcome g . Based on observables τ and g , and given the degree of transparency, voters form expectations about the ability of the current incumbent. Finally, elections take place on whether to keep the incumbent or replace him with a candidate of unknown ability from the other party. In non-election periods, $t + 1$, debt is repaid and no new debt issued.

As noted in the introduction, the focus of the model is the choice of debt policy under asymmetric information. Therefore, other incentives to issue government debt are not considered and, indeed, from the assumptions on the D -function, it is never optimal to issue debt for any incumbent. In fact, in a world of no elections no debt will be accumulated in this model. In that case, the maximization problem of a politician from party j becomes

$$\begin{aligned} \max_{\tau_t \geq 0} V_t^j &= \alpha^j g_t + u(c_t) + \chi \\ \text{s.t. } g_t &= \tau_t + \eta_t^j \\ c_t &= y - \tau_t. \end{aligned}$$

The first order condition equates marginal benefits of spending with marginal costs, such that

$$\begin{aligned}\alpha^j &= u'(y - \hat{\tau}_t^j) \Leftrightarrow \\ \hat{\tau}^j &\equiv \hat{\tau}_t^j = y - u_c^{-1}(\alpha^j).\end{aligned}$$

Naturally, the preferred tax level depends on the identity of the office holder. Realized spending is

$$g_t^j = \hat{\tau}^j + \eta_t^j.$$

3. Voting

In periods of no election, the incumbent will not raise debt, as this is done only for electoral purposes, but repay that of last period. Hence, the budget constraint is

$$g_{t+1}^j = \hat{\tau}^j - D(d_t) + \eta_{t+1}^j.$$

Since there is no borrowing in period $t-1$, also being a non-election period, the government budget constraint in period t will be

$$g_t^j = \hat{\tau}^j + d_t + \eta_t^j.$$

Suppose that the incumbent is from party A (the analysis is identical with a party B incumbent). From the observation of public goods provision in the first period, the electorate forms expectations regarding the incumbent's ability, $E_t(\mu_t^A)$. Therefore, the expected levels of taxation and public goods provision in the second period are

$$\begin{aligned}\tau^A &= \hat{\tau}^A \\ E_t[g_{t+1}^A] &= \hat{\tau}^A - E_t[D(\hat{d}_t^A)] + E_t[\mu_t^A]\end{aligned}$$

where \hat{d}_t^A is the solution to the incumbent's first-period maximization problem (which will be solved below). The expected outcome if electing the challenger from party B , about whom the electorate has no information, is

$$\begin{aligned}\tau^B &= \hat{\tau}^B \\ E_t[g_{t+1}^B] &= \hat{\tau}^B - E_t[D(\hat{d}_t^A)].\end{aligned}$$

A voter i will vote for the incumbent (party A) iff

$$\begin{aligned}E_t[U_{t+1}^i(A)] &= \alpha^i \left(\hat{\tau}^A - E_t[D(\hat{d}_t^A)] + E_t[\mu_t^A] \right) + u(y - \hat{\tau}^A) \geq \\ E_t[U_{t+1}^i(B)] &= \alpha^i \left(\hat{\tau}^B - E_t[D(\hat{d}_t^A)] \right) + u(y - \hat{\tau}^B)\end{aligned}$$

which reduces to

$$E_t [\mu_t^A] \geq \gamma^i \equiv [u(y - \hat{\tau}^B) - u(y - \hat{\tau}^A)] - \alpha^i (\hat{\tau}^A - \hat{\tau}^B).$$

The parameter γ^i represents voter i 's utility loss from seeing party B 's platform implemented instead of party A 's, for equal levels of competence. If γ^i is negative, voter i leans towards party A . The larger is α^i , i.e. the more weight voter i puts on public goods, the smaller is γ^i for given policy platforms. This means that voters that have preferences for large government will be less demanding in terms of competence of the party A incumbent; they would rather have a less competent incumbent implementing a policy they like, than a more competent incumbent implementing a platform far away from their ideal point. Furthermore, the acceptance of low(er) competence will be more pronounced, the greater is the distance between the two party positions which, in turn, suggests more scope for electoral rent-seeking in more politically polarized societies. We return to this issue below.

Incumbent A is concerned with winning the election. To assess the chances of winning the election, as a function of competence and policy choice, incumbent A can calculate his expected share of votes, V^A , as

$$\begin{aligned} V^A(\mu_t^A, \hat{\tau}^A, \hat{\tau}^B) &= \Pr \left\{ E_t [\mu_t^A] \geq [u(y - \hat{\tau}^B) - u(y - \hat{\tau}^A)] - \alpha^i (\hat{\tau}^A - \hat{\tau}^B) \right\} \\ &= 1 - \Pr \left\{ \alpha \leq - \frac{E_t [\mu_t^A] - [u(y - \hat{\tau}^B) - u(y - \hat{\tau}^A)]}{(\hat{\tau}^A - \hat{\tau}^B)} \right\}. \end{aligned}$$

Invoking the distribution assumption on α implies that we can write incumbent A 's expected share of votes as

$$V^A(\mu_t^A, \hat{\tau}^A, \hat{\tau}^B) = \frac{1}{2} + \frac{\xi}{(\hat{\tau}^A - \hat{\tau}^B)} E_t [\mu_t^A] - \frac{\xi}{(\hat{\tau}^A - \hat{\tau}^B)} \gamma^m. \quad (1)$$

where γ^m is γ^i for $\alpha^i = 1$; i.e. the utility loss for the median voter from seeing platform B implemented instead of platform A . If all politicians are similar in ability and the two parties propose platforms that keep the median voter indifferent, party A can expect to get half the votes. However, more competence delivers more public goods (or at lower taxes), which is valued by voters. Therefore, a one-unit increase in expected competence increases the expected share of votes (with density ξ), corrected for the difference in party platforms; if parties are less good

substitutes for one another, a one-unit increase in expected ability attracts less votes from the opposition party. Furthermore, if platforms are symmetric around the median voter then $\gamma^m = 0$, whereas a party A platform relatively closer to the median voter increases the share of votes. It also follows that a party A platform relatively closer to the median voter does not guarantee reelection: if incumbent A is assumed to be sufficiently incompetent, the expected vote share can still fall short of one half.

The fact that the chance of reelection increases with unobserved ability creates scope for influencing voter expectations. We assume that government debt d (or, more generally, the consequences of current economic policy for government debt accumulation) cannot always be observed at election time and, from the government budget constraint, this implies that the incumbent can raise debt in order to appear more able in providing public goods.

The ability on the part of voters to observe and being able to accurately assess government debt before the election depends on the government's *degree of transparency*. As noted in the introduction, budget transparency affects the public's ability to monitor government budgetary policies. To operationalize transparency, we assume that with probability p voters observe the current debt level d_t and are thus able to calculate incumbent competence η_t^A before the election. With probability $1 - p$ voters observe nothing and must form an estimate \tilde{d}_t on the basis of observables τ_t and g_t .⁹

In the case of full disclosure, voters can determine incumbent A 's competence as

$$\mu_t^A = g_t^A - \hat{\tau}^A - d_t - \mu_{t-1}^A$$

while in the case of no disclosure, they form an estimate $\tilde{\mu}_t^A$ on their basis of their estimate of the current debt level \tilde{d}_t according to

$$\tilde{\mu}_t^A = g_t^A - \hat{\tau}^A - \tilde{d}_t - \mu_{t-1}^A = \mu_t^A + (d_t - \tilde{d}_t).$$

We are now able to derive the probability that incumbent A wins the election as a function of current competence and policy platforms. The probability that incumbent A wins the election is the probability that the *expected* vote share, over full and no information, is greater than one half.

Inserting the values of μ_t^A and $\tilde{\mu}_t^A$ into (1) yields

$$\rho(\mu_t^A, \hat{\tau}^A, \hat{\tau}^B) = \Pr \left\{ p \left(\frac{1}{2} + \frac{\xi}{\hat{\tau}^A - \hat{\tau}^B} \mu_t^A - \frac{\xi}{\hat{\tau}^A - \hat{\tau}^B} \gamma^m \right) + (1-p) \left(\frac{1}{2} + \frac{\xi}{\hat{\tau}^A - \hat{\tau}^B} (\mu_t^A + d_t - \tilde{d}_t) - \frac{\xi}{\hat{\tau}^A - \hat{\tau}^B} \gamma^m \right) \geq \frac{1}{2} \right\}$$

which reduces to

$$\rho(\mu_t^A, \hat{\tau}^A, \hat{\tau}^B) = 1 - F\left((1-p)(\tilde{d}_t - d_t) + \gamma^m\right).$$

Having determined incumbent A 's chance of reelection allows us to characterize the incumbent's maximization problem.

4. Equilibrium

Incumbent A aims to maximize expected utility and has at his disposal two policy instruments, taxes and debt. As shown above, the incumbent's optimal tax rate $\hat{\tau}^A$ is a function only of his relative preferences for public goods, expressed by α^A . Therefore, we can take $\hat{\tau}^A$ (and $\hat{\tau}^B$) as given when considering the incumbent's optimal choice of debt. The maximization problem becomes

$$\begin{aligned} \max_{d_t \geq 0} \Phi^A &= E_t[\alpha^A(\hat{\tau}^A + d_t + \eta_t^A) + u(y - \hat{\tau}^A) + \chi \\ &+ \left[1 - F\left((1-p)(\tilde{d}_t - d_t) + \gamma^m\right)\right] \left[\alpha^A(\hat{\tau}^A - D(d_t) + \eta_{t+1}^A) + u(y - \hat{\tau}^A) + \chi\right] \\ &+ F\left((1-p)(\tilde{d}_t - d_t) + \gamma^m\right) \left[\alpha^A(\hat{\tau}^B - D(d_t) + \eta_{t+1}^B) + u(y - \hat{\tau}^B)\right]]. \end{aligned} \quad (2)$$

The simplified first-order condition becomes¹⁰

$$E_t \left[\alpha^A + F' \left((1-p)(\tilde{d}_t - d_t) + \gamma^m \right) (1-p)(\chi - \gamma^A) - \alpha^A D'(d_t) \right] = 0$$

where $\gamma^A < 0$, using the notational convention established earlier, represents party A 's utility (loss) from seeing party B 's platform implemented instead of its own.¹¹ In equilibrium, expectations must be correct and, thus, $d_t = \tilde{d}_t \equiv d^A$ which, letting f be the pdf associated with F , yields the following implicit characterization of the optimal debt level for A :

$$\alpha^A + f(\gamma^m)(1-p)(\chi - \gamma^A) - \alpha^A D'(d^A) = 0. \quad (3)$$

As noted above, without elections incumbent A equates marginal benefits (α^A) with marginal costs ($\alpha^A D'$), which, from the assumptions on the D -function, implies that equilibrium debt is zero. The additional terms in (3) arise from the presence of less than full transparency, the presence of electoral rents and differences in party platforms. If transparency is perfect, $p = 1$, (3) reduces to the case without elections and debt is zero. When transparency is imperfect, however, the incumbent can use debt to increase expected utility. Expected utility increases from

the possibility of enjoying a second period of electoral rents and from the possibility of implementing A 's own preferred policy platform rather than seeing B 's platform implemented.

5 Comparative statics

We are now able to investigate how differences in transparency and party policy positions affect debt accumulation by incumbents. Below we look at how transparency and political polarization affect the equilibrium size of government debt, while the next section looks at party differences in debt accumulation.

We define political polarization simply as the absolute difference between platforms, $\alpha^D = \alpha^A - \alpha^B > 0$. We define an increase in political polarization as an increase in α^D that leaves the median voter's assessment of party platforms unchanged ($d\gamma^m = 0$). We summarize the findings regarding transparency and political polarization as follows:

Proposition 1: Comparative statics of equilibrium debt

1. For both parties $j \in \{A, B\}$ equilibrium debt d^j decreases as the degree of transparency p increases.
2. Increasing political polarization unambiguously increases equilibrium debt of the low-spending party, d^B , while the effect on equilibrium debt of the high-spending party, d^A , is ambiguous.

Proof: See appendix.

Increasing transparency makes it more likely that debt accumulation will be discovered and, thus, will be ineffective in altering voter perceptions. Regardless, however, of whether the electoral benefits from increasing debt materializes, the costs of issuing debt will be unchanged and, as a result, debt accumulation will decrease. This result was obtained also by Shi and Svensson (2000).

Political polarization influences debt accumulation in two ways: First, political polarization, by definition, increases the distance between party platforms. This implies that, for both parties, γ^j increases: it becomes more desirable to stay in office, as the utility loss from seeing the opponent in office increases; this leads to more debt accumulation by both parties. Second, increasing political polarization to keep the median voter's relative assessment of the

two parties unchanged necessarily involves decreasing α^B and increasing α^A . This has opposite effects on the behavior of the two parties. The reason is that accumulating debt is costly due to the repayment function being strictly convex and while decreasing α^B makes repayment less costly for party B , which increases debt accumulation, increasing α^A makes it more costly to issue debt for party A , which decreases debt accumulation. Therefore, the net effect on party A debt accumulation is ambiguous.¹²

6. Party differences in debt policy

Does the party identity of the incumbent matter for debt accumulation? The result that increasing political polarization increases debt accumulation by party B suggests that there could be differences in the equilibrium levels of debt chosen by the two parties. We compare the two equilibrium choices

$$\alpha^A + f(\gamma^m)(1-p)\chi - f(\gamma^m)(1-p)\gamma^A - \alpha^A D'(d^A) = 0 \quad (4)$$

and

$$\alpha^B + f(\gamma^m)(1-p)\chi - f(\gamma^m)(1-p)\gamma^B - \alpha^B D'(d^B) = 0 \quad (5)$$

where γ^B is defined in a way analogue to γ^A such that it is party B 's difference in utility from seeing platform A implemented instead of platform B .¹³ Subtracting (5) from (4) yields

$$f(\gamma^m)(1-p)\chi \left(\frac{1}{\alpha^A} - \frac{1}{\alpha^B} \right) - f(\gamma^m)(1-p) \left(\frac{\gamma^A}{\alpha^A} - \frac{\gamma^B}{\alpha^B} \right) = D'(d^A) - D'(d^B).$$

Since D is strictly convex, the sign of the right-hand side of the equation determines the sign of $(d^A - d^B)$. The first term on the right-hand side is unambiguously negative, as $\alpha^A > \alpha^B$.

Therefore, the sign of $(d^A - d^B)$ depends on the sign of $(\gamma^A/\alpha^A - \gamma^B/\alpha^B)$. We have the following result:

Proposition 2. Equilibrium debt is higher under low-spending governments, $d^B > d^A$, if $1/\alpha^A + 1/\alpha^B \geq 2$.

Proof: See the appendix.

When is the restriction of Proposition 2 satisfied? First, note that it is satisfied if $\alpha^B \leq 1/2$. therefore, if preferences are sufficiently polarized, low-spending governments will always accumulate more debt than high-spending ones. If party platforms were symmetric *in terms of* α , around the median voter, the condition would always hold, but symmetry in α does not keep

the median voter indifferent. For standard functional forms (ln, sqrt) for the private good utility function u , party A should always choose α^A such that $\alpha^A - 1 > 1 - \alpha^B$, i.e. A 's platform should be further away from the median voter than B 's platform to keep the median voter indifferent; in this case, the condition is always satisfied.

In sum, the model suggests testing three hypotheses. More fiscal transparency should be associated with lower debt, while a higher degree of political polarization should be associated with higher debt, possibly contingent on incumbent party identity. Finally, governments with a preference for low public spending should be associated with more public debt.

IV. Data

The empirical analysis uses self-reported measures of fiscal transparency for 19 countries taken from a 1999 OECD questionnaire sent to all Budget Directors of OECD member countries (OECD 1999).¹⁴ We selected 11 measures out of 76 that capture the key dimensions of fiscal transparency that we identified above. Our sampling of indicators was by no means arbitrary. Many of the measures not selected asked about process characteristics that did not seem to have anything to do with transparency. Moreover, some questions were repetitive, and there was no cross-country variation on some other measures. This left at most about 15 possible variables, of which we ultimately included 11, but all the results are robust to the precise composition of the transparency index and the inclusion or exclusion of individual items.

Relative to many measures in existing empirical research, this survey data has the advantage that it focuses directly on transparency, and is comprehensive. However, relying on survey responses does have two drawbacks. First, they are self-reported and some countries are likely to rate themselves too highly. Second, the questions focus on formal rules and procedures that may differ from actual practice. Overall, however, we believe this to be good source of fiscal transparency data that captures the main characteristics of transparency in our model.

To the 11 included indicators we added a measure of whether the financial statements are prepared using accrual accounting.¹⁵ These 12 measures are aggregated additively into a simple index. In terms of the four broad criteria we outlined above, the index contains:

- *More information*, other things equal, in *fewer documents*
 - Whether non-financial performance data is routinely included in the budget documentation presented to the legislature (yes = transparent)

- Whether special reports on the fiscal outlook are released prior to an election (yes = transparent)
- Whether the government regularly produces a report on the long term (10-40 years) outlook for public finances as a whole (yes = transparent)
- Whether the government is required to report contingent liabilities on a regular basis (yes = transparent)
- Whether the government generally presents more than one supplementary budget to the legislature in each fiscal year (no = transparent)
- *Independent verification*
 - Whether the in-year financial reports are audited (yes = transparent)
 - Whether the economic assumptions used in the budget are subject to independent review (yes = transparent)
- *Non-arbitrary language*
 - Whether the government uses accrual accounting in its financial statements (yes = transparent)
- *More justification*
 - Whether there is a legal requirement that the budget documentation contain a projection of expenditure beyond the next fiscal year (yes = transparent)
 - Whether it is a legal requirement that the budget include an ex post comparison between projected expenditure in future years and the actual expenditures in those years (yes = transparent)
 - Whether the budget discusses the impact that variations in the key economic assumptions would have on the budget outturn (yes = transparent)
 - Whether the government is required to make regular actuarial estimates for social security programs (yes = transparent)

There is considerable variation in the transparency of the fiscal reporting, ranging from an index value of 1 (Japan) to an index value of 11 (New Zealand) out of a maximum index value of 12. Individual country scores are described in Figure 1.

[Figure 1 about here]

To provide some assurance that this coding is appropriate, we compared our fiscal transparency index with indices created elsewhere. For example, von Hagen (1992) constructs a transparency index for 8 European countries that includes measures of whether there are special funds, whether the budget is submitted in one document, an assessment of transparency by respondents, whether there is a link to the national accounts, and whether loans to non-governmental entities are included. de Haan et al. (1999) provide a partial update of this index. There is a positive correlation (0.3 – 0.4) between our index and these indexes, although there are some differences. Notably Italy is rated more highly in our transparency index.

We also compare this index against more subjective estimates of fiscal transparency. von Hagen (1992, p. 64) provides a subjective overall assessment, which broadly confirms the rankings in our index. The most obvious difference is that France and Germany receive high subjective assessments but receive low scores on our index. Given that both of these countries have relatively good fiscal records, any errors we made in our index would bias the results against supporting our predictions. Further, Alesina and Perotti (1996) argue that Italy has a highly non-transparent system of fiscal reporting, and uses special accounts and off budget items extensively, which is a more negative assessment than is provided by our coding. Again, this difference would bias the results against our predictions.

Finally, case-study evidence is also supportive of the rankings. For example, Campos and Pradhan (1999) report on the transparent New Zealand system, while Wright (1999) provides a detailed discussion of the opaque and complex budget reporting in Japan.

Political polarization comes from an expert survey. Country specialists assigned scores on a 20-point scale representing the parties' priorities between raising taxes to increase public services and cutting public services to cut taxes. Our variable is the standard deviation of party-by-party mean raw scores on this rating for each country. Party-by-party raw scores appear in Laver and Hunt (1992, Table 3 for each country, pp. 136-312). The number of respondents is in Table A1, p. 123. The party scale is in Table A2, p. 124. Our variable for right-wing government is the proportion of years over the 1990-1999 period with a right-wing party in office.

The economic and fiscal data is drawn from the June 1999 OECD Economic Outlook. Apart from polarization, the source of political data for the 1960-1997 period is the results reported in Budge, Keman, and Woldendorp (1993, 1998) and the 1998 European Journal of

Political Research Political Yearbook. Political data for 1998 and 1999 is obtained from various Economist Intelligence Unit Country Reports.

V. Effects of Fiscal Transparency

The first testable prediction is that countries with higher values on the fiscal transparency index should have lower levels of debt. We will include comparisons with spending in some of the results, but note that our model does not make direct predictions about the level of spending, and indeed we do not claim that transparency has the same effect on spending that it has on debt.¹⁶ The empirical tests of this prediction are cross-sectional in nature because the transparency index captures fiscal transparency as it existed in 1999, and no time series variation is available.¹⁷ In any case, many of the advances in transparent financial reporting have only occurred over the past decade. We therefore examine the effect of the transparency index on two variables; the *level* of gross debt (and spending) in 1999 and the *average change* in debt (and spending) over the 1990-1999 period. Table 1 summarizes the relationship between the fiscal transparency index and these variables. We divide countries into low, medium and high fiscal transparency countries. Low transparency countries are those with an index value of 3 or less, medium transparency countries are those with an index value of 4 or 5, and high transparency countries are those with an index value of 6 or greater.

[Table 1 about here]

These summary statistics suggest that fiscal transparency is associated with lower levels of debt, and also lower levels of spending. Even so, note that transparency is associated with high levels and substantial growth in these variables over the past 10 years. The bivariate relationship between the fiscal transparency index and the levels of gross debt and spending in 1999 are shown in Figures 2 and 3. In both, there is a clear relationship, but it does not look exactly the same. In particular, the “Anglo-American” countries stand out more clearly with respect to both more transparency and lower spending in Figure 3. Subsequent statistical analysis will confirm that the relationship between lower debt and higher transparency is not restricted to particular regions, but the same cannot be said with confidence in the case of spending levels, so we do not present further spending results. It is also worth noting that since our transparency index may overstate fiscal transparency in Italy and understate it in France and Germany, these relationships are possibly even stronger than they appear.

[Figures 2 and 3 about here]

1. Multiple regression analysis.

We now examine this relationship in more detail by controlling for additional factors. Because this index captures transparency in 1999, and there have been changes in transparency over the past decade, we control for the level of debt in 1990 so that we focus on the effect of fiscal transparency on recent fiscal policy settings. We also control for political polarization and average frequency of right-wing governments (assumed to be the low spenders).

We also control for additional economic and political factors. The economic control is the average real growth rate over the 1990-1999 period. The growth rate in our cross-section is highly correlated with the average change in the unemployment rate, so we include only the former. Furthermore, we include a measure of political competition, measured as turnover.¹⁸ Below, we argue that political competition matters for the adoption of transparent fiscal institutions, and in the econometric analysis a test for overidentification in a two-stage least squares setting suggests that political competition should be included also in the main regression. Therefore, while our theory makes no prediction about the effects of political competition, we nevertheless include it in the regression.¹⁹

In sum, we specify and estimate the following cross-sectional model, where ‘Debt’ as dependent variable refers to either levels or changes:

$$\begin{aligned} \text{Debt} = & \beta_0 + \beta_1 \text{fiscal transparency index} + \beta_2 \text{debt level (1990)} + \beta_3 \text{average real growth rate} \\ & + \beta_4 \text{political competition index} + \beta_5 \text{political polarization} + \beta_6 \text{average right-wing} \\ & \text{government} + \varepsilon \end{aligned}$$

The results, reported in Table 2 with robust standard errors in parentheses, support the predictions of the model. In the first columns, we observe that fiscal transparency is strongly associated with lower debt levels (as in proposition 1(a)), and growth in debt. Transparency is also associated with lower spending and spending growth (results not shown). To give a sense of the magnitude of the effect on debt, consider that the average transparency index value is 4.7. The difference between the index value of the average ‘low transparency’ country and the average ‘medium transparency’ country is about 2. An average medium transparency country is therefore predicted to have a gross debt level that is about 6.5 percentage points lower than a low transparency country. Some caution needs to be exercised when interpreting the coefficients on

an index variable, but the results are certainly suggestive of a positive relationship between fiscal transparency and debt reduction.

[Table 2 about here]

Political polarization and average frequency of right-wing governments both have the expected positive sign, and are significant at the 95 percent level. In terms of the other coefficients, we observe that average real growth has a powerful effect on fiscal performance. Higher levels of real growth are associated with lower levels of debt and lower growth in debt. Furthermore, the debt level observed in 1990 is strongly significant: not surprisingly, countries that had high debt in 1990 are more likely to have high debt in 1999. Finally, more political competition tends to reduce the level of debt, the coefficient being significant at the 90 % level. This is opposite the predictions of the models in which debt is a strategic variable (Alesina and Tabellini, 1990), but has found some support in recent research (Skilling, 2001; Skilling and Zeckhauser, 2001).²⁰

Similar results obtains when the dependent variable is average change in the debt level over the 1990's. In particular, transparency remains strongly significant with the expected negative sign, and polarization and average frequency of right-wing incumbency also continue to be significant. In this case, however, the effect of political competition is somewhat less precisely estimated.

2. Robustness

To see whether any individual items in the index were important to the results, we first replicated the regression of Table 2, column 1 twelve times with each item dropped from the index. The resulting coefficients on transparency vary from -3.05 to -3.76, with a standard deviation of 0.24. The t-statistics vary from -2.2 to -4.2, with a standard deviation of .49. Then we carried out 66 more replicated regressions, each time dropping a different pair of items. The resulting transparency coefficients vary from -2.97 to -4.43, with a standard deviation of 0.36, while the t-statistics vary from -1.8 to -5.0, with a standard deviation of .68. On average, removing the item regarding supplementary budgets weakens the results most, while removing the requirement to provide actuarial estimates strengthens them. Nevertheless, we feel comfortable that the results do not depend strongly on the inclusion or exclusion of any particular item.

Our results are also broadly consistent with previous research. We re-estimated the basic regressions using the von Hagen (1992) transparency index for the 8 European countries. We find that this transparency index has a negative effect on the level of gross debt in 1990, significant at the 95% level.

We control for a wide range of economic and political variables found relevant in earlier literature on political and economic sources of debt. These included economic openness and the terms of trade, the dependency ratio (proportion young and old in the population), federalism, the effective number of legislative districts, universalism in welfare spending, income inequality, average frequency of coalition governments, income per capita, and level of spending.

We also include a variable reflecting legal tradition. A recent literature argues that countries with common law systems (typically those with histories of British rule) are more market, and less government, oriented than civil law countries, and that the greater protection of property against the state found in common law systems has improved various aspects of government performance (La Porta et al. 1999). This may manifest itself directly in outcomes or through increased focus on governance (see next section).²¹ In the case of spending, in our sample of countries we estimate a significant negative effect for this control, and the only other variables that remain significant are lagged spending and average real growth.²²

We also control for additional institutional variables used to describe the budget process: centralization, whether there is a dominant Minister of Finance, and whether there is a system of fiscal targets. These measures are based on Hallerberg and von Hagen (1997) and extended using data in OECD (1995). We finally included a control for participation in the fiscal requirements of the Maastricht Treaty. However, none of these control variables, including the legal tradition indicator, nor even the level of spending, has any effect on debt or qualitatively alters any of the transparency effects reported in Table 2; indeed, the level of significance never is below 95 %. Finally, the method suggested by Hadi (1992) indicates no outliers in the multivariate sample.

However, care needs to be exercised in interpreting these results given the small cross-sectional sample. Also, in terms of the effect of transparency on fiscal performance over the past decade, anecdotal accounts suggest that improvements to fiscal transparency often are part of a larger package of fiscal consolidation. That is, when governments decide to tighten fiscal policy, they often make strides to improve fiscal transparency as well (for example, New Zealand in the

early 1990s). To some extent, then, fiscal transparency may be associated with improved fiscal performance rather than be a major cause of it. To this we turn next.

VI. Institutional Endogeneity

Addressing the potential for endogeneity of transparency requires identifying the relationship between characteristics of the political system and variation in our fiscal transparency index. In estimating the effects of fiscal transparency on fiscal performance it is particularly important to do this because governments that have a propensity to generate good fiscal performance are exactly the governments that are most likely to establish more transparent fiscal reporting. While time-series measures of transparency are unavailable, we are, however, still able to make some progress on this issue.

In this model, transparency unambiguously decreases deficits and debt, which are costly and have no other function than transmitting information about incumbent competence, a transmission that, in equilibrium, has no effect. Therefore, transparency improves expected welfare. However, as Alesina and Perotti (1996, p. 403) note, “politicians typically do not have an incentive to adopt the most transparent practices.”

Is it possible to identify situations where politicians would implement transparent budget procedures? We argue that just as “political institutions constitute *ex ante* agreements over cooperation among politicians” (North 1990, p. 191), fiscal institutions allow cooperation towards desired fiscal outcomes by competing political parties. North’s suggestion is to look at parties behind the veil of uncertainty about the identity of future office holders.

Parties, not knowing the ability of future candidates, or the identity of future office holders, will cooperate on increasing transparency if they find it equally likely that either party will be in government in the future.²³ On the other hand, if one party thinks it is more likely that it will be in office in the next period, it is less likely to improve transparency, as this would make it more likely that a less able party incumbent would be ousted from office, and vice versa. Accordingly, if there is frequent political turnover it could be in the interests of all parties to implement transparent budget institutions with the aim of decreasing opportunistic behaviour and debt accumulation in political equilibrium. On the other hand, a dominant incumbent in a non-competitive political system will not be as concerned about a political opponent’s opportunism, as this opponent is unlikely to be in power much (if at all).

While (expected) political competition can be hard to measure, also for parties themselves, past turnover is often used as an indicator for future electoral competition.²⁴ Therefore, we would expect fiscal transparency to be higher where competition, measured by past turnover, is higher. The data provides some support for this prediction. As shown in Figure 4, there is a positive relationship between political competition and the transparency index, in particular if correcting for New Zealand.²⁵ Non-competitive countries such as Italy and Japan have relatively non-transparent procedures, whereas more competitive countries tend to have more transparent procedures.²⁶

[Figure 4 about here]

Furthermore, greater transparency may come about if other political actors demand it; while we have not included institutional detail in our modeling of the government budget decisions to keep the analysis tractable, following this logic we would expect transparency to be higher where there is the possibility of divided government.²⁷ In that case, the legislative power could demand more transparency from the executive (and vice versa). Divided government can occur - but does not always do so - in presidential systems. Therefore, we hypothesize that presidential systems should exhibit more transparency.

To sum up, we argue that the observed pattern of transparency depends on political competition (with a correction for New Zealand), presidential vs. parliamentary systems, and legal tradition, common law vs. civil law countries (recall that we argued above that common law countries have more transparent budget institutions). While the impact of these variables on transparency is interesting in its own right, estimating this relationship also enables us to correct for possible endogeneity with respect to the transparency index in the equation estimated above by including the endogenous, or, alternatively, the historical, debt variable as an explanatory variable for transparency. Accordingly, we estimate the following equation system by two- and three-stage least squares:

$$\text{Fiscal transparency} = \gamma_0 + \gamma_1 \text{political competition index} + \gamma_2 \text{debt level} + \gamma_3 \text{common law} \\ + \gamma_4 \text{New Zealand dummy} + \gamma_5 \text{presidential system} + v$$

$$\text{Debt} = \beta_0 + \beta_1 \text{fiscal transparency index} + \beta_2 \text{debt level (1990)} + \beta_3 \text{average real growth rate}$$

$$+ \beta_4 \text{political competition index} + \beta_5 \text{political polarization} + \beta_6 \text{average right-wing government} + \varepsilon$$

The results are reported in table 3 and 4, where robust small-sample corrected standard errors are reported in parentheses. These results provide strong support for our conjectures. First, consider the results of the two-stage least squares estimation reported in table 3. From comparison with table 2, it is clear that the estimates are very close to the ones obtained by OLS. The table also reports the F -test statistic from the first stage regression, the magnitude of which suggests that the instruments do well in explaining the variation in transparency, and the J -statistics associated with a test for overidentification of the instrumented variable; the hypothesis of no overidentification is accepted at the 90 per cent level in both cases.²⁸

[Table 3 about here]

We next want to investigate whether the debt level has an effect on the degree of transparency. To do this we estimate the full simultaneous system by three-stage least squares. Table 4 reports the results. First, consider system (I) where the dependent debt variable is debt level in 1999. Overall, the results are broadly similar to the OLS results reported above; in particular, the transparency index is negatively signed and significant at the 99% level, and the measures of polarization and right-wing government frequency also are strongly significant. The results regarding the other explanatory variables are identical to those reported above, except that the coefficient on political competition now is strongly significant.

[Table 4 about here]

The second column reports results from estimating fiscal transparency: Political competition is correctly signed and, while not significant at conventional levels, its p -value of 0.14 nevertheless is quite noteworthy, confirming our hypothesis that more competitive political systems have more transparent budget processes, correcting for the (significant) outlier New Zealand. Current debt enters with a positive sign, but is nowhere near significant. Both the common law dummy and the dummy for presidential systems have positive and significant effects on the prevalence of transparent budget procedures.

In system (II) in table 3, the dependent debt variable is average change in debt, and, again, the results are similar to those reported above. We also estimated the system letting lagged debt enter in the transparency equation instead of current debt and average change; this did not affect results and neither did the inclusion of a variety of other control variables that were also included above.

VII. Conclusion

We believe this paper provides a new, persuasive account of some effects of fiscal transparency. We obtained predictions about the effect of fiscal transparency, political polarization and partisan government on government debt and deficits, and the predictions that fiscal transparency leads to substantially lower deficits and debt accumulation in many cases received solid empirical support. Robust findings are reported in which there is a negative relationship between a fiscal transparency index and debt levels. These results suggest that improving the degree of fiscal transparency is an important element of improving fiscal performance, and that fiscal institutions really do affect fiscal outcomes.

We further claim that incumbents in reasonably competitive political systems do have incentives to establish fiscal transparency, and this argument receives some support in the data. We estimate that politically competitive countries (correcting for the outlier New Zealand) and, in general, common law countries and presidential systems have more transparent institutions, and we use these estimates to correct for possible endogeneity of transparent institutions in explaining debt accumulation. Accounting for such endogeneity confirms the earlier results.

Does increased transparency increase voter welfare? In our agency model, increasing transparency leads to reduced use of deficit finance. This unambiguously improves voter welfare, since deficit finance is assumed not valuable to voters. However, the effect of transparency on voter welfare is fundamentally ambiguous in political agency models that combine adverse selection and moral hazard (Besley 2002, based on Besley and Smart 2001). In these models greater transparency reduces the incentives of "bad" (venal or incompetent) incumbents to mimic good ones, and this has costs in the short run. Against this must be set "screening benefits", the fact with greater transparency it is easier to identify and kick out bad incumbents.

Transparency, that is, how far debt can be hidden from the public, plays a key role. In our model, voters can end up paying for the short run re-election efforts of incumbents to the extent these are in the form of debt that they repay in the future. By contrast, perfect transparency, that

is perfectly observable debt, creates a situation where an incumbent pays for his own efforts at getting re-elected, that is, enjoys less rent from being in office. Incumbents have to make personal sacrifices to be re-elected, so the Besley/Smart results apply. In the opposite limiting case where debt is perfectly unobservable, all re-election effort by incumbents is shifted to voters in future, and improved discipline by incumbents is not relevant. Then all that matters is whether screening benefits are positive. But this is unambiguously true with greater transparency so transparency must be welfare improving (our result).

We show here why and how fiscal transparency can reduce the level of debt. We have not yet isolated the effect of transparency on fiscal scale (spending), net of its effect on debt, and cannot say with confidence what effect it has. In the context of the US states, we showed empirically that fiscal transparency increased the scale of government, consistent with Ferejohn's model of transparency and accountability, but had no effect on balance, probably due to the presence of balanced budget constraints (Alt, Lassen and Skilling 2002). One reason for the conflicting results regarding spending is that the effect of transparency on spending could be non-linear, such that increasing transparency will increase the level of spending if this is “too low” due to mistrust in the government, while it will decrease spending if for some reason spending exceeds the “optimal” level. Extending this logic, one could envision increasing transparency leading to increasing spending in developing countries, while it would imply lower spending in developed welfare states.

Many further questions remain. Does transparency also affect political outcomes like turnout (do people vote more where they have better information?) or incumbency advantage (does information monopoly reduce turnover?) Is retrospective voting more common where transparency is high? Are some government accounting conventions just taken from or reflections of private sector accounting practices, which have been shown to differ substantially across countries (La Porta, Lopez-de-Silanes and Shleifer, 2002)? These points, and the relationship between different models of fiscal transparency and fiscal outcomes, will be dealt with further in future papers.

APPENDIX A: Derivations and Proofs

The incumbent's maximization problem is

$$\begin{aligned} \max_{d_t \geq 0} \Phi^A &= E_t[\alpha^A (\hat{\tau}^A + d_t + \eta_t^A) + u(y - \hat{\tau}^A) + \chi \\ &+ [1 - F((1-p)(\tilde{d}_t - d_t) + \gamma^m)] [\alpha^A (\hat{\tau}^A - D(d_t) + \eta_{t+1}^A) + u(y - \hat{\tau}^A) + \chi] \\ &+ F((1-p)(\tilde{d}_t - d_t) + \gamma^m) [\alpha^A (\hat{\tau}^B - D(d_t) + \eta_{t+1}^B) + u(y - \hat{\tau}^B)]. \end{aligned}$$

The first order condition is

$$\begin{aligned} \alpha^A + (1-p)F'[(1-p)(\tilde{d}_t - d_t) + \gamma^m] &[\alpha^A (\hat{\tau}^A - D(d_t) + \eta_{t+1}^A) + u(y - \hat{\tau}^A) + \chi] \\ - (1-F[(1-p)(\tilde{d}_t - d_t) + \gamma^m]) &\alpha^A D'(d_t) \\ - (1-p)F'[(1-p)(\tilde{d}_t - d_t) + \gamma^m] &[\alpha^A (\hat{\tau}^B - D(d_t) + \eta_{t+1}^B) + u(y - \hat{\tau}^B)] \\ - F[(1-p)(\tilde{d}_t - d_t) + \gamma^m] &\alpha^A D'(d_t) = 0 \end{aligned}$$

which reduces to

$$E_t \left[\alpha^A + F'((1-p)(\tilde{d}_t - d_t) + \gamma^m) (1-p)(\chi - \gamma^A) - \alpha^A D'(d_t) \right] = 0$$

which is in the text.

Proof of Proposition 1:

(1) Total differentiation of (3) with respect to p and d^A yields

$$\begin{aligned} -f(\gamma^m)(\chi - \gamma^A) dp - \alpha^A D''(d^A) dd^A &= 0 \Leftrightarrow \\ \frac{dd^A}{dp} &= \frac{-f(\gamma^m)(\chi - \gamma^A)}{\alpha^A D''(d^A)} < 0 \end{aligned}$$

since D is strictly convex.

(2): Total differentiation of (3) with respect to $\alpha^D \equiv \alpha^A - \alpha^B$ and d^A yields

$$\begin{aligned} \frac{\partial \alpha^A}{\partial \alpha^D} d\alpha^D + f'(\gamma^m)(1-p)(\chi - \gamma^A) \frac{\partial \gamma^m}{\partial \alpha^D} d\alpha^D - f(\gamma^m)(1-p) \frac{\partial \gamma^A}{\partial \alpha^D} d\alpha^D \\ - \alpha^A D''(d^A) dd^A - \frac{\partial \alpha^A}{\partial \alpha^D} d\alpha^D D'(d^A) &= 0 \Leftrightarrow \\ \frac{dd^A}{d\alpha^D} &= \frac{f'(\gamma^m)(1-p)(\chi - \gamma^A) \frac{\partial \gamma^m}{\partial \alpha^D} - f(\gamma^m)(1-p) \frac{\partial \gamma^A}{\partial \alpha^D} + (1 - D'(d^A)) \frac{\partial \alpha^A}{\partial \alpha^D}}{\alpha^A D''(d^A)}. \end{aligned}$$

As above, the denominator is positive. Regarding the numerator, the first multiplicative term is zero, as we have defined an increase in political polarization as increasing the distance between party platforms keeping the median voter's assessment of party platforms unchanged,

$\partial \gamma^m / \partial \alpha^D = 0$. The second multiplicative term is always negative as $\partial \gamma^A / \partial \alpha^D < 0$ since an increase in polarization increases A 's loss from seeing B 's platform implemented. Finally, the third term in the numerator is negative for party A incumbents and positive for party B incumbents. Since, by assumption, $D' > 1$, the sign depends on the sign of $\partial \alpha^j / \partial \alpha^D$. This is positive for $j = A$ since an increase in polarization keeping the median voter's assessment unchanged necessarily must involve an increase in α^A . Conversely, it is negative for $j = B$. In sum, the numerator is unambiguously positive for party B incumbents, whereas the second and third terms work in opposite directions for a party A incumbent. QED.

Proof of Proposition 2:

As noted in the text, the sign of $d^A - d^B$ depends on the sign of $\gamma^A / \alpha^A - \gamma^B / \alpha^B$. We have

$$\frac{\gamma^A}{\alpha^A} = \frac{u(y - \hat{\tau}^B) - u(y - \hat{\tau}^A)}{\alpha^A} - (\hat{\tau}^A - \hat{\tau}^B)$$

$$\frac{\gamma^B}{\alpha^B} = \frac{u(y - \hat{\tau}^A) - u(y - \hat{\tau}^B)}{\alpha^B} - (\hat{\tau}^B - \hat{\tau}^A)$$

and, thus,

$$\frac{\gamma^A}{\alpha^A} - \frac{\gamma^B}{\alpha^B} = (u(y - \hat{\tau}^B) - u(y - \hat{\tau}^A)) \left(\frac{1}{\alpha^A} + \frac{1}{\alpha^B} \right) - 2(\hat{\tau}^A - \hat{\tau}^B) \geq 0 \Leftrightarrow$$

$$(u(y - \hat{\tau}^B) - u(y - \hat{\tau}^A)) \left(\frac{1}{\alpha^A} + \frac{1}{\alpha^B} \right) \geq 2(\hat{\tau}^A - \hat{\tau}^B).$$

Recall that we assumed that parties have positioned themselves so as to make the median voter indifferent ($\gamma^m = 0$). This implies that $(u(y - \hat{\tau}^B) - u(y - \hat{\tau}^A)) = (\hat{\tau}^A - \hat{\tau}^B) > 0$, which reduces the condition above to

$$\frac{1}{\alpha^A} + \frac{1}{\alpha^B} \geq 2.$$

QED.

Table A.1. Descriptive statistics

Variable	mean	std. dev.	min	max
Gross debt	63.8	25.7	27.4 (AUS)	118.5 (ITA)
Average debt change	.64	2.27	-5.48 (IRL)	4.46 (JPN)
Transparency index	4.7	2.5	1 (JPN)	11 (NZL)
Political competition	.39	.18	0 (CHE)	.65 (NLD)
Debt, 1990	57.1	29.0	14.4 (FIN)	125.7 (BEL)
Average growth	2.4	1.3	.8 (CHE)	7.1 (IRL)
Average right wing gov.	.43	.37	0	1
Political polarization	4.7	1.1	2.18 (NZ)	6.63 (USA)

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Notes

¹ On Europe, see von Hagen (1992) and de Haan et al. (1999); on Latin America, Alesina et al. (1999). Alesina and Perotti (1996) note that the “results on transparency probably say more about the difficulty of measuring it, than about its effect on fiscal discipline”, a point echoed by Alesina and Perotti (1999) and Tanzi and Schuknecht (2000).

² Asymmetric information models of fiscal policy have been studied by, e.g., Rogoff (1990), but a direct focus on the role of fiscal transparency is rare. The effects of transparency about monetary policy objectives has begun to be studied as well; see, e.g., Faust and Svensson (2001), Jensen (2002), and Stasavage (2002).

³ Besley and Prat (2001) also include transparency in their investigation of the role of the media in communicating information about the government to voters.

⁴ In studying retrospective economic voting, political scientists call this consequence of transparent institutions “clarity of responsibility” (Paldam, 1991; Powell and Whitten, 1993; Lowry, Alt, and Ferree, 1998; Nadeau, Niemi, and Yoshinaka, 2002; Alt, Lassen, and Skilling 2002).

⁵ For a more detailed discussion of aspects of transparent financial reporting, refer to the IMF web site on fiscal transparency (www.imf.org/external/np/fad/trans/index.htm).

⁶ The term career-concerns goes back to Holmström (1982/1999). In the literature, similar models are sometimes encountered as ‘signal-jamming’ models (Fudenberg and Tirole, 1986). We are not aware of other career-concerns models including parties.

⁷ The latter is what distinguishes career-concerns models from adverse selection models of fiscal policy, such as Rogoff (1990), where politicians are assumed to know their own competence before making policy decisions. The informational assumption is not instrumental for our results, but simplifies the analysis considerably by eliminating the scope for signaling. We return to this issue in the concluding remarks.

⁸ Including χ is not necessary for the analysis, but it has the intuitive implication that a party prefers to be in office, even if the two parties propose similar platforms.

⁹ Alternatively, we could follow Milesi-Ferretti (2000) in letting p be an increasing function of the debt level d . However, since our analysis is unaffected by this, we keep the shorter form for notational simplicity.

¹⁰ See the appendix for a full derivation of the solution to the maximization problem.

¹¹ Note that γ^A is the difference in utility realized in period $t + 1$; therefore, ability does not enter as expected ability at time $t + 1$ is the same for both candidates at the time of decision in period t .

Without going in to detail, suppose that we are in an adverse selection world where the incumbent knows η_t^A when setting tax and debt policy for period t . In this case, γ^A cannot be signed unambiguously. The reason is that while there is an expected utility loss from seeing the opponent’s policy implemented, there could be an expected utility *gain* from the opponent taking office if the incumbent is very incompetent. Suppose, in the extreme, that the incumbent knows that he is sufficiently incompetent that he would not be able to provide any public goods. Then, the marginal benefit of the opponent getting into office (with expected average ability) would be high, and this would outweigh the utility loss from him implementing an alternative policy. In that case, the incumbent should then

trade off office rents for policy, and it could be the case that the gains from having an average-ability incumbent elected could outweigh even office rents χ . In that case, then, it would be possible that the incumbent would run a surplus so as to appear even more incompetent, increasing the likelihood of losing office.

¹² If party platforms are *not* symmetric around the median voter, we can generally not sign the effect for either party, since the increase in political polarization affects the median voter's relative assessment of the two parties.

¹³ Note that γ^B , therefore, differs from the definition of γ^i used so far.

¹⁴ The countries are Australia, Austria, Belgium, Canada, Denmark, Finland, France, (West) Germany, Iceland, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Sweden, Switzerland, the UK, and the USA.

¹⁵ Cash accounting simply records cash receipts and payments, items that give rise to a cash transaction. Accrual accounting allocates revenues and expenses to the period in which they are generated or incurred. Thus, if an expense is incurred today (a service is provided on credit) but not paid until next period, it would be recorded as a liability in this period under accrual accounting.

¹⁶ Although often confused in the debate, it is not necessarily the case that high spending necessarily is associated with big deficits (von Hagen and Harden (1994, p. 414) in an analysis of Danish budget procedures).

¹⁷ To the best of our knowledge, there are no surveys that provide time series data on fiscal transparency in a comprehensive manner across OECD countries.

¹⁸ The political competition index is calculated as 1 minus a Herfindahl 'political concentration index', a direct extension of its use as a market concentration index. Formally, the political competition index is calculated as $1 - \sum k_i^2$ where k_i is the proportion of time in office for party (or coalition) i between 1960 and 1999, and $\sum k_i = 1$. The competition index moves from 0 to 1 as political competition increases. See Skilling and Zeckhauser (2001) and Beck et al. (2000) for more on the use such indices.

¹⁹ Including political competition decreases the estimated coefficient on transparency slightly, but has no other discernible effects.

²⁰ Note, though, that the measure of political competition really is backward looking, while the Alesina-Tabellini model focuses on forward-looking replacement risk. We return to this issue in the next section. See Franzese (1998) and Lambertini (2000) for empirical evaluations of existing political economy hypotheses about debt accumulation.

²¹ In our model, higher fiscal transparency simply maps into more information. However, as noted by Besley and Prat (2001), government transparency, while necessary, may not be a sufficient condition for information to reach the voters; this depends on the structure of the media sector. We interact transparency with the share of state ownership of television (from Djankov et al. 2002), to see whether the effect of fiscal transparency is stronger where the media is privately owned, but find no such effect.

²² If the legal system control is omitted, spending appears to be a function of lagged spending (+), growth (-), the dependency ratio (+), and transparency (-). We also included three regional dummies for Europe, Scandinavia and North America and found that these had no effect on the results.

²³ In a similar vein, Hanssen (2001) argues (and provides empirical evidence) that more politically competitive American states choose more independent judiciaries.

²⁴ Byers, Davidson and Peel (2000) document mean reversion in aggregate vote shares for a number of countries. Therefore, past political competition over a long time-horizon can be used as a proxy for future competition.

²⁵ While transparency in New Zealand thus is much higher than its history of political competition would predict, the improvements in transparency nevertheless followed a change in government in 1990, where a new incumbent arrived in office to find a big undisclosed obligation that prevented it from carrying out its election promises. See Campos and Pradhan (1999) for an account of the New Zealand reform.

²⁶ This relationship between political competition and fiscal transparency also obtains with respect to the von Hagen (1992) fiscal transparency index.

²⁷ We thank Ken Shepsle for this observation.

²⁸ Including political competition *only* as an instrument we cannot reject the possibility of overidentification, suggesting that competition should be included in the main estimating equation, cf. above.

Table 1

Transparency, Debt, and Spending in OECD countries

	Low Transparency	Medium Transparency	High Transparency
Gross debt/GDP	78.2	61.4	43.41
Average change in gross debt/GDP	1.27	0.50	-0.17
Spending/GDP	44.8	41.7	33.9
Average change in spending/GDP	0.26	-0.11	0.02

Table 2
Multiple regression of Transparency and Debt

	Gross debt	Average debt change
Transparency Index	-3.25** (1.073)	-0.34** (.112)
Political Polarization	4.89** (1.964)	0.46** (0.208)
Average right-wing government	12.83** (5.479)	1.67** (.574)
Gross debt (1990)	0.49*** (.073)	-0.05*** (.008)
Average real growth	-8.74*** (1.444)	-1.03*** (.137)
Political competition	-42.43* (21.133)	-3.45 (2.116)
Constant	62.51*** (10.352)	6.04*** (1.146)
N	18	18
R ²	0.93	0.90

Robust standard errors are in parentheses. Variables that are significant at the 90% level are denoted by *, at the 95% level by **, and at the 99% level by ***.

Table 3
Two-stage least squares estimation of Transparency and Debt

	Gross debt	Average debt change
Transparency Index	-3.52*** (.960)	-0.37*** (.106)
Political Polarization	4.73** (1.833)	0.44* (0.205)
Average right-wing government	13.18** (5.171)	1.70*** (.547)
Gross debt (1990)	0.49*** (.073)	-0.05*** (.007)
Average real growth	-8.82*** (1.421)	-1.04*** (.134)
Political competition	-40.53* (19.773)	-3.27 (1.992)
Constant	63.67*** (10.601)	6.15*** (1.205)
N	18	18
Centered R ²	0.93	0.90
F-statistic first stage (p-value)	16.49 (.000)	16.49 (.000)
J-statistic (p-value)	4.602 (.10)	4.453 (.11)

Estimated by Stata IVREG2. Robust, small-sample corrected standard errors are in parentheses. Variables that are significant at the 90% level are denoted by *, at the 95% level by **, and at the 99% level by ***. Instruments: As reported in text

Table 4: Systems estimation of Transparency and Debt

	System I		System II	
	Gross debt	Transparency index	Average debt change	Transparency index
Transparency Index	-3.63*** (.813)		-.37*** (.084)	
Political Polarization	4.61** (1.759)		.44** (.183)	
Average right-wing government	13.91*** (4.934)		1.75*** (.513)	
Gross debt (1990) ²⁹	0.49*** (.073)	.013 (.020)	-0.05*** (.008)	.13 (.159)
Average real growth	-8.59*** (1.454)		-1.03*** (.151)	
Political competition	-40.33** (15.401)	4.79 (3.114)	-3.29* (1.598)	3.61* (5.64)
Presidential system		1.48* (.759)		1.24 (.817)
Common law		2.49*** (.651)		2.64*** (.675)
New Zealand		5.94*** (1.464)		5.64*** (1.34)
Constant	63.90*** (10.598)	.55 (2.515)	6.20*** (1.101)	1.82** (.881)
N	18	18	18	18
F	40.1	11.9	27.4	12.0
R ²	0.93	0.77	0.90	0.77

The small-sample corrected standard errors are in parentheses. Variables that are significant at the 90%, 95% and 99% level, respectively, by *, **, and ***. Note that R² does not have its usual interpretation IV-models.

²⁹ Note that gross debt in 1990 enters in the debt regressions, while in the equation determining transparency, the endogenous debt variables enter, respectively.

Figure 1: Fiscal Transparency Index

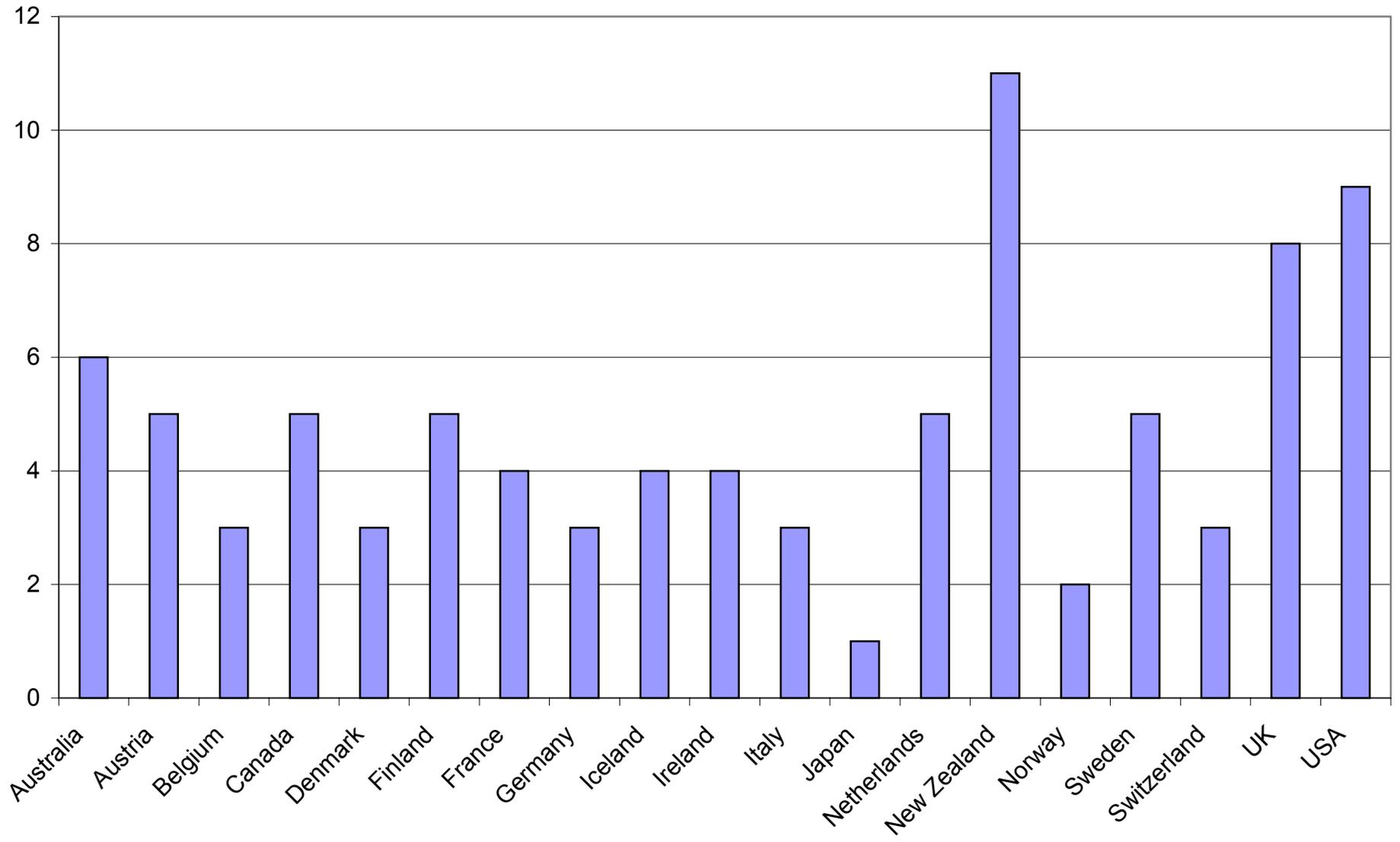


FIGURE 2

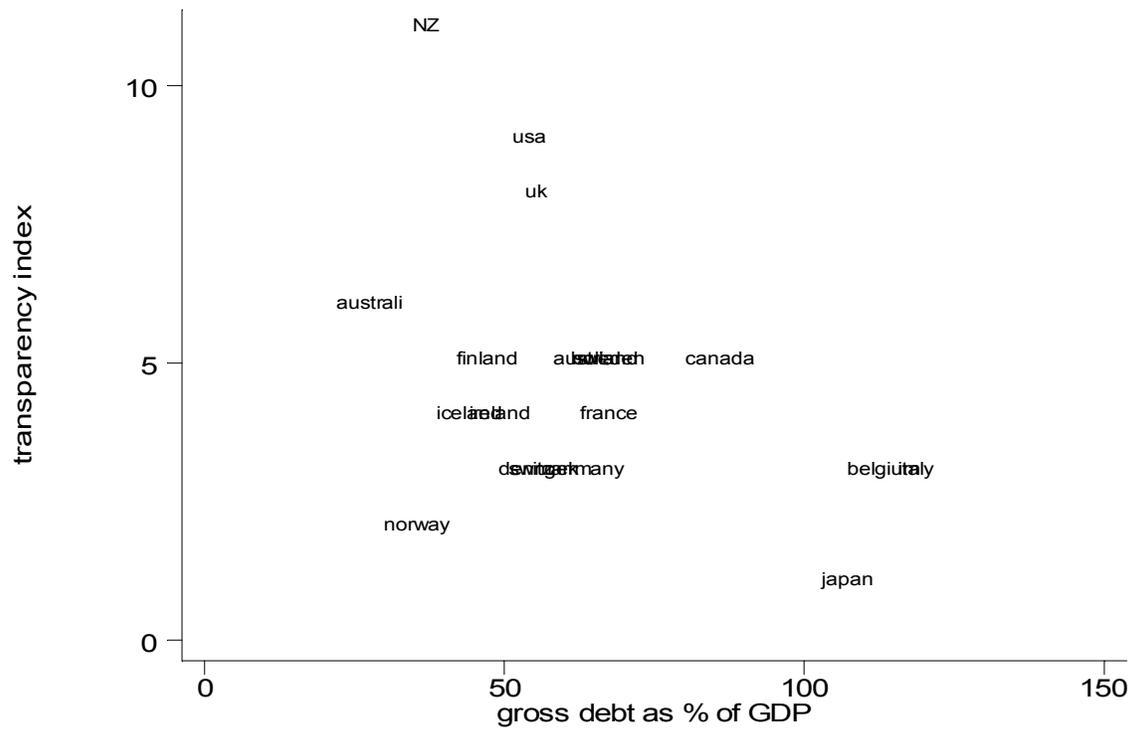


FIGURE 3

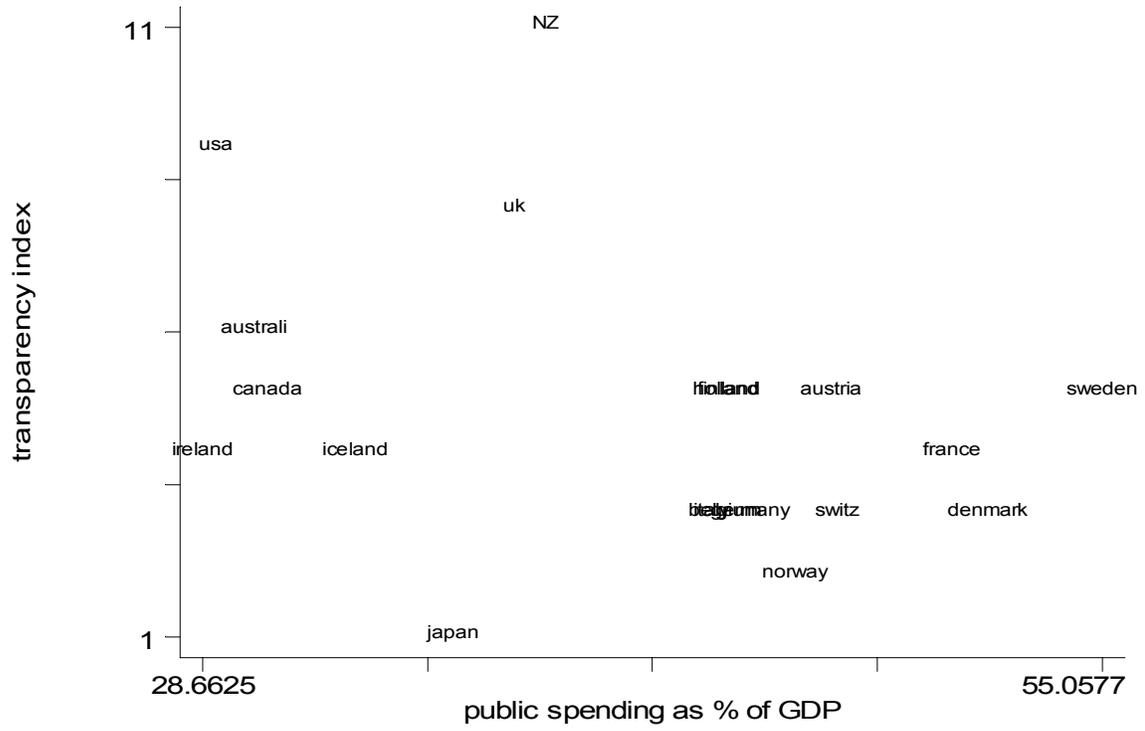


FIGURE 4

