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## Political leaders' socioeconomic background and public deficits: Evidence from OECD countries

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**No. 08-2013**

**Bernd Hayo and Florian Neumeier**

**Political Leaders' Socioeconomic Background and Public  
Budget Deficits: Evidence from OECD Countries**

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# **Political Leaders' Socioeconomic Background and Public Budget Deficits: Evidence from OECD Countries\***

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# **Political Leaders' Socioeconomic Background and Public Budget Deficits: Evidence from OECD Countries**

## **Abstract**

This paper empirically analyses the relationship between political leaders' socioeconomic backgrounds and public budget deficits utilising panel data on 21 OECD countries from 1980 to 2008. Building on sociological, as well as economic, research, we argue that the socioeconomic status of political decision-makers, i.e., presidents or prime ministers, is an important determinant of fiscal budget decisions. Our theory-consistent findings show that the tenures of lower-class leaders—i.e., leaders of low socioeconomic status—are associated with a deficit-to-GDP ratio which is 1.6 percentage points higher than that during tenures of upper-class leaders.

JEL: E62, H11, H62, Z13

Keywords: Budget deficit, political leaders, socioeconomic status, time preference.

## 1. Introduction

Over the last several years, the world, or at least various regions of it, has experienced three crises: a financial crisis, a recession, and a sovereign debt crisis. Some pundits even believe that the current sovereign debt crisis in Europe endangers survival of the euro area and may seriously undermine European integration. Although financial and real crises contributed to the poor state of public finances, it is difficult to argue that these extraordinary events are at the root of the sovereign debt crisis. Arguably, public finances were already stretched to the breaking point and therefore were unable to bail out financial institutions and stabilise the business cycle without significantly raising investors' concern over the possibility of substantial default risk.

Looking back in time, we find that during the past decades, many OECD countries increased public debt even in good economic times. In trying to explain this development, political economists typically focus on political actors' motives and incentives when deciding on fiscal policies. Political budget cycle (PBC) theory (e.g., Rogoff and Sibert, 1988; Alesina et al., 1992), 'public budget as a common pool resource' approaches (e.g., Roubini and Sachs, 1989a, 1989b), as well as models viewing the incurrence of public debt as a strategic instrument used to tie successors' hands (e.g., Persson and Svensson, 1989; Alesina and Tabellini, 1990) have one thing in common: they presume that politicians are primarily driven by opportunistic motives. However, empirical findings based on these premises are often inconclusive and provide only very little evidence in support of them.<sup>1</sup>

In recent years, a new and steadily growing literature in economics has emerged which emphasises the influence of political leaders' identity on government performance. Starting with the work of Jones and Olken (2005), who find that exogenous leader transitions (i.e., leader transitions caused by natural death of the incumbent) induce changes in GDP growth rates, economists have become increasingly concerned with the question of whether the incumbent political leader makes a difference. The subsequent empirical research documents a connection between sociodemographic characteristics of leaders and (i) economic growth (e.g., Besley et al., 2011), (ii) institutional framework (e.g., Dreher et al., 2009; Hayo and Voigt, 2012), (iii) monetary policy (Göhlmann and Vaubel, 2007), and (iv) fiscal policy (e.g., Mikosch, 2009; Hayo and Neumeier, 2011, 2012). Particular attention is paid to the association between leaders' performance and their educational and occupational careers. For

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<sup>1</sup> With regard to PBC theory, Shi and Svensson (2006) find robust evidence for pre-electoral increases in fiscal deficits for developing countries, but not for developed countries. Brender and Drazen (2005) provide similar evidence based on a differentiation between new and established democracies: pre-electoral deficit increases are found in the former only. The results reported by Roubini and Sachs (1989a, 1989b) are shown to be not robust by Edin and Ohlsson (1991) and de Haan and Sturm (1997).

example, Besley et al. (2011) provide evidence that countries' economic growth rates are higher when their leaders are more highly educated. Dreher et al. (2009) find that leaders with a background in economics are more likely to engage in reforms that lead to a liberalisation of the economy (measured in terms of changes in the Economic Freedom Index). Mikosch (2009) reports that the tenures of former economists as leaders of OECD countries are characterised by higher deficits than are the tenures of leaders who have been politicians most of their working life. Moreover, political science research suggests that there is a strong personalisation in politics, i.e., a leader's reputation is important for electoral success even in a parliamentary system (cf. McAllister, 2007).

However, most of the approaches listed above suffer from certain drawbacks. First, some of the results are either not robust to variations in the empirical specification or even counterintuitive. This may be at least partly because the hypotheses linking certain educational or occupational backgrounds to economic performances are often more or less ad hoc (for a discussion, see Hayo and Neumeier, 2011). Second, potential concerns of endogeneity are usually not addressed.<sup>2</sup> Leader transitions as well as the length of leaders' incumbencies likely depend on the government's economic performance. If the leader characteristics of interest are somehow related to unobserved factors affecting the likelihood of achieving power or tenure length, the reported estimates could be misleading.

This paper contributes to the literature by providing a broader social-science-based perspective on people's motives and decision behaviour. Following sociological and psychological research, we argue that decisions made by political actors are likely affected by specific aspects of their socioeconomic backgrounds. More precisely, we draw a connection between the political leader's socioeconomic status, his or her time preferences, and the level of deficit spending. We derive the testable hypothesis that low-status heads of governments are more debt tolerant, attach less importance to the future burden which may arise from debt accumulation, and, therefore, are more prone to rely on debt financing. Our theory-consistent findings reveal that the impact of political leaders' status on fiscal discipline is statistically and economically significant. The tenures of leaders who held blue-collar jobs prior to pursuing a political career are associated with an approximately 1.6 percentage point higher contemporary deficit-to-GDP ratio than are the tenures of leaders who held academic positions. A distinctive feature of our empirical analysis is robustness to a variety of control variables and the use of instrumental variable estimation, allowing our estimates to be causally interpreted and avoid biases due to selection effects or omitted variables.

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<sup>2</sup> An exception is the study by Besley et al. (2011), who utilise exogenous leader transitions to circumvent endogeneity problems.

The remainder of this paper is organised as follows. In the next section, we introduce the status concept and discuss its impact on behaviour and (time) preferences. In Section 3, we set up a simple formal model in order to illustrate the connection between political decision-makers' future orientation and government debt performance. In Section 4, the data and our empirical strategy are described. Results are presented in Section 5 along with robustness checks. Section 6 concludes.

## **2. About Status, Habitus, and (Time) Preferences: Some Lessons from Social Sciences**

### 2.1 Status and its Measurement

According to sociologists, social stratification is a central feature of modern societies, implying that societies must be viewed as hierarchical formations in which individuals and groups can be ranked. Decisive for an individual's rank within this hierarchy is the functional importance of the social position he or she occupies, i.e. the position's particular value to society (Davis and Moore, 1945). Status is a reflection of the functional importance of a certain position.

Societies endow those who strive for or hold a social position associated with a higher status with certain resources and attributes regarded as valuable (Bourdieu, 1986; Bourdieu and Wacquant, 1992; Ganzeboom et al., 1992). This is done primarily in order to provide people with incentives to properly fulfil the tasks connected to the positions they hold. Particularly important is the endowment with three types of capital (Bourdieu, 1984, 1986; Bourdieu and Wacquant, 1992): economic capital, i.e., income and wealth, cultural capital, especially formal and informal education, and social capital, i.e., reputation, prestige, and networks. Differences in status lead to an unequal distribution of these types of capital: a higher status translates into higher income, a higher level of education, and a higher reputation. People of similar status constitute a social class.

The social position which is commonly regarded as most relevant for an individual's standing and, thus, the crucial determinant of his or her status, is occupation (Treiman, 1977; Ganzeboom et al., 1992). Hence, in sociology, occupational status is of particular interest as a determinant of an individual's standing in society. As occupational status is a latent variable, sociologists typically measure it by means of indicators. A well-known and frequently applied indicator is the International Socio-Economic Index of Occupational Status (ISEI) introduced by Ganzeboom et al. (1992). This index combines information on the average level of education and average income in different occupations to create a continuous measure of status. Table 1 provides ISEI scores for selected occupations, which range from 0 to 1.

Table 1: ISEI Scores for Selected Occupations

<b>Occupation</b>	<b>ISEI score</b>
Upper-class occupations	
Architects, town planners	0.77
Lawyers	0.85
Judges	0.90
Middle-class occupations	
Bank teller	0.47
Bookkeeper	0.56
Middle-rank civil servant	0.59
Lower-class occupations	
Bricklayers	0.32
Carpenters	0.31
Farmers	0.26
Unskilled construction and factory workers	0.24

Note: Original ISEI scores are divided by 100. The categorisation of occupations with regard to the three social classes is done by the authors.

## 2.2 Status and Time Perspective

Important aspects of individual decision-making, such as attitudes, preferences, and abilities, vary with status. People of similar standing have similar codes of conduct and lifestyles, share certain perceptions and attitudes, and engage in similar activities (e.g. Bourdieu, 1977; Elias, 1994). Sociologists and psychologists attribute this behavioural similarity to the similar life conditions encountered by people within the same social class. In the course of their lifetimes, people acquire a set of dispositions reflecting their cumulative experience as well as the socioeconomic conditions to which they are exposed. These dispositions, commonly referred to as habitus, are believed to serve as a matrix of perception, appraisal, and practice which steers cognition and action below the level of consciousness (Bourdieu, 1977, 1984; Crossley, 2001; Pickel, 2005). Since people of similar standing face similar life conditions and meet similar fates, these dispositions happen to be homogenous for members of the same social class, constituting a class habitus.

One well-documented difference between people of different social classes concerns time perspective and intertemporal decision-making. There is overwhelming empirical evidence in the sociology literature that status affects a person's orientation toward the future as well as



the willingness to delay gratification. People of low status anticipate future consequences of their actual behaviour to a lesser degree, attach less importance to future events, reveal shorter planning horizons, and are less willing to delay rewards (e.g., Schneider and Lysgaard, 1953; Martineau, 1977; Trommsdorf, 1983).<sup>3</sup> Several explanations have been offered for this relationship between social class and future orientation or reward delay. The social science literature suggests that the association is mediated by cognitive, motivational, and affective components (e.g., Trommsdorf, 1983).

Ainslie (1975, 1992) states that ‘living mostly for the present is our normal state of functioning, and that consistent behavior is sometimes acquired, to a greater or lesser extent, as a skill’ (Ainslie, 1992: 57). A greater capacity to consider future needs is posited to be strengthened by higher levels of formal and informal education, as abstract thinking is regarded as a prerequisite for future orientation. However, several psychological and social factors related to social class are found to be at least as important as education. People of low status not only experience comparatively poorer socioeconomic conditions, they also face manifold forms of social deprivation (e.g., Agarwal et al., 1983; Bourdieu, 1984), tend to compare themselves unfavourably to others (e.g., Lunt and Livingston, 1991; Walker, 1996), are more exposed to the risk of undesirable life events such as financial distress and social exclusion (e.g., Breen, 1997), encounter more obstacles in reaching a goal, and have a more pessimistic future outlook and uncertain expectations (e.g., Shannon, 1975; Lamm et al., 1976; Trommsdorf, 1983; Loudon and Della Bitta, 1993). All these factors are found to facilitate a greater present orientation, avoidance of future expectation formation, and lower aspirations. In contrast, economic research on the causes of heterogeneous time perspectives is scarce. Becker and Mulligan (1997) model the determination of discount rates as endogenous, suggesting that both the level of education and the level of income enhance future orientation by shifting people’s attention away from their present situation to their future needs, making more highly educated and well-to-do people more patient and less myopic.<sup>4</sup> Empirical evidence is provided by Leigh (1986) and Harrison et al. (2002). Leigh (1986) analyses determinants of future orientation by means of individual answers to several questions which

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<sup>3</sup> Many behavioural patterns considered to be perfect examples of a lack of future orientation are also shown to be connected to status: obesity, the use and abuse of alcohol and tobacco, drug addiction, and so on. For a review, see Bradley and Corwyn (2002).

<sup>4</sup> With regard to education, the authors claim that ‘schooling focuses students’ attention on the future. Schooling can communicate images of the situations and difficulties of adult life, which are the future of childhood and adolescence. In addition, through repeated practice at problem solving, schooling helps children learn the art of scenario simulation. Thus educated people should be more productive at reducing the remoteness of future pleasures’ (Becker and Mulligan, 1997: 735–736). With respect to income, they state that financial distress increases the desire for current income and, citing Irving Fisher, ‘blinds a person to the needs of the future’ (Becker and Mulligan, 1997: 732).

were part of a survey carried out in the United States in 1972. His findings suggest that schooling, wages, and being brought up in a wealthy family, as well as having a highly educated father, facilitate forward-lookingness. Harrison et al. (2002) estimate individual discount rates by means of experimental methods in a random sample of Danish households. The authors find that discount rates are higher the lower the levels of income and education.

### 2.3 Time Perspective and Fiscal Deficits

There is substantial economic literature arguing that lack of future orientation and reward delay are likely determinants of private debt incurrence and saving behaviour (e.g., Thaler and Shefrin, 1981; Angeletos et al., 2001; Laibson, 1997). People who are less forward-looking are shown to be more debt tolerant, more likely to incur debts, and to cope less well with financial strain (e.g., Lea et al., 1995; Walker, 1996; Webley and Nyhus, 2001). There is far less theoretical and empirical research into how lack of future orientation influences public budget policy. We follow sociologists and assume that (i) social experiences gathered throughout life are inscribed into a person's cognition and thereby steer thinking and acting below the level of consciousness (e.g., Berger and Luckmann, 1966) and that (ii) these experiences are structure induced, i.e., they depend on the individual's rank within the social stratification system. Consequently, we expect that the intertemporal choices made by political decision-makers will reflect the socially constituted dispositions—i.e., the habitus—of the social class in which they were socialised.

Public debt is an important link between past, present, and future (fiscal) policies via the government's intertemporal budget constraint. Ever since Barro's (1979) seminal work, deficit policies are often viewed as a matter of intertemporal optimisation: benevolent governments use public borrowing as a financing device in times of economic hardship in order to minimise the net present value of the excess burden of taxation. However, as emphasised in the public choice literature (e.g., Buchanan and Tullock, 1962), running a public deficit can also serve as a way to enjoy welfare gains from public goods and services and postpone the burden associated with rising tax rates or cuts in government spending for the future. In fact, a lack of future orientation and deficient anticipation of the future costs of public debt frequently are considered to be likely causes of public debt accumulation and one of most important arguments put forward in favour of balanced budget rules (e.g., Alesina and Perotti, 1994; Poterba, 1997). Huber and Runkel (2008) set up a model in which a present-oriented government chooses tax rates designed to minimise the excess burden of taxation.

They prove that a myopic government accumulates public debt, irrespective of whether it is naïve or experienced.<sup>5</sup>

As far as we know, the only empirical evidence on the association between attitudes toward public indebtedness, time preferences, and factors related to a person's status is provided by Stix (2013). Based on survey data from Austria, he finds that respondents with low levels of income and formal education as well as high discount factors are much more likely to oppose public debt reduction.

### 3. An Illustrative Model

We demonstrate the connection between political decision-makers' status, their time preferences, and the budget balance by means of an illustrative model which is a modified and simplified version of Huber and Runkel's (2008) model. We start from the following social welfare function:

$$(1) V_t = \sum_{i=0}^n \beta^i [U(g_{t+i}) - F(\bar{\tau} - \tau_{t+i})]$$

$U(g)$  is the utility the public derives from public spending  $g$  and  $F(\bar{\tau} - \tau)$  is the burden which arises from collecting tax revenues  $\tau$ . This burden is connected either to allocation inefficiencies (i.e., the excess burden of taxation; Barro, 1979; Roubini and Sachs, 1989a), reduction in private consumption due to the levy of taxes (e.g. Rogoff, 1990), or costs associated with the collection of taxes.  $\bar{\tau}$  refers to the maximum tax revenue the government can collect in any period  $t$ . It can be interpreted either as the maximum of the Laffer curve or the revenues the government collects if it raises tax rates to 100%.  $\beta$  is the discount parameter and is supposed to be equal to  $1/(1+r)$ , where  $r$  is the interest rate.  $U(g)$  is assumed to be concave, i.e.,  $U'(g) > 0, U''(g) < 0$  (Alesina and Tabellini, 1990; Rogoff, 1990). The properties of  $F(\bar{\tau} - \tau)$  are the following. If the government levies no taxes, the burden from taxation is zero ( $F(\bar{\tau}) = 0$ ). The marginal burden is positive ( $F' = dF/d\tau > 0$ ) and increasing in tax revenues ( $F'' = d^2F/d\tau^2 > 0$ ). Finally, the burden from taxation goes to infinity as tax revenues converge to their upper bound ( $\lim_{\tau \rightarrow \bar{\tau}} F(\bar{\tau} - \tau) = \infty$ ).<sup>6</sup> The government's intertemporal budget constraint is given by:

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<sup>5</sup> The difference between a naïve and an experienced actor is that the latter anticipates that his or her 'future self' desires to deviate from the initial choice and, thus, behaves in a time-consistent manner, whereas the former does not.

<sup>6</sup> We further assume that  $U(\varepsilon) - F(\varepsilon) = 0$  for  $0 < \varepsilon < \bar{\tau}$ . This assumption states that the existence of a state is beneficial.

$$(2) \sum_{i=0}^n \beta^i [g_{t+i} - \tau_{t+i}] + d_{t-1} \beta^{-1} = 0$$

where  $d_{t-1}$  is the level of public debt at the end of period  $t-1$ .

Depending on the scope of the analysis, either  $g_t$  or  $\tau_t$  are typically considered as exogenous in order to simplify computations. For our purpose, however, it is helpful to focus on the primary deficit,  $b_t = g_t - \tau_t$ , yielding the modified social welfare function

$$(3) \tilde{V}_t = \sum_{i=0}^n \beta^i [H(b_{t+i} - b^{min})]$$

From the properties of  $U(g)$  and  $F(\bar{\tau} - \tau)$  it follows that  $H' = dH/db > 0$ ,  $H'' = d^2H/db^2 < 0$ , and  $\lim_{b \rightarrow b^{min}} H(b - b^{min}) = -\infty$ .<sup>7</sup> Additional government spending or a tax reduction in the current period lead to an increase in  $b_t$  and, thereby, to an improvement in today's social welfare.  $b^m$  is the minimal budget deficit, respectively, the maximal surplus, the government can generate in any given period  $t$ , i.e.,  $b^{min} = -\bar{\tau}$ .

Assuming reluctance to delay gratification or a positive propensity to defer discomfort implies a violation of the standard discounted utility (DU) approach, which is characterised by an exponential discount function as in Equations (1) and (3). In particular, these alternative modes of behaviour imply that discount rates decline over time. In economic applications, this anomaly is typically captured by adding an additional discount parameter which applies to all future periods and yields a so-called (quasi)hyperbolic discount function (e.g., Ainslie, 1992; Laibson, 1997). Applying (quasi)hyperbolic discounting, the optimisation problem for the government incumbent in period  $t$  is:

$$(4) \max_{\{b_i\}_{i=t}^n} \tilde{V}_t = H(b_t - b^{min}) + \delta \sum_{i=1}^n \beta^i [H(b_{t+i} - b^{min})] \text{ s. t. } \sum_{i=t}^n \beta^i b_{t+i} + d_{t-1} \beta^{-1} = 0$$

The additional discount parameter  $\delta$  measures the degree of impatience or concern about the present, respectively. The argument outlined in Section 2 implies that  $\delta$  is positively related to a person's status  $s$ , i.e.,  $\delta = \delta(s)$ , with  $d\delta(s)/ds > 0$ . Note that our modifications to the standard social welfare function imply that any given fiscal policy path affects members of different social classes in a different ways, since the net present value of the utility derived from future fiscal policies is status dependent. Thus, for each realization of  $s$ , we obtain a different status-specific welfare function. Assuming status-based behaviour implies that political decision-makers use the  $\delta$  characterising the social class with which they associate.

<sup>7</sup> Given the properties of  $U$  and  $F$ ,  $H$  is, technically speaking, also a function of the levels of public expenditure and tax revenue, since any level of  $b_t$  can be obtained by different realizations of  $g_t$  and  $\tau_t$ . However, since the realizations of  $g_t$  and  $\tau_t$  do not affect the properties of  $H$  listed above, we decide to continue with the briefer notation.

We are interested in the impact of  $\delta(s)$  on the size of the public deficit run by the incumbent leader in the current period. We regard each period in the model as one tenure period of a politician and, accordingly, allow  $\delta$  to vary across periods, i.e.,  $\delta = \delta(s_t)$ . Thus,  $b_t$  can be interpreted as the cumulative deficit a leader runs during his or her incumbency and  $b^{min}$  is the maximum collectable surplus during his or her tenure. In the absence of a commitment device, the time-consistent policy path represents the equilibrium of a sequential game, in which the current leader in period  $t$  plays against his or her successors (e.g., Phelps and Pollack, 1968; Laibson, 1997; Huber and Runkel, 2008). Since each leader's deficit policy affects the successor's initial conditions, the solution to the optimisation problem faced by the current leader can be derived via backward induction. To keep the computations tractable, we set  $n$  equal to 2, i.e., we consider only three periods: period 0 is the incumbency of political leader  $j$ , period 1 the incumbency of his or her successor, and period 2 captures years in the future. We consider the following simplified welfare function  $H$  :

$$(5) H(b_t - b^{min}) = \rho \ln(b_t - b^{min}) + a$$

Consequently, the optimal deficit run by the incumbent political leader in period 0 is:

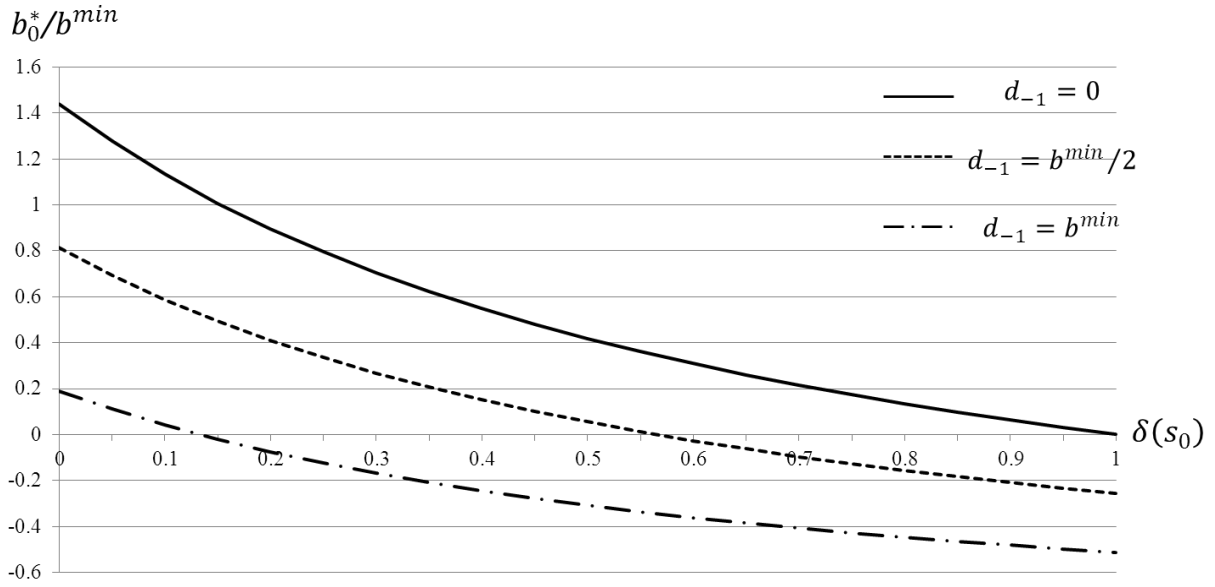
$$(6) b_0^* = \frac{-b^{min}[(1 + \beta^{-1})(1 - \delta(s_0))] - d_{-1}\beta^{-3}}{\delta(s_0)(1 + \beta^{-1}) + \beta^{-2}}$$

Thus, the optimal deficit the current political leader incurs is a function of his or her status-dependent impatience  $\delta(s_0)$ . It can be shown that  $b_0^*$  is strictly decreasing in  $\delta(s_0)$  (and hence also in  $s_0$ ) as long as the debt level at the beginning of period 0,  $d_{-1}\beta^{-1}$ , is 'sustainable', i.e., the government's outstanding liabilities at the beginning of period 0 do not much exceed the maximum surplus  $b^{min}$  the government can run in any given period.<sup>8</sup> Also note that the deficit run by the incumbent political leader does not depend on his or her successor's impatience  $\delta(s_1)$ . Figure 1 displays  $b_0^*(\delta(s_0))/b^{min}$  for different realisations of  $d_{-1}$  ( $\beta$  is set equal to 0.8) and reveals that lower social status leads to greater government deficits due to lower discount rates.

Summing up, our model predicts that the deficit a political leader will run is inversely related to his or her status, whereas the connection between his or her debt aversion and status is mediated by the degree of impatience or present orientation, respectively.

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<sup>8</sup> Formally, the following condition must hold:  $\frac{db_0^*}{ds} < 0$  iff  $\frac{\beta^{-1}d_{-1}}{b^{min}} < \frac{1+2\beta^{-1}+2\beta^{-2}+\beta^{-3}}{\beta^{-2}+\beta^{-3}}$ . The right-hand side of this expression is strictly increasing in  $\beta$  and equal to 1 for  $\beta = 0$ . For any reasonable value of  $\beta$  (e.g.,  $\beta > 0.8$ , implying that  $r < 25\%$ ), this condition will hold as long as the public liabilities are not more than 2.5 times the size of the maximum collectable surplus.

Figure 1:  $b_0^*(\delta(s_0))/b^{min}$  for different realisations of  $d_{-1}$ .

Notes:  $\beta$  is set equal to 0.8.

#### 4. Data and Empirical Approach

Following our theoretical discussion, we now test empirically whether a government's debt performance is affected by the socioeconomic status of its incumbent leader (i.e., depending on the form of government, the prime minister or president). For practical reasons, we concentrate on the heads of governments, as they are the most individually powerful decision-makers in the executive branch of government and, as shown in the literature discussed above, appear to exert a significant influence on government performance. We test our hypothesis utilising data from 21 OECD countries from 1980–2008. Our research question is addressed in two ways.

First, we apply a two-step approach. In Step 1, we estimate the following dynamic panel model:

$$\begin{aligned}
 (7) \text{ deficit}_{i,t} &= \alpha_i + \mu_t + \rho \text{ deficit}_{i,t-1} + \beta' \text{ economic variables}_{i,t} \\
 &\quad + \gamma' \text{ political variables}_{i,t} + \delta' \text{ demographic variables}_{i,t} \\
 &\quad + \varepsilon' \text{ leader dummies}_{i,t} + \zeta_{i,t}
 \end{aligned}$$

The dependent variable is the primary deficit in relation to GDP (in percentage points).  $\alpha_i$  is a country-specific intercept,  $\mu_t$  a time-fixed effect.  $\zeta_{i,t}$  is an error term. Since the lagged dependent variable causes the OLS estimator to be biased, we apply GMM estimation (Arellano and Bond, 1991), employing up to five valid lags of the dependent variable (i.e.,

lags 2–6) as instruments for the deficit in  $t-1$ .<sup>9</sup> We account for country-fixed effects by applying a within transformation.

We basically follow extant political economy literature when it comes to choice of control variables. As economic variables, we include the interest payments on government bonds (in percentage points of GDP) to account for the policy-invariant part of the budget, the real GDP growth rate and the unemployment rate as business cycle indicators, the log of real per capita GDP, and a variable measuring trade openness (value of imports plus exports in relation to GDP, measured in percentage points).

The political variables include a dummy for left-wing governments to control for partisan effects, a dummy for election years accounting for the potential influence of political budget cycles, and a Maastricht dummy to reflect the impact of the European monetary union, which is a step dummy that takes on the value 1 starting in the year a country committed to the Maastricht criteria. We account for possible constraints on the head of government's power to manipulate the public budget and control for measures of political dispersion. Therefore, we add a dummy indicating whether the political leader's party has a majority in all houses with law-making power, a variable that captures the degree of government fractionalisation, and a veto-player index (variable checks).<sup>10</sup>

We also add two variables depicting the demographic situation of a country's population: log population size, since this variable is found to influence the level of public spending in many empirical applications (for an overview, see Shelton, 2007), and the dependency ratio, defined as the share of people aged above 65 or less than 15 to the total working-age population. The share of dependent people tends to influence the level of public spending upward and tax revenues downward.

Finally, we construct dummy variables for each individual political leader and add these to our specification. As a country's reference, we choose the political leader with the fewest observations.

In Step 2, we take the estimated coefficients  $\hat{\epsilon}$  of the leader dummies obtained in Step 1 and employ them as dependent variables in an OLS regression:

$$(8) \hat{\epsilon}_j = \tilde{\alpha} + \tilde{\beta}' \text{leader variables}_j + \tilde{\zeta}_j$$

The left-hand-side variable  $\hat{\epsilon}_j$  can be interpreted as the average public deficit run by the head

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<sup>9</sup> Simulation studies reveal that a trade-off occurs when choosing the number of instrument lags in dynamic GMM models: a higher number of lags increases both estimation efficiency and the finite sample bias (Judson and Owen, 1997). Hence, we restrict the number of instruments to five. Note that with respect to our main variables of interest, we find no significant changes when varying the number of lags over a range of 1 to 10.

<sup>10</sup> These variables are from the Database of Political Institutions (DPI). Government fractionalisation measures the probability that two randomly picked deputies of the government are from different parties. The variable checks is a discrete variable with higher values indicating a larger number of balances and veto-players.

of government  $j$  during his or her incumbency, conditional on all other regressors employed in Equation (7) (and compared to a country's reference leader). The explanatory variables considered in Step 2 are characteristics describing the respective political leader, i.e., age at the beginning of the first term and total number of years in office, a dummy for female leaders, and the leader's personal status. We also control for a leader's parental status in order to capture potential socialisation effects. Note that we have to compute deviations from a country's reference leader for all explanatory variables. The advantage of this two-step approach is that it allows disentangling the questions of whether (i) leader identity matters at all and (ii) if so, which leader characteristics make a difference. The first question can be addressed by testing the joint significance of all leader dummies employed in Step 1. The answer to the second will be revealed by the results of Step 2.

However, the two-step approach may suffer from inefficient estimation, since noisy estimates obtained in Step 1 are used as endogenous variables in Step 2 and the number of observations in Step 2 is notably lower than in Step 1. Thus, we also use an alternative approach to test our hypothesis: we replace the leader dummies in Equation (7) with the leader characteristics of interest and in this way directly assess the impact of leader characteristics on the current deficit, i.e.:

$$(9) \text{deficit}_{i,t} = \alpha_i + \mu_t + \rho \text{deficit}_{i,t-1} + \beta' \text{economic variables}_{i,t} \\ + \gamma' \text{political variables}_{i,t} + \delta' \text{demographic variables}_{i,t} \\ + \varepsilon' \text{leader variables}_{i,t} + \zeta_{i,t}$$

The vector leader variables contains characteristics describing the incumbent head of government in state  $i$  in period  $t$ . We consider the same characteristics as in Equation (8), but age now refers to a leader's age at the end of period  $t$  and years in office to the total number of years in office completed by the end of period  $t$ .

Data on the deficit-to-GDP ratio are from the IMF's Government Finance Statistics. Unfortunately, there are missing values for some countries for certain periods, so that our panel models are unbalanced. In the Appendix, we report the data coverage for each country (see Table A1), provide the data sources as well as descriptive statistics (see Table A2), and explain how the status variables were constructed.

## 5. Estimation Results

### 5.1 Basic Specifications

We commence our empirical analysis with the results of the two-step approach. Estimates of Equation (7) are omitted to save space, but they are available on request. To illustrate the



impact of individual leaders, we derive rough proxies for politicians' debt propensity by adding the country-specific average deficit-to-GDP ratios to the leader-dummy coefficients obtained from Equation (7). Since our empirical model includes country fixed effects, the numbers thus derived can be interpreted as the expected deficit-to-GDP ratio the respective leader would have chosen had his or her country faced average economic, political, and demographic conditions during his or her incumbency.<sup>11</sup> We then ranked all political leaders according to their debt propensity, starting with the most debt-tolerant leader.<sup>12</sup> Table A3 in the Appendix presents the debt-propensity scores (i.e., the hypothetical deficit-to-GDP ratios) for all political leaders in our sample as well as their ranks.

The hypothetical deficit-to-GDP ratio of the median political leader (George W. Bush Jr.) is roughly 2.6. Our results show that only 21 out of 100 political leaders would have run a surplus under average economic, political, and demographic conditions. This suggests that the increase of public debt in many countries is partly due to fiscal policy decisions by political leaders. If we test the joint significance of all leader dummies using a Wald test, we obtain a  $\chi^2$  value of 1254, which is significant at all reasonable levels of significance. Thus, leader identity is statistically associated with government budget balance.

The results for Step 2 based on estimating Equation (8) are presented in Table 2. First, we estimate a general model containing all the leader characteristics listed in Section 4. Then, we eliminate insignificant regressors by applying a consistent general-to-specific reduction approach (Hendry, 2000). We thus enhance estimation efficiency and reveal which characteristics have significant explanatory power, taking into account potential multicollinear relationships between the regressors.

A political leader's age at the beginning of his or her first term and personal status are significant at the 5% level and are the only variables to survive model reduction. The dependent variable represents the average conditional public deficit run by the respective political leader during his or her incumbency (compared to a country's reference leader). Accordingly, the coefficient of personal status can be interpreted to mean that the tenures of political leaders who were engaged in blue-collar occupations before taking up politics (lower-class leaders; average status score 0.3) are associated with a deficit-to-GDP ratio which is on average about 2.3 percentage points (pp) higher than that during the tenures of leaders with an academic background (upper-class leaders; average status score 0.8). In the

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<sup>11</sup> Note that caution is required in interpreting these hypothetical deficit-to-GDP ratios. Differences in countries' average deficit-to-GDP ratios can also result from unobserved heterogeneity. As a consequence, variations across leaders in different countries with respect to debt-propensity scores could be partly driven by country-specific effects.

<sup>12</sup> Our sample is comprised of 100 political leaders.

long run, this effect increases to 4 pp. This finding supports our hypothesis and is not only statistically significant, but highly relevant economically as well. Regarding a leader's age, our results suggest that if entry age increases by one year, the expected deficit-to-GDP ratio will increase by 0.07 pp. In comparison to the social status effect, this is quite modest. Roughly 17% of the variation among leaders' debt performance can be explained by personal status and age, which is remarkably high.

Table 2: Estimation Results for Equation (8)

Variables	General Model		Reduced Model	
	Coefficient	Stand. error	Coefficient	Stand. error
Constant	0.014	0.228	0.019	0.201
Parental status	-0.221	1.274		
Personal status	-4.234*	2.008	-4.676*	1.823
Years in office	-0.002	0.062		
Age	0.068*	0.031	0.068*	0.032
Female	-0.680	1.322		
R <sup>2</sup>	0.179		0.171	
Observations	100		100	
Parameters	6		3	
Testing-down restriction			F (3, 94) = 0.13	

Notes: Results are based on OLS estimation. White (1980) robust standard errors are reported. \* and \*\* indicate significance at the 5% and 1% level, respectively.

Table 3 shows the estimates of Equation (9), where the leader variables are inserted directly into the dynamic panel model (Arellano and Bond, 1991). Again, we apply a consistent general-to-specific reduction approach so as to arrive at a more efficiently estimated model.

Focusing on the economic variables in the reduced model, we find a counter-cyclical movement of the primary deficit. A 1 pp decrease in the real GDP growth rate triggers an increase in the deficit-to-GDP ratio of 0.25 pp. The unemployment rate also remains in the reduced model, exhibiting a positive sign, but is individually insignificant due to collinearity.

Only one political variable survives model reduction. Election years are associated with a significantly higher deficit-to-GDP ratio than non-election years, providing evidence for the existence of political budget cycles in OECD countries. This finding supports the implication of political budget cycle theory and thus may be interpreted as evidence for the conjecture that political decision-makers are driven by opportunistic motives. Given the short-term nature of fiscal manipulation aimed at enhancing re-election prospects, the effect is quite modest: the deficit-to-GDP ratio rises by roughly 0.5 pp in election years.

Table 3: Estimation Results for Equation (9)

Variables	General Model		Reduced Model	
	Coefficient	Stand. error	Coefficient	Stand. error
Deficit/GDP (-1)	0.819**	0.052	0.871**	0.033
<b>Economic variables</b>				
Real GDP growth	-0.242**	0.040	-0.252**	0.042
Unemployment rate	0.016	0.047	0.021	0.034
Interest/GDP	0.035	0.127		
Log(GDP per capita)	-2.042	1.520		
Trade openness	0.008	0.011		
<b>Political variables</b>				
Leftist government	0.047	0.197		
Election year	0.411**	0.106	0.524**	0.138
Gov. fractionalisation	0.218	0.674		
Checks	0.004	0.060		
Allhouse	-0.212	0.399		
Maastricht	0.367	0.431		
<b>Demographic variables</b>				
Dependency ratio	-0.008	0.022		
Log(Population)	6.009*	2.411	3.952*	1.975
<b>Leader variables</b>				
Parental status	-0.083	0.448		
Personal status	-2.336**	0.908	-1.991**	0.752
Years in office	0.028	0.031		
Age	-0.022	0.016		
Female	0.137	0.564		
Leader transition	0.302	0.214		
R <sup>2</sup>	0.645		0.645	
Observations	503		512	
Parameters	69		55	
Testing-down restriction			$\chi^2(14) = 10.9$	

Notes: Results are based on GMM estimation. Lags 2–6 of the dependent variable are used as instruments. The models include cross-section and time fixed effects. Panel-robust standard errors are reported. \* and \*\* indicate significance at the 5% and 1% level, respectively.

A glance at the leader variables shows that only personal status remains in the reduced model, with the expected negative sign. Comparing leaders who held blue-collar jobs (lower-class leaders) to those with an academic background (upper-class leaders), the findings from Table 3 suggest that the former have a 1 pp higher deficit-to-GDP ratio. In the long-run, this effect grows to over 7.5 pp, which is economically substantial. In contrast, a leader's age exerts no statistically significant influence, contradicting the finding from Equation (8).

In summary, the estimation results of our two alternative specifications suggest that the higher the incumbent leader's personal status, the less the government's reliance on debt financing. This finding supports our hypothesis that leaders of low status are more impatient or debt tolerant and thus run higher government deficits. The effect is not only statistically significant, but also economically relevant. However, the point estimates vary considerably across the specifications. The average difference between lower-class leaders and their upper-class counterparts with respect to the deficit-to-GDP ratio is 1.0 pp or 2.3 pp, depending on the estimation strategy. The long-run effects are 4 and 7.5 pp, respectively. Other leader characteristics do not reveal a robust impact on the primary deficit.

## 5.2 Robustness Checks

We conduct several robustness tests. First, we test whether our results are robust to the estimation method. Instead of using a GMM approach, we now rely on the least squares dummy variable (LSDV) estimator. It is argued that the GMM estimator may suffer from poor finite sample properties if the number of cross-sections is small (Kiviet, 1995), which is the case in our empirical application. In particular, findings from simulation studies show that the GMM estimates tend to be biased toward zero. In contrast, estimating dynamic panel models by LSDV typically yields coefficients that are too large in absolute terms (Judson and Owen, 1997). However, the bias of the LSDV estimates becomes negligible for growing  $T$ . Our estimation results are presented in Table A4 in the Appendix. Reflecting the outcome from simulation studies, we find that most coefficients increase when relying on the LSDV estimator. The coefficient of personal status, for example, grows to roughly  $-2.7$  but remains significant at the 1% level.<sup>13</sup>

Second, we test whether our results are affected by specific individual political leaders or countries. We systematically exclude each individual leader and country, respectively, from our analysis. Our results remain unchanged.<sup>14</sup>

Third, we allowed for clustered standard errors at the leader level in the context of LSDV models. The impact of political leaders' status on the public budget deficit remains significant at the 1% level.

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<sup>13</sup> We also compute the bias-corrected LSDV (LSDVc) estimator suggested by Bruno (2005) to ensure the robustness of our results. The application of the LSDVc estimator requires the choice of a consistent estimator in a first-stage regression in order to obtain a bias approximation. We initialise the estimator using the Arellano-Bond (1991) GMM-approach and base the bias correction on a bias approximation up to order  $O(1/T)$ . As suggested by Kiviet and Bun (2001), the variance-covariance matrix is estimated using a parametric bootstrap procedure employing 200 repetitions. Our core result remains remarkably robust: the estimated coefficient of personal status is  $-2.4$  and its p-value is 0.02.

<sup>14</sup> Results are available on request.

Fourth, we investigate whether our results are driven by non-randomly missing data. As discussed earlier, we have to estimate unbalanced panel models since data on the deficit-to-GDP ratio are missing for some countries in certain years. As Table A1 in the Appendix shows, data on the Greek, Japanese, and New Zealand deficit are missing for roughly one-third of the sample period. We now exclude these three countries from our sample in order to obtain a more balanced dataset and re-estimate Equation (9). Results are provided in Table A5 in the Appendix. Focusing on the main variables of our interest—i.e., the leader characteristics—reveals that our prior findings do not change notably.

Fifth, we examine how political constraints affect a leader's power to influence the public deficit. We would expect leader effects to be more pronounced when there are few political constraints, as such a situation makes it easier for the incumbent to pursue his or her preferred policies. Investigating this issue, we estimate separate coefficients for country/year-observations in which there were only few veto players compared to times in which the number of veto players was large. For this purpose, we construct two dummy variables based on the political variable checks: the dummy *checks\_high* takes the value 1 if the number of checks is above the sample median, and 0 otherwise;<sup>15</sup> vice-versa for the dummy *checks\_low*. We then let these dummies interact with the leader characteristics, as shown in Equation (10):

$$(10) \text{deficit}_{i,t} = \alpha_i + \mu_t + \rho \text{deficit}_{i,t-1} + \beta' \text{economic variables}_{i,t} \\ + \gamma' \text{political variables}_{i,t} + \delta' \text{demographic variables}_{i,t} \\ + \varepsilon'_{high} \text{checks\_high} \times \text{leader variables}_{i,t} \\ + \varepsilon'_{low} \text{checks\_low} \times \text{leader variables}_{i,t} + \zeta_{i,t}$$

Results for this modification are reported in Table A6 in the Appendix and support our intuition: leader effects seem to be more pronounced when veto players are less important. The coefficient of personal status is  $-2.7$  if checks are low, compared to  $-1.9$  if checks are high. Note, however, that the difference between these coefficients is not statistically significant. Moreover, if checks are low, years in which a new leader comes into power are associated with an increase in the deficit-to-GDP ratio of roughly 0.6 pp. In contrast, no change occurs in transition years when checks are high.

Finally, we perform the same exercise for country/year-observations reflecting low or high government fractionalisation based on the median of the fractionalisation index.<sup>16</sup> We obtain a coefficient for personal status of  $-3.6$  in the case of low government fractionalisation and  $-1.1$

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<sup>15</sup> The sample median of checks is 4.

<sup>16</sup> The sample median of the fractionalisation index is roughly 0.24.

in case of high government fractionalisation.<sup>17</sup> It appears that only the former coefficient is significantly different from zero (p-value = 0.003) and the null hypothesis of equal coefficients is rejected (p-value = 0.024). Thus, we conclude that the influence the head of government can exert on the public budget depends on the degree of political dispersion. This further supports our conjecture that individual leaders' policy decisions are important for budgetary outcomes.

### 5.3 Addressing Endogeneity Concerns

Leader transitions are not random, and the chance of winning high political office is likely affected by the aspirant's characteristics, too (cf. Jones and Olken, 2005). If there are certain unobserved factors which are related to the likelihood of taking or staying in office and affect the country's debt performance, then the findings from our basic specifications may be biased.<sup>18</sup> In this section, we address such endogeneity concerns in two ways.

First, we combine the two estimation approaches applied in Section 4.1 by including both the leader dummies and the leader characteristics in a nested model. This specification allows assessing the impact of leader characteristics on the deficit while controlling for any unobserved leader-specific characteristics which may be correlated with the status. In Table 4, to save space, we report only the estimates of the leader variables.

Table 4: Combining Specifications (7) and (9)

Variables	Coefficient	Stand. error
Parental status	0.565	1.372
Personal status	-3.716**	1.006
Years in office	0.143	0.160
Age	-0.084	0.110
Female	0.583	0.515
Leader transition	0.395	0.264
R <sup>2</sup>	0.757	
Observations	503	
Parameters	171	

Notes: Results are based on GMM estimation. Lags 2–6 of the dependent variable are used as instruments. Coefficients of the lagged dependent variable, economic variables, demographic variables, political variables, and leader dummies are omitted. The model includes cross-section and time fixed effects. Panel-robust standard errors are reported. \* and \*\* indicate significance at the 5% and 1% level, respectively.

<sup>17</sup> Results are available on request.

<sup>18</sup> Another concern is that those who carry people into office (e.g., political officials or swing voters) may select a leader of high status if they prefer a lower level of deficit financing and a leader of low status if they prefer higher deficits. Note, however, that such a scenario would imply that these people are aware of the relationship between status and debt performance, which would further support our hypothesis.

Focusing on the leader variables, we find that our previous conclusions remain qualitatively unchanged. The point estimate of personal status is slightly smaller than in Table 2, but nearly twice the estimate set out in Table 3. This suggests that omitting leader-specific effects results in underestimation of the association between leader status and deficit spending.

Second, we apply an instrumental variable (IV) estimation approach to circumvent any bias caused by endogenous leader selection and transition. To this point, all our findings suggest that personal status matters, but parental status does not. However, we observe a notable correlation between political leaders' parental and personal status, indicating that status inheritance appears to play a role. Future heads of governments who grow up under poor socioeconomic conditions are more likely to exhibit impatience or debt tolerance because they are more likely to remain in the lower class. Social stratification research suggests that parental status is generally a good predictor of personal status (cf. Breen and Jonsson, 2005, for a literature overview). Parents' income, education, and occupation appear to have a great influence on their children's careers and thus their personal status. Taking these considerations into account, leaders' parental status appears to be a good instrument for personal status.

Using parental status as an instrument for personal status helps assess the causal impact of political leader status on deficit financing. We start from Equation (9), in which the leader characteristics are directly inserted into the dynamic panel model, but now use parental status as an instrument for personal status. We integrate the instrumental variable approach in our dynamic panel GMM estimation by adding GMM-type instruments for personal status. An auxiliary regression of personal status on parental status reveals that parental status is a strong instrument for personal status (Staiger and Stock, 1997).<sup>19</sup>

Table 5 shows that the negative relation between political leaders' personal status and governments' deficit-to-GDP ratio remains statistically and economically significant. The coefficient of personal status derived from this IV estimation is similar to the point estimate set out in Table 4, which indicates that the findings from Table 3 based on Equation (9) are biased toward zero. Using the more efficiently estimated coefficients from the reduced model, in the short term, the tenures of lower-class leaders are associated with a deficit-to-GDP ratio which is 1.6 pp lower than that of upper-class leaders. In the long run, this effect increases to almost 12 pp.

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<sup>19</sup> Staiger and Stock (1997) propose that an instrument can be considered sufficiently strong if the F-statistic of a regression of the instrumented variable (here, personal status) on the instrument (here, parental status) is larger than 10. In our case, the F-statistic is 11.5.

Altogether, it appears that the connection between political leaders' personal status and public deficit is not due to leader selection or transition effects. Neglecting such endogeneity concerns may even lead to an underestimation of leader impacts on debt performance. Thus, the IV estimation result supports our interpretation of a causal effect running from personal status to fiscal policy behaviour.

Table 5: Instrumenting Personal Status by Parental Status

Variables	General Model		Reduced Model	
	Coefficient	Stand. error	Coefficient	Stand. error
Deficit/GDP (-1)	0.815**	0.055	0.859**	0.030
<b>Economic variables</b>				
Real GDP growth	-0.245**	0.043	-0.258**	0.044
Unemployment rate	0.010	0.051	0.034	0.034
Interest/GDP	0.072	0.144		
Log(GDP per capita)	-2.081	1.650		
Trade openness	0.005	0.011		
<b>Political variables</b>				
Leftist government	0.143	0.202		
Election year	0.406**	0.104	0.519**	0.137
Gov. fractionalisation	0.391	0.686		
Checks	-0.005	0.059		
Allhouse	-0.310	0.446		
Maastricht	0.388	0.474		
<b>Demographic variables</b>				
Dependency ratio	0.011	0.020		
Log(Population)	7.040**	2.627	4.704*	2.128
<b>Leader variables</b>				
Personal status	-4.328**	1.458	-3.308**	0.901
Years in office	0.037	0.031		
Age	-0.028	0.016		
Female	0.211	0.468		
Leader transition	0.266	0.214		
R <sup>2</sup>	0.642		0.644	
Observations	503		512	
Parameters	68		55	
Testing-down restriction			$\chi^2(13) = 10.2$	

Notes: Results are based on GMM estimation. Lags 2–6 of the dependent variable are used as instruments for its first lag, and parental status as an instrument for personal status. The models include cross-section and time fixed effects. Panel-robust standard errors are reported. \* and \*\* indicate significance at the 5% and 1% level, respectively.



## 6. Conclusion

Political economists typically assume that politicians behave purely opportunistically, in a narrow sense, when deciding on fiscal policies. However, several implications derived from this conjecture—such as political budget cycle theory or approaches viewing the public budget as a common pool resource—find only little empirical support.

The approach applied in this paper is different. Combining insights provided by sociology with economic research on intertemporal decision-making, we draw a connection between political leaders' socioeconomic backgrounds, their time preferences or future orientation, respectively, and the public budget balance. We hypothesise that political leaders with low socioeconomic status may be more prone to rely on deficit financing.

We test our hypothesis empirically using data on fiscal deficits from OECD countries over the period 1980 to 2008. As fiscal policy decision-makers, we choose the leading politicians of these countries, that is, either prime ministers or presidents. The results of our panel analysis are theory consistent and suggest that the tenures of lower-class leaders are associated with a deficit-to-GDP ratio which is roughly 1.6 percentage points higher than that of upper-class leaders. Since our estimations take place in a dynamic model, we can compute the impact in a long-run equilibrium: over time, this effect increases to almost 12 percentage points. Thus, the impact of personal status on fiscal deficits is not only statistically significant but also economically substantial and econometrically robust. Moreover, we find that in political systems characterised by stronger constraints on policy-makers in the form of checks and balances or government fractionalisation, the impact of personal status on fiscal deficit declines. However, it continues to be statistically significant and economically relevant.

We interpret our findings as a causal relationship, as we start from a clearly formulated theory to the empirically testable hypothesis. This interpretation is further supported by estimates based on instrumenting the personal status variable, which could be endogenous, by parental status, which, almost by definition, cannot be linked to current fiscal deficits and is, therefore, uncorrelated with the error term. If anything, instrumenting personal background increases its impact on fiscal deficits.

Our findings contribute to a growing branch in the economics literature showing that political leaders can have a significant influence on their countries' economic performances. Given that our results are much stronger than those derived by applying common economic models of behaviour suggests that economics may benefit from integrating social science research. For example, in the area of behavioural economics, where economists have already started incorporating psychological research, the result has been that we now have a much better

understanding of economic behaviour. Given the size of the field, there is as yet very little economic research utilising insights from sociology, and this primarily involves literature on happiness (for a survey, see Frey and Stutzer, 2002) or the ‘identity economics’ approach put forward by Akerlof and Kranton (2000). The results presented in this paper suggest that integrating sociological research into an analysis of economic problems has the potential to improve our explanations of important real-world phenomena.

**Appendix****Data Availability, Description, Descriptive Statistics, and Sources****Table A1: Availability of Data on the Primary Deficit in Relation to GDP.**

<u>Country</u>	<u>Years with missing data</u>
Australia	—
Austria	—
Belgium	—
Canada	1980–1989
Denmark	—
Finland	—
France	1998
Germany	—
Greece	1991–2000
Ireland	1998
Italy	1981–1985, 1990–1994
Luxembourg	1998
Japan	1994–2004
Netherlands	—
New Zealand	1989–2001
Norway	—
Portugal	1991–1998
Spain	1998
Sweden	—
UK	—
USA	—

Data source: IMF Government Finance Statistics (online edition).

Table A2: Descriptive Statistics.

<b>Variable</b>	<b># Obs.</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min.</b>	<b>Max.</b>
Deficit/GDP	523	1.76	4.52	-20.00	22.88
Real GDP growth	588	2.69	2.13	-5.98	11.49
Unemployment rate	588	7.33	3.76	1.02	24.12
Interest/GDP	542	3.49	2.33	0.10	11.87
Log(GDP per capita)	588	10.20	0.30	9.27	11.41
Trade openness	588	65.87	49.20	11.75	324.31
Leftist government	588	0.41	0.50	0.00	1.00
Election year	588	0.28	0.45	0.00	1.00
Gov. fractionalisation	588	0.27	0.26	0.00	0.83
Checks	587	4.37	1.42	2.00	16.00
Allhouse	582	0.21	0.40	0.00	1.00
Maastricht	588	0.20	0.40	0.00	1.00
Dependency ratio	588	50.29	3.97	43.08	69.51
Log(Population)	588	16.55	1.46	12.81	19.53
Parental status	588	0.57	0.21	0.17	0.90
Personal status	588	0.73	0.12	0.29	0.85
Years in office	588	4.29	3.16	0.00	16.00
Age	588	56.58	8.10	38.00	86.00
Female	588	0.11	0.31	0.00	1.00
Leader transition	588	0.20	0.40	0.00	1.00

### Economic Variables

Data on the primary deficit and interest payments are from the IMF's Government Finance Statistics (online edition). Data on real GDP growth, unemployment rate, and interest payments are from the IMF's World Economic Outlook Database. Real per capita GDP (in purchasing power parities) and trade openness are taken from the Penn World Tables.

### Political Variables

Data on most political variables are from the Database of Political Institutions (DPI; cf. Beck et al., 2001).

The variable Leftist government is based on the DPI variable EXECRLC. Leftist government takes the value 1 if EXECRLC is equal to 3 (i.e., the party of the prime minister or president is leftist), and 0 otherwise.

The variable Election year corresponds to the DPI variable LEGELEC (i.e., dummy for years in which legislative elections took place) if a country's political system is a parliamentary one.

In presidential systems, it corresponds to the DPI variable EXELEC (i.e., years in which executive elections took place).

Government fractionalisation corresponds to the DPI variable GOVFRAC and equals the probability that two deputies picked at random from among the government parties will be of different parties.

Checks corresponds to the DPI variable CHECKS. It accounts for the competitiveness of legislative and executive elections as well as for the number of veto players within a government (the higher the value of CHECKS, the greater the dispersion of political power).

The variable Allhouse corresponds to the DPI variable ALLHOUSE. It takes the value 1 if the party of the executive controls all houses that have law-making powers.

### Demographic Variables

All demographic variables are taken from the World Bank's World Development Indicators.

### Leader Variables

Information on political leaders' age, years in office, and year of entering office are identified using the Archigos dataset of political leaders (cf. Goemans et al., 2009).

Information on political leaders' occupational histories as well as the occupational histories of their parents comes mainly from the online edition of the Encyclopaedia Britannica and the Munzinger Online biography. Both provide brief biographies of public figures, especially politicians. In a few cases, we also rely on information provided on personal homepages of (former) political leaders or other online sources.

The variable Parental status measures the occupational status score of political leaders' parents. To construct this variable, we coded the occupations of political leaders' parents according to the ISCO-68 and then applied the ISEI scores. When both parents were working or when a parent engaged in than one occupation during his or her career, we decided to employ the highest ISEI score. In cases where a political leader was raised entirely by one parent only (due to divorce or death of the other parent), we decided to take only the status score of that parent into account. Moreover, we do not differentiate between biological and stepparents.

For the variable Personal status, we focus on the positions political leaders held before embarking on a political career, which we defined as first membership in a party executive committee or ministry. In cases where political leaders engaged in more than one occupation during their career, we chose the occupation with the highest ISEI score.

Table A3: Hypothetical Deficit-to-GDP Ratios for Political Leaders (a lower Rank indicates lower Deficits)

Leader	Legislation period	Debt-propensity	National Rank	Global Rank	Leader	Legislation period	Debt-propensity	National Rank	Global Rank
<b>Australia</b>					<b>Denmark (cont.)</b>				
Keating	1991–96	0.4	1	76	Rasmussen A.F.	2001–09	–2.6	3	91
Hawke	1983–91	–0.5	2	81	Schlüter	1982–93	–4.2	4	95
Howard	1996–07	–0.9	3	85	<b>France</b>				
Fraser	1975–83	–2.2	4	87	Mitterand	1981–95	4.0	1	25
<b>Austria</b>					Chirac	1995–07	3.8	2	27
Sinowatz	1983–86	5.2	1	11	Sarkozy	2007–12	3.4	3	34
Klima	1997–00	4.3	2	22	d’Estaing	1974–81	2.7	4	49
Vranitzky	1986–97	4.3	3	23	<b>Finland</b>				
Kreisky	1970–83	3.6	4	28	Sorsa	1982–87	1.9	1	58
Schüssel	2000–07	3.4	5	33	Holkeri	1987–91	1.1	2	69
Gusenbauer	2007–08	3.0	6	44	Aho	1991–95	0.8	3	75
<b>Belgium</b>					Koivisto	1979–82	0.2	4	79
Martens	1979–92	6.0	1	4	Lipponen	1995–03	–2.1	5	86
Verhofstadt	1999–08	5.0	2	15	Vanhanen	2003–10	–2.2	6	88
Dehaene	1992–99	4.4	3	21	<b>Germany</b>				
<b>Canada</b>					Schröder	1998–05	2.8	1	47
Chreti�n	1993–03	1.8	1	60	Kohl	1982–98	2.2	2	56
Martin	2003–06	1.6	2	62	Schmidt	1974–82	1.8	3	59
Mulroney	1984–93	1.0	3	71	Merkel	2005–today	1.2	4	67
<b>Denmark</b>					<b>Greece</b>				
J�rgensen	1975–82	–0.2	1	80	Zolotas	1989–90	8.6	1	3
Rasmussen P.N.	1993–01	–0.8	2	84	Papandreou A.	1981–89, 1993–96	5.7	2	7

Table A3 (continued)

Leader	Legislation period	Debt-propensity	National Rank	Global Rank	Leader	Legislation period	Debt-propensity	National Rank	Global Rank
<b>Greece (cont.)</b>					<b>Japan (cont.)</b>				
Rallis	1980–81	4.6	3	19	Abe	2006–07	5.5	2	9
Karamanlis K.	2004–09	2.4	4	54	Takeshita	1987–89	5.3	3	10
Simitis	1996–04	1.6	5	63	Suzuki	1980–82	5.0	4	14
<b>Ireland</b>					Fukuda Y.	2007–08	3.9	5	26
Ahern	1997–08	10.0	1	1	Kaifu	1989–90	3.2	6	40
Bruton	1994–97	5.9	2	5	Koizumi	2001–06	3.1	7	43
FitzGerald	1981–87	3.0	3	46	<b>Netherlands</b>				
Reynolds	1992–94	2.2	4	57	Kok	1994–02	4.7	1	18
Haughey	1987–92	1.5	5	64	Lubbers	1982–94	3.3	2	39
<b>Italy</b>					Balkenende	2002–10	3.2	3	41
Craxi	1983–87	9.0	1	2	van Agt	1977–82	2.8	4	48
De Mita	1988–89	4.7	2	17	<b>New Zealand</b>				
Goria	1987–88	3.5	3	31	Muldoon	1975–84	4.6	1	20
Berlusconi	1994–95, 2001–06	3.4	4	35	Lange	1984–89	3.6	2	29
D'Alema	1998–00	3.3	5	38	Clark	1999–08	0.8	3	74
Prodi	1996–98, 2006–08	3.1	6	42	<b>Norway</b>				
<b>Luxembourg</b>					Brundtland	1986–89, 1990–96	–2.2	1	89
Juncker	1995–today	–2.4	1	90	Jagland	1996–97	–4.1	2	94
Santer	1984–95	–3.3	2	92	Syse	1989–90	–4.5	3	96
Werner	1979–84	–4.0	3	93	Willoch	1981–86	–5.5	4	97
<b>Japan</b>					Nordli	1976–81	–6.8	5	98
Nakasone	1982–87	5.6	1	8	Bondevik	1997–00, 01–05	–6.9	6	99
					Stoltenberg	2000–01, 05–today	–10.5	7	100

Table A3 (continued)

Leader	Legislation period	Debt-propensity	National Rank	Global Rank	Leader	Legislation period	Debt-propensity	National Rank	Global Rank
<b>Portugal</b>					<b>Sweden (cont.)</b>				
Lopes	2004–05	5.1	1	13	Palme	1982–86	3.0	2	45
Guterres	1995–02	4.9	2	16	Fälldin	1979–82	1.7	3	61
Sócrates	2005–11	3.6	3	30	Persson	1996–06	1.0	4	70
Soares	1983–85	3.4	4	37	Carlsson	1986–91, 1994–96	0.3	5	78
Barroso	2002–04	2.4	5	53	Reinfeldt	2006–today	–0.6	6	82
Silva	1985–95	1.5	6	65	<b>UK</b>				
Balsemão	1981–83	0.9	7	72	Blair	1997–07	2.6	1	51
<b>Spain</b>					Major	1990–97	2.4	2	55
Rodríguez Zap.	2004–11	5.9	1	6	Thatcher	1979–90	–0.6	3	83
Aznar	1996–04	5.2	2	12	<b>USA</b>				
Calvo–Sotelo	1981–82	3.5	3	32	Bush Jr.	2001–09	2.6	1	50
González	1982–96	3.4	4	36	Clinton	1993–01	1.3	2	66
Suárez	1976–81	2.5	5	52	Reagan	1981–89	1.2	3	68
<b>Sweden</b>					Bush Sr.	1989–93	0.9	4	73
Bildt	1991–94	4.3	1	24					

Notes: The debt-propensity score is the hypothetical deficit-to-GDP ratio a leader would have been expected to run if his or her country was facing average economic, political, and demographic conditions during his or her incumbency. The global rank refers to a leader's debt propensity compared to all other political leaders, i.e., 1 means the leader is the most debt-tolerant leader in our sample, 100 that the leader is the most debt-averse one. The national rank refers to a leader's debt propensity compared to the other leaders in his or her country.



**Checks for Robustness**

Table A4: Estimation Results for Equation (9)—LSDV Estimation

Variables	Coefficient	Stand. error
Deficit/GDP (–1)	0.756**	0.047
<b>Economic variables</b>		
Real GDP growth	–0.238**	0.041
Unemployment rate	0.026	0.053
Interest/GDP	0.091	0.129
Log(GDP per capita)	–2.297	1.631
Trade openness	0.009	0.012
<b>Political variables</b>		
Leftist government	0.038	0.220
Election year	0.395**	0.106
Gov. fractionalisation	0.145	0.690
Checks	–0.001	0.061
Allhouse	–0.240	0.425
Maastricht	0.375	0.479
<b>Demographic variables</b>		
Dependency ratio	0.000	0.022
Log(Population)	6.812*	2.673
<b>Leader variables</b>		
Parental status	–0.207	0.512
Personal status	–2.674**	0.968
Years in office	0.026	0.032
Age	–0.025	0.017
Female	0.154	0.652
Leader transition	0.328	0.212
R <sup>2</sup>	0.648	
Observations	503	
Parameters	69	

Notes: Results are based on least squares dummy variable (LSDV) estimation. The model includes cross-section and time fixed effects. Panel-robust standard errors are reported. \* and \*\* indicate significance at the 5% and 1% level, respectively.

Table A5: Excluding Greece, Japan, and New Zealand from the Regression

Variables	Coefficient	Stand. error
Deficit/GDP (−1)	0.808**	0.044
<b>Economic variables</b>		
Real GDP growth	−0.250**	0.046
Unemployment rate	0.050	0.051
Interest/GDP	−0.107*	0.049
Log(GDP per capita)	−2.629	1.671
Trade openness	0.001	0.011
<b>Political variables</b>		
Leftist government	0.125	0.205
Election year	0.388**	0.107
Gov. fractionalisation	0.347	0.615
Checks	−0.002	0.056
Allhouse	−0.163	0.196
Maastricht	0.524	0.439
<b>Demographic variables</b>		
Dependency ratio	−0.012	0.018
Log(Population)	10.210**	2.819
<b>Leader variables</b>		
Parental status	0.010	0.471
Personal status	−2.043**	0.752
Years in office	0.025	0.027
Age	−0.028	0.018
Female	0.598	0.565
Leader transition	0.186	0.189
R <sup>2</sup>	0.698	
Observations	459	
Parameters	66	

Notes: Results are based on GMM estimation. Lags 2–6 of the dependent variable are used as instruments. The models include cross-section and time fixed effects. Panel-robust standard errors are reported. \* and \*\* indicate significance at the 5% and 1% level, respectively.

Table A6: Estimation Results for Equation (10)

Variables	Coefficient	Stand. error
<b>Checks Low</b>		
Parental status	0.254	0.701
Personal status	-2.670*	1.108
Years in office	0.009	0.042
Age	-0.013	0.018
Female	-0.269	0.502
Leader transition	0.557*	0.249
<b>Checks High</b>		
Parental status	-0.456	0.355
Personal status	-1.900*	0.866
Years in office	0.046	0.030
Age	-0.022	0.018
Female	0.796	0.727
Leader transition	-0.049	0.294
R <sup>2</sup>	0.652	
Observations	503	
Parameters	75	

Notes: Results are based on GMM estimation. Lags 2–6 of the dependent variable are used as instruments. Coefficients of the lagged dependent variable, economic variables, demographic variables, and political variables are omitted. The model includes cross-section and time fixed effects. Panel-robust standard errors are reported. \* and \*\* indicate significance at the 5% and 1% level, respectively.

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