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Leaders' Impact on Public Spending Priorities: The Case of the German Laender*

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Leaders' Impact on Public Spending Priorities: The Case of the German Laender

Abstract

We examine determinants of the composition of public expenditure in the German Laender (states) over the period 1992–2008, as the Laender exhibit a high degree of institutional and political homogeneity and are endowed with extensive fiscal competences. Our prime contribution is an investigation into how political leaders' socioeconomic background influences public spending priorities. Applying sociological theory, we link preferences for the composition of public spending to social status. In contrast to approaches relying on political budget cycles or partisan theory, we find strong and theory-consistent evidence that prime ministers tend to favour fiscal policies supporting the social class in which they are socialised. Governments led by prime ministers from a poor socioeconomic background spend significantly more on social security, education, health, infrastructure, and public safety.

JEL: E62, H75, H76

Keywords: Leadership, socioeconomic status, social rivalry, public expenditure composition.

1. Introduction

Starting about 20 years ago with the seminal work by Rogoff (1990), economists have become increasingly interested in explaining variation in the composition of public expenditure. This strand of research owes its importance due to the fact that changes in government spending priorities appear to affect economic growth (e.g., Barro, 1990; Devarajan et al., 1996), social welfare (Rogoff, 1990), subjective well-being (Hessami, 2010), and social inequality, i.e., the distribution of valuable resources among different groups in the society.¹

Most research in this field comes from political economists and a great deal of this involves applications of *political budget cycle* (PBC) theory. PBC scholars suggest that changes in the apportionment of the public budget are linked to the legislative cycle. Rogoff (1990) assumes that voters lack information about government *competence* in efficiently administering the provision of public goods and concludes that increased public spending on *highly visible* items is employed as a signalling device prior to elections. Drazen and Eslava (2005, 2010) model an electorate which cannot observe the *preferences* of the incumbent regarding the composition of public expenditure and thus expect a pre-electoral rise in *targetable* expenditure categories, i.e., categories which directly support certain groups of voters, generating so-called pork-barrel cycles.² Typically, researchers try to find evidence for PBC in spending on infrastructure projects and social security transfers, since these items are commonly regarded as both highly visible and targetable. However, the outcome of these studies is inconclusive; some studies confirm the predictions of the theoretical models, whereas others find pre-electoral decreases in spending on these items.³

While PBC scholars analyse budgetary changes within one legislative period, variations in the budget across different governments are commonly attributed to *partisan ideology*. There are only few studies investigating partisan effects on the composition of the budget and their results are, again, mixed (see, e.g., Kittel and Obinger, 2003; Veiga and Veiga, 2007;

¹ Moreover, recent studies investigate the influence of public spending in certain policy fields on private sector performance. For instance, García-Quevedo (2004) finds in a meta-analysis that public spending on R&D tends to crowd-out business expenditure on R&D. Heinemann (2008) shows that an increase in welfare state spending negatively affects benefit morale, i.e. the reluctance to claim public benefits without legal entitlement.

² See Vergne (2009) for a more detailed comparison of both models and their conclusions.

³ Regarding spending on infrastructure, Blais and Nadeau (1992) find evidence for pre-electoral increases in spending on the construction of roads in Canadian provinces, Schuknecht (2000) finds the same in a sample of 24 developing countries, as does Khemani (2004) for Indian states. Drazen and Eslava (2005, 2010) report that spending on diverse infrastructure items increases prior to elections in Columbian municipalities; Veiga and Veiga (2007) discover comparable results for Portuguese municipalities. Contradictory results are presented by Block (2002), who finds a negative impact of upcoming elections on spending on infrastructure in a sample of 69 developing countries, as does Vergne (2009) in a sample of 42 developing countries. Regarding spending on social security transfers, Blais and Nadeau (1992) note a significant increase in social transfer payments prior to elections, whereas Drazen and Eslava (2005, 2010) find a significant decrease.

Potrafke, 2009). When it comes to public expenditure composition, leftist governments are usually supposed to spend more on items supporting the working class, especially social security, education, and health, than their right-wing counterparts (Galli and Rossi, 2002).

PBC and partisan theory view politicians as either *purely opportunistic* or solely driven by *partisan ideology*. The approach put forward in this paper derives from arguments developed in sociology. Our hypothesis is that incumbents' preferences for, and decisions about, the composition of public expenditure are influenced by their socioeconomic status, i.e., an individual's relative standing in society. We expect that the composition of public expenditure exhibits a social rivalry motive: governments led by political leaders characterised by low family status tend to conduct policies supporting a levelling of status-related social inequalities. This implies increasing expenditure on items such as social security, education, and health care, as these are prominent dimensions of social deprivation. Our novel approach contributes to a growing literature linking government performance to individual characteristics of incumbent political leaders (e.g., Jones and Olken, 2005; Dreher et al., 2009; Hayo and Neumeier, 2011).

We apply our theoretical prediction to the states of the Federal Republic of Germany—the *Laender* (Bundesländer)—and their leaders, the *prime ministers* (Ministerpräsidenten), for the period 1992–2008. The Laender are characterised by a high degree of institutional and political homogeneity and are endowed with extensive fiscal competences. Previous research on the German Laender finds no evidence for either economically significant opportunistic or partisan cycles in public spending priorities.⁴

The remainder of this paper is organised as follows. We next take a brief look at the fiscal competences of the German Laender. In Section 3, we describe the concept of social status and introduce an empirical indicator. Our research hypotheses are stated in Section 4, where we motivate the link between status and public spending priorities. Section 5 outlines our empirical approach. The results of our empirical analysis are presented in Section 6, along with robustness checks in Section 7. Section 8 concludes.

2. Fiscal Competences of the German Laender

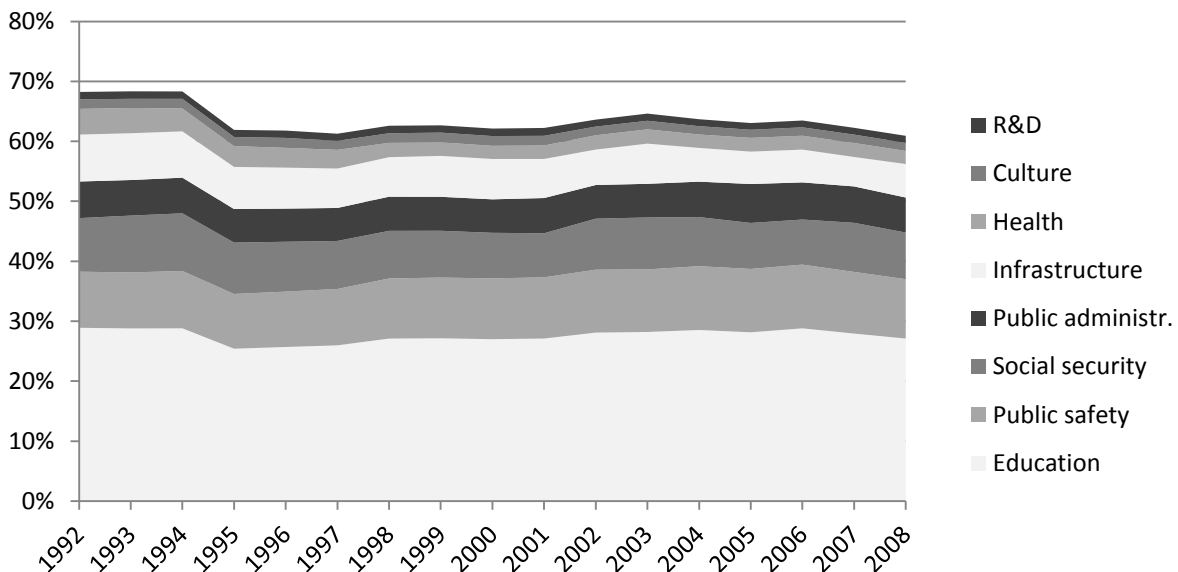
The German federal system consists of three governmental levels: the federal, the state, and

⁴ The most comprehensive analysis so far is that of Galli and Rossi (2002), who search for opportunistic and partisan cycles in West German states in five different expenditure categories: public administration, education, health, social security, and road construction. They do find pre-electoral increases in spending on administration and health, but the economic effects are rather small. With respect to partisan cycles, they state that 'the party variable generally does not play a systematic role in spending decisions' (Galli and Rossi, 2002: 298).

the local.⁵ The German Basic Law (Grundgesetz) assigns legislative power to the state governments as long as no opposing constitutional rule exists (Article 30 Grundgesetz). In particular, the German state governments are almost exclusively responsible for state administration, education, and public safety. However, in some policy areas, constitutional articles assign certain competences to the federal and local level as well. With respect to social security, cultural affairs, health care, public research and development, and infrastructure, for example, competences of the federal, state, and local levels overlap. There are 16 Laender, three of which are so-called city states (Berlin, Bremen, and Hamburg).⁶ As city states combine competences assigned to the state and the local level, they are not fully comparable to the non-city states and therefore are excluded from the subsequent analysis.

Figure 1 illustrates the average share of total spending in the 13 Laender on each of eight policy fields. These expenditure components are the most important ones and make up about two-thirds of the total budget.⁷

Figure 1: Average composition of public expenditure within the German Laender.



The greatest part of the states' budgets is devoted to education, making up, on average, more than 25% of total state spending, followed by spending on public safety with a share of approximately 10%.

⁵ A more detailed overview of German fiscal federalism is provided by Seitz (2000) and Jochimsen and Nuscheler (2011).

⁶ These are Baden-Wuerttemberg, Bavaria, Berlin, Brandenburg, Bremen, Hamburg, Hesse, Lower Saxony, Mecklenburg-Vorpomerania, North Rhine Westphalia, Rhineland-Palatinate, Saarland, Schleswig-Holstein, Saxony, Saxony-Anhalt, and Thuringia.

⁷ The remaining third is mainly spent on transfers to local governments, transfers paid to other states within the German fiscal equalization scheme, public debt service, and a great number of other expenditure items which account only for a small proportion of the public budget. A detailed breakdown of each expenditure category, as well as descriptive statistics, is provided in the Appendix, Tables A1 and A2.

All three governmental levels are run on a parliamentary system, with several different parties competing for political power (proportional representation). During our sample period, at the state level single-party governments occur as well as coalition governments, majority governments, and minority governments. Each state government is either led by the Christian Democratic Party (CDU) or the Social Democratic Party (SPD), which are located right and left of the political centre, respectively.

One may wonder whether the head of government in a parliamentary system can influence fiscal policy. In the case of the German Laender, prime ministers affect policy choices via at least two channels: they (i) appoint cabinet ministers and (ii) have guideline competences (Richtlinienkompetenz), that is, the authority to issue directives to cabinet ministers. Thus, German prime ministers can ensure that all government members are backing their preferred policy.

3. On Status, Identity, and Social Rivalry

As outlined in the introduction, there is no clear evidence in the extant empirical literature that changes in public spending priorities are linked to legislative cycles or government ideology. In this paper, we highlight the influence of incumbent political leaders' social status on fiscal policy preferences as an explanation of variations in public expenditure composition. A growing literature in economics is concerned with the question of whether political leaders exert an influence on economic performance. Recent studies reveal that factors related to political leaders' socioeconomic background appear to explain variations in economic performance, especially when it comes to economic growth (Besley et al., 2009), changes in institutional frameworks (Dreher et al., 2009) and constitutions (Hayo and Voigt, 2011), as well as fiscal policy (Mikosch, 2009).⁸ However, as argued by Hayo and Neumeier (2011), most of these studies employ variables characterising political leaders in an *ad hoc* fashion, failing to provide a theoretical link between the socioeconomic background of heads of government and their government's performance.

Applying sociological and psychological research suggests that preferences for the composition of public spending may be influenced by what is called socioeconomic status. In the remainder of this section, we explain (i) how status is defined and (ii) why people's preferences with respect to the composition of public expenditure are status dependent. In the

⁸ Individual socioeconomic characteristics are also used as explanatory variables for committee decisions. Göhlmann and Vaubel (2007), for instance, investigate the impact of the educational and occupational backgrounds of 391 central bankers from 10 European countries on inflation outcomes and find significant effects.

next section, we put forward an argument for why we expect political leaders to conduct policies that support the status rank from which they come.

3.1 Status Definition and its Measurement

According to social stratification theory, societies should be viewed as hierarchical formations, meaning that individuals and groups can be ranked according to their endowment with valued goods, attributes, and privileges (e.g., Treiman, 1977; Bourdieu, 1986; Ganzeboom et al., 1992). Hence, the term ‘status’ describes an individual’s relative standing compared to that of other members of society. More precisely, it refers to the functional importance of certain social positions (Davis and Moore, 1945). Occupation is commonly regarded as the most important indicator of an individual’s standing in society (Treiman, 1977; Ganzeboom et al., 1992).

The functional importance of occupations is indicated by factors such as the required level of formal education, income, and the associated prestige (Treiman, 1977; Bourdieu, 1986; Bourdieu and Wacquant, 1992). Existence of a stratification scheme—i.e., the ranking of people—implies an unequal distribution of these ‘goods’ among members of society. A frequently applied indicator of status 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 required formal education and average income in different occupations to create a continuous measure of status, which we standardise so that it ranges from 0 to 1. ISEI scores for selected occupations are provided in Table A2 of the Appendix, which also illustrates the allocation of occupations to three different social classes.

The discrimination of different occupations for the construction of the ISEI is based on the International Standard Classification of Occupations (ISCO-68) of the International Labour Organization (ILO, 1969). ISEI scores are regularly included in prominent German population surveys, such as the Socio-Economic Panel (SOEP) and the General Social Survey (ALLBUS).

3.2 Status, Group Identity, and Social Rivalry

Sociologists claim that the way people feel, think, and act is rooted in their *identity*, and that identity, in turn, is a status-dependent social construct (e.g., Berger and Luckmann, 1966; Mead, 1967). The importance of the identity concept for economic applications is emphasised by Akerlof and Kranton (2000, 2010). Basing their argument in social psychological research, they operationalise identity as a set of socially defined codes of practice: for each social

context, a set of socially constituted prescriptions defines which practices are appropriate for whom. These prescriptions are supposed to be internalised by an individual through various phases of socialisation: ‘significant others’—i.e., influential actors and role-models such as parents, peers, and communities with which a person is affiliated—contribute to the construction of identity by inscribing their formal and informal codes of conduct into the individual’s cognition (Berger and Luckmann, 1966; Mead, 1967). Internalising means that these codes become pre-reflexive, i.e., they function below the threshold of consciousness. As these socially constituted codes are usually defined for classes of people sharing certain characteristics or attributes, identity is shaped by perceived membership in social groups and communities (Tajfel and Turner, 1986; Brown, 2000; Stets and Burke, 2000). Or, as Akerlof and Kranton (2000: 720) put it: ‘identity is bound to social categories; and individuals identify with people in some categories and differentiate themselves from those in others’. Hence, *personal identity* reflects *group identity*. In status-consciousness societies, status discrepancies serve as the foundation for categorisation, as they provide an effective tool for labelling people (e.g., Treiman, 1977; Sørensen, 2000; Goldthorpe, 2002). Depending on their status, individuals are assigned to classes (e.g., the upper class or lower class), which inevitably affects their life conditions and self-images—i.e., people usually perceive themselves to be of a particular rank and thereby identify with a specific social class (Bourdieu, 1977, 1984). Therefore, status provides the basis for the construction of *class identity*.

Identity is a contrastive principle (Hogg and Abrams, 1988), as identification with one category and dissociation from another are two sides of the same coin. An important insight from social psychology is that the identification with social groups and the internalisation of group identity leads to in-group favouritism (Tajfel and Turner, 1986; Brown, 2000).⁹ In contrast to the typical assumption in microeconomics, individuals are also concerned about the well-being and reputation of the groups or social categories they identify with, since their self-esteem is derived from affiliation with these social groups (Brown, 2000; Stets and Burke, 2000).

Class-identity-related codes of conduct are commonly assumed to be a reflection of the collective experiences members of the same social class gather as well as the manifold forms of social deprivation and inequality they face. Generally speaking, sociological research suggests that people of high standing seek distinction from low ranks in order to enhance and secure their privileged and prestigious position, whereas people of low standing strive for

⁹ Experimental studies reveal that this pattern occurs even when people are randomly assigned to groups or categories. See Chen and Li (2009) and Akerlof and Kranton (2010) for a survey of experimental studies.

status advancement and a levelling of status-related differences between classes.¹⁰ However, the concept of identity suggests that it is not solely personal standing that an individual cares about, but also the standing of the groups with which he or she identifies. Social groups compete for prestigious and privileged positions in society. To confirm their standing and identity, people create and reproduce symbolic boundaries between classes by establishing class-specific attitudes or engaging in certain rank-typical activities (Elias, 1969; Bourdieu, 1984). Due to these symbolic boundaries and their manifestations in everyday life, the borders between ranks are not very permeable. Although these social structures are beyond the control of an ordinary citizen, a person in a high political office may be able to initiate adjustments in class differences.

4. Prime Ministers' Socioeconomic Backgrounds and Public Spending Priorities

Based on the preceding argument, we expect that prime ministers socialised in a low-status environment will seek to even out status-related discrepancies between people of low and high ranking. Sociologists draw an important distinction between *primary socialisation*, i.e., 'the first socialisation an individual undergoes in childhood' (Berger and Luckmann, 1966: 130), and *secondary socialisation*, which takes place after adolescence. Accordingly, both prime ministers' *parental status*—as the family is the most important agent of primary socialisation (Mead, 1967)—and *personal status* attained prior to pursuing a political career are likely important factors in the process of identity construction.

The manipulation of the composition of public expenditure is a potentially effective way to change social stratification, as it allows influencing the allocation of resources between groups of people. Although income and education are prime indicators of personal status, stratification research documents that the extent of status-related social inequalities is much broader. Questions thus arise as to (i) the main dimensions of status-related social inequality and (ii) which spending items facilitate levelling these inequalities?

Status, social security, and education. We expect that governments led by prime ministers from poor socioeconomic backgrounds spend (relatively) more on public education and social security. The main indicators of status discrepancies, education and income, are inversely related to vulnerability to undesirable life events such as financial distress and unemployment (McLeod and Kessler, 1990). Hence, low-status people are much more likely to rely on the social safety net and be beneficiaries of public welfare services. Accordingly, there is

¹⁰ The idea that status discrepancies may influence decision-making by providing incentives has been applied to economics in several forms. However, in these applications it is usually only personal status with which individuals are supposed to be concerned. See Fershtman et al. (1996) for a summary.

empirical evidence derived from survey data which indicates the existence of a social rivalry motive in redistributive politics. Corneo and Grüner (2002) and Alesina and La Ferrara (2005) demonstrate that individual preferences for redistribution are negatively connected to personal income and education. Supporting the importance of the socialising environment, Alesina and Giuliano (2009) show that it is not only current personal income and education that matter for redistribution preferences, but also family income during childhood and father's education.

In the field of education, tax-financed schools and universities compete with institutions financed primarily by tuition fees and other forms of private contributions. Less spending on education may worsen the quality of publicly-funded educational institutions and thereby widen the discrepancies between status ranks, as rich people have much easier access to private education. By increasing spending on education, incumbents may enhance the educational participation of the lower class.¹¹ German educational expansion (Bildungsexpansion) during the last four decades is commonly regarded as a good example of this (Hradil, 1999; Geißler, 2002).

Status and public safety. Studies in criminology show that a person's socioeconomic status is inversely related to the prevalence of victimisation and fear of crime (e.g., Will, 1995).¹² Clemente and Kleiman (1977: 523) attribute this finding to status-related income differences, since higher income enables high-status people to provide themselves a safe environment: 'people with greater financial resources are better able to protect themselves from harm and, therefore, have less fear of being victimized. And, of course, individuals in the higher income brackets can afford to live in safe neighborhoods'. Based on the argument that preferences and attitudes reflect mutual experiences of class members, we should thus expect that prime ministers from poor socioeconomic backgrounds will tend to spend more on public safety and legal protection.

Status and health. In Germany, a publicly-provided health care system competes with private health services, which are generally accessible only to higher-income households. Due to remarkable differences in quality, health care experts call this a 'two-tier' medical system: high status persons are much better provided for than those of low standing (e.g., Mielck,

¹¹ An occurrence in Hesse in 2010 attracted a great deal of media attention. The former prime minister Roland Koch—whose father was a lawyer, as is Koch (ISEI score 0.85)—announced that the Hessian government will cut funding to public universities (which currently charge no tuition) by 30 million Euros for each following year. Roland Koch justified this decision by referring to the tough budgetary situation. However, only a few weeks later, the Hessian government agreed to donate about 25 million Euros to a private university, which charges tuition of 12,000 Euros per year.

¹² At first sight, this finding may be surprising. Note, however, that the studies listed rely on data solely from developed countries. Thus, this relationship may be driven by the experience of countries with strong legal institutions in which high-income households do not fear dispossession or violent property offences.

2005; Bauer et al., 2007). To improve the living conditions of the lower class, we expect prime ministers who identify with low-status people to spend more on public health care.

Status and public infrastructure. Insufficient provision of public infrastructure in general and public transport systems in particular is frequently seen as the most significant barrier to social inclusion, for mobility is a necessary condition for participating in social activities (e.g., Church et al., 2000; Cass et al., 2005; Gray et al., 2006). Usually, people from poor socioeconomic backgrounds are more dependent on public transportation. Due to the high cost of cars, low-income households have to rely on public transportation (e.g., LeRoy and Sonstelie, 1983; Glaeser et al., 2008). Hence, low-status people would benefit overproportionally from spending on public infrastructure and we hypothesise that low-status prime ministers will place relatively more importance on this budget component.

Status and culture. Following Bourdieu (1984, 1986), cultural activity is an important attribute of class distinction. Museums, art exhibitions, and theatres are more frequently visited by people from the upper class; these forms of cultural engagement mark an aesthetic lifestyle. According to Bourdieu (1984, 1986), access to most of these exclusive cultural practices requires a high endowment with so-called cultural capital, that is, formal and informal education, as well as an aesthetic sense acquired during socialisation. People from lower classes are usually prone to participate in so-called popular cultural activities, e.g., watching movies, attending pop concerts, etc. As our data on public expenditure composition do not allow differentiating between these two types of cultural programmes, we are not able to form expectations about how prime ministers' socioeconomic background will influence their spending on culture.

Note that we do not expect to find a positive impact of prime ministers' family status on any specific spending category, since none of these categories is likely to promote the consolidation and reproduction of boundaries between classes. However, expecting higher shares for some budget components implies lower shares for others.

5. Model and Data¹³

To empirically test our hypotheses about the structure of public budgets, we employ panel data from 1992–2008 for the German non-city states. We estimate the following panel data model for each spending category separately:¹⁴

¹³ Data sources are described in the Appendix. Descriptive statistics for all variables employed in our empirical analyses are provided in Table A3.

¹⁴ The time constraint is due to a lack of publicly-available data for public expenditure composition prior to 1992.

$$y_{i,t} = \alpha_i + \beta' \text{economic variables}_{i,t} + \gamma' \text{sociodemographic variables}_{i,t} + \delta' \text{political variables}_{i,t} + \varepsilon' \text{leader variables}_{i,t} + \mu_t + \rho y_{i,t-1} + \eta_{i,t}$$

α_i is a state-specific intercept, μ_t a time-varying parameter that is constant across states, and $\eta_{i,t}$ is an i.i.d. error term. $y_{i,t}$ denotes spending on a certain item as a share of total spending (in percentage points). Taking into account that the preceding discussion suggests that politicians manipulate the composition of public expenditure in order to support certain groups of voters, we base our empirical analysis on a functional classification of expenditure items (Vergne, 2009). Altogether, we consider eight different items: public administration, public safety, education, research and development, culture, social security, health care, and infrastructure. Each specification contains the first lag of the dependent variable in order to account for persistency and gradual budget adjustments.

As *economic variables* we include the debt-to-GDP ratio so as to control for the budgetary situation, the output gap¹⁵ and unemployment rate as regional business cycle indicators, and the share of net transfers received through the German fiscal equalisation scheme (Länderfinanzausgleich) to total expenditure.¹⁶

The *sociodemographic variables* contain several proxies for the demand for public services, specifically real GDP per head (in 1,000 Euro) in each state, capturing the (average) economic condition of the electorate, as well as the share of the population aged less than 25 years and the share of the population older than 65, since these two groups of voters benefit overproportionately from the provision of some public services (e.g., education and health).

Among the *political variables* is an election period dummy, which allows testing for the existence of Rogoff (1990) type and Drazen and Eslava (2005, 2010) type PBCs. Following Drazen and Eslava (2005, 2010) and Vergne (2009), we control for the timing of elections such that the election period dummy takes the value 1 in the year before the election takes place if the election is held in the first half of the year; if the election is held in the second half of the year, the dummy takes the value 1 in the election year. Other political variables considered in our model measure constraints on the prime minister's power, as these could affect his or her influence on spending priorities. We include the share of votes the governing party received at the last elections as well as dummies for coalition governments and minority governments to control for political dispersion. We also add a dummy indicating whether the minister of finance is from the same party as the prime minister, following Jochimsen and Nuscheler (2011). This is to account for the fact that ministers of finance have significant

¹⁵ The output gap is calculated by regressing the real GDP on a trend variable and a squared trend variable.

¹⁶ The German fiscal equalisation scheme (Länderfinanzausgleich) harmonises revenues across the German Laender, which may affect incentive to engage in sound fiscal policy. See Seitz (2000) for a detailed description.

authority with respect to preparation of the public budget. Finally, we include a dummy for SPD-led governments in order to account for partisan ideology effects.

As *leader characteristics*, we employ German prime ministers' age and years in office, capturing his or her experience, a dummy for prime ministers who govern a state in which they did not formerly reside, which could affect their reputation among the electorate, and a dummy for prime ministers who have been members in employees' associations, since this sort of membership may indicate emotional proximity to certain groups of voters. Moreover, we add a dummy for years in which a new prime minister comes to power, capturing possible transition effects. Our main variables of interest are prime ministers' parental status and personal status, as defined in Sections 3 and 4. Status scores are measured by the means of the ISEI values and standardised to lie between 0 to 1 (see Section 3.1). We expect that prime ministers characterised by low parental status and personal status, respectively, conduct policies which may enhance the levelling of status-related inequalities. Thus, we should observe that the tenures of prime ministers from poor socioeconomic backgrounds are connected with a higher share of spending on public safety, education, social security, health, and infrastructure, whereas prime ministers of high status should decrease spending on these items. Table 1 summarises our research hypotheses.

Table 1: Theoretically expected influence of parental status and personal status across the main spending categories.

	Public admin.	Public safety	Education	R&D	Culture	Social security	Health	Infra-structure
<i>Parental status</i>	0	–	–	0	0	–	–	–
<i>Personal status</i>	0	–	–	0	0	–	–	–

The question arises what policy priorities a socially mobile prime minister is likely to set, i.e. how his or her identification is affected by social advancement or decline, respectively. For instance, a prime minister characterised by low parental status and high personal status makes one social class worse off by manipulating the public spending composition in a certain direction. To take the impact of social mobility on spending priorities into account, we interact parental status and personal status and include this variable as an additional regressor. We estimate the above equation using a two-way fixed effects approach. In our core specification, we rely on the least squares dummy variable (LSDV) estimator. Although the lagged dependent variable is correlated with the error term, which causes the least squares estimator to be biased, reflecting the specific structure of our panel, we prefer the LSDV estimator to a GMM approach (Arellano and Bond, 1991). As Judson and Owen (1997) show,

the LSDV estimator can be appropriate in ‘long’ panels even in a dynamic framework, since the bias that occurs becomes negligible for growing T . On the contrary, GMM estimators typically reveal poor small-sample properties when N is small (Kiviet, 1995). Given that in our sample the number of periods exceeds the number of cross-sections, we apply GMM as a robustness check only.

6. Results

Table 2 shows the empirical results for each specification of our model. To save space, we report only the coefficients of the explanatory variables. The lower part of the table provides Wald statistics for tests of joint significance for each group of variables and the variables depicting a prime minister’s socioeconomic background in particular. Three findings stand out as particularly relevant in light of the theoretical discussion in the first part of the paper.

First, we find that the composition of public expenditure is not systematically affected by government ideology. This result is consistent with previous studies by Galli and Rossi (2002) and Schneider (2010). The dummy for SPD-led governments reveals a significant impact only in case of spending on public infrastructure. Moreover, this effect is rather small: in the long run, SPD prime ministers increase the share of spending on infrastructure by 1 percentage point (pp).

Second, we find no sign of any pre-electoral manipulation of public expenditure composition. The dummy variable for pre-election periods has no significant impact on the share of total expenditure devoted to any item. Hence, there appears to be no evidence for Rogoff (1990) or Drazen and Eslava (2005, 2010) type political budget cycles within the German Laender.¹⁷

Although we do not find evidence for partisan or budget cycles, the tests of joint significance indicate that the political environment generally exerts an impact on public expenditure priorities: weak governments (coalition governments and minority governments) spend, on average, less on public administration, public safety, and health, but more on social security.

Finally, we find that statistically, the composition of public expenditure within the German Laender is significantly affected by the social class their prime ministers are associated with. Focusing on the individual variables measuring parental and personal status, we find that both are relevant for a number of budget items. In most specifications, the individual effects are of comparable size and statistically equivalent.

¹⁷ Note that this conclusion also holds when we exclude time fixed effects or the dummy for prime minister transitions from our regressions.

Table 2: Determinants of public expenditure composition—Main specification.

Variables	Public admin.	Public safety	Education	R&D	Culture	Social security	Health	Infrastructure
Y(-1)	0.486 **	0.362 **	0.353 **	0.328 **	0.413 **	0.606 **	0.447 **	0.388 **
Economic variables								
Debt-to-GDP	-0.029	-0.031	-0.222 **	-0.028 **	-0.004	0.010	-0.004	-0.030
Output gap	0.043 *	0.017	0.043	-0.015	0.004	-0.012	0.016	-0.044
Unemployment	0.138	0.114 *	0.577 **	0.015	0.010	-0.403 *	0.107	0.118
Net transfers	-0.004	-0.012	0.006	0.019	-0.001	-0.045	-0.146 **	-0.102
Political variables								
SPD	0.029	0.101	0.569	0.005	0.033	0.030	0.256	0.881 *
Coalition	-0.296	-0.306 *	-0.744 *	0.006	-0.052	0.306	-0.336 *	0.092
Minority government	-0.828 *	-0.794	-2.422	-0.457	-0.113	2.571 **	0.104	0.263
Vote share	-0.022	-0.041 **	-0.041	-0.011 **	-0.010 *	-0.019	-0.018	-0.033
MoF from same party	-0.490 *	-0.416 *	-3.133 *	0.007	-0.271	-0.923 *	-0.835 **	-2.606 **
Election period	0.054	0.116	0.068	0.028	0.035	-0.094	0.108	0.007
Sociodemographic variables								
Population share < 25 yrs.	-0.426	-0.924 **	-1.363 *	-0.003	-0.000	-1.899 **	-0.065	0.216
Population share > 65 yrs.	-0.098	-0.330	-0.972	0.010	-0.029	-1.067 *	0.188	0.166
Real GDP per capita	-0.381 **	-0.431 **	-1.035 **	0.040	-0.006	-0.813 **	-0.326 *	-0.259
Leader variables								
PM transition	0.016	0.123	-0.183	0.018	-0.024	-0.217	0.238	-0.087
Outside PM	0.384 *	0.181	1.165 **	0.134	-0.080	-1.003	0.486 **	-0.037
Union member	-0.119	-0.537 **	-1.280 **	-0.109 **	-0.078	-0.295	-0.393 **	-0.520
Age	-0.027 *	-0.014	-0.026	-0.006	0.002	0.042	0.028	-0.065 **
Years in office	0.039 **	0.037	0.047	0.014 *	0.004	-0.009	-0.023	0.041
Parental status	5.017 *	-7.526 **	-14.405 *	-2.050 *	-2.067 *	-7.115	-7.612	-10.251
Personal status	3.031 *	-7.077 **	-14.968 **	-2.535 **	-1.520	-4.817 *	-7.561 *	-9.108 *
Parental status*personal status	-6.023 *	9.110 **	18.302 **	2.713 *	2.589 *	8.374	10.546	11.949
Joint sign. economic variables	$\chi^2(4) = 8.4$	$\chi^2(4) = 6.9$	$\chi^2(4) = 21.8^{**}$	$\chi^2(4) = 9.0$	$\chi^2(4) = 1.3$	$\chi^2(4) = 6.4$	$\chi^2(4) = 24.3^{**}$	$\chi^2(4) = 36.5^{**}$
Joint sign. political variables	$\chi^2(6) = 24.6^{**}$	$\chi^2(6) = 24.4^{**}$	$\chi^2(6) = 18.8^{**}$	$\chi^2(6) = 38.2^{**}$	$\chi^2(6) = 36.3^{**}$	$\chi^2(6) = 82.9^{**}$	$\chi^2(6) = 29.0^{**}$	$\chi^2(6) = 25.1^{**}$
Joint sign. sociodem. variables	$\chi^2(3) = 14.2^{**}$	$\chi^2(3) = 54.8^{**}$	$\chi^2(3) = 21.3^{**}$	$\chi^2(3) = 3.5$	$\chi^2(3) = 0.4$	$\chi^2(3) = 45.2^{**}$	$\chi^2(3) = 5.6$	$\chi^2(3) = 4.4$
Joint sign. leader variables	$\chi^2(8) = 187.3^{**}$	$\chi^2(8) = 55.9^{**}$	$\chi^2(8) = 46.7^{**}$	$\chi^2(8) = 64.3^{**}$	$\chi^2(8) = 26.0^{**}$	$\chi^2(8) = 48.1^{**}$	$\chi^2(8) = 68.8^{**}$	$\chi^2(8) = 258.1^{**}$
Joint sign. status variables	$\chi^2(3) = 17.5^{**}$	$\chi^2(3) = 38.5^{**}$	$\chi^2(3) = 11.7^{**}$	$\chi^2(3) = 27.3^{**}$	$\chi^2(3) = 8.3^*$	$\chi^2(3) = 13.0^{**}$	$\chi^2(3) = 9.3^*$	$\chi^2(3) = 36.9^{**}$
R ²	0.60	0.77	0.58	0.46	0.36	0.74	0.75	0.39
Observations	208	208	208	208	208	208	208	208
Parameters	51	51	51	51	51	51	51	51

Notes: The dependent variables measure public spending on a certain item as a share of total spending (in percentage points). Results are based on least squares dummy variable (LSDV) estimation. All models include cross-section and time fixed effects. Panel robust standard errors are used. * and ** indicate significance at the 5% and 1% level, respectively.

However, the size and significance of the interaction term reveals that the influence a prime minister's parental status exerts on spending priorities depends on his or her personal status and vice versa. Thus, the estimated individual coefficients are of limited interpretative value, as they would only become relevant if the respective other status variable were zero.¹⁸ The direction of the interaction effect is always the opposite of the impact of parental status and personal status. This finding suggests that a high parental status (personal status) diminishes the effect of a change in personal status (parental status). Hence, social mobility matters with regard to fiscal priorities.

To facilitate the interpretation of the coefficients and to gain further insights into the relationship between parental status and personal status, we consider four types of prime ministers: an upper-class prime minister, i.e. one of high parental and personal status (type *high*); a lower-class prime minister, i.e. one of low parental and personal status (type *low*); an upwardly mobile prime minister, i.e. one of low parental status, but high personal status (type *up*); and an downwardly mobile prime minister, i.e. a one of high parental status, but low personal status (type *down*).¹⁹ We then calculate the expected share of public expenditure devoted to each single spending category by each type of prime minister, taking the interaction effect between parental and personal status into account, and test whether the differences are significantly different from zero.²⁰ The results are presented in Table 3. The figure in cell (i, j) represents the difference between a prime minister of type i (row name) and type j (column name) with regard to the expected share of public expenditure devoted to the respective item.

¹⁸ Note that parental status and personal status have strictly positive values,

¹⁹ We consider an ISEI score of 0.8 as high and an ISEI score of 0.3 as low. These scores are reasonably close to the upper and lower bound of our sample range and roughly correspond to the average ISEI scores of academic professions and tradesmen, respectively. Examples for different prime minister types are presented in the Appendix (Table A4).

²⁰ Technically, we test linear restrictions on the coefficients of parental status, personal status, and the interaction term of parental status and personal status.

Table 3: Comparing the share of public spending on each item (in relation to total spending) for different prime minister types.

		Public administration				Public safety				Education				Research and development			
Type j	High	Low	Up	Down	High	Low	Up	Down	High	Low	Up	Down	High	Low	Up	Down	
Type i																	
High	—	0.71*	0.10	-0.89	—	-2.29**	-0.12	0.11	—	-4.62**	0.12	-0.16	—	-0.80**	0.06**	-0.18	
Low	-0.71*	—	-0.61	-1.61*	2.29**	—	2.17**	2.40**	4.62**	—	4.74**	4.46*	0.80**	—	0.86**	0.62*	
Up	-0.10	0.61	—	-0.99	0.12	-2.29**	—	0.22	-0.12	-4.74**	—	-0.28	-0.06**	-0.86**	—	-0.24	
Down	0.89	1.61*	0.99	—	-0.11	-2.40**	-0.22	—	0.16	-4.46*	0.28	—	0.18	-0.62*	0.24	—	

		Culture				Social security				Health				Infrastructure			
Type j	High	Low	Up	Down	High	Low	Up	Down	High	Low	Up	Down	High	Low	Up	Down	
Type i																	
High	—	-0.37	0.00	0.28	—	-1.36**	-0.21	0.94	—	-1.79**	0.41**	0.44	—	-3.11**	-0.35	0.23	
Low	0.37	—	0.37	0.65*	1.36**	—	1.15	2.30	1.79**	—	2.20**	2.22	3.11**	—	2.76**	3.33	
Up	-0.00	-0.37	—	0.27	0.21	-1.15	—	1.15	-0.41**	-2.20**	—	0.03	0.35	-2.76**	—	0.57	
Down	-0.28	-0.65*	-0.27	—	-0.94	-2.30	-1.15	—	-0.44	-2.22	-0.03	—	-0.23	-3.33	-0.57	—	

Notes: The different prime minister types are defined as follows: *high*: prime minister has a high parental status and personal status (ISEI score 0.8); *low*: prime minister has a low parental status and personal status (ISEI score 0.3); *up*: prime minister has a low parental status (ISEI score 0.3), but high personal status (ISEI score 0.8); *down*: prime minister has a high parental status (ISEI score 0.8), but low personal status (ISEI score 0.3). Figures are derived as follows: first, the expected share of public spending devoted to each item is calculated for each prime minister type, taking the interaction effect between parental status and personal status into account and holding other factors fixed. Second, the difference between a type i prime minister (row name) and a type j prime minister (column name) is computed. * and ** indicate that the difference is significantly different from zero at the 5% and 1% level, respectively.

In line with our conjectures made in Sections 3 and 4, we find that lower-class prime ministers spend significantly more on public safety, education, research and development, social security, health, and infrastructure. These differences are not only statistically significant, but also economically substantial. For example, prime ministers characterised by low parental and personal status spend, on average, 4.6 percentage points (pp) more in the short run on education than prime ministers of high parental and personal status. In the long run, the effects add up to 7.1 pp. In the case of public safety, lower-class prime ministers spend 2.3 pp more in the short run and 3.6 pp in the long run than their upper-class counterparts. For spending on public health care services, the difference is 1.8 pp in the short run and 3.2 pp in the long run. Finally, lower-class prime ministers spend 3.1 pp more in the short run and 5.1 pp more in the long run on infrastructure. Thus, there is strong evidence that prime ministers characterised by a poor socioeconomic background conduct policies which promote a levelling of status-related social inequalities. The share of spending on public administration is, on the contrary, positively related to a prime minister's status. Arguably, this result is due to the fact that public administration is the largest residual category; if a lower-class prime minister spends relatively more on items facilitating an alleviation of social deprivation, a lower share for other budget items is implied.²¹

Focussing on socially mobile prime ministers helps assess whether the direction of social mobility matters. In most specifications, we observe significant differences between lower-class and downwardly mobile prime ministers, i.e. prime ministers of high parental status and low personal status. Despite the fact that personal status is the same, downwardly mobile prime ministers spend significantly less on public safety, education, research and development, and culture than lower-class prime ministers.²² For most spending items, the difference between downwardly mobile and lower-class prime ministers is similar to that of upper- and lower-class prime ministers. Accordingly, we find hardly any difference when comparing upper-class and downwardly mobile prime ministers. Finally, there are only negligible differences between upwardly mobile prime ministers, i.e. ones of low parental status but high personal status, and upper-class prime ministers. To summarise, we find strong evidence that prime ministers adapt to the upper class in case of a social advancement,

²¹ When running a regression on the combined share of public spending on all budget items not explicitly considered in our analysis, we find a significantly positive impact of prime ministers' parental and personal status. However, as far as we are able to determine, there is no specific spending item contained in this broad residual category that appears to be solely responsible for this finding, which suggests that the positive coefficient comes about by aggregating the various public spending shares.

²² Note that the differences between lower-class prime ministers and downwardly mobile prime ministers with respect to spending on health and infrastructure are significant at a 10% level.

whereas downwardly mobile prime ministers stick to their parent-induced upper-class identity.

The types of prime minister considered for our comparison represent extremes, since they refer to the upper and lower bound of the social stratification system. To deepen our discussion, we introduce a middle-class prime minister and compare him or her to upper- and lower-class types.²³ Again, we consider socially-mobile prime ministers. The results are shown in the Appendix. Table A5 refers to the comparison between lower-class and middle-class, Table A6 between middle- and upper-class. The differences between lower- and middle-class prime ministers are more pronounced than the differences between middle- and upper-class types. Taking the share of public spending on education as an example, we find that prime ministers of medium parental and personal status spend, on average, 3.5 pp less in the short run than prime ministers of low parental and personal status. In contrast, the difference between a middle-class and an upper-class prime minister is generally only about one third of that (1.2 pp). The same pattern occurs with respect to spending on public safety, research and development, and infrastructure: in all these cases, the difference between an upper- and a middle-class prime minister is about one-third of the difference between a lower-class and a middle-class prime minister.

In case of public spending on social security and health, the difference between middle- and upper-class is negligible and statistically insignificant, i.e. only lower-class prime ministers spend more on these items. Thus, the fiscal policy difference between the lower-class and the other ranks is relatively large. Stratification theory points out that people of low status are particularly exposed to the risk of financial distress, marginalisation, and social exclusion, so that they typically depend strongly on public welfare services (e.g., Breen, 1997). Moreover, two conclusions derived above, namely that (i) upwardly mobile prime ministers tend to adapt and (ii) personal status hardly matters for those who are downwardly mobile, do not hold for those moving between the middle and lower class. In particular, upwardly mobile prime ministers spend significantly more on public safety, education, research and development, culture, and infrastructure than middle-class prime ministers, whereas downwardly mobile prime ministers spend significantly less on these budget components.

Several other leader characteristics are also significant. Prime ministers who are members of employees' associations spend significantly less on public safety, education, research and development, and health. Only in the case of spending on education do we find economically

²³ For the middle-class, we choose an ISEI score of 0.55, which corresponds approximately to the average ISEI score for white-collar workers and technical workers. Moreover, it is equidistant to the ISEI scores representing the upper- and the lower-classes.

relevant results: prime ministers who are union members spend on average about 1.1 pp less on education; the long run effect is 1.75 pp. Given the fact that nowadays unions usually represent the middle class—i.e., well-trained employees with secure jobs—and provide own educational opportunities, such as training courses and scholarships, this result seems plausible. Tenures of prime ministers who come from outside the state they govern (dummy *outside PM*) are associated with higher spending on education, R&D, and health, which can be labelled as visible and targetable items. Arguably, outside prime ministers need to conduct ‘popular’ policies in order to improve their reputation.

7. Checks for Robustness

To discover whether our results are robust and gain further insight, we modify our initial specifications in several ways. First, we re-estimate the above equation using the GMM approach put forward by Arellano and Bond (1991) in order to account for the correlation between the lagged endogenous variable and the error term (see Appendix, Table A7). We apply one-step GMM estimation using up to five valid lags of the dependent variable as instruments for the lagged endogenous variable.²⁴ Consistent with the findings from simulation studies (Kievit, 1995; Judson and Owen, 1997), in most cases the autoregressive coefficient becomes a little larger, whereas the coefficients of the other explanatory variables slightly decrease. As our main variables of interest remain significant and the differences between the various types of prime ministers are basically the same, our conclusions do not change.

Second, we tested whether our results are robust to the inclusion of additional control variables. We controlled for population density, population growth, and the partisan ideology of the federal government. However, the size and significance of our variables of main interest remain unaffected.²⁵

Third, a potential problem with our analysis could be that upper-class and upwardly mobile prime ministers may generally prefer a lower level of overall public spending. However, in practice, not all budget components are equally easy adjustable. Thus, it could be that the desired budget cuts affect some components but not others due to reasons of adjustability and not policy preference. We address this issue in two different ways. First, we include the public expenditure quota, i.e. the ratio of public expenditures to GDP, as an additional control

²⁴ Simulation studies show that the number of lags in dynamic GMM models is subject to a tradeoff: 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 lags.

²⁵ All additional results are available on request.

variable in our specifications to keep the total amount of public spending fixed. We find that a lower public expenditure quota is associated with relatively more spending on public administration, public safety, education, culture, and health, suggesting that expenditures on these items are more difficult to adjust. However, the estimates for our main variables of interest remain almost unaffected and all of our conclusions drawn in the previous section concerning the comparison of different prime minister types hold up.²⁶ Thus, our findings are not driven by an asymmetric adjustment of total expenditure.

Another way to address the aforementioned concern is using shares of public spending on different budget items in relation to GDP as dependent variables instead of computing shares to total expenditure. Note, however, that by doing so, our focus shifts from the analysis of public expenditure composition to total public spending on different budget categories. The estimation results for this modification can be found in the Appendix, Table A8.²⁷ Yet again, we consider different types of prime ministers and compare them to each other in order to facilitate interpretation (Table A9). As the tests of joint significance indicate, the social class a prime minister is affiliated with reveals a significant explanatory power in 6 out of 8 specifications. Only in the case of spending on culture and social security are the status variables jointly insignificant. Thus, not only the composition of public expenditure is significantly influenced by prime ministers' socioeconomic backgrounds, but also overall spending on most items. Table A9 reveals that upper-class and upwardly mobile prime ministers spend significantly more on public safety, education, research and development, health, and infrastructure than their lower-class counterparts. Moreover, we do not find any significant difference between upper-class and downwardly mobile prime ministers. These findings are consistent with those discussed in Section 6 and further support our conclusions.²⁸

Interestingly, we find that upper-class and upwardly mobile prime ministers also increase total spending on public administration. Arguably, spending on public administration is used by these prime minister types as a strategic instrument. Given that (i) public administration is the largest budget category that does not directly affect the economic situation of the lower class and that (ii) spending on public administration is negatively related to the level of overall public spending, indicating that it is difficult to adjust, incumbents may successfully tie the

²⁶ All additional results are available on request.

²⁷ Note that we lagged the debt-to-GDP ratio, output gap, unemployment rate, and real GDP per capita by one period in order to avoid problems of endogeneity, which may occur when using GDP in the construction of the dependent variable (Jochimsen and Nuscheler, 2011).

²⁸ The differences between upper-class and lower-class prime ministers with respect to spending on education and health are significant at a 10% level.

hands of their successors by binding a part of the public budget through spending on administration.

8. Conclusion

This paper aims at explaining the determinants of the composition of public expenditure. We focus on the German Laender, for they are characterised by homogenous institutional frameworks and political landscapes and, at the same time, are endowed with far-reaching fiscal competences. Special attention is paid to the influence of incumbent prime minister characteristics, particularly socioeconomic status, as peoples' attitudes and preferences exhibit aspects of in-group favouritism and social rivalry. Sociological research regards status—which is strongly determined by education and income—as the main tool of stratification and the basis for identity construction. Empirically testing the influence social status, we examine whether German prime ministers manipulate public spending priorities in a way to support the status groups from which they come.

In support of our theoretical framework, we find that German state governments led by prime ministers from poor socioeconomic backgrounds conduct policies aimed at evening out status-related differences between people. Particularly, tenures of prime ministers of low parental and personal status are connected with more public spending on education, social security, public safety, infrastructure, and health care, which are the main dimensions of social deprivation. Differentiating fiscal policy priorities across different types of prime ministers, we find a notable discrepancy between, on the one side, those belonging to the lower-class, and, on the other, those belonging to the middle- and upper-class.

We also consider the influence of social mobility on fiscal priorities, i.e. situations, where the personal social status of prime ministers before they entered office differs from the social status of their parents. Our analysis provides strong evidence that prime ministers adapt to the upper-class in case of a social advancement. Thus, in the case of upward mobility, we find that parental status becomes rather irrelevant in the determination of the fiscal budget composition. Quite the reverse is found for downwardly mobile prime ministers who tend to stick to their parent-induced, upper-class identity.

In contrast to previous studies focussing on various aspects of political business cycle theories, all of these results are not only highly significant and economically meaningful but also robust with regard to the estimation technique and the inclusion of various additional control variables.

A word of caution is necessary with respect to the interpretation of one of our findings. Two types of prime ministers considered in our analysis do not actually occur in our sample. More precisely, there is no case of a prime minister of both low parental and personal status and no one who moved to the lower-class. However, this does not imply that these examples are unrealistic, as we can observe such cases prior to our sample period. Hence, inasmuch as there will be prime ministers with these status characteristics in the future, we believe that our results allow extrapolating their fiscal behaviour.

Finally, in recent years, economists have begun placing more emphasis on the effects leaders have on economic outcomes. Typically, leader variables considered in empirical studies do not derive from well-developed theoretical frameworks and, perhaps not surprisingly, the resulting empirical evidence is mixed. However, as we show in this paper, which was based on a well-defined theoretical framework, future research would do well to pay more attention to leader characteristics and their influence on economic performance. In this respect, the application of sociological and psychological research can provide valuable insights into the transmission channels linking leaders' characteristics and their economic policy stance.

Appendix

Data Sources

Economic Variables

Data on public expenditure composition, real GDP, and unemployment rate are taken from the Federal Statistical Office (Statistisches Bundesamt). Data on public debt and transfers between the Laender deriving from the fiscal equalisation system are provided by the Federal Ministry of Finance.

Political Variables

Data on election dates, vote shares, and government composition are taken from the homepages of the German Laender and the State Returning Officers (Landeswahlleiter), as is historical information on the party affiliation of the ministers of finance.

Sociodemographic Variables

Data on the share of population aged less than 25 years and older than 65 years, respectively, as well as real GDP per head are provided by the Federal Statistical Office (Statistisches Bundesamt).

Leader Variables

All variables regarding the incumbent prime ministers are from the data set introduced by Hayo and Neumeier (2011).

The variable *parental status* measures the occupational status score of prime ministers' parents using the ISEI scores. In cases where both parents were working or when a parent held more than one occupation, the highest ISEI score is employed. If a prime minister was entirely raised by one parent only, only the status score of that parent is taken into account.

The variable *personal status* equals to the ISEI score of the occupation a prime minister held prior to embarking on a political career (defined as first membership in a party executive committee or ministry). In cases where prime ministers previously engaged in more than one occupation, the occupation with the highest ISEI score was chosen.

Breakdown of Public Expenditure, Descriptive Statistics, and Robustness Checks

Table A1: Detailed breakdown for each expenditure category.

Spending item	Main components
Public administration	Political leadership, internal administration, financial management
Public safety	Police, legal protection, courts, public prosecutors, prisons
Education	Public schools and universities, vocational schools, scholarships
R&D	Grants to public research and development institutes
Culture	Theatres, operas, concerts, zoos, museums
Social security	Labour market support, social housing, youth and family welfare
Health	Hospitals, health centres, public health authorities, sports
Infrastructure	Public transportation, urban development, public energy and water plants

Table A2: ISEI scores for selected occupations.

Occupation	ISEI score
Upper-class occupations	
Architects, town planners	0.77
Lawyers	0.85
Judges	0.90
University and higher education teachers	0.78
Middle-class occupations	
Bank teller	0.47
Bookkeeper	0.56
Middle rank civil servant	0.59
Real estate agent, insurance agent	0.61
Lower-class occupations	
Cabinetmakers	0.36
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.

Table A3: Descriptive statistics.

Spending item	Obs.	Mean	Std. dev.	Minimum	Maximum
Public administration	221	6.77	1.64	4.31	12.10
Public safety	221	10.27	1.39	6.96	14.79
Education	221	27.72	4.09	19.36	44.19
R&D	221	1.40	0.69	0.53	4.29
Culture	221	1.83	0.85	0.38	4.66
Social security	221	11.28	5.11	2.03	25.41
Health	221	3.44	2.26	1.12	18.35
Infrastructure	221	8.53	4.86	2.29	21.58
Debt-to-GDP	221	19.78	8.94	4.27	40.52
Output gap	221	0.41	4.09	-9.64	15.81
Unemployment	221	12.43	4.80	4.40	22.10
Net transfers	221	1.01	5.19	-14.89	7.81
SPD	221	0.46	0.50	0	1
Coalition	221	0.60	0.49	0	1
Minority government	221	0.04	0.19	0	1
Vote share	221	44.40	6.63	30.20	60.70
MoF from same party	221	0.95	0.21	0	1
Election period	221	0.22	0.41	0	1
Popul. share < 25 yrs.	221	27.63	2.08	22.06	34.42
Popul. share > 65 yrs.	221	17.67	2.61	11.29	24.65
Real GDP per capita	221	22.10	5.11	10.56	31.71
PM transition	221	0.12	0.32	0	1
Outside PM	221	0.14	0.35	0	1
Union member	221	0.12	0.33	0	1
Age	221	56.18	7.05	41	73
Years in office	221	6.32	4.55	1	22
Parental status	221	0.56	0.22	0.23	0.88
Personal status	221	0.75	0.09	0.53	0.90

Notes: The first eight rows contain public spending on each specific item as shares of total public spending. Net transfers are also computed as a share of total public spending. Real GDP per capita is measured in 1000 Euros.

Table A4: Examples for different types of prime ministers.

Type/prime minister (state)	Parental status	Personal status
Upper-class prime ministers		
Roland Koch (Hesse)	0.85	0.85
Heide Simonis (Schleswig-Holstein)	0.80	0.80
Middle-class prime ministers		
Sigmar Gabriel (Lower Saxony)	0.58	0.65
Jürgen Rüttgers (North Rhine Westphalia)	0.48	0.60
Upwardly mobile prime ministers		
Kurt Beck (Rhineland-Palatinate)	0.32	0.60
Wolfgang Böhmer (Saxony-Anhalt)	0.26	0.88
Downwardly mobile prime ministers		
Wolfgang Clement (North Rhine Westphalia)	0.77	0.66
Matthias Platzeck (Brandenburg)	0.88	0.59

Table A5: Comparing the share of public spending on each item (in relation to total spending) for different prime minister types—middle vs. lower class.

		Public administration				Public safety				Education				Research and development			
Type j	Medium	Low	Up	Down	Medium	Low	Up	Down	Medium	Low	Up	Down	Medium	Low	Up	Down	
Type i																	
Medium	—	0.73*	0.43	-0.07	—	-1.71**	-0.63**	-0.52**	—	-3.45**	-1.08*	-1.23*	—	-0.57**	-0.14*	-0.26**	
Low	-0.73*	—	-0.31	-0.80*	1.71**	—	1.09**	1.20**	3.45**	—	2.37**	2.23*	0.57**	—	0.43**	0.31*	
Up	-0.43	0.31	—	-0.50	0.63**	-1.09**	—	0.11	1.08*	-2.37**	—	-0.14	0.14*	-0.43**	—	-0.12	
Down	0.07	0.80*	0.50	—	0.52**	-1.20**	-0.11	—	1.23*	-2.23*	0.14	—	0.26*	-0.31*	0.12	—	

		Culture				Social security				Health				Infrastructure			
Type j	Medium	Low	Up	Down	Medium	Low	Up	Down	Medium	Low	Up	Down	Medium	Low	Up	Down	
Type i																	
Medium	—	-0.35*	-0.16*	-0.02	—	-1.20**	-0.63	-0.05	—	-1.55*	-0.45	-0.44	—	-2.30**	-0.92*	-0.63*	
Low	0.35*	—	0.19	0.32*	1.20**	—	0.58	1.15	1.55*	—	1.10**	1.11	2.30**	—	1.38**	1.67	
Up	0.16*	-0.19	—	0.14	0.63	-0.58	—	0.57	0.45	-1.10**	—	0.01	0.92*	-1.38**	—	0.29	
Down	0.02	-0.32*	-0.14	—	0.05	-1.15	-0.57	—	0.44	-1.11	-0.01	—	0.63*	-1.67	-0.29	—	

Notes: The different prime minister types are defined as follows: *medium*: prime minister has a medium parental status and personal status (ISEI score 0.55); *low*: prime minister has a low parental status and personal status (ISEI score 0.3); *up*: prime minister has a low parental status (ISEI score 0.3), but medium personal status (ISEI score 0.55); *down*: prime minister has a medium parental status (ISEI score 0.55), but low personal status (ISEI score 0.3). Figures are derived as follows: first, the expected share of public spending devoted to each item is calculated for each prime minister type, taking the interaction effect between parental status and personal status into account and holding other factors fixed. Second, the difference between a type i prime minister (row name) and a type j prime minister (column name) is computed. * and ** indicate that the difference is significantly different from zero at the 5% and 1% level, respectively.

Table A6: Comparing the share of public spending on each item (in relation to total spending) for different prime minister types—upper vs. middle class.

		Public administration				Public safety				Education				Research and development			
Type j	High	Medium	Up	Down	High	Medium	Up	Down	High	Medium	Up	Down	High	Medium	Up	Down	
Type i																	
High	—	-0.02	0.05	-0.45	—	-0.58**	-0.06	0.05	—	-1.17*	0.06	-0.08	—	-0.23**	0.03**	-0.09	
Medium	0.02	—	0.07	-0.43*	0.58**	—	0.52**	0.63**	1.17*	—	1.23*	1.08*	0.23**	—	0.26**	0.14*	
Up	-0.05	-0.07	—	-0.50	0.06	-0.52**	—	0.11	-0.06	-1.23*	—	-0.14	-0.03**	-0.26**	—	-0.12	
Down	0.45	0.43*	0.50	—	-0.05	-0.63**	-0.11	—	0.08	-1.08*	0.14	—	0.09	-0.14*	0.12	—	

		Culture				Social security				Health				Infrastructure			
Type j	High	Medium	Up	Down	High	Medium	Up	Down	High	Medium	Up	Down	High	Medium	Up	Down	
Type i																	
High	—	-0.02	0.00	0.14	—	-0.16	-0.10	0.47	—	-0.23	0.21**	0.22	—	-0.81**	-0.17	0.11	
Medium	0.02	—	0.02	0.16*	0.16	—	0.05	0.63	0.23	—	0.44	0.45	0.81**	—	0.63*	0.92*	
Up	-0.00	-0.02	—	0.14	0.10	-0.05	—	0.57	-0.21**	-0.44	—	0.01	0.17	-0.63*	—	0.29	
Down	-0.14	-0.16*	-0.14	—	-0.47	-0.63	-0.57	—	-0.22	-0.45	-0.01	—	-0.11	-0.92*	-0.29	—	

Notes: The different prime minister types are defined as follows: *high*: prime minister has a high parental status and personal status (ISEI score 0.8); *medium*: prime minister has a medium parental status and personal status (ISEI score 0.55); *up*: prime minister has a medium parental status (ISEI score 0.55), but high personal status (ISEI score 0.8); *down*: prime minister has a high parental status (ISEI score 0.8), but medium personal status (ISEI score 0.55). Figures are derived as follows: first, the expected share of public spending devoted to each item is calculated for each prime minister type, taking the interaction effect between parental status and personal status into account and holding other factors fixed. Second, the difference between a type i prime minister (row name) and a type j prime minister (column name) is computed. * and ** indicate that the difference is significantly different from zero at the 5% and 1% level, respectively.

Table A7: Determinants of public expenditure composition—GMM estimation.

Variables	Public admin.	Public safety	Education	R&D	Culture	Social security	Health	Infrastructure
Y(-1)	0.517 **	0.495 **	0.429 **	0.344 **	0.463 **	0.558 **	0.459 **	0.402 **
Economic variables								
Debt-to-GDP	-0.024	-0.018	-0.189	-0.027 **	-0.001	0.016	-0.004	-0.030
Output gap	0.040	0.010	0.036	-0.014	0.004	-0.007	0.015	-0.043
Unemployment	0.130	0.106 *	0.538 **	0.015	0.006	-0.452 **	0.109	0.122
Net transfers	-0.002	-0.014	0.016	0.019	-0.002	-0.062	-0.142 **	-0.100
Political variables								
SPD	0.021	0.088	0.523	0.004	0.023	-0.020	0.264	0.871 *
Coalition	-0.286	-0.254	-0.674 *	0.004	-0.045	0.250	-0.325 *	0.099
Minority government	-0.822 *	-0.721	-2.075	-0.453	-0.082	2.514 **	0.134	0.250
Vote share	-0.021	-0.037 **	-0.038	-0.011 **	-0.009 *	-0.025	-0.017	-0.032
MoF from same party	-0.469	-0.576 *	-2.930 *	0.004	-0.252	-0.843	-0.860 **	-2.593 **
Election period	0.058	0.129	0.058	0.028	0.037	-0.092	0.107	0.012
Sociodemographic variables								
Population share < 25 yrs.	-0.418	-0.775 **	-1.323 *	-0.002	-0.014	-2.009 **	-0.058	0.213
Population share > 65 yrs.	-0.111	-0.301	-1.004	0.010	-0.041	-1.160 *	0.194	0.168
Real GDP per capita	-0.362 **	-0.351 **	-0.942 **	0.039	-0.007	-0.897 **	-0.319	-0.249
Leader variables								
PM transition	0.015	0.077	-0.233	0.016	-0.024	-0.190	0.233	-0.087
Outside PM	0.384 *	0.199	0.949	0.128	-0.065	-1.108 *	0.462 *	-0.005
Union member	-0.116	-0.513 **	-1.227 **	-0.108 **	-0.069	-0.311	-0.385 **	-0.520
Age	-0.028 *	-0.016	-0.025	-0.006	0.002	0.046	0.027 *	-0.065 **
Years in office	0.039 **	0.039 *	0.047	0.013 *	0.003	-0.010	-0.022	0.042
Parental status	4.922 *	-7.135 **	-13.219 *	-2.015 *	-1.916 *	-7.111	-7.519	-10.153
Personal status	2.953 *	-6.679 **	-13.419 **	-2.498 **	-1.415	-5.068 *	-7.421 *	-9.085 *
Parental status*personal status	-5.914	8.681 **	16.706 *	2.672 *	2.380 *	8.411	10.414	11.838
Joint sign. economic variables	$\chi^2(4) = 4.9$	$\chi^2(4) = 11.5^*$	$\chi^2(4) = 21.8^{**}$	$\chi^2(4) = 9.3$	$\chi^2(4) = 1.5$	$\chi^2(4) = 8.7$	$\chi^2(4) = 25.3^{**}$	$\chi^2(4) = 33.6^{**}$
Joint sign. political variables	$\chi^2(6) = 25.6^{**}$	$\chi^2(6) = 35.1^{**}$	$\chi^2(6) = 15.7^*$	$\chi^2(6) = 38.5^{**}$	$\chi^2(6) = 35.9^{**}$	$\chi^2(6) = 114.7^{**}$	$\chi^2(6) = 34.7^{**}$	$\chi^2(6) = 24.6^{**}$
Joint sign. sociodem. variables	$\chi^2(3) = 11.4^{**}$	$\chi^2(3) = 22.2^{**}$	$\chi^2(3) = 17.6^{**}$	$\chi^2(3) = 3.6$	$\chi^2(3) = 0.4$	$\chi^2(3) = 39.5^{**}$	$\chi^2(3) = 5.0$	$\chi^2(3) = 3.9$
Joint sign. leader variables	$\chi^2(8) = 256.3^{**}$	$\chi^2(8) = 55.7^{**}$	$\chi^2(8) = 20.1^*$	$\chi^2(8) = 65.7^{**}$	$\chi^2(8) = 27.3^{**}$	$\chi^2(8) = 77.1^{**}$	$\chi^2(8) = 39.1^{**}$	$\chi^2(8) = 232.5^{**}$
Joint sign. status variables	$\chi^2(3) = 16.4^{**}$	$\chi^2(3) = 40.7^{**}$	$\chi^2(3) = 9.3^*$	$\chi^2(3) = 26.7^{**}$	$\chi^2(3) = 8.9^*$	$\chi^2(3) = 13.0^{**}$	$\chi^2(3) = 8.7^*$	$\chi^2(3) = 36.8^{**}$
R ²	0.55	0.77	0.58	0.47	0.36	0.74	0.75	0.39
Observations	208	208	208	208	208	208	208	208
Parameters	51	51	51	51	51	51	51	51

Notes: The dependent variables measure public spending on a certain item as a share of total spending (in percentage points). Results are based on GMM estimation. Lags 2–6 of the dependent variable are used as instruments. All models include cross-section and time fixed effects. Panel robust standard errors are used. * and ** indicate significance at the 5% and 1% level, respectively.

Table A8: Determinants of public spending on different budget items.

Variables	Public admin.	Public safety	Education	R&D	Culture	Social security	Health	Infrastructure
Y(-1)	0.525 **	0.411 **	0.545 **	0.430 **	0.419 **	0.539 **	0.458 **	0.308 **
Economic variables								
Debt-to-GDP (-1)	-0.004	0.002	-0.019 *	-0.003 **	0.000	-0.008	-0.007 *	-0.008
Output gap (-1)	0.006 *	0.000	0.004	-0.001 *	0.002 *	0.004	0.001	-0.008
Unemployment (-1)	0.020 *	0.008 *	0.057 **	0.000	0.003	-0.028	0.015	0.006
Net transfers	0.003	0.001	0.099	0.036 *	-0.010	0.043	-0.046	0.037
Political variables								
SPD	-0.011	0.018	0.030	-0.004	0.004	0.042	0.069	0.167 **
Coalition	-0.030	-0.025 **	-0.043	-0.005	-0.006	0.062	-0.010	0.052 *
Minority government	-0.074	-0.023	0.017	-0.057	-0.011	0.409 *	0.118	0.250
Vote share	-0.002	-0.004 **	-0.002	-0.001	-0.001 *	-0.001	0.002	-0.001
MoF from same party	-0.040 *	-0.026 *	-0.268 *	0.004	-0.023	-0.086	-0.169 **	-0.424 **
Election period	0.006	0.017 **	0.009	0.004	0.004	-0.025	0.003	-0.014
Sociodemographic variables								
Population share < 25 yrs.	0.008	0.010	0.063	0.013	0.023 **	-0.157 **	0.013	0.159 **
Population share > 65 yrs.	0.013	0.009	-0.011	0.007	0.002	-0.105	0.042	0.047
Real GDP per capita (-1)	-0.025 *	-0.005	-0.037	0.004	0.001	-0.097 **	-0.044 *	-0.008
Leader variables								
PM transition	0.000	0.018 **	-0.027	0.002	-0.001	-0.040	0.022	-0.017
Outside PM	0.050 *	0.006	0.057	0.008	-0.015	-0.234 *	0.022	-0.079
Union member	0.003	-0.021	-0.037	-0.011 *	-0.004	0.011	-0.055 *	-0.043
Age	-0.002	0.000	0.003	0.000	0.001 *	0.007	0.004	-0.005
Years in office	0.039 *	0.002	-0.001	0.001 *	0.000	-0.005	-0.004	0.002
Parental status	0.823 **	-0.948 **	-0.748	-0.248 *	-0.203	-0.421	-1.247	-1.977 *
Personal status	0.470 **	-0.831 **	-0.905 *	-0.304 **	-0.131	-0.035	-1.062 *	-1.491 **
Parental status*personal status	-0.953 **	1.223 **	1.137	0.357 *	0.274	0.529	1.729	2.456 *
Joint sign. economic variables	$\chi^2(4) = 18.0^{**}$	$\chi^2(4) = 12.4^*$	$\chi^2(4) = 15.4^{**}$	$\chi^2(4) = 8.4$	$\chi^2(4) = 6.7$	$\chi^2(4) = 8.6$	$\chi^2(4) = 6.1$	$\chi^2(4) = 28.3^{**}$
Joint sign. political variables	$\chi^2(6) = 26.2^{**}$	$\chi^2(6) = 36.3^{**}$	$\chi^2(6) = 40.4^{**}$	$\chi^2(6) = 36.1^{**}$	$\chi^2(6) = 40.9^{**}$	$\chi^2(6) = 26.0^{**}$	$\chi^2(6) = 27.8^{**}$	$\chi^2(6) = 29.9^{**}$
Joint sign. sociodem. variables	$\chi^2(3) = 11.2^*$	$\chi^2(3) = 2.6$	$\chi^2(3) = 21.9^{**}$	$\chi^2(3) = 8.7^*$	$\chi^2(3) = 23.9^{**}$	$\chi^2(3) = 15.0^{**}$	$\chi^2(3) = 9.3^*$	$\chi^2(3) = 33.5^{**}$
Joint sign. leader variables	$\chi^2(8) = 159.7^{**}$	$\chi^2(8) = 123.6^{**}$	$\chi^2(8) = 10.3$	$\chi^2(8) = 38.4^{**}$	$\chi^2(8) = 11.1$	$\chi^2(8) = 7.1$	$\chi^2(8) = 40.2^{**}$	$\chi^2(8) = 75.7^{**}$
Joint sign. status variables	$\chi^2(3) = 67.2^{**}$	$\chi^2(3) = 11.1^*$	$\chi^2(3) = 8.7^*$	$\chi^2(3) = 21.5^{**}$	$\chi^2(3) = 4.3$	$\chi^2(3) = 0.9$	$\chi^2(3) = 7.7^*$	$\chi^2(3) = 18.0^{**}$
R ²	0.61	0.57	0.87	0.58	0.70	0.75	0.84	0.63
Observations	208	208	208	208	208	208	208	208
Parameters	51	51	51	51	51	51	51	51

Notes: The dependent variables measure public spending on a certain item as a share of GDP (in percentage points). Results are based on least squares dummy variable (LSDV) estimation. All models include cross-section and time fixed effects. Panel robust standard errors are used. * and ** indicate significance at the 5% and 1% level, respectively.

Table A9: Comparing the share of public spending on each item (in relation to GDP) for different prime minister types.

		Public administration				Public safety				Education				Research and development			
Type j	High	Low	Up	Down	High	Low	Up	Down	High	Low	Up	Down	High	Low	Up	Down	
Type i																	
High	—	0.12**	0.03*	-0.15*	—	-0.22**	0.02	0.07	—	-0.20	0.08**	0.00	—	-0.08**	0.02**	-0.01	
Low	-0.12**	—	-0.09	-0.27**	0.22**	—	0.23**	0.29**	0.20	—	0.28*	0.20	0.08**	—	0.10**	0.07	
Up	-0.03*	0.09	—	-0.18*	-0.02	-0.23**	—	0.06	-0.08**	-0.28*	—	-0.08	-0.02**	-0.10**	—	-0.03	
Down	0.15**	0.27**	0.18*	—	-0.07	-0.29**	-0.06	—	-0.00	-0.20	0.08	—	0.01	-0.07	0.03	—	

		Culture				Social security				Health				Infrastructure			
Type j	High	Low	Up	Down	High	Low	Up	Down	High	Low	Up	Down	High	Low	Up	Down	
Type i																	
High	—	-0.02	0.01	0.04	—	0.06	0.00	0.19	—	-0.20	0.07**	0.16	—	-0.38**	-0.01	0.24	
Low	0.02	—	0.03	0.06	-0.06	—	-0.06	0.13	0.20	—	0.27*	0.36	0.38**	—	0.38**	0.62*	
Up	-0.01	-0.03	—	0.04	-0.00	0.06	—	0.19	-0.07**	-0.27*	—	0.09	0.01	-0.38**	—	0.24	
Down	-0.04	-0.06	-0.04	—	-0.19	-0.13	-0.19	—	-0.16	-0.36	-0.09	—	-0.24	-0.62*	-0.24	—	

Notes: The different prime minister types are defined as follows: *high*: prime minister has a high parental status and personal status (ISEI score 0.8); *low*: prime minister has a low parental status and personal status (ISEI score 0.3); *up*: prime minister has a low parental status (ISEI score 0.3), but high personal status (ISEI score 0.8); *down*: prime minister has a high parental status (ISEI score 0.8), but low personal status (ISEI score 0.3). Figures are derived as follows: first, the expected share of public spending devoted to each item is calculated for each prime minister type, taking the interaction effect between parental status and personal status into account and holding other factors fixed. Second, the difference between a type i prime minister (row name) and a type j prime minister (column name) is computed. * and ** indicate that the difference is significantly different from zero at the 5% and 1% level, respectively.

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