Public–Private Partnershipping as a Tool of Government: Exploring its Determinants Across German States

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Despite considerable public and scholarly interest in public–private partnerships (PPPs) as a tool of government in Germany, there is no quantitative empirical study exploring the motivations behind policymakers’ decisions to (not) use this type of privatisation policy. This article contributes to filling this gap by investigating the extent and determinants of the PPP activities of the 16 German states’ governments over the period 2002–09. For that purpose, a PPP Activity Index is constructed which not only includes official PPP project figures but also state governments’ programmatic, institutional, and advisory activities regarding PPP. Using this index, we statistically analyse whether fiscal stress, government partisanship, and other factors can help to explain the considerable differences between Länder governments’ PPP activities. Among other things, it turns out that partisanship only matters if Socialists are part of a coalition government, and that fiscal transfers have a negative impact on a state’s PPP activity level.

Public–private partnerships (PPPs) between governments and private-sector firms at different jurisdictional levels have received considerable political, public, and scholarly attention in Germany in recent years. In a PPP, the public and private partner(s) contractually agree upon a certain division of labour in order to produce and/or finance certain public services or infrastructures. PPP arrangements may take a variety of forms depending on which task in the chain of producing/financing is done by the private partner. For example, in the so-called DBFO model the private-sector company designs, builds, finances, and operates a motorway, hospital, school, prison, administrative building, or other public infrastructure. The conventional way (public procurement) is to publicly finance and operate such infrastructure, while building is contracted out to the private sector.

Social science literature dealing with the PPP phenomenon in Germany has so far concentrated on aspects of the governance, efficiency, and legitimacy of such arrangements. Moreover, there are some qualitative case studies tracing PPP development in recent years at different jurisdictional levels. Based on interviews with and surveys of PPP practitioners (ie public and private actors) as well as analyses of official documents and media reports, many qualitative studies come to the conclusion that fiscal pressure is the main driver for jurisdictions to use PPP as an alternative and cheaper
(as is the expectation) way to provide public services. Moreover it is often argued in
this literature that PPP is a policy tool beyond the delineation of left and right in
Germany – promoted and used by leftist and rightist governments alike. However,
there is no multivariate quantitative analysis testing the fiscal-pressure and partisan-
difference hypothesis (simultaneously controlling for other potential factors of
influence). This article contributes to filling this gap by investigating the extent and
the politico-economic determinants of the PPP activities of the 16 German federal
states’ (Bundesländer) governments.

The paper is organised as follows. The next section introduces our dependent vari-
able, the ‘PPP Activity Index’, and explains why we decided to create a new multi-
dimensional indicator which includes not only the best available official data on
PPP projects signed by the German states in the period 2002–09 (which was insuffi-
cient for a statistical investigation for a number of reasons, explained below), but
also items which offer information about state governments’ involvement in other
PPP activities (e.g. programmatic commitments to PPP, establishing a PPP task
force). Subsequently, a multiple regression framework is employed to find out
whether fiscal stress, government partisanship, and other factors help explain the
considerable differences between German Länder governments’ PPP activities. The results
of this analysis, among other things, draw a more differentiated picture of the issue of
whether parties matter than the previous research mentioned above. It turns out that
partisanship matters – but only if Socialists are part of a coalition government, as
they have a negative effect on a state’s PPP activity. Moreover the data reveals that
the status of being a financially weak ‘recipient state’ (receiving transfer payments
from other states and the national government) interestingly has not a positive but a
negative impact on a state’s PPP activities. This contributes another piece of evidence
to the discussion about the incentive effects of German fiscal federalism.

MEASURING GERMAN STATES’ PPP ACTIVITIES

Available Data

The first attempt to systematically quantify the amount of PPPs in Germany was made
by the German Institute of Urban Affairs (DIFU). In a study carried out on behalf of the
PPP Task Force at the Federal Ministry of Transport, Building & Urban Development,
researchers from this institute gave an overview of PPP projects signed in the period
2000–05 at the national, state, and local levels. The study is based on a survey to
which 981 communes (Städte & Gemeinden; 65 per cent of all German communes),
222 counties (Landkreise; 69 per cent of all counties) and 93 governmental agencies
at the national and state level (Bundes- und Landesbehörden; total population of
agencies unknown) responded. Overall, the responding jurisdictions reported 143 con-
tractually agreed PPP projects and 57 projects in preparation. Of all these PPPs, 80 per
cent are conducted at the communal level. Moreover, the study reports a strong
increase in projects since 2004.

Another official source of information regarding the extent of public–private ‘part-
nerships’ in Germany is the ‘PPP-Project Database’ (www. pp-projektdatenbank.
de) operated by ÖPP Deutschland AG (www.oeppdag.de). This governmental body
was established in spring 2009 as the successor organisation to the aforementioned PPP Task Force at the Federal Ministry of Transport, Building & Urban Development, which was founded in 2004 by the German national government to promote PPP as a policy tool. On 30 June 2009 the official PPP database contained 29 projects/contracts signed by German states and 96 projects that had been signed by counties and cities between the beginning of 2002 and June 2009. Although this database is currently the best available official source of information (stating ‘Here you can find information about all registered PPP projects in Germany’), it has two flaws. Firstly, one does not get information about what happened in terms of PPP at the sub-national level before 2002 (hence the start of our sample period). Secondly, there remain doubts about whether this database really contains all PPPs carried out by states, counties, and cities between January 2002 and June 2009.

These doubts are raised firstly by the operator of the database, who notes in a footnote that ‘the information which can be retrieved from this website is based on voluntary statements by the governmental bodies running the projects and the respective contractors’; and secondly by the fact that the aforementioned DIFU study – based on a survey of government authorities and, consequently, also using self-reported data – reports more projects between 2002 and 2005 than are included in the official PPP database. Moreover, some state governments’ official websites report about PPP projects in the period covered by the database which are however not contained in this database. For some states, more projects were found on the websites than were registered in the database. In the cases of Berlin, Bremen, Lower Saxony, Mecklenburg-Western Pomerania, Rhineland-Palatinate and Saarland, however, our data search led to the same result as that of the official PPP database: at the end of June 2009 these states’ websites did not disclose any information about PPP contracts that had been signed since 2002.

The existing discrepancies can be explained by the fact that the online database only includes PPP projects in which the private partner carries out at least four parts of the project (e.g. planning, financing, building, operating). By contrast, the DIFU study and the state governments’ websites contain projects that do not meet this ‘rule of four’: they sometimes count as a PPP cases in which, for instance, a private partner just finances the construction of a building (e.g. a university campus or a city hall). Although it is far from a perfect data source, for our construction of the PPP Activity Index presented below we decided to rely on the official PPP database of the German national government, which contains consistent data (see the ‘rule of four’). Of course, it cannot be ruled out that the aforementioned ‘zero-project states’ may have signed PPP projects in our sample period – but this would raise the question of why they did not disclose their project activities to the public and the national government. By contrast, other states use their competitive tendering, PPP contract conclusion, or ground-breaking ceremonies as part of their public relations activities, making partnering a highly visible media event.

New Data: The PPP Activity Index

Trying to statistically identify the factors behind state governments’ decisions to (not) enter PPPs on the basis of the relatively small number of 29 signed state-level projects included in the official PPP database is not a promising empirical strategy. To explore
the determinants of PPPs at the sub-national level despite existing data problems, we therefore created a new indicator: the ‘PPP Activity Index’. This index not only contains official data about the number of PPP projects signed by Länder governments between January 2002 and June 2009, but also takes into account other instruments which are at governments’ disposal to demonstrate ‘activity’ regarding PPP, such as a state government having written of PPPs in its political programmes; established special task forces dealing with PPP issues; and/or promoted PPP activities at the local level. Although we do not claim that there are no other forms of PPP activity, based on media reports and academic studies by other observers of the German PPP market we think that programmatic, institutional, project-related, and advisory activities are the most important manifestations. The PPP index has been constructed as follows.

Government programme. This item measures the degree of programmatic commitment towards PPP in a state government’s official programme. Programmatic activity can be taken as an indicator providing information about the ‘deeds’ scheduled by government in the respective legislative period (e.g. implementing several PPP projects). To find out whether the policy tool PPP plays a more or less important role in political planning, we conducted quantitative content analyses of 40 government programmes covering all state governments existing in the investigation period. More precisely, in case of single-party governments, the governmental or electoral programme of the ruling party was analysed. In the case of multi-party governments, coalition agreements constituted the basis of analysis. Programmatic activity is measured on a 0–2 scale. If the term ‘Public–Private Partnership’, its abbreviation ‘PPP’, or the respective German terms (Öffentlich-Private Partnerschaft, ÖPP) are not explicitly mentioned in the document, the particular programme is coded 0. General commitments to privatisation and new forms of collaboration with private actors are also valued 0. Consequently, the programmatic item was coded ‘0’ in all years in which the respective programme was in effect. If the aforementioned terms are used in a positive context (e.g. ‘We will...’, ‘We plan to...’) in one or two chapters (which usually treat different policy areas such as education, transport, or health care), the document is coded 1. And in cases where such statements are made in more than two chapters of the document, the value 2 is given.

Political institutionalisation. Starting with North Rhine-Westphalia in 2002, some states established specialised institutions labelled e.g. ‘PPP Task Force’, ‘PPP Competence Centre’ or ‘PPP Working Group’ to promote PPP arrangements as a policy tool at the sub-national level. Based on information provided on state governments’ and PPP units’ official websites and in data from the Federal Ministry of Finance, the degree of institutional embeddedness of PPP at the state level is measured on a 0–3 scale, where 0 = no governmental authority is explicitly responsible for PPP within the respective state in the particular year; 1 = state government appointed a contact person for PPP affairs (e.g. Saarland nominated a public official in the Ministry of Economic Affairs as the official ‘PPP Commissioner of the Saarland’); 2 = a ‘PPP Working Group’, a ‘PPP Competence Centre’ or some other kind of network has been established, in which different departments of a state government at times hold meetings in order to exchange their ideas, experiences, and strategies regarding PPP; 3 = a special ‘PPP Task Force’ exists in a state, with two or more staff members.
State-level projects. This item measures a state government’s annual PPP project activities on a scale of 0 (= no project activity) to 2 (= relatively high project activity). For that purpose, those projects in the official PPP database (discussed above) in which the respective state government is the contracting body are coded per year as follows: 0 = no state project signed; 1 = one or two state projects; 2 = three and more state projects. Each project is only counted once, namely, in the year in which the PPP contract was signed. According to the official data, the states Berlin, Bremen, Lower Saxony, Mecklenburg-Western Pomerania, Rhineland-Palatinate, and Saarland signed no state projects in our sample period. It should be mentioned that it was not possible to control for the investment volume of the projects as in most cases this figure was not reported in the official database. Moreover, the size of a state might have a positive influence on the number of its PPP projects. Therefore, the variables POP (measuring state population) and SIZE (capturing geographic size) are included as controls in the statistical analysis conducted below.12

Local projects. This item measures the annual number of PPP projects signed by counties (Landkreise) and communes (Städte & Gemeinden) located in a particular state. The data source and coding procedure are the same used in the case of state-level projects. There is only one exception: Berlin, Bremen, and Hamburg are so-called city-states (Stadtstaaten) – ie these jurisdictions are not only cities but also constitute three of the 16 German states. Hence, in these cases the state-level projects are also counted in the category of local projects. Because of the special features of a city-state (e.g. high population density, privileges in German fiscal federalism), which probably make a difference to levels of PPP activity, the empirical analysis conducted below includes a CITY dummy (1 = Berlin, Hamburg, Bremen). Moreover, the variable LOCAL (measuring the number of communes/counties located in a state) is included since the number of local projects could be positively correlated with the number of local jurisdictions in a state.

The coding procedure leads us to the result that according to the official PPP database, Berlin, Bremen, Saarland, and Thuringia had no local-level PPP projects in our sample period. Integrating the item ‘local projects’ in an index designed to measure states’ PPP activities makes sense for the following reasons. Some state governments’ public-relations materials advertise that N city/county projects were signed and are successfully running in their state. Moreover, some states point out that they have financially supported particular PPPs carried out by local jurisdictions. In addition, it is often highlighted that the PPP task force of the state government has promoted several cities and counties which exhibit PPPs. The task forces were especially founded to popularise the policy tool PPP, and to support cities and counties in their PPP activities (e.g. in the form of consulting services and contract standardisation).

Descriptive Statistics
The data collected and coded for items listed above has been aggregated to a PPP Activity Index. As the items are scaled differently, before aggregation each item-scale was transformed into a uniform 0–1 scale. The PPP index for each year t within the period 01/2002–06/2009 measures a German state i’s PPP activities with respect to programmatic statements (PROGRAMME), institutionalisation (INSTITUTION),
state-level projects (S-PROJECT), and local projects (L-PROJECT). The index can be expressed by the following formula:

$$ PPP-INDEX_{i,t} = \text{PROGRAMME}_{i,t} + \text{INSTITUTION}_{i,t} + 2 \times S-PROJECT_{i,t} + L-PROJECT_{i,t}. $$

As can easily be seen, the PPP Activity Index is a weighted additive index. The item ‘state-level projects’ is weighted more strongly than the other items. This is in order to differentiate between whether a state government shows activities in the form of ‘words’ and/or ‘deeds’. It is one thing to talk about PPP, to announce certain PPP projects, or to establish a network of public officials and experts at the state level, which discuss PPP issues and give advice to city councils – such activities are captured by the item PROGRAMME (‘PPP is an innovative tool of government’, ‘We will make use of PPP for infrastructure modernisation’, and similar statements), the item INSTITUTION (e.g. ‘We have a PPP Task Force which promotes PPP projects’) and the item L-PROJECT (‘We have supported numerous cities in their PPP efforts’); yet the strongest form of PPP activity a state government can demonstrate is to conduct one or more ‘real-existing’ PPP projects as captured by S-PROJECT.

Table 1 displays annual values of the PPP Activity Index scaled from 0 (= no activity) to 5 (= highest possible activity level). There are considerable differences across the 16 German states regarding the extent of PPP activities in the investigation period. According to their mean values for the whole period, the states North Rhine-Westphalia (2.6), Baden-Württemberg (2.2), Hesse (2.1), Saxony-Anhalt (2.0), and Schleswig-Holstein (2.0) can be denoted as ‘highly active’ states. By contrast, Mecklenburg-Western Pomerania, Rhineland-Palatinate, Saarland, and Saxony (all 0.6 index points) show relatively low activity levels. Considered as groups, the Eastern states (1.1) and city-states (1.0) are slightly below the all-state average (1.3). Moreover, it turns out that most states’ PPP activities increased between 2002 and 2009 (see especially Baden-Württemberg and Schleswig-Holstein). Note that the index scaling does not contain a value judgement in the sense of a higher PPP activity level being regarded as better for the citizens in a society or for someone else. Addressing such (exciting and important) normative issues concerning the consequences of using the policy instrument under investigation is not the subject of this article.

WHAT EXPLAINS CROSS-STATE DIFFERENCES? HYPOTHESES

As we have seen, there are substantial differences between German states’ activities with respect to PPP. But how can these differences be explained? Why were some states more active than others? In the remainder of this article statistical techniques are applied in order to identify factors which might explain the observable variation between states. The main hypotheses motivating the statistical analysis originate from politico-economic literature and concern the likely effects of fiscal stress, fiscal federalism, and government partisanship on German states’ PPP activities. Fiscal and partisan factors are not chosen randomly but – along with jurisdiction-specific characteristics – belong to the main explanatory factors employed in quantitative studies analysing the determinants of contracting-out (i.e., private production of public
services instead of in-house production by public bodies), using samples of cities and other sub-national units in the USA and other OECD countries.\textsuperscript{13}

### Fiscal Pressure and Fiscal Federalism

If a (sub-)national government is in financial difficulty, then the instrument of PPP may offer a promising solution. Private partners’ capital can increase the feasibility of projects for which not enough public money was previously available.\textsuperscript{14} Moreover consulting firms frequently report that PPP arrangements in many sectors can be expected to be more cost-efficient (ie cheaper) than conventional public procurement or the purely public (in-house) production of public services and infrastructures.\textsuperscript{15} The efficiency argument is often used by public actors, too. For example, in the mission statement of Germany’s official ‘PPP-Project Database’, one reads that ‘PPP stands for modern and efficient executive governance. Through a long-term cooperation between the public and private sector it is possible to realise public infrastructure projects more efficiently’.\textsuperscript{16} Whether public–private collaboration after contract

### Table 1

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<th>STATE</th>
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<th>‘03</th>
<th>‘04</th>
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**Notes:** PPP-Activity Index scaled from 0 (¼ no activity) to 5 (¼ highest possible activity level). States ranked according to their mean 2002–09.
conclusion (and in the long run) really does turn out to be more efficient is an empirical question for which mixed empirical evidence exists. In any case, the aforesaid leads to our first main hypothesis: state governments facing budgetary problems (often labelled as ‘fiscal stress’) show more activities with respect to the (allegedly) stress-reducing policy instrument PPP than jurisdictions with a relatively ‘healthy’ public budget. In this study, the theoretical construct ‘fiscal stress’ is operationalised by the variable DEBT, which measures a state’s public debt (in euros) per capita and per year – a figure often used in public debates by the Liberal Party (FDP), the German Association of Taxpayers (Steuerzahlerbund), and other interest groups to convince citizens that running further into debt is ‘evil’. As an alternative operationalisation for fiscal pressure, the variable DEBT-INT is employed. This measures a state’s annual debt interest payments (in per cent of total state budget).

Readers familiar with the German system of fiscal federalism will surely object that a state’s financial situation is influenced by the so-called ‘Federal Financial Equalisation System’ (Länderfinanzausgleich). Due to their relatively weak financial power, ‘recipient states’ (Nehmerländer) receive grants from the wealthier ‘contributor states’ (Geberländer) and the national government for the purpose of ‘[ensuring] that fiscally weak states also have adequate financial resources to fulfil their tasks and […] to create and maintain equal living conditions for the entire population in all of Germany’. This redistribution mechanism could have a negative effect on recipient states’ incentives to employ cost-saving policy tools like PPP: states with a relatively bad fiscal performance face soft budget constraints – they can expect to be bailed-out in case of financial difficulties. Some figures not reported above already point in the conjectured direction: looking at the average PPP Index values of different state groups in 2002–09, the recipient states are below (1.1) and the contributor states above (1.9) the all-state average (1.3).

To statistically test the sketched effect, the dummy variable RECEIVER is employed (1 = recipient state). Throughout the period 2002–09 only Baden-Württemberg, Bavaria, Hamburg, and Hesse were relatively wealthy contributor states. North Rhine-Westphalia belonged to the group of contributors from 2002 to 2007, was a recipient in 2008, and contributed again in 2009. Nevertheless, in the cross-sectional regression analysis RECEIVER takes on the value of 0 for this state since it was a contributor for most of the observation period.

**Government Partisanship**

Following the partisan-difference theory introduced into politico-economic literature in the late 1970s by Douglas A. Hibbs, Richard Rose, Manfred G. Schmidt, Edward R. Tufte, and others, the question of whether a state government’s partisan composition makes a difference regarding its PPP activities is explored. One standard approach of hypothesis-building in the comparative political economy of privatisation is to divide the main political parties in a Western democracy into two ‘camps’: (1) right-wing parties are conjectured to be ‘privatisation-friendly’ since they are assumed to try to reduce state interference into the economy and to rely on ‘neoliberal’ supply-side economics; (2) the left-wing parties are expected to be ‘privatisation-hostile’ as they are supposed to prefer a higher level of state intervention into economic affairs than the right-wing parties, and are interested in ‘defending’ or even expanding
the size of the public sector. Applied to the case of PPP at the state level in Germany, this type of partisan theory leads to the following hypothesis: the stronger the parties usually labelled as left-wing (SPD, Green Party, Left Party) in a state government, the lower a state’s PPP activity.

However, this traditional partisan-difference hypothesis may appear outdated in the light of German left-wing parties’ activities with respect to PPP in the last decade. For example, when the SPD and the Greens formed a coalition government at the national level from 1998 to 2005, contrary to the expectations of the ‘old’ theory, these parties turned out to be proponents of PPP as a policy tool (although intra-party differences existed). Among other things, the SPD–Green government in 1998 decided to introduce an electronic toll collection system for trucks (‘Toll Collect’) via PPP procurement, established a PPP task force at the national level in 2004, and initiated a so-called ‘PPP Acceleration Act’ in 2005. A similar transformation of policy preferences in the left camp happened at the national level in Great Britain in 1997, where the New Labour government turned out to be an enthusiastic proponent of the PPP type ‘Public Finance Initiative’. In both cases, it may be argued that the ‘left-wing’ Labour and SPD parties sought to enter partnerships with private-sector firms (expecting cost-saving and deficit-reducing effects) to wipe off the tax-and-spend image created by ‘Old’ Labour and the Social Democrats’ activities in the past.

To measure whether political parties make a difference regarding the use of PPP at the Länder level, we account for the observable changes of the policy preferences in the left camp and employ a more subtle approach than simply translating the left-right divide into a binary PPP-hostile/-friendly hypothesis. The metric variable RED-GREEN is created to test empirically whether the strength of these parties in a state government has a negative effect (as traditional partisan theory suggests) or a positive effect (see the recent developments on the left) on a state’s PPP activity level, or has no effect at all. RED-GREEN measures, for each state and each year in the period 01/2002–06/2009, the SPD and Greens’ share of the respective state government in percentage of total cabinet posts (weighted by days). With regard to the Socialist Party, however, a clear partisan-difference hypothesis is specified: the higher the cabinet-seat share of the Left Party (as measured by the metrical variable LEFT) in a state government, the lower the respective state’s activities regarding PPP. Taking into consideration public statements by politicians from this party in recent years, the Socialist Party can be expected to act as a partisan veto player in the sense of Tsebelis when in office.

HYPOTHESIS TESTING

To statistically explore the determinants of PPPs at the Länder level in Germany, as a first step bivariate correlations (Spearman’s rho) between the PPP Activity Index (each state’s mean 2002–09) and potential factors of influence were run. Table 2 reports the results of this bivariate correlation analysis (see Column (C)), together with an overview of the considered explanatory variables and their theoretically expected effect on a state’s PPP activity level. In addition to the variables capturing fiscal pressure and government partisanship, a set of control variables is taken into account. The controls regarding state size (POP, SIZE), city-states (CITY), and number of local...
jurisdictions (LOCAL) have been already introduced above. Additionally, the dummy EAST gets 1 for the five East German states Brandenburg, Mecklenburg-Western Pomerania, Saxony, Saxony-Anhalt, and Thuringia. It might be argued that the Eastern states still have a great backlog with respect to public infrastructures and services, which possibly leads to higher levels of PPP activities than in Western states. PPP-2002 represents the value of a state’s PPP Activity Index in the base year 2002. This variable is used to control whether a state’s initial level of PPP activity had a positive effect on the use of this tool of public policy in subsequent years.

With two exceptions, only weak correlations can be observed. There is a medium-sized negative and statistically significant correlation between RECEIVER and PPP activity level (rho = −0.69) which empirically supports the conjecture that recipient states have a relatively low financial incentive to choose the policy instrument PPP. Moreover, there is a medium-sized positive and statistically significant correlation

<table>
<thead>
<tr>
<th>Variable</th>
<th>Operationalisation</th>
<th>Data Source</th>
<th>Expected Effect</th>
<th>Correlation with PPP-Activity Index</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State’s Financial Situation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEBT</td>
<td>Public debt per capita (in €, mean 2002–08)</td>
<td>(1)</td>
<td>+</td>
<td>−0.19 −0.01 (0.81)</td>
</tr>
<tr>
<td>DEBT-INT</td>
<td>Debt interest payments (in % of total state budget, mean 2002–08)</td>
<td>(1)</td>
<td>+</td>
<td>−0.07 −0.01 (0.04)</td>
</tr>
<tr>
<td>RECEIVER</td>
<td>Dummy (1 = recipient state in inter-jurisdictional fiscal equalisation system)</td>
<td>(1)</td>
<td>−</td>
<td>−0.69*** −3.48*** (3.04)</td>
</tr>
<tr>
<td><strong>Political Factors (state level)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RED-GREEN</td>
<td>% of government seats held by SPD and/or Greens (mean 2002–09)</td>
<td>(3)</td>
<td>+/-</td>
<td>−0.25 −0.02 (1.05)</td>
</tr>
<tr>
<td>LEFT</td>
<td>% of government seats held by Socialist Party (mean 2002–09)</td>
<td>(3)</td>
<td>−</td>
<td>−0.42 −0.06* (1.74)</td>
</tr>
<tr>
<td>PPP-2002</td>
<td>Value of PPP-Activity Index in base year 2002</td>
<td>(3)</td>
<td>+</td>
<td>+0.52** +2.93*** (2.59)</td>
</tr>
<tr>
<td><strong>State Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POP</td>
<td>Population (in thousands, mean 2002–09)</td>
<td>(2)</td>
<td>+</td>
<td>+0.48 +0.01** (2.29)</td>
</tr>
<tr>
<td>SIZE</td>
<td>Size in square kilometres (as end of 2007)</td>
<td>(2)</td>
<td>+</td>
<td>+0.35 +0.01 (1.57)</td>
</tr>
<tr>
<td>LOCAL</td>
<td>Number of counties (Landkreise) and communes (Städte &amp; Gemeinden) in a state (as end of 2007)</td>
<td>(2)</td>
<td>+</td>
<td>+0.12 +0.01 (0.14)</td>
</tr>
<tr>
<td>CITY</td>
<td>Dummy (1 = city-state)</td>
<td>(3)</td>
<td>+/-</td>
<td>−0.12 −0.46 (0.59)</td>
</tr>
<tr>
<td>EAST</td>
<td>Dummy (1 = East German state)</td>
<td>(3)</td>
<td>+</td>
<td>−0.34 −1.35 (1.28)</td>
</tr>
</tbody>
</table>

Notes: Column (C) = bivariate correlations (Spearman’s rho) between PPP-Activity Index (each state’s mean 2002–09) and explanatory variables (N = 16 states). Column (R) = bivariate ordered logit regressions with PPP-Activity Index (each state’s mean 2002–09) as dependent variable (N = 16 states); absolute value of z-statistics (based on heteroskedasticity-robust standard errors) in parentheses behind unstandardised regression coefficients. Levels of statistical significance: *** 1%, ** 5%, * 10% (two-tailed). Data Sources: (1) Federal Ministry of Finance, (2) Federal Statistical Office, (3) own calculations.
between states’ initial levels of PPP activity in 2002 and their mean activity levels in the whole investigation period of 2002–09 (rho = +0.52). These two effects also appear in a bivariate ordered logit regression analysis with the PPP Activity Index (again each state’s mean 2002–09) as the dependent variable (Table 2, Column (R)). As it is always dangerous to draw far-reaching conclusions on the basis of a bivariate analysis, in the next step, we analysed within a multiple regression framework whether the bivariate correlations reported in Table 2 are merely spurious or hold when it is simultaneously controlled for other explanatory factors.

**CS and TSCS Regressions: Model Specifications**

As we are interested in explaining the cross-state differences, as a start, a cross-sectional (CS) research design was employed to first gain insight into whether fiscal pressure and government partisanship matter at all when controlling for other factors of influence. The CS regression analysis with the PPP Activity Index (each state’s mean 2002–09) as the dependent variable obviously has the drawback of including only a relatively small number of observations (N = 16 states). Consequently only a limited number of explanatory variables can be simultaneously tested to leave a sufficient number of degrees of freedom. Following other sub-national studies, we cope with this small-N problem by focusing on those variables that can be expected to be significant explanatory factors on the basis of the bivariate analysis (ie RECEIVER, LEFT, PPP-2002, POP; see Table 3, models 1–3). Furthermore, a time-series cross-sectional (TSCS) regression analysis is employed with each state’s annual PPP Activity Index as its dependent variable. For this analysis, the explanatory variables introduced above have to be fitted to the TSCS data structure.

DEBT measures a state’s annual public debt (in euros) per capita, DEBT-INT its annual debt interest payments (in percentage of total state budget). Both variables are lagged by one year (t–1) since reverse causality may play a role: high debt in a fiscal year might induce PPP activity in this year, and high PPP activity in this particular year might cause debt reductions in this period. The RECEIVER dummy gets 1 if a state is a recipient state in the respective year. RED-GREEN and LEFT measure the annual proportion of state government seats held by the particular parties. PPP-2002 represents the base level of the PPP-Activity Index in 2002. POP measures the annual state population (in thousands), LOCAL the number of counties and communes in a state (as at end of 2007), and EAST is a dummy variable (1 = East German state). SIZE is not included because there is an obvious problem of multicollinearity: geographically large states often also have a large population (r = +0.71). Since POP turned out to be more influential than SIZE (see bivariate results), we dropped the latter. The CITY dummy (1 = Berlin, Bremen, Hamburg) is not included since it shows high correlations with DEBT (rho = +0.68, as these three states are heavily indebted); with SIZE (rho = −0.68, as they are relatively small-scaled); and with LOCAL (rho = −0.68, as they only consist of one local unit). To check whether the city-state status significantly changes the regression results, we estimated models without these states.

Before presenting the regression results, some methodological remarks are appropriate. The TSCS regressions are based on cluster-robust standard errors (clustered by states) being robust to heteroscedasticity and autocorrelation. Not clustering
### Table 3
DETERMINANTS OF GERMAN STATES’ PPP ACTIVITIES, 2002–2009

<table>
<thead>
<tr>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
<th>(9)</th>
<th>(10)</th>
<th>(11)</th>
<th>(12)</th>
<th>(13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEBT (t−1)</td>
<td>—</td>
<td>−0.01</td>
<td>—</td>
<td>−0.01</td>
<td>0.01</td>
<td>—</td>
<td>—</td>
<td>0.01</td>
<td>0.01</td>
<td>—</td>
<td>—</td>
<td>0.01**</td>
</tr>
<tr>
<td>RECIIVER</td>
<td>—</td>
<td>—</td>
<td>−2.97**</td>
<td>—</td>
<td>—</td>
<td>−1.22</td>
<td>−0.73</td>
<td>—</td>
<td>—</td>
<td>−2.13***</td>
<td>−1.12*</td>
<td>−3.23***</td>
</tr>
<tr>
<td>RED-GREEN</td>
<td>0.01</td>
<td>0.01</td>
<td>0.02</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
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<td>0.01</td>
<td>0.01</td>
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<td>0.01</td>
</tr>
<tr>
<td>LEFT</td>
<td>−0.09**</td>
<td>−0.08*</td>
<td>−0.08*</td>
<td>−0.05***</td>
<td>−0.04**</td>
<td>−0.04**</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>PPP-2002</td>
<td>3.34**</td>
<td>3.43***</td>
<td>2.63*</td>
<td>2.15**</td>
<td>—</td>
<td>1.96**</td>
<td>—</td>
<td>2.07***</td>
<td>—</td>
<td>2.21**</td>
<td>—</td>
<td>1.39</td>
</tr>
<tr>
<td>PPP-Index (t−1)</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>2.03***</td>
<td>—</td>
<td>1.98***</td>
<td>—</td>
<td>2.04***</td>
<td>—</td>
<td>2.02***</td>
<td>—</td>
</tr>
<tr>
<td>POP</td>
<td>0.01***</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>0.01</td>
<td>0.01*</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01**</td>
<td>−0.01</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>LOCAL</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>0.01</td>
<td>−0.01</td>
<td>0.01</td>
<td>−0.01</td>
<td>0.01</td>
<td>−0.01</td>
<td>0.01</td>
<td>−0.01</td>
</tr>
<tr>
<td>EAST</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>−0.06</td>
<td>−0.13</td>
<td>0.35</td>
<td>0.03</td>
<td>−0.11</td>
<td>−0.14</td>
<td>0.28</td>
<td>−0.15</td>
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<tr>
<td>Time-Fixed Effects</td>
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<td>robust</td>
<td>robust</td>
<td>robust</td>
<td>robust</td>
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</tr>
<tr>
<td>Log pseudo-likelihood</td>
<td>−33.32</td>
<td>−35.95</td>
<td>−33.74</td>
<td>−243.19</td>
<td>−240.70</td>
<td>−203.91</td>
<td>−195.99</td>
<td>−164.13</td>
<td>−190.55</td>
<td>−163.50</td>
<td>−187.12</td>
<td>−160.44</td>
</tr>
<tr>
<td>Wald chi² statistic</td>
<td>22.7***</td>
<td>11.9**</td>
<td>16.1***</td>
<td>454.7***</td>
<td>103.5**</td>
<td>258.9***</td>
<td>93.0**</td>
<td>113.6**</td>
<td>110.7**</td>
<td>295.0***</td>
<td>84.3***</td>
<td>5471.5***</td>
</tr>
<tr>
<td>Pseudo R² (McFadden)</td>
<td>0.20</td>
<td>0.14</td>
<td>0.19</td>
<td>0.17</td>
<td>0.23</td>
<td>0.18</td>
<td>0.23</td>
<td>0.18</td>
<td>0.25</td>
<td>0.21</td>
<td>0.25</td>
<td>0.22</td>
</tr>
<tr>
<td>N</td>
<td>16</td>
<td>16</td>
<td>16</td>
<td>128</td>
<td>112</td>
<td>128</td>
<td>112</td>
<td>104</td>
<td>91</td>
<td>104</td>
<td>91</td>
<td>104</td>
</tr>
</tbody>
</table>

**Notes:** Unstandardised coefficients of cross-sectional ordered logit regressions (models 1–3, dependent variable: PPP Index, mean 2002–09) and time-series cross-sectional ordered logit regressions (models 4–13, dependent variable: PPP Index, annual values 2002–09). Absolute value of z-statistics (based on robust/cluster-robust standard errors) in brackets. All models include an intercept (not reported). Levels of statistical significance: *** 1%, ** 5%, * 10% (two-tailed).
may lead to understated standard errors and overstated statistical significance.\textsuperscript{31} Since it is also known that the cluster-robust option may produce biased standard errors when the number of clusters is relatively small (here: 16 clusters), we also report alternative model specifications based on conventional robust standard errors (only robust to heteroscedasticity) and including the lagged dependent variable PPP-Index\textsubscript{t−1} (the latter to account for autocorrelation but leading to a loss of the 2002 observation per state in these models). As many of the explanatory variables are (almost) time-invariant, use of state-fixed effects is not a promising strategy. But time-fixed effects are included to account for exogenous, unobserved influences which possibly affected all 16 German states at some time in the period 2002–09 (e.g. business cycle effects or possible legal changes at the national level).\textsuperscript{32} Finally, note that we only interpret the signs (negative/positive effect on PPP activity) and statistical significance of the unstandardised coefficients of the ordered logit regressions because the latter do not allow a straightforward interpretation of the strength of the estimated effects.

**Regression Results**

Table 3 presents the multiple regression results. Models (1)–(3) are the cross-sectional ordered logit regressions, models (4)–(13) TSCS ordered logit regressions. Let us start with the results regarding the fiscal-stress hypothesis, whereby indebted states are expected to show relatively high PPP activity. Controlling for other factors (partisanship, population, etc), in most model specifications the coefficients of the DEBT variable are indeed positively signed – but not statistically significant. This also holds when the city-states Berlin (per-capita debt EUR15813; mean 2002–08), Bremen (EUR18699), and Hamburg (EUR11782), which are heavily indebted compared to the other states (all-state average EUR7332), are excluded (see models 8–9). The depicted results also appear when one uses the alternative, less publicly visible indicator of debt interest payments (coefficients not reported here). The analysis suggests that the factor ‘high indebtedness’ does not significantly contribute to the explanation of the PPP activity differences between states. In interviews, surveys and official documents, public decision makers frequently report that ‘fiscal stress’ was a significant driver of their PPP activity. Studies focusing only on these cases (ie public units) with PPP activity (see introduction), however, may overlook cases that remain inactive despite fiscal stress.

The regression coefficients for the variable RECEIVER consistently point in the direction conjectured in the theoretical section. Holding other explanatory factors constant, recipient states show a relatively low level of PPP activity compared to contributor states. This effect is statistically significant in cross-sectional regressions (see e.g. model 3) and in the TSCS regressions without the city-states (models 10–13). In the TSCS models 6–7 the RECEIVER dummy does not reach statistical significance. Possibly the significant correlation between RECEIVER and POP (rho = −0.52) has biased the standard errors upwards, leading to understated significance for the RECEIVER coefficient. However, the direction of influence for RECEIVER is robust over all model specifications and confirms the results of the bivariate correlation/regression analysis (see Table 2) as well as the descriptive statistics in Table 1. Remember that the five contributor states are part of the ‘Top-7’ states with respect to
PPP activity: North Rhine-Westphalia (1), Baden-Württemberg (2), Hesse (3), Hamburg (6), Bavaria (7).

It should be noted that the variable DEBT in one specification indeed shows a statistically significant positive coefficient (5 per cent level), while RECEIVER is still negatively signed and significant (see models 12–13). This effect occurs when the highly indebted city-states are excluded, and when simultaneously controlling for a state’s public debt plus its position in the fiscal equalisation system (payer or receiver). Yet this specific result may be misleading since both explanatory factors are significantly correlated: many highly indebted states are also receiver states (rho = 0.57), which causes multicollinearity to some degree. In light of the rather complex vertical and horizontal relations within German fiscal federalism, it is questionable whether it makes sense at all to consider the factors ‘indebtedness’ and ‘fiscal transfers’ together in one regression model. If a larger number of PPPs is signed in the future, an analysis including metric variables (fiscal transfer payments, number of projects/investment volumes) may offer the opportunity to more deeply explore the relationships between indebtedness, fiscal transfers, and PPP.

Regarding the potential effect of government partisanship on PPP activity, the regression results suggest that with respect to the demonstrated PPP activity level, it makes no difference whether a state is governed by the CDU/CSU or SPD (in the period under investigation all Länder prime ministers came from these parties) or by the FDP and the Greens, which in different constellations are the smaller coalition partners of the CDU/CSU and SPD. Not only the RED-GREEN variable (Table 3), but also alternative measures like dummies checking whether CDU/CSU one-party governments or governments including ministers from the economic-liberal FDP are different from other cabinet types (coefficients not reported here), yield insignificant results.

When taking into account the far left, however, it is not true that there are no partisan differences at all. More specifically, the regressions (and bivariate results) indicate that partisanship does matter if the socialist Left Party is part of a coalition government. The variable LEFT has the theoretically expected negative effect on a state’s PPP activity level. This partisan effect is statistically significant in different model specifications. Note that the variable LEFT had to be excluded from the models without city-states (models 8–13) because the smaller sample size and the reduced number of coalition governments with Left Party participation (ie only Mecklenburg-Western Pomerania, 2002–06) caused econometric problems.

Finally, a noteworthy finding is that – holding all other explanatory factors constant – a high initial level of PPP activity (PPP-2002) has a statistically significant positive effect on a state’s subsequent PPP activities (see also the coefficients for PPP-Index_{t-1}). A possible and plausible explanation for this is that accumulation of a certain stock of PPP-specific know-how (good/bad PPP experiences with tendering, contract design, monitoring, etc.) makes it easier for public actors to initiate further projects. Likewise, already existing PPPs might lead to follow-up contracts for private-sector partners. Moreover a high degree of institutionalisation (e.g. the founding of a PPP task force) in the early 2000s might have had a positive effect on PPP activity in subsequent years. In this context it is important to note that in the observation period there is no case in which a certain step of PPP institutionalisation has been reversed in a state.
CONCLUSION AND OUTLOOK

Using a new index measuring different dimensions of the 16 German states’ PPP activities in the period 2002–09, this paper is the first to statistically explore the determinants of public–private partnering in Germany. The analysis focused on the issue of whether partisan and fiscal factors help explain the considerable differences between state governments’ PPP activity levels. Controlling for other explanatory variables, it turned out that partisanship only makes a difference regarding the usage of PPP if Socialists are part of a coalition government. Moreover, the results provide further empirical support for the observation made in public-finance studies dealing with the German system of fiscal federalism, whereby this system (including transfer payments, soft budget constraints, bailouts) has ‘perverse’ incentive effects insofar as it weakens a financially weak state’s incentive to use cost-saving instruments like PPP. Whether PPP really is a ‘cheaper’ way to realise a public-infrastructure project compared to conventional public procurement certainly can only be evaluated in each single case.

Either way, under the current fiscal regime a recipient government knows that national-level and fellow states’ ‘solidarity’ safeguards the supply of a certain level of public services and infrastructures (‘equivalent living conditions’). The incentive structure faced by richer contributor states is different, offering a plausible explanation for the observable PPP activity difference between receivers and payers: the latter know that they will remain contributors in the foreseeable future due to their relatively high financial/economic power; and they know that they still have to supply a high-quality ‘package’ of public services and infrastructures to remain attractive for citizens and firms in the inter-jurisdictional competition among states. As noted earlier, further research based on monetary project and fiscal-transfer figures may shed more light on the identified correlations.

Although we are convinced that our analysis includes the most relevant explanatory variables for which comparative data is available, there might be additional factors of influence. Future research might, for instance, investigate whether German states differ in their legal frameworks regarding PPP, and whether the specific legal framework in a state enhances or hampers PPP activities. Following the PPP Acceleration Act enacted at the national level in 2005, some states have recently begun to modify their laws and regulations in order to make it easier for public and private actors to enter into PPPs. Another further avenue of research is to take into account Galton’s Problem and explore potential ‘spatial interdependence’ or ‘neighbourhood effects’ between German states. In this regard it is also of interest that some state governments’ websites report meetings with PPP experts from the UK, which could be taken as indications of some kind of policy diffusion, policy transfer, or policy learning. Moreover, there are other potential factors of influence that are difficult to control for (e.g. lobbying, corruption). And, of course, the comparative analysis could be extended to the municipal level in Germany or the regional level in neighbouring countries (e.g. the nine Austrian states and 26 Swiss cantons).

Finally, it is important to note that some recent developments may affect the German PPP market. In the wake of the financial crisis banks could pursue a more restrictive lending policy concerning potential private-sector partners, possibly having a negative effect on jurisdictions’ PPP activities. The fiscal stimulus packages implemented at the national level in winter 2008/09 may also have a negative effect on...
PPP activity when jurisdictions use the provided public money to finance infrastructure projects via conventional public procurement. Possibly the financial crisis is already reflected in the index data for 2009, since some states’ index values decreased compared to 2008: Baden-Württemberg (-1.5), Schleswig-Holstein (-1.5), Bavaria (-0.5), Brandenburg (-1.0), and Rhineland-Palatinate (-0.5). A simple explanation for this could be that our sample period ends in June 2009. That is, in the years 2002–08 governments had more time (12 instead of six months per year) to sign PPP contracts. But this applies to all state governments. Besides, it may be misleading to just look at the development of the index without controlling for the development of the politico-economic factors included above.

As it is difficult to say exactly when and how the financial crisis spilled over to the German Länder, we implicitly assumed above that all states have been ‘hit’ alike by it. In any case, the regression results reported above do not change significantly when the year 2009 is excluded. Clearly outside our investigation period lies the new ‘debt brake’, introduced into the German constitution in summer 2009. Since this rule prescribes that the German Länder must not take out new loans from the year 2020, this ‘debt brake’ could induce more PPP activity. However, it remains to be seen what will happen to the system of fiscal federalism between now and 2020, and how this fiscal rule will be treated in practice by the political actors involved.

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NOTES

15. See e.g. PricewaterhouseCoopers, *Delivering the PPP Promise: A Review of PPP Issues and Activity*.

10. For detailed analyses of this development, see Fischer et al., *The Emergence of PPP Task Forces*; Sack, *Governance and Politics*, concludes that neither at the national nor ‘… at the Länder level one can observe party political differences regarding the topic PPP’ (p. 266, our translation).


8. E.g. Fischer et al., ‘The Emergence of PPP Task Forces’; Sack, *Governance and Politics*. Years with a change of government were coded according to the government being longer in office in this year. For example, in Hesse on 5 February 2009 a CDU-FDP coalition government (programme item value = 2) followed a CDU one-party government (programme item value = 1). Hence, the year 2009 gets the programme item value 2.

10. For detailed analyses of this development, see Fischer et al., ‘The Emergence of PPP Task Forces’; Sack, *Governance and Politics*, pp.254–68.


13. For an overview of this literature, G. Bel and X. Fageda, ‘Factors Explaining Local Privatization: A Meta-regression Analysis, *Public Choice* 139/1-2 (2009), pp.105–19. This recent meta-analysis includes more than 30 studies from different countries, but none for Germany.


23. For details see Fischer et al., ‘The Emergence of PPP Task Forces’; Sack, *Governance und Politics*, chapter 12.


25. This is a common indicator used in empirical political economy to measure party strength in cabinet. See e.g. Schmidt, ‘When Parties Matter’; Armingeon et al., *Comparative Political Data Set*.


27. Ordered logit regressions (based on the method of maximum likelihood) are appropriate due to the ordinal nature of the dependent variable.


30. A Wooldridge test for autocorrelation indicates that there is serial correlation in our panel data.


32. Wald tests show that the time dummies are jointly significant and their inclusion appropriate.

33. E.g. Sack, in *Governance und Politics*, concludes that ‘…at the Länder level one cannot observe [sind nicht auszumachen] party political differences regarding the topic PPP’ (p. 266, our translation). This statement is based on a qualitative case study including those nine German Länder (development until 08/2007) in which Sack observed ‘PPP initiatives’.

34. E.g. Seitz, ‘Fiscal Policy, Deficits and Politics’; Rodden, ‘And the Last Shall be First’; Jochimsen, ‘Fiscal Federalism in Germany’.

35. Whether this ‘solidarity’ is voluntary is another issue. See W. Jacoby, ‘Side Payments over Solidarity: Financing the Poor Cousins in Germany and the EU’, *German Politics* 17/4 (2008), pp.470–87.

36. Unfortunately, compared to $R^2$ in linear regressions, the pseudo-$R^2$ in ordered logit regressions cannot be taken as an indicator of the proportion of variance for the dependent variable (e.g. states’ PPP activities) explained by the included explanatory variables. Here McFadden’s pseudo-$R^2$ reaches the value of 0.27 (see Table 3) which indicates not an excellent but a satisfactory level of explanatory power for an ordered logit framework.
