Does public sector outsourcing decrease public employment? Empirical evidence from OECD countries

Niklas Potrafke

Does public sector outsourcing decrease public employment?
Empirical evidence from OECD countries*

Abstract

I examine the extent to which public sector outsourcing relates to public employment in OECD countries. I use new panel data on public sector outsourcing. The sample includes 26 countries over the period 2009-2015. Contrary to common expectations, the results do not suggest that public sector outsourcing expenditure was negatively related to public employment in the full sample. The relation between public sector outsourcing and public employment, however, does vary across countries. If anything, the growth in public sector outsourcing in period t-1 was positively correlated with the growth in public employment in period t. When public sector outsourcing gives rise to regrouping public employees but not reducing public employment, outsourcing may even increase inefficiencies in the public sector.

JEL Code: L33, J45, P16, C23
Keywords: Public employment, public sector outsourcing, OECD countries, economic policymaking, panel data

Niklas Potrafke
ifo Institute – Leibniz Institute for
Economic Research
at the University of Munich,
University of Munich
Poschingerstr. 5
81679 Munich, Germany
Phone: + 49 89 9224 1319
potrafke@ifo.de

1. Introduction

Governments have outsourced the provision of public services in many industrialized countries. Prominent examples include public urban transportation in the United Kingdom and school vouchers in Sweden, suggesting that governments reduced costs by outsourcing the provision of public services (Poutvaara 2014).[2] Private provision tends to be more efficient than the public provision of public services because private providers compete against each other. On the other hand, efforts by private providers to reduce costs may well decrease the quality of the services supplied. Public sector outsourcing is expected to reduce public employment. In fact, public sector outsourcing is likely to be done to explicitly reduce public employment – an effect many public employees demonise (for surveys on the determinants and consequences of public sector outsourcing see, for example, Jensen and Stonecash 2005, Andersson et al. 2017, and Petersen et al. 2018). Trade unions and leftwing parties are reluctant to advocate public sector outsourcing as a result, and tend to lobby for a large-scale government with a greater scope instead.[3]

In Australia, for example, the "Community and Public Sector Union (CPSU) feared that up to 7,000 call centre jobs across Australia were at risk in 2014 following the Department of Human Services' (DHS) decision to outsource Medicare and Centrelink call centre work to Telstra".[4] In the United Kingdom in 2011, plans were announced to get rid off "local government's "two tier code", which protected the terms and conditions for staff transferred to firms that operate outsourced contracts". A Green politician commented: "This attack targets those on the lowest levels of the pay scale, as these services are often outsourced to private companies. We'll be left with a race to the bottom by providers of public services as they

---

[2] On the effects of public sector outsourcing in the Finnish school system, see Kortelainen and Manninen (2017).
[3] Employess in the public sector usually favour a larger size and scope of government than employees in the private sector (e.g., Knutsen 2005, Jensen et al. 2009, Rattsø and Sørensen 2016, Meriläinen and Tukiainen 2017).
[4] https://www.cio.com.au/article/555387/union-slams-dhs-decision-outsource-call-centres-telstra/

compete for contracts by slashing pay and conditions of their staff. This is a recipe for disaster – both in terms of maintaining high standards and keeping good local jobs."[5]

Scholars have examined how public sector outsourcing and the privatisation of state-owned companies and public sector outsourcing influences public employment at the local level in individual developing and industrialized countries (see Megginson and Netter 2001 and Fernandez et al. 2006 for surveys). The empirical evidence is mixed. Empirical evidence on how public sector outsourcing relates to public employment across countries, however, is scarce. There was previously no data available measuring public sector outsourcing in a panel of OECD countries.

By using new data on public sector outsourcing in OECD countries, I examine the extent to which public sector outsourcing relates to public employment. The annual dataset includes 26 countries over the period 2009-2015. The advantage of using panel data is to compare the relationship between public employment and public sector outsourcing across many industrialized countries; and to arrive at conclusions on this relationship for a large sample of OECD countries. The disadvantage is that the empirical analysis is fairly descriptive; and not a stronghold of estimating causal effects.

The results do not suggest that overall public sector outsourcing expenditure was negatively related to public employment in the full sample. However, the relation between public sector outsourcing and public employment varies across countries. If anything, the growth in public sector outsourcing in period t-1 was positively correlated with the growth in public employment in period t. In cases where public sector outsourcing gives rise to regrouping public employees, but does not reduce public employment, outsourcing may even increase inefficiencies in the public sector.

---

[5] https://www.greenparty.org.uk/news/pickles-plan-to-scrap-public-sector-two-tier-code.html

2. Background and previous studies

Public sector outsourcing is expected to decrease public employment. Early studies already foreshadowed: "delegating functions to private firms usually saves dollars, and much of these expenses comes at the expense of public employees" (Donahue 1989: 145). An important reason for the savings and negative effects on public employment tends to be the high labour costs in the public sector:[6] "with so much and local spending concentrated on personnel costs, any argument to reduce that spending inevitably is an argument to reduce the number of employees as well" (Kettl 1993: 161-162).[7] When services like waste management are provided by private firms instead of public employees, and the government has plans to keep outsourcing individual services, public employment should – ceteris paribus – decline in the long-run. Clearly, employment protection is often stronger in the public than in the private sector; and governments therefore cannot drastically reduce public employment in the short-run. In fact, public sector outsourcing has often been executed to explicitly reduce public employment.

The reasons why public employment may not decrease in the course of public sector outsourcing include regrouping of employees within the public sector. Governments that outsourced services like waste management to private firms may re-assign the public employees who used to be in charge of waste management to other services like gardening parks. Regrouping instead of reducing public employment is then associated with increasing overall public expenditure.

Empirical evidence describing whether public sector outsourcing decreases public employment is mixed. There have been some early studies using data for individual countries. The pioneering study is Stein (1990) using data for the United States. The results suggest that public sector outsourcing with for-profit firms reduced public employment, but public sector

---

[6] Production in the public sector is usually more labour-intensive than in the private sector. An important reason for this is employment protection and a lack of competition in the public sector. Governments may also have a tax advantage compared to private firms (Poutvaara and Wagener 2008).

[7] These quotations of early studies were selected by Fernandez et al. (2006: 58).

outsourcing with non-profit providers did not affect public employment in the United States. The study of Fernandez et al. (2006) uses local government data in the United States and shows that public sector outsourcing decreased full-time employment, but increased part-time employment in the public sector. There are more studies based on micro-level/local government data discussed by Fernandez et al. (2006).

Empirical evidence based on macro data across countries is scarce. The study most closely related to my study is Alonso et al. (2015), who use panel data for 15 EU countries over the period 1983-2011. The authors compute a measure of public sector outsourcing: "the percentage of goods and services bought by the government from the non-government sector to produce output (termed intermediate consumption) – such as the use of private entities to provide support services (OECD 2011) – and goods and services bought from market producers and supplied to households without any transformation (termed social transfers in kind via market producers), such as health and education services" (p. 660). This self-compiled measure is conceptually similar to the overall outsourcing measure used in my study (outsourcing expenditure is scaled by final government consumption, but I relate it to GDP). There is no distinction between the two components expenditure on goods and services used by government (intermediate consumption) and goods and services financed by government that I use. Public employment is measured as government employment (in % of the working age population). The authors estimate a panel data model including fixed country and fixed time effects in first differences. The coefficient estimate of the public sector outsourcing variable is negative, but does not turn out to be statistically significant. The authors do not conclude that public sector outsourcing decreased public employment.[8]

A related, but distinct issue is how the privatisation of public enterprises influences public employment. While outsourcing public services to a private firm is temporary, the

---

[8] In a similar vein, government outsourcing was also not shown to decrease public expenditure (Alonso et al. 2017).

privatisation of public enterprises is hard to reverse. Scholars have been active in examining effects of privatisation on public employment (e.g., Megginson and Netter 2001). A new study for OECD countries was conducted by Schmitt (2014). The results show that the privatisation of public enterprises operating in the postal and telecommunication sectors was associated with lower public employment over the period 1980-2007. The number of employees tended to be less reduced after privatisation when leftwing rather than rightwing governments were in office.

My hypothesis - to be investigated empirically - is that public sector outsourcing is associated with decreasing public employment.

3. Data and descriptive statistics

3.1 Public employment

I use public employment in general government (in % of total employment) by the OECD (2017a). For robustness tests, I also use public employment in thousands. There is annual data available for 29 OECD countries through 2015. My sample is limited to the period 2009-2015 because the data on public sector outsourcing that I describe in the next subsection 3.2 is only available as of 2009. The 26 countries included in my empirical analysis are: Austria, Belgium, Canada, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Israel, Italy, Japan, Latvia, Luxembourg, the Netherlands, Norway, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Turkey, the United Kingdom and the United States. I do not include the Czech Republic (for which data on public employment is available) because there is a structural break in the public sector outsourcing data. Korea is not included because there is only data for the years 2011, 2013 and 2015 and I cannot consider these three observations when estimating a panel data model in growth rates. Switzerland is excluded because there are just four observations for the years 2011-2014, which is not sufficient to consider the country in a dynamic panel data model of growth rates.

The average share of public employment was 18.41% in my sample. There is, however, quite some variation across countries. Public employment was pronounced in countries like Denmark (29.13%), Norway (29.97%), Sweden (28.57%) and low in countries like Japan (5.94%) and Germany (10.57%) in 2015. Figure 1 shows how public employment emerged in the individual countries.

3.2 Public sector outsourcing

I use expenditure on general government outsourcing (in % of GDP) by the OECD (2017a). There is annual data available over the period 2009-2016 for 34 OECD countries. The panel is umbalanced; for some countries there is no data available for the year 2016. Government outsourcing includes "all goods and services used, and financed by the government in a given year" (OECD 2017a: 84). Overall outsourcing expenditure was 10.10% of GDP in my sample for the 26 OECD countries and varies quite a bit across OECD countries. In 2015, it was 16.6% of GDP in the Netherlands and 5.6% of GDP in Ireland. Figure 2 shows how outsourcing expenditure emerged in my sample. Expenditure on general government outsourcing (in % of GDP) increased in countries like Germany (12.61% in 2009 and 13.4% in 2016), Japan (11.45% in 2009 and 12.5% in 2016), and decreased in countries like Greece (9.8% in 2009 and 7.11% in 2016), the Netherlands (17.33% in 2009 and 16.13% in 2016), and the United States (7.6% in 2009 and 6.15% in 2015).

Expenditure on general government outsourcing encompasses two components: the goods and services used by government and the goods and services financed by government. The goods and services used by government include "intermediate consumption (procurement of intermediate products required for government production such as accounting or information technology services)" (OECD 2017a: 84). The goods and services financed by government include "social transfers in kind via market producers paid for by government (including those that are initially paid for by citizens but are ultimately refunded by government, such as medical

treatments refunded by public social security payments)" (OECD 2017a: 84). In the majority of OECD countries, the share of goods and services used by government is larger than the share of goods and services financed by government (Figures 3 and 4). In countries like Belgium, Germany, Japan, and the Netherlands the share of goods and services financed by government is larger than the share of goods and services used by government. The United States does not disentangle outsourcing expenditure on goods and services used and financed by government.

3.3 Unconditional correlations

The unconditional coefficients of correlation between public employment and overall public sector outsourcing expenditure are 0.00 in levels and 0.05 in growth rates (Figures 5 and 6). Public employment is positively correlated with expenditure on goods and services used by government in levels (r=0.63) and hardly correlated with expenditures on goods and services used by government in growth rates (r=-0.01). The coefficients of correlation between public employment and expenditure on goods and services financed by government are r=-0.51 in levels and r=0.02 in growth rates.

I examine conditional correlations between public employment and the three outsourcing expenditure measures by using panel data techniques in the next sections.

4. Empirical model

The baseline panel data model has the following form:

$$\text{Public employment}_{it} = \alpha_j \text{ Public sector outsourcing}_{ijt} + \Sigma_k \gamma_{jk} X_{ikt} + \eta_i + \varepsilon_t + u_{ijt}$$

with i=1,…,26; j= 1,…,3; k=1,…,5; t=2010,…,2015 (1)

where the dependent variable Public employment$_{it}$ describes the yearly growth rate in public employment (in % of total employment) in country i and year t. Public sector outsourcing$_{it}$ describes the growth rates in the three different measures for public sector outsourcing: expenditure on general government outsourcing, the goods and services used by government, and the goods and services financed by government (in % of GDP). Following Alonso et al. (2015) I estimate the model in growth rates to avoid spurious regression. The public employment measures are likely to be non-stationary in levels, and using non-stationary dependent variables gives rise to biased t-statistics that may well suggest a seeming correlation between outsourcing expenditure and public employment. Using growth rates avoids the risk of spurious regression. Σ_k X_{ikt} contains five control variables. I include the growth rate in the unemployment rate, which is expected to be positively correlated with public employment: when the unemployment rate is high, governments may wish to reduce the unemployment rate by offering jobs in the public sector. The correlation between the unemployment rate and public sector outsourcing is theoretically ambiguous: on the one hand, governments may hesitate to be active in public sector outsourcing when the unemployment rate is high because public employment is likely to decrease in the course of public sector outsourcing. On the other hand, public sector outsourcing should give rise to increasing employment in the private sector. I include overall general government expenditure (in % of GDP), which is expected to be positively correlated with public employment and public sector outsourcing. I also include the growth rate in the new KOF globalization index (Dreher 2006 and Gygli et al. 2018). When it is true that globalisation puts pressure on national governments and tax rates, meaning that the size of government and hence public employment may decrease. However, when governments protect citizens against the risks of globalization (compensation hypothesis), public employment may increase in the course of growing globalisation (on globalization and labour market institutions in OECD countries, see Potrafke 2010). Public sector outsourcing is likely to be positively correlated with globalisation (on the globalisation-welfare state nexus and

consequences of globalisation see, for example, Schulze and Ursprung 1999, Ursprung 2008 and Potrafke 2015). The growth rates in the shares of the young population (aged 14 and below as a share of total population) and the elderly population (aged 65 and above as a share of total population) are added. Public employment is likely to be higher in young than old societies because old citizens tend to cater for increasing income redistribution rather than public personnel; and young citizens may be inclined to become employed by the government. The correlation between public sector outsourcing and the young and elderly population share is theoretically not clear. η_i is a fixed country effect, ε_t is a fixed period effect and u_{ijt} is an error term. I estimate the model using ordinary least squares with standard errors robust to heteroskedasticity (Huber/White/sandwich standard errors – see Huber 1967 and White 1980).

Previous studies examined whether electoral motives and government ideology influence public employment. However, public employment is measured for general government; and thus also includes public employment in state and local government that central government does not directly influence. I therefore add a dummy variable for election years and a government ideology indicator for robustness tests. Trade union density is another variable that is likely to be correlated with public employment and public sector outsourcing. I include trade union density for robustness checks because data on trade union density is not available for the full sample. Table 1 shows descriptive statistics and the data sources of the individual variables.

5. Results

5.1 Baseline model

Table 2 shows the results of the baseline model. I show results excluding (columns 1 to 3) and including control variables (columns 4 to 6) to describe the extent to which inferences regarding the three public sector outsourcing variables change when control variables are excluded/included. Expenditure on overall general government outsourcing, expenditure on

goods and services used by government and expenditure on goods and services financed by government do not turn out to be statistically significant in columns (1) to (6). The results corroborate the inferences based on the unconditional correlations between public employment and public sector outsourcing.

The growth rate in the unemployment rate has the expected positive sign and is statistically significant at the 1% level in columns (4) to (6). The numerical meaning of the effect is that the growth rate in public employment increased by around 0.06 percentage points when the growth rate in unemployment rate increased by 1 percentage point. Government expenditure, the globalisation index and the shares of the young and the elderly population lack statistical significance.

5.2 Established OECD countries

Many previous studies examining OECD panel data have focused on some 20 established OECD countries that joined the OECD in the 1960s. Countries like Estonia and Israel did not join the OECD until 2010, while Eastern European countries like Hungary joined in the mid 1990s. It is possible, for example, that the measurement error of statistics reported to the OECD may be larger in new than in established OECD countries. The established OECD countries are also likely to have more powerful institutions like trade unions and political parties than the new OECD countries. Trade unions and political parties may well influence the nexus between public employment and outsourcing expenditure. I therefore also examine the relationship between public sector outsourcing and public employment disentangled for the new OECD countries for these 19 established OECD countries: Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, the United Kingdom and the United States.

The results in Table 3 do not suggest that overall outsourcing expenditure was related to public employment in established OECD countries. The variables measuring the growth rates

in overall outsourcing expenditure and outsourcing expenditure on goods and services used by government have a negative sign and are statistically significant at the 1% level in column (5) and at the 5% level in column (2). By contrast, the coefficient of the variable measuring the growth rates in outsourcing expenditure on goods and services financed by government has a positive sign. It is statistically significant at the 10% level in column (3) when the other explanatory variables are excluded and lacks statistical significance in column (6) when the other explanatory variables are included.

5.3 Lagged outsourcing variables

In the baseline model, I followed the related study by Alonso et al. (2015) and included the growth rates in the outsourcing measures in period t. There are two good reasons to include the growth rates in the outsourcing measures in period t-1. Firstly, the estimates in my baseline models may be prone to reverse causality between public employment and outsourcing expenditure. For example, governments might be active in public sector outsourcing in period t when they believe that the growth in public employment is pronounced in period t. Secondly, it may well take some time for governments to adjust public employment because of labour market regulations such as employment protection. I therefore replace the growth rates in the three outsourcing measures in period t by the growth rates in period t-1.

The results in Table 4 show that the growth rate in overall outsourcing expenditure in period t-1 was positively related to the growth rate in public employment in period t (columns 1 and 4). The growth rates in outsourcing expenditure on goods and services used and financed by government in period t-1 have a positive sign, but lack statistical significance in columns (2), (5) and (6). The growth rate in outsourcing expenditure on goods and services financed by government in period t-1 is statistically significant in column (3).

I have estimated the model including the lagged outsourcing variables for the established OECD countries only (Table 5). The results suggest that the growth rate in overall

outsourcing expenditure in period t-1 was positively related to the growth rate in public employment in period t (columns 1 and 4). The growth rates in outsourcing expenditures on goods and services used by government in period t-1 tend to be positively correlated with the growth rate in public employment.

It is conceivable that public sector outsourcing is not negatively related to public employment when governments do not reduce public employment (e.g. by not refilling vacancies) in the course of public sector outsourcing, but merely regroup public employees in the public sector instead. If this is true, public sector outsourcing does not increase efficiency in the public sector, but may even give rise to inefficiencies.

5.4 Other robustness checks

In the baseline model, I have measured public employment as a share of total employment. I have used the growth rate in public employment in thousands for robustness tests. All three outsourcing measures lack statistical significance in the full sample and for established OECD countries. When I use the lagged outsourcing variables in the full sample, overall outsourcing expenditure and outsourcing expenditure on goods and services used by government are positively correlated with public employment. For established OECD countries, lagged outsourcing expenditure on goods and services used by government are positively and lagged outsourcing expenditure on goods and services financed by government are negatively correlated with public employment.

I have also estimated a dynamic panel data model including the lagged dependent variable. I apply Bruno's (2005a and 2005b) bias corrected least squares dummy variable estimator for dynamic panel data models with small N.[9] Inferences regarding the nexus between public employment and outsourcing expenditure do not change.

---

[9] I choose the Blundell-Bond (1998) estimator as the initial estimator with which the instruments are collapsed as suggested by Roodman (2006). I use robust standard errors with Windmeijer's (2005) finite-sample correction

Election-motivated politicians tend to increase public employment before elections to reduce unemployment (Dahlberg and Mörk 2011, Mechtel and Potrafke 2013, Aaskoven 2017, Cahan 2018) and may have been less active in public sector outsourcing over the period 2009-2015 because citizens were sceptical about market-oriented policies after the outbreak of the financial crisis in 2007. I include an election year dummy variable that assumes the value one in parliamentary election years and the value zero in all other years of the legislative period. Scholars have also examined how government ideology influences economic policy-making in OECD countries (see Potrafke 2017 and 2018 for surveys). Both public employment and public sector outsourcing are excellent laboratories for examining ideology-induced policies. Leftwing governments advocate a large size and scope of government. They are expected to increase public employment to a larger extent and to be less active in public sector outsourcing than rightwing governments. In a similar vein, leftwing governments may well prove reluctant to promote public sector outsourcing because the in-house production protects public employees, invigorates trade unions, and in the short-run, may help to keep unemployment low. Scholars have examined how political ideology (government ideology and citizens' political preferences) are linked to public sector outsourcing at the local level in individual industrialized countries (McGuire et al. 1987, Dijkgraaf et al. 2003, Christoffersen and Paldam 2003, Merzyn and Ursprung 2005, Walls et al. 2005, Bel and Fageda 2007, Bhatti et al. 2009, Zullo 2009, Elinder and Jordahl 2013). I use the updated government ideology data by Potrafke (2009), which assume the value 2 for rightwing, the value 3 for center and the value 4 for leftwing governments. I have not included the election year variable and the government ideology index in the baseline model because both election years and government ideology relate to national government, but public employment (and public sector outsourcing) is measured for general government, which includes the central, state and local level. In any event, including the

---

for the two-step covariance matrix. I undertake 50 repetitions of the procedure to bootstrap the estimated standard errors.

election year dummy variable (which lacks statistical significance) and the government ideology index (indicating higher public employment growth under leftwing than rightwing governments especially in established OECD countries) does not change the inferences regarding the correlation between public sector outsourcing and public employment.

Trade union density is expected to be positively correlated with public employment and negatively correlated with public sector outsourcing because trade unions advocate a large size of government. Data on trade union density is not available for the full sample, but for 157 country-year observations of my sample in levels (OECD and Visser 2017). I have included the growth rate in trade union density, which has a positive sign and is statistically significant at the 1% and 5% level. When the growth rate in trade union density is included, the growth rates in overall outsourcing expenditure and expenditure on goods and services used by government lack statistical significance and the growth rate in expenditure on goods and services financed by government is positively related to the growth rate in public employment. The lagged outsourcing variables lack statistical significance when trade union density is included. These results, however, are based on the smaller sample when trade union density is included. I have estimated the baseline model (excluding trade union density) for the very same sample for which trade union density is available and inferences regarding the outsourcing variables do not change when trade union density is excluded.

The correlation between the growth rates in public employment and the outsourcing measures may well be positive when both the level and the growth in trade union density are pronounced. The reason is that trade unions are expected to actively lobby for not firing, but regrouping public employees in the public sector. I have therefore included the interaction terms between alternatively the level and the growth rates in trade union density and the outsourcing variables (in period t and t-1). The results do not suggest that the growth rates in public sector outsourcing are especially strongly correlated with the growth rates in public employment when the level or the growth rate in trade union density is large. If anything, the growth in public

employment was pronounced when outsourcing expenditure on goods and services financed by government in period t increased and the level of trade union density was low.

It is conceivable that employment protection across OECD countries tends to explain the positive correlation between the growth rates in public employment and public sector outsourcing. The OECD database on employment protection includes many indicators (e.g., protection of permanent workers against individual and collective dismissals, protection of permanent workers against (individual) dismissal, specific requirements for collective dismissal, regulation on temporary forms of employment) that are available till the year 2013 and hardly change over time. There is no data available on employment protection in the public sector. I therefore do not use any of the employment protection data in my empirical analysis.

I examine whether inferences depend on including/excluding individual countries. Notable countries in the sample are Ireland and Portugal. When Ireland or Portugal are excluded, the negative correlation between the growth rate in public employment and outsourcing expenditure on goods and services used by government in period t is more pronounced, while the positive correlation between the growth rate in public employment and outsourcing expenditure on goods and services used by government in period t-1 does not turn out to be statistically significant. In both of these countries, outsourcing expenditure decreased over the period 2009-2015. In Portugal, public employment (in % of total employment) increased somewhat. In Ireland, public employment (in % of total employment) remained fairly constant. Overall, the relationship between the growth rates in public employment and the growth rates in the outsourcing expenditure variables varies across countries.

6. Conclusions

Using new data on public sector outsourcing in OECD countries over the period 2009-2015, I examine how public sector outsourcing relates to public employment. The results do not suggest that public sector outsourcing has an effect on public employment in the full sample. This

finding corroborates the results of the previous study by Alonso et al. (2015) who used an outsourcing measure for 15 EU countries over the period 1983-2011.

In established OECD countries, outsourcing expenditure on goods and serviced used by government in period t was somewhat negative; and outsourcing expenditure on goods and services financed by government in period t was somewhat positively related to public employment in period t. My study suggests that the relation between public sector outsourcing and public employment thus varies even in the quite homogenous group of OECD countries. One reason is that my sample includes the public debt crisis. Countries in crisis such as Greece, Ireland and Portugal had to deal with requirements of lender countries. Dealing with the requirements of the lender countries influenced the size and scope of government – including both public employment and outsourcing activities – in manifold ways.

I have also used lagged growth rates in outsourcing expenditure. Firstly, it may well take some time to adjust public employment because governments need to consider labour market institutions such as employment protection. Secondly, using lagged growth rates in outsourcing may help to deal with potential reverse causality between public employment and outsourcing expenditure. The growth rate in public employment in period t is positively related to the growth rate in outsourcing expenditure in period t-1. This result indicates that public sector outsourcing might give rise to increasing inefficiencies in the public sector when governments do not reduce public employment, but regroup public employees in the public sector instead. I propose increasing inefficiencies in the public sector as a shortcoming of public sector outsourcing that is quite unexplored. Clearly, higher public employment (as a share of total employment) does not corroborate what very vocal opponents of public sector outsourcing in many countries claim. It is rather the opposite. It is conceivable that election-motivated politicians are keen to not decrease public employment when they outsource services. My results also do not suggest that trade unions were responsible for increasing public employment

in the course of public sector outsourcing. Future research should examine how and whether outsourcing increases inefficiencies in the public sector in greater detail.

Opponents of public sector outsourcing also maintain that public sector outsourcing gives rise to deteriorating working conditions and standards. The reason for this is that working conditions and standards are expected to be better in the public than in the private sector. In cases where public sector employment does not decrease when public sector outsourcing occurs, working conditions and the standards of the public employees that were supposed to be fired by the government are unlikely to deteriorate. Another issue, which is beyond the scope of this study, is how public sector outsourcing influences the working conditions and standards of the employees in those private enterprises that receive orders of the government. Public sector outsourcing may also influence low- and high-income earners in different ways.

Based on the new OECD data on public sector outsourcing, scholars should examine other correlates of public sector outsourcing. A shortcoming of the new OECD data on public sector outsourcing is that it is only available for general governments (including different layers of government – federal, state, and local level). We cannot, for example, disentangle correlates of public sector outsourcing at the national from the local level. In countries like Denmark, Finland, Norway, Sweden, and Switzerland, however, municipalities organise many services like schools or waste management that have been outsourced to private providers over the last years. Future research should disentangle public sector outsourcing expenditure for central, state and local governments across OECD countries.

In the United States, public sector outsourcing was associated with decreasing full-time and increasing part-time employment (Fernandez et al. 2006). Local governments have substituted full-time with part-time employment. It is conceivable that governments in other OECD countries have also substituted full-time with part-time jobs in the course of public sector outsourcing. Future research should disentangle the effects of public sector outsourcing on public full-time and part-time employment across OECD countries.

Outsourcing no longer seems to be a one-way process. Some populist parties advocate a large size and scope of government and may therefore renationalize previously state-owned companies that have been privatised; or return to services that had been outsourced. For example, the Orbán regime in Hungary renationalised pension funds, while the PiS government in Poland renationalised vast swathes of the Polish banking sector. Future research may therefore examine the extent to which outsourcing activities have been reversed; and how populist parties regard public sector outsourcing.

References

Aaskoven, L. (2017). Partisan-electoral cycles in public employment. *Working Paper*.

Alonso, J.M., Clifton, J., & Díaz-Fuentes, D. (2015). Did new public management matter? An empirical analysis of the outsourcing and decentralization effects on public sector size. *Public Management Review* 17, 643-660.

Alonso, J.M., Clifton, J., & Díaz-Fuentes, D. (2017). The impact of government outsourcing on public spending: Evidence from European countries. *Journal of Policy Modelling* 39, 333-348.

Andersson, F., Jordahl, H., & Josephson, J. (2017). Outsourcing public services: Contractability, cost, and quality. *Working Paper*.

Bel, G., & Fageda, X. (2007). Why do local governments privatise public services? A survey of empirical studies. *Local Government Studies* 33, 517-534.

Bhatti, Y., Olsen, A.L., & Pedersen, L.H. (2009). The effects of administrative professionals on contracting out. *Governance* 22, 121-137.

Blundell, R.W., Bond, S.R. (1998). Initial conditions and moment restrictions in dynamic Panel data models. *Journal of Econometrics* 87, 115–143.

Bruno, G.S.F. (2005a). Approximating the bias of the LSDV estimator for dynamic unbalanced panel data models. *Economics Letters* 87, 361-366.

Bruno, G.S.F. (2005b). Estimation and inference in dynamic unbalanced panel data models with a small number of individuals. *Stata Journal* 5, 473-500.

Cahan, D. (2018). Electoral cycles in government employment: evidence from US gubernatorial elections. *European Economic Review,* forthcoming.

Christoffersen, H., & Paldam, M. (2003). Markets and municipalities: A study of the behavior of the Danish municipalities. *Public Choice* 114, 79-102.

Dahlberg, M., & Mörk, E. (2011). Is there an electoral cycle in public employment? Seperating time effects from election effects. *CESifo Economic Studies* 57, 480-498.

De Haan, J., & Klomp, J. (2013). Conditional political budget cycles: a review of recent evidence. *Public Choice* 157, 387–410.

Dijkgraaf, E., Gradus, R.H.J.M., & Melenberg, B. (2003). Contracting out refuse collection. *Empirical Economics* 28, 553-570.

Donahue, J.D. (1989). *The privatization decision: public ends, private means.* Basic Books. New York.

Dreher, A. (2006). Does globalization affect growth? Evidence from a new index of globalization. *Applied Economics* 38, 1091-1110.

Dubois, E. (2016). Political business cycles 40 years after Nordhaus. *Public Choice* 166, 235-259.

Elinder, M., & Jordahl, H. (2013). Political preferences and public sector outsourcing, *European Journal of Political Economy* 30, 43-57.

Fernandez, S., Smith, C.R., & Wenger, J.B. (2006). Employment, privatization, and managerial choice: does contracting out reduce public sector employment? *Journal of Policy Analysis and Management* 26, 57-77.

Gygli, S., Haelg, F., Potrafke, N., & Sturm, J.-E. (2018). The KOF globalization index – revisited. *Working Paper.*

Huber, P.J. (1967). The behavior of maximum likelihood estimates under nonstandard conditions, Proceedings of the Fifth Berkeley Symposium on Mathematical Statistics and Probability, 221–233.

ILO (2017). *International Labour Organization, ILOSTAT database.* Genève.

Jensen, P. H., Stonecash, R. E. (2005). Incentives and the efficiency of public sector-outsourcing contracts. *Journal of Economic Surveys* 19, 767-787.

Jensen, J.L., Sum, P.E., & Flynn, D.T. (2009). Political orientation and behavior of public employees: A cross-national comparison. *Journal of Public Administration Research and Policy* 19, 709-730.

Kettl, D.F. (1993). *Sharing power: public governance and private markets.* Brookings Institution Press. Washington D.C.

Knutsen, O. (2005). The impact of sector employment on party choice: a comparative study of eight west European countries. *European Journal of Political Research* 44, 593-621.

Kortelainen, M., & Manninen, K. (2017). Value-added differences of private and public high schools: Evidence from Finland. *Working Paper.*

McGuire, R.A., Ohsfeldt, R.L., & van Cott, T.N. (1987). The determinants of the choice between public and private production of a publicly funded service. *Public Choice* 54, 21-230.

Mechtel, M., & Potrafke, N. (2013). Electoral cycles in active labour market policies. *Public Choice* 156, 181-194.

Megginson, W.L, & Netter, JM. (2001). From state to market: a survey of empirical studies on privatization. *Journal of Economic Literature* 39, 321-389.

Meriläinen, J., & Tukiainen, J. (2017). Public procurement versus laissez-faire: Evidence from household waste collection. *Working Paper.*

Merzyn, W., & Ursprung, H. (2005). Voter support for privatizing education: evidence on self-interest and ideology. *European Journal of Political Economy* 21, 33–58.

Obinger, H., Schmitt, C., & Zohlnhöfer, R. (2014). Partisan politics and privatization in OECD countries. *Comparative Political Studies* 47, 1294-1323.

OECD (2017). *Government at a glance*. Paris.

OECD & Visser, J. (2017). ICTWSS database (Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts), http://www.uva-aias.net/en/ictwss/

Petersen, O.H., Hjelmar, U., & Vrangbæk, D. (2018). Is contracting out of public services still the great panacea? A systematic review of studies on economic and quality effects from 2000 to 2004. *Social Policy & Administration* 52, 130-157.

Potrafke, N. (2009). Did globalization restrict partisan politics? An empirical evaluation of social expenditures in a panel of OECD countries. *Public Choice* 140, 105–124.

Potrafke, N. (2010). Labor market deregulation and globalization: empirical evidence from OECD countries. *Review of World Economics (Weltwirtschaftliches Archiv)* 146, 545-571.

Potrafke, N. (2015). The evidence on globalisation. *World Economy* 38, 508-552.

Potrafke, N. (2017). Partisan politics: The empirical evidence from OECD panel studies. *Journal of Comparative Economics* 45, 712-750.

Potrafke, N. (2018). Government ideology and economic policy-making in the United States – A survey, *Public Choice* 174, 145-207.

Poutvaara, P. (2014). Public sector outsourcing. *IZA World of Labor* 64.

Poutvaara, P., & Wagener, A. (2008). Why is the public sector more labor-intensive? A distortionary tax argument. *Journal of Economics* 94, 105-124.

Rattsø, J., & Sørensen, R. J. (2016). Public-private political cleavage: what happens after retirement? *Public Choice* 166, 315-333.

Roodman, D. (2006). How to do xtabond2: An introduction to "Difference" and "System" GMM in Stata. *Working Paper 103, Center for Global Development.*

Schmitt, C. (2014). The employment effects of privatizing public utilities in OECD countries. *Public Management Review* 16, 1164-1183.

Schulze, G.G., & Ursprung, H.W. (1999). Globalisation of the economy and the nation state. *World Economy* 22, 295–352.

Stein, R.M. (1990). *Urban alternatives: Public and private markets in the provision of local services.* University of Pittsburgh Press. Pittsburgh, PA.

Ursprung, H.W. (2008). Globalisation and the welfare state. in: S.N. Durlauf, & L.E. Blume (Ed.), *The New Palgrave Dictionary of Economics, Second edition*. Köln: Palgrave Macmillan.

Walls, M., Macauley, M., & Anderson, S. (2005). Private markets, contracts, and government provision – What explains the organization of local waste and recycling markets? *Urban Affairs Review* 40, 590-613.

White, H. (1980). A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity, *Econometrica* 48, 817–838.

Windmeijer, F. (2005). A finite sample correction for the variance of linear efficient two-step GMM estimators. *Journal of Econometrics* 126, 25-51.

Zullo, R. (2009). Does fiscal stress induce privatization? Correlates of private and intermunicipal contracting, 1992-2002. *Governance* 22, 459-481.

World Bank (2017). *World Bank staff estimates based on age/sex distributions of United Nations Population Division's World Population Prospects.* Washington DC.

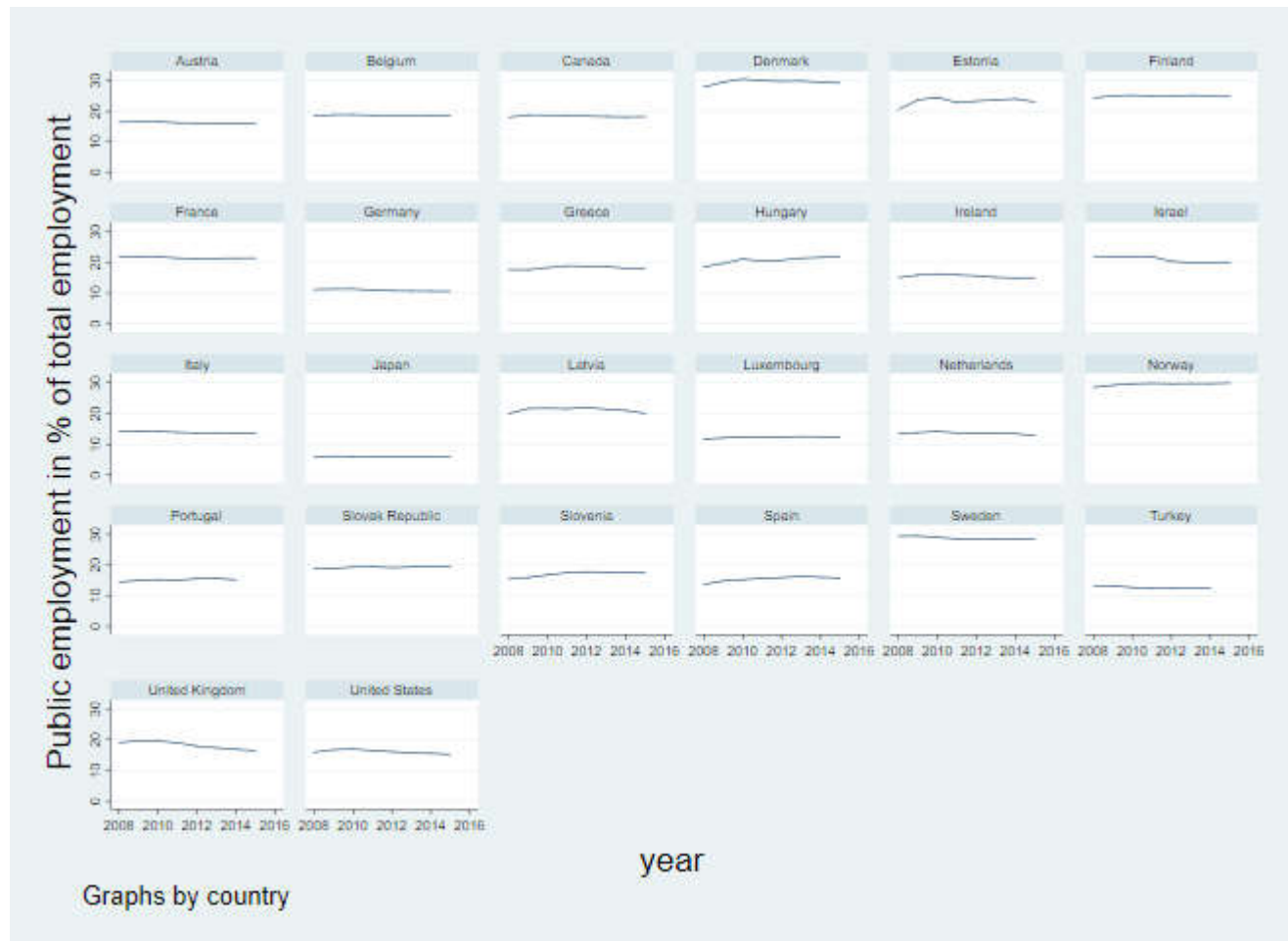Figure 1. Public employment (in % of total employment). 26 OECD countries. 2008-2015.

Graphs by country

Figure 2. Expenditures on general government outsourcing (in % of GDP). 26 OECD countries. 2009-2015.

Graphs by country

Figure 3. Expenditures on goods and services used by government (in % of GDP). 26 OECD countries. 2009-2015.

Graphs by country

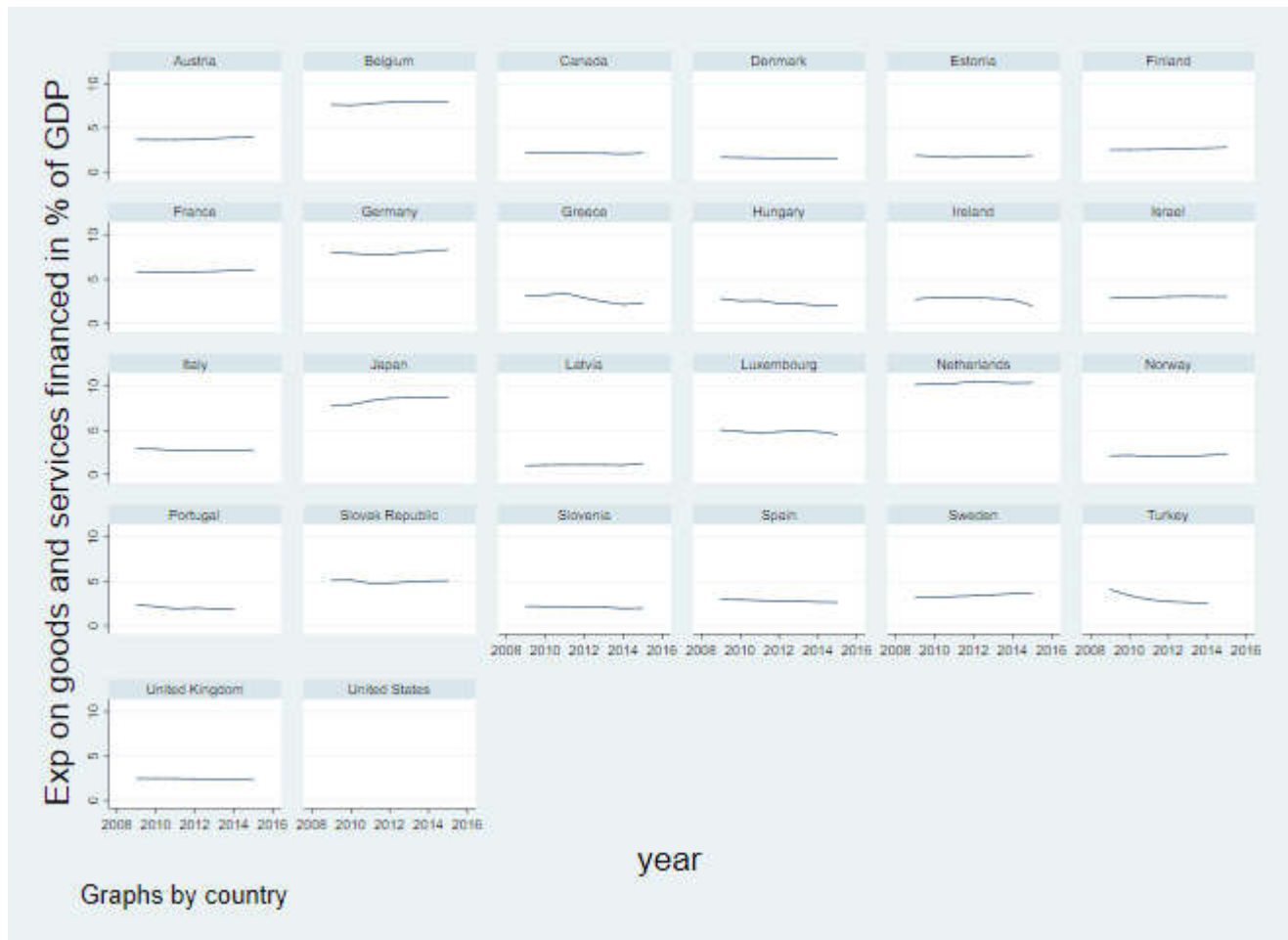Figure 4. Expenditures on goods and services financed by government (in % of GDP). 26 OECD countries. 2009-2015.

Figure 5. Correlation between public employment and overall outsourcing expenditure (in levels). Correlation coefficient r= 0.00
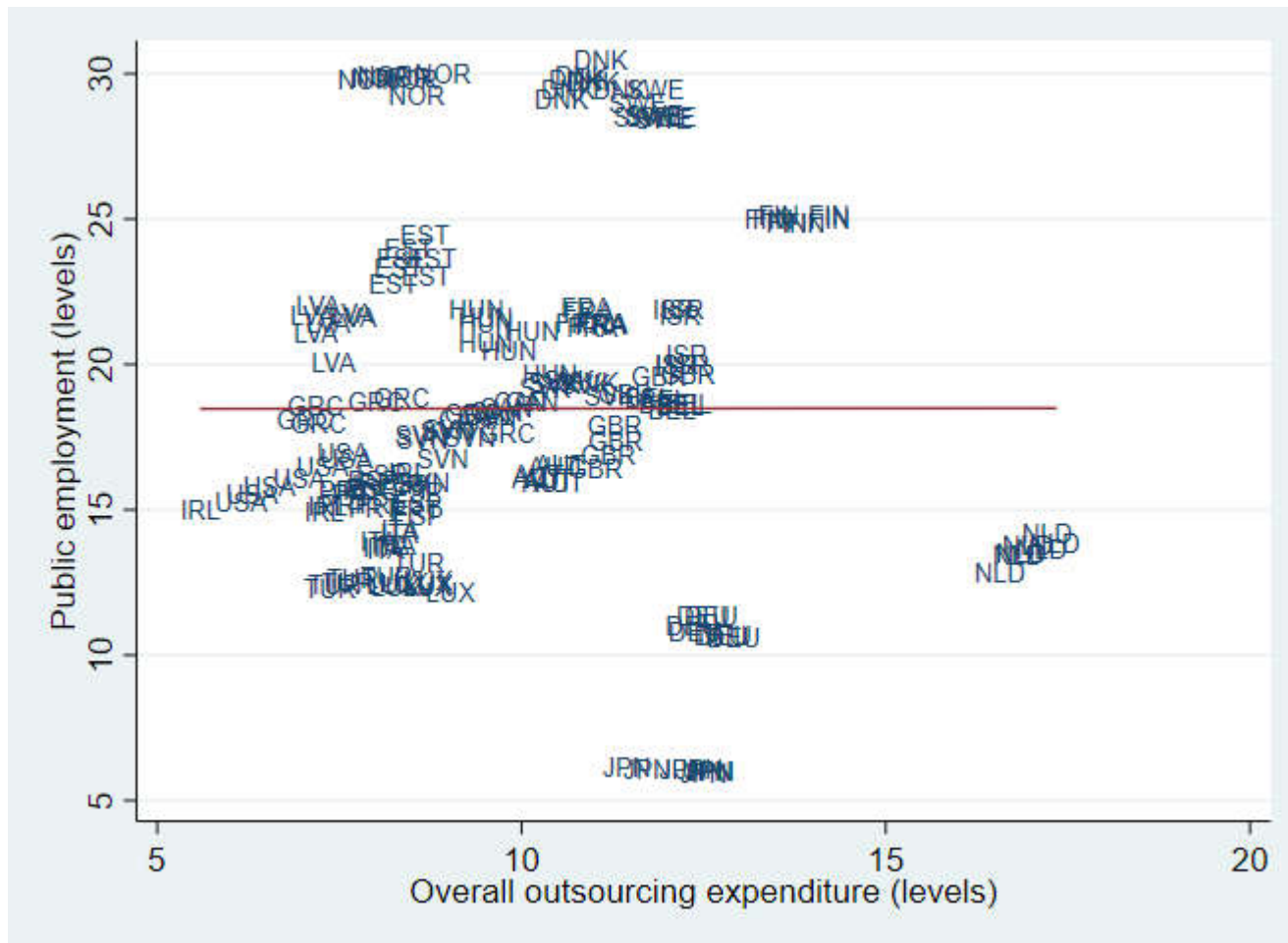
Figure 6. Correlation between public employment and overall outsourcing expenditure (in growth rates). Correlation coefficient r= 0.05
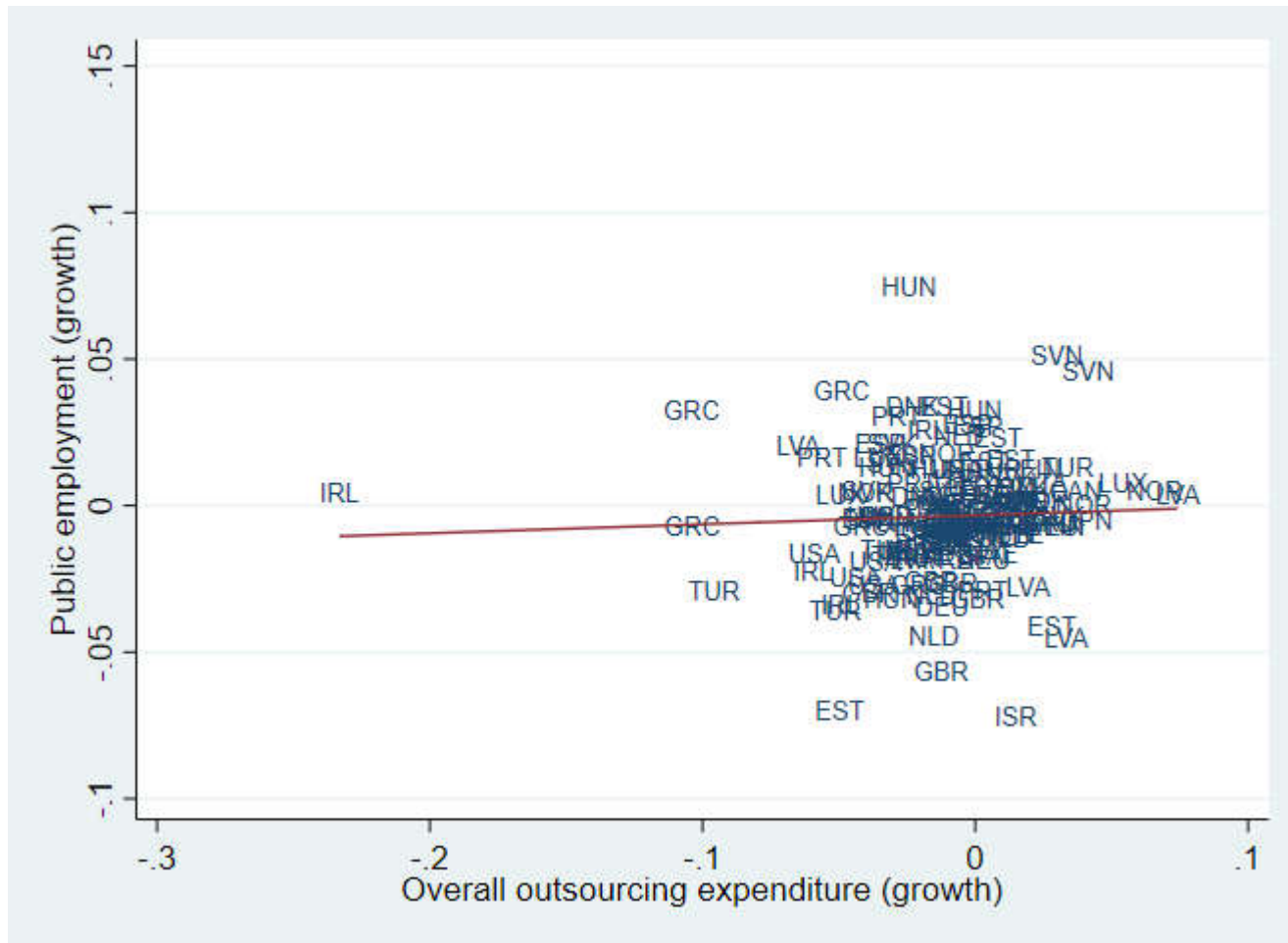
Table 1: Descriptive statistics and data sources.

	N	Mean	Std. Dev.	Min	Max	Source
Public employment (in % of total employment)	206	18.41	5.65	5.94	30.42	OECD (2017)
Public employment (in thousand)	206	2533.65	4398.53	40.88	22962.00	OECD (2017)
expenditures on general government outsourcing (in % of GDP)	180	10.10	2.37	5.60	17.33	OECD (2017)
expenditures on goods and services used by government (in % of GDP)	173	6.43	1.87	3.55	11.53	OECD (2017)
expenditures on goods and services financed by government (in % of GDP)	173	3.81	2.42	1.01	10.55	OECD (2017)
Unemployment rate	206	9.03	4.74	2.55	27.47	ILO (2017)
Expenditure of general government (in % of GDP)	180	47.00	6.46	29.54	65.27	OECD (2017)
Globalization (KOF index)	206	84.08	4.79	70.56	91.59	Dreher (2006) and Gygli et al. (2018)
Population aged younger 15 (share of total)	206	16.97	3.46	12.99	27.86	World Bank (2017b)
Population aged older 65 (share of total)	206	16.66	3.40	6.99	26.02	World Bank (2017b)
Election year	180	0.28	0.45	0	1	Own calculation
Government ideology (leftwing)	180	2.78	0.84	1	4	Potrafke (2009) and update
Trade union density	157	30.66	19.04	6.30	69.70	OECD and Visser (2017)

Table 2: Regression results. Dependent variable: Growth rate in public employment (in % of total employment). Explanatory variables in growth rates.

	(1)	(2)	(3)	(4)	(5)	(6)
Overall outsourcing expenditure	0.020			-0.007		
	(0.067)			(0.075)		
Expenditure on goods and services used		-0.035			-0.023	
		(0.060)			(0.054)	
Expenditure on goods and services financed			0.044			0.001
			(0.048)			(0.053)
Unemployment				0.064***	0.063***	0.063***
				(0.013)	(0.013)	(0.013)
Government expenditure (in % of GDP)				0.001	0.002	-0.001
				(0.023)	(0.020)	(0.020)
Globalization (KOF index)				-0.345	-0.346	-0.343
				(0.269)	(0.271)	(0.266)
Young share				0.865	0.849	0.833
				(0.555)	(0.592)	(0.588)
Elderly share				-0.442	-0.424	-0.474
				(0.629)	(0.659)	(0.617)
Fixed country effects	Yes	Yes	Yes	Yes	Yes	Yes
Fixed year effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	154	148	148	154	148	148
Countries	26	25	25	26	25	25
R2 within	0.195	0.187	0.193	0.357	0.349	0.347
R2 between	0.001	0.008	0.064	0.067	0.036	0.039
R2 overall	0.148	0.139	0.133	0.246	0.229	0.229

Standard errors in parentheses * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

In growth rates: Overall outsourcing expenditure, Expenditure on goods and services used, Expenditure on goods and services financed, Unemployment rate, Government expenditure, Globalization (KOF index), Young share, Elderly share.

Table 3: Regression results. Dependent variable: Growth rate in public employment (in % of total employment). Explanatory variables in growth rates. **Established OECD countries.**

	(1)	(2)	(3)	(4)	(5)	(6)
Overall outsourcing expenditure	-0.028			-0.078		
	(0.033)			(0.053)		
Expenditure on goods and services used		-0.104**			-0.102***	
		(0.047)			(0.030)	
Expenditure on goods and services financed			0.083*			0.030
			(0.042)			(0.064)
Unemployment				0.053***	0.050***	0.053***
				(0.014)	(0.014)	(0.016)
Government expenditure (in % of GDP)				0.043***	0.042***	0.020
				(0.014)	(0.014)	(0.020)
Globalization (KOF index)				-0.174	-0.178	-0.144
				(0.293)	(0.249)	(0.257)
Young share				1.306***	1.200**	1.085**
				(0.428)	(0.459)	(0.512)
Elderly share				0.148	0.272	0.129
				(0.402)	(0.377)	(0.440)
Fixed country effects	Yes	Yes	Yes	Yes	Yes	Yes
Fixed year effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	113	107	107	113	107	107
Countries	19	18	18	19	18	18
R2 within	0.263	0.304	0.303	0.529	0.547	0.494
R2 between	0.001	0.008	0.017	0.009	0.000	0.001
R2 overall	0.185	0.191	0.194	0.239	0.212	0.245

Standard errors in parentheses * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

In growth rates: Overall outsourcing expenditure, Expenditure on goods and services used, Expenditure on goods and services financed, Unemployment rate, Government expenditure, Globalization (KOF index), Young share, Elderly share.

Table 4: Regression results. Dependent variable: Growth rate in public employment (in % of total employment). Explanatory variables in growth rates. **Lagged Outsourcing variables.**

	(1)	(2)	(3)	(4)	(5)	(6)
Overall outsourcing expenditure	0.179***			0.147**		
	(0.060)			(0.066)		
Expenditure on goods and services used		0.069			0.080	
		(0.057)			(0.052)	
Expenditure on goods and services financed			0.082**			0.032
			(0.038)			(0.048)
Unemployment				0.031	0.040**	0.035*
				(0.019)	(0.019)	(0.020)
Government expenditure (in % of GDP)				-0.019	-0.024	-0.020
				(0.020)	(0.022)	(0.024)
Globalization (KOF index)				-0.481	-0.478	-0.478
				(0.306)	(0.319)	(0.314)
Young share				1.157	1.256	1.145
				(0.809)	(0.815)	(0.881)
Elderly share				0.032	0.015	0.177
				(0.651)	(0.652)	(0.685)
Fixed country effects	Yes	Yes	Yes	Yes	Yes	Yes
Fixed year effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	128	123	123	128	123	123
Countries	26	25	25	26	25	25
R2 within	0.110	0.065	0.079	0.215	0.199	0.179
R2 between	0.007	0.033	0.081	0.000	0.006	0.021
R2 overall	0.072	0.057	0.022	0.058	0.043	0.027

Standard errors in parentheses * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

In growth rates: Overall outsourcing expenditure, Expenditure on goods and services used, Expenditure on goods and services financed, Unemployment rate, Government expenditure, Globalization (KOF index), Young share, Elderly share.

Table 5: Regression results. Dependent variable: Growth rate in public employment (in % of total employment). Explanatory variables in growth rates. **Lagged Outsourcing variables. Established OECD countries.**

	(1)	(2)	(3)	(4)	(5)	(6)
Overall outsourcing expenditure	0.196***			0.151**		
	(0.061)			(0.061)		
Expenditure on goods and services used		0.074			0.100**	
		(0.058)			(0.043)	
Expenditure on goods and services financed			0.044			-0.031
			(0.054)			(0.043)
Unemployment				0.040*	0.048**	0.047**
				(0.020)	(0.022)	(0.021)
Government expenditure (in % of GDP)				-0.004	-0.008	0.004
				(0.024)	(0.024)	(0.030)
Globalization (KOF index)				-0.151	-0.148	-0.156
				(0.256)	(0.266)	(0.297)
Young share				1.173	1.291	1.347
				(0.941)	(0.866)	(0.882)
Elderly share				0.576	0.413	0.362
				(0.740)	(0.801)	(0.848)
Fixed country effects	Yes	Yes	Yes	Yes	Yes	Yes
Fixed year effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	94	89	89	94	89	89
Countries	19	18	18	19	18	18
R2 within	0.165	0.097	0.079	0.359	0.362	0.306
R2 between	0.024	0.034	0.019	0.001	0.001	0.002
R2 overall	0.093	0.072	0.034	0.071	0.067	0.047

Standard errors in parentheses * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

In growth rates: Overall outsourcing expenditure, Expenditure on goods and services used, Expenditure on goods and services financed, Unemployment rate, Government expenditure, Globalization (KOF index), Young share, Elderly share.

ifo Working Papers

No. 254   Kauder, B., N. Potrafke and H. Ursprung, Behavioral determinants of proclaimed support for environment protection policies, February 2018.

No. 253   Wohlrabe, K., L. Bornmann, S. Gralka und F. de Moya Anegon, Wie effizient forschen Universitäten in Deutschland, deren Zukunftskonzepte im Rahmen der Exzellenzinitiative ausgezeichnet wurden? Ein empirischer Vergleich von Input- und Output-Daten, Februar 2018.

No. 252   Brunori, P., P. Hufe and D.G. Mahler, The Roots of Inequality: Estimating Inequality of Opportunity from Regression Trees, January 2018.

No. 251   Barrios, S., M. Dolls, A. Maftei, A. Peichl, S. Riscado, J. Varga and C. Wittneben, Dynamic scoring of tax reforms in the European Union, January 2018.

No. 250   Felbermayr, G., J. Gröschl and I. Heiland, Undoing Europe in a New Quantitative Trade Model, January 2018.

No. 249   Fritzsche, C., Analyzing the Efficiency of County Road Provision – Evidence from Eastern German Counties, January 2018.

No. 248   Fuest, C. and S. Sultan, How will Brexit affect Tax Competition and Tax Harmonization? The Role of Discriminatory Taxation, January 2018.

No. 247   Dorn, F., C. Fuest and N. Potrafke, Globalization and Income Inequality Revisited, January 2018.

No. 246   Dorn, F. and C. Schinke, Top Income Shares in OECD Countries: The Role of Government Ideology and Globalization, January 2018.

No. 245   Burmann, M., M. Drometer and R. Méango, The Political Economy of European Asylum Policies, December 2017.

No. 244   Edo, A., Y. Giesing, J. Öztunc and P. Poutvaara, Immigration and Electoral Support for the Far Left and the Far Right, December 2017.