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PRIVATIZATION POLICY – LEARNING
FROM BEST PRACTICE AND MIMICKING
POLICY FASHIONS?
EMPIRICAL EVIDENCE FROM THE
TELECOMMUNICATION SECTOR

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**Privatization Policy –
Learning from Best Practice and Mimicking Policy Fashions?
Empirical Evidence from the Telecommunication Sector**

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ABSTRACT

This working paper examines the question whether the privatization of network based utilities results from policy diffusion across the OECD world, and if so which diffusion mechanisms have been relevant. Therefore, a completely new panel data set on privatization in the telecommunication sector is introduced which offers a unique opportunity for a broad-based international comparison. The sample includes 18 OECD countries between 1980 and 2007. In order to analyze the hypotheses empirically, spatial econometric techniques are used. The paper shows that governments do not implement privatization policies independently of each other. Second, the relevant spatial interdependencies are determined by geographical proximity and economic relationships. Countries clearly tend to privatize when trading partners or countries that are geographically close to them do so. Third, there is no evidence that governments adopt policies of countries with similar cultural backgrounds or simply where privatization leads to the intended outcomes at the company level. Fourth, the diffusion of privatization policy is highly influenced by the openness of the economy. Open economies are more receptive to diffusion mechanisms than economies that are only moderately involved in the international market.

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1. INTRODUCTION

Liberal economic policies in general and privatization in particular have been spread around the globe in recent decades (Bortolotti et al. 2003). While in the beginning it was mainly the industrial sector that was affected by the selling off of public enterprises, governments have also applied divesture programs to public services such as energy, telecommunications, and rail infrastructure as well as postal and water services (Clifton et al. 2003). These network based utility sectors[1] are known as natural monopolies and therefore are affected by market failure (Majone 1997, p. 144). With the emergence of neoliberal ideas, public enterprises were no longer seen as an effective instrument for responding to market failure. In order to meet macroeconomic objectives, such as economic growth or the reduction of public debt, the public enterprises were widely privatized. (Bortolotti and Siniscalco 2004). Privatization in network based utility sectors often began with a restructuring process, transforming administrative bodies or public corporations into joint stock companies (i.e. formal privatization). Formal privatization has typically paved the way for the divestment of public shares (i.e. material privatization).[2]

To date, privatization is considered as "an established policy" in the OECD world (Meseguer 2009, p. 111). the existing literature on explaining the timing and the extend of privatization are primarily focused on domestic and external factors. Right wing parties, a high level of public debt and an institutional arrangement with a low number of veto points are assumed to accelerate the privatization process. Furthermore, international factors, such as globalization and Europeanization as well as technological progress are seen as fostering the retreat of the state (Boix 1997; Bortolotti and Siniscalco 2004; Schneider and Häge 2008). However, the majority of the studies neglect possible *spatial interdependencies* among countries and assume that governments choose policy strategies independently of each other. However, it is plausible that governments emulate the strategies adopted by neighboring countries, succumb to the peer pressure of their reference group or learn from best practice. In sum, privatization has "diffused rather than [being] reproduced independently as a discrete event in each country and sector" (Levi-Faur 2005, p. 28). This paper therefore, examines the question whether the

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[1]   The terms "network based utilities" and "public utilities" are used interchangeably in this paper.

[2]   The concept of "formal" and "material privatisation" is described in further detail in section 3.

privatization of network based utilities results from policy diffusion across the OECD world, and if so which diffusion mechanisms have been relevant.

I focus on the privatization in the telecommunication sector for several reasons. First, diffusion processes seem most likely to occur in sectors that operate across borders and are not restricted by national boundaries. Second, the telecommunication sector is highly relevant in economic terms. It contributes up to 4 % to the national GDP and the telecommunication providers are also typically among the largest national employers. Third, the privatization process of telecommunication services has been advanced to a remarkable extent and therefore provides enough variance for a meaningful analysis of diffusion processes. The sample includes 18 OECD countries between 1980 and 2007. This paper focuses on this period because, comprehensive privatization programs started in the 1980s. In order to analyze the hypotheses empirically, spatial econometric techniques will be used (Beck et al. 2006).

The paper contributes to the research literature in the following ways. First, a new indicator is proposed which integrates the two relevant dimensions of privatization in the network based utility sectors: formal and material privatization. Secondly, a completely new panel data set on privatization in the telecommunication sector offers a unique opportunity for a broad-based international comparison. Third, spatial interdependencies are explicitly analyzed which have hardly been considered to date. In order to deal with Galton's problem, I pay special attention to a careful disentanglement of spatial dependence from other sources of spatial patterns, such as common trends and shocks or the spatial clustering of explanatory variables. Fourth, by analyzing several distinct diffusion mechanisms and the role of mediating factors for the importance of diffusion, a more comprehensive picture of spatial interdependencies can be drawn than it has hitherto been the case.

The paper is structured as follows: Section 2 gives a brief overview of the research literature. Section 3 presents the main concept and develops the hypotheses. Section 4 outlines the measurement and the description of the dependent variable, the methodological design and the control variables. Section 5 presents the results of the empirical analyses and central findings and Section 6 concludes.

2. EXPLAINING PRIVATIZATION: A BRIEF REVIEW OF THE LITERATURE

The first international comparative studies emphasized domestic and external factors as relevant concepts for the timing and the extent of privatization processes. For example, analyzing the determinants of privatization in one of the first international comparative studies, Boix (1997) finds for a sample of OECD countries that right wing parties are more inclined to engage in privatization than left wing parties. However, Zohlnhöfer and Obinger (2006) provide evidence that the influence of party differences was espe-

cially relevant in the 1980s but has been decreased over time. Furthermore, using a sample of 14 European and 21 OECD-countries, they found that institutional pluralism negatively affects privatization. Moreover, budget deficits are seen to put pressure on governments to divest shares (Belke et al. 2007). two large samples of 34 and 49 countries, Bortolotti et al. (2003) state that slow economic growth, encourages the state's retreat from telecommunication services and the liquidity of stock markets and government credibility are associated with high privatization proceeds. Schneider and Häge (2008) emphasize that European integration has accelerated the reduction of public involvement in the infrastructure sectors in the member states of the European Union. Brune et al. (2004) examine the relevance of the IMF for material privatization activities in a sample of 96 countries which have received support from the IMF. Their results support the proposition that international institutions and economic problems trigger privatization.

In recent years, scholars have begun to consider cross national interdependencies while analyzing privatization processes. For example, Meseguer (2004, 2009) shows that privatization efforts in Latin American countries are a result of rational learning from regional experiences rather than the experiences made in OECD countries. In contrast, European countries, such as Spain and Portugal tend to learn from the Latin American experience when it comes to privatization. Using a sample of 92 countries, Kogut and MacPherson (2008) show that, the spread of American-trained economists in think tanks, fosters the diffusion of privatization. Levi-Faur (2003) analyzes privatization as one part of the liberalization of the telecommunication and electricity sector in 32 European and Latin American countries. By using descriptive statistics to detect evidence of policy transfer, Levi-Faur finds that in Latin American countries policy transfer is "emulative, coercive and simple" (Levi-Faur 2003, p. 730), while European countries tend to learn from each other.

This brief literature review reveals several drawbacks. First, the vast majority of the studies emphasize domestic and external factors as driving and structuring privatization and they assume that governments implement privatization policies independently from each other. The empirical analysis of interrelationships between countries or groups of countries is still in its infancy. Spatial patterns, if considered at all, are often seen as a nuisance and relegated to the error term. Second, the very few empirical studies focusing on the diffusion of privatization generate ambivalent empirical findings. They typically focus only on one channel of diffusion (Kogut and MacPherson 2008; Levi-Faur 2003; Meseguer 2009). Third, the studies analyzing diffusion mechanisms, implicitly assume that all countries are equally sensitive to diffusion processes and the importance of spatial interdependencies does not depend on national characteristics. The relevance of conditioning factors for the diffusion of privatization policy has not been considered

yet. Forth, the quantitative literature on privatization focuses on privatization proceeds (Belke et al. 2007; Boix 1997; Bortolotti and Siniscalco 2004; Zohlnhöfer et al. 2008), on the percentage of shares held by the state (Schneider and Häge 2008) or on privatization activities in the form of divestments of public shares (Kogut and MacPherson 2008; Meseguer 2004, 2009). These indicators only map the material dimension of the phenomenon but do not take formal privatization into account. However, this dimension is of particular relevance with regard to public utilities.

3. CONCEPTS AND HYPOTHESES

Concept of Privatization

As argued above, the privatization of network-based utilities is affected by formal and material privatization. Despite national differences, two types of formal privatization can be distinguished. The first type refers to the transformation of a departmental agency as a part of a ministry (e.g. the Direction Générale des Télécommunication in France) into a public corporation (e.g. France Télécom) which is subject to special or public law. While a departmental agency does not have its own legal personality and is subordinated to a ministry, a public corporation is an autonomous public body with its own legal status and a partial commercial structure. Although a law or statute often defines the objectives of a public corporation, it has more autonomy in day-to-day operations than a departmental agency (Boes 1986). The second type of formal privatization is the change of a public corporation into a state company subject to private law, such as a joint stock company (e.g. British Telecom plc). A state company is subjected to the same rules as private companies. In contrast to public corporations or departmental agencies, state companies are only responsible for the well-being of the enterprise itself. The state remains the unique stakeholder (Boes 1986).[3] Before the public enterprises are formally privatized, it is not possible to sell shares and therefore to start material privatization. Figure 1 illustrates the conceptualization of formal and material privatization.

Figure 1: Conceptualization of Privatization

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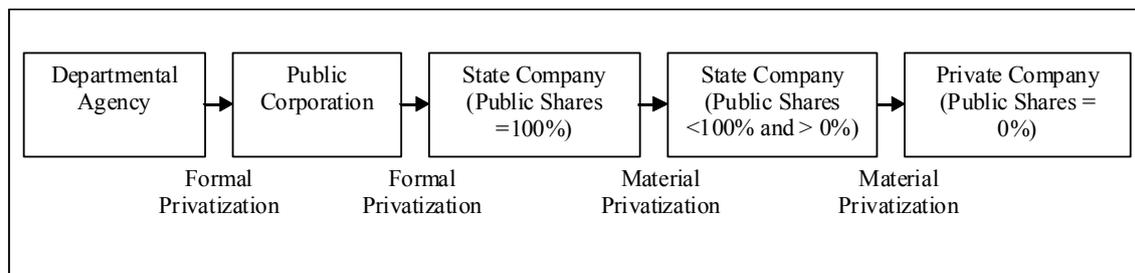
[3]   A departmental agency can also be directly transformed into a state company subject to private law.

Hypotheses

The basic assumption of spatial interdependencies is that political actors do not implement policies independently of each other since their policy choice is influenced by the choices that others make (Dolowitz and Marsh 2000; Franzese and Hays 2007). These interdependencies among countries may lead to the diffusion of policy strategies. Diffusion denotes a process by which the adoption of a certain policy in one or more countries leads to policy changes in other countries (Strang 1991, p.4).

What drives the diffusion of privatization policy? Several diffusion mechanisms, such as learning from other experiences and emulating policy trends exist. Policy learning implies that political actors are aware of the impact of certain policies (May 1992, p. 333). Governments scan the available information and evidence on the failure and success of certain policy strategies and follow those countries in which policy decisions produce the intended results (Lee and Strang 2006). A "foreign model may (…) offer a ready-made answer to ill-defined domestic pressure for 'change' and 'innovation'" (Simmons and Elkins 2004, p. 174) and may provide information about the costs and the benefits of a certain policy strategy. In the case of emulation, governments may imitate the dominant policy fashion within a group of similar and closely related countries (Elkins and Simmons 2005; Simmons and Elkins 2004). Linked together, through intense communication networks, governments follow the policy mainstream in order to protect their reputation or to "avoid the stigma of backwardness" (Meseguer 2009, p. 27; Simmons and Elkins 2004). The application of a certain policy by many others serves "as information that this might be the best thing to do" (Holzinger and Knill 2005, p. 784).

The probability of learning from each other or emulating the policy of related countries should, in principle, vary with the intensity of communication between two countries and therefore with the availability of information. Indeed, governments can only pay attention to the information at hand as the availability of information and the intensity of communication depends on various factors. First of all, geographical proximity may increase the connectivity of countries (Simmons and Elkins 2004; Weyland 2006). Countries located in close geographical proximity are directly accessible to each other and typically demonstrate a large exchange of information. Policy change enacted next door has particular immediacy and therefore availability. Hence, neighbors are assumed to influence each other more strongly than countries located on different sides of the globe (Weyland 2006).

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4 In this paper, diffusion is treated as a process and not as an outcome (Elkins and Simmons 2005; Holzinger and Knill 2005). Furthermore, diffusion only refers to spatial interdependencies and not to other forms of spatial association (Simmons and Elkins 2004).

Second, cultural propinquity in terms of a common language, religion or heritage, facilitates communication and enhances the possibilities for sharing information. It is likely that political actors mimic the policy trend within their "Family of Nations" (Castles 1993) or cultural reference group encompassing countries with the same cultural roots. Cultural proximity should, in principle, give salience to new models and policy-makers will then tend to study them closely. The diffusion of privatization policy should therefore occur to a greater extent among countries with a similar cultural background (Simmons and Elkins 2004, p. 175; Lee and Strang 2006, p. 889; Lenschow et al. 2005).

Third, intense communication can also be economically defined by private and business actors who establish dense communication networks. "Business people may transmit ideas about the appropriate economic policy by looking to the experiences of the countries with which they have especially intense trading contacts" (Simmons and Elkins 2004, p. 175). A government will especially take the policies of trading partners into account "because of the close communication (learning through communication) and dependency (control through resource dependence) between those countries" (Jahn 2006, p. 408). This leads to the following hypotheses.

H1) Countries adopt the privatization policy of other countries located in their geographical proximity.

H2) Privatization policy diffuses amongst countries with a similar cultural background.

H3) Governments adopt the policy of their most important trading partners.

Furthermore, governments may imitate those policy outputs that seem to lead to the intended outcomes. Regarding privatization policy, one central political objective and intended outcome has been to improve the financial and operating performance of public enterprises. Political decision-makers have emphasized the importance of corporate governance techniques (i.e. formal privatization) as well as the divestment of shares (i.e. material privatization) as important tools for resolving agency problems and, as a consequence, for increasing efficiency at the company level (Megginson and Netter 2001; Shleifer and Vishny 1997). Governments may observe the economic performance of privatized firms in other countries. If privatization efforts lead to improvements in the performance indicators of the telecommunication provider in question, it would be expected that the political decision makers imitate these policy strategies (Meseguer 2005).

H4) Governments implement the privatization policies of those countries where privatization has improved the performance of the national telecommunication provider.

However, it is likely that the effect of diffusion is conditioned by national characteristics. Country attributes might mediate the relevance of diffusion in domestic policy choices, since not all countries are equally sensitive to diffusion mechanisms (Gilardi 2010; Brooks 2007).

First, I argue that the importance of the diffusion of privatization policy might be shaped by the party composition of the government. The ideology and the prior beliefs of political actors constrain the influence of new information (Gilardi 2010, p. 651). The imitation of privatization policy is more likely when the government is controlled by right-wing parties since market-oriented policies are more compatible to their party platform. By contrast, left-wing parties should, in principle, be more sceptical of and reluctant to facilitate the diffusion of liberalization and privatization policies (Martin 2010).

Second, it is likely that governments in open economies will be more receptive to diffusion mechanisms. If the markets are highly open to external influences, political actors will adopt the international trends to a greater extent. This is of special relevance for the privatization of public enterprises. If governments in open economies were to disregard the global trend of privatization, the public enterprises might no longer be competitive and fail to survive in the international market. This might affect particularly open economies with a high dependence on international markets. In less open economies with a greater focus on the domestic market, the costs of dropping behind might be lower. This leads to the following hypotheses:

H5) Leftist governments are assumed to be more reluctant to facilitate the diffusion of privatization policy.

H6) In open economies, diffusion processes are of greater relevance than in less open economies.

4. DATA AND METHOD

Measurement and Description of Public Entrepreneurship

One of the central drawbacks of the existing empirical literature is the measurement of privatization. The proceeds obtained by privatization, which are typically used as an indicator, only permit the analysis of the divestment of shares and not the extension of public entrepreneurship. Furthermore, none of the existing indicators incorporates formal privatization as a dimension of privatization that is especially relevant to network based utilities. Therefore, a new 'index of public entrepreneurship' has been developed which measures the extent of public entrepreneurship and brings together the concept of formal and material privatization.[5] Based on this information, a completely new data-

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[5] To generate this database, information from national governments, regulatory agencies, national laws, and public

base which provides internationally comparative data for all telecommunication providers has been generated.

Formally, the 'index of public entrepreneurship' is calculated as follows:

$$(1) \quad I = X_i^{DA} + \alpha \cdot X_i^{PC} + \beta \cdot \sum_{i \in SC_j} X_i^{SC} \cdot s_i^{SC}$$

X^{DA}	1=Departmental Agency; 0=Other Organizational Form
X^{PC}:	1=Public Corporation; 0= Other Organizational Form
X_i^{SC}	1=State Company; 0= other Organizational Form
α	Weighting for Formal Privatization, Type I
β	Weighting for Formal Privatization, Type II
s_i^{SC}	Shares hold by the State

The index which has a range from 0 to 1, identifies the type of organizational form (Departmental Agency, Public Corporation, State Company) and the percentage of shares owned by the government (*s*) on an annual basis The different organizational forms are weighted according to their autonomy from the political centre of authority. If a departmental agency (DA) provides the national telecommunication services, the index equals 1 which is the maximum value (in this case X^{DA} equals 1 and X^{PC} as well as X^{SC} 0). When the state transforms the departmental agency into a public corporation (PC), then X^{PC} is weighted with α (here X^{DA} and X^{SC} are 0). α has to be smaller than 1 to indicate the retreat of the state and the enterprise's greater autonomy from political actors. The weighting for a transformation into a joint stock company is β. Since the possibilities to influence the operational decisions of a joint stock company decrease for political actors in comparison to a public corporation (even though the state remains the unique shareholder), β has to be smaller than α. If the state additionally sells public shares (material privatization) the index value further decreases. When, for instance, 49% of the public shares are divested, the weighting equals β x .51 as the state still holds 51% of the shares. Once a firm becomes completely privately owned (s=0), it drops out of the index.[6] The sample includes 18 OECD countries[7] and covers the period from 1980 to 2007.[8]

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enterprises was collected, compiled and analyzed. The index has also been developed for other sectors and for each national economy.

[6] If more than one publicly owned firm operates in the sector then the firms enter in the index relative to their output in terms of revenues.

[7] Australia, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Japan, The Netherlands, Norway, New Zealand, Portugal, Spain, Sweden, Switzerland, and the United Kingdom. The United States and

To illustrate the national privatization paths, figure 2 shows the development of public entrepreneurship in 18 OECD countries for the period between 1980 and 2007.

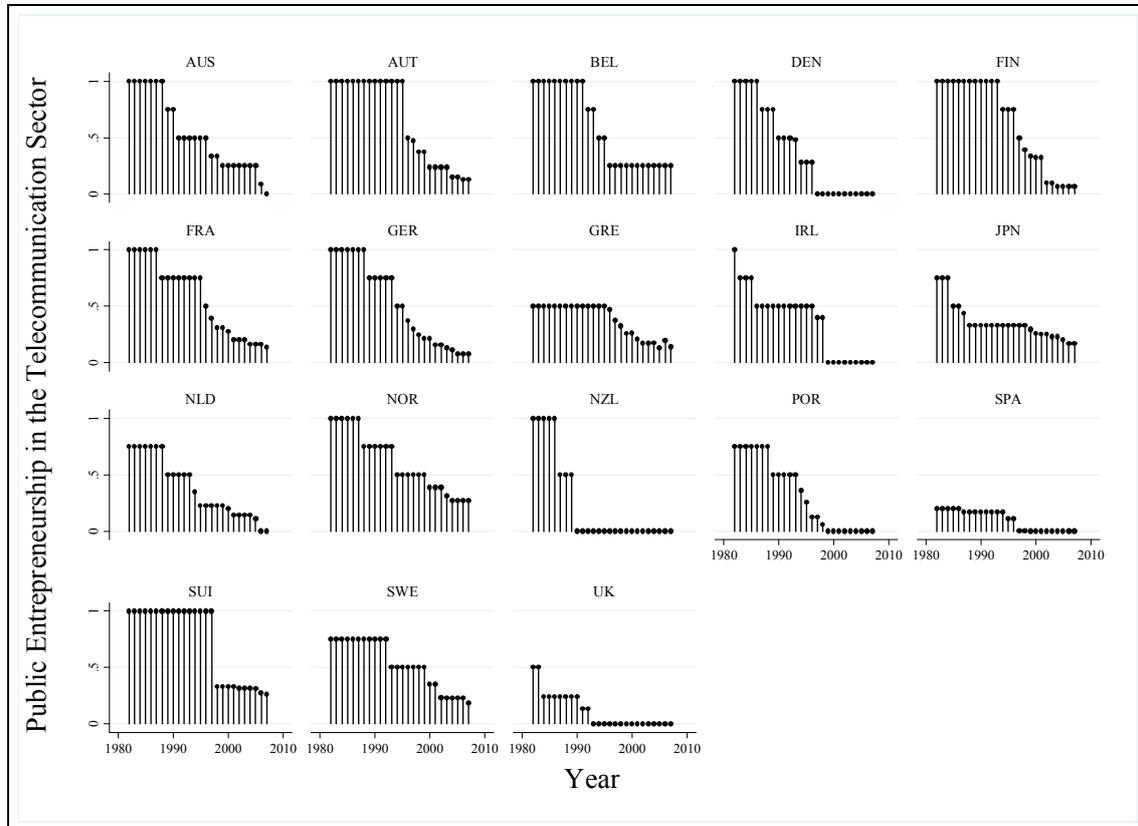*Figure 2: The Development of Public Entrepreneurship in 18 OECD Countries*

Figure 2 reveals a remarkable degree of variance over time and across space. While in most countries, telecommunication services were provided by departmental agencies at the beginning of the observation period (e.g. Germany & Norway), other countries (e.g. Spain & the United Kingdom) started at a relatively lower level of public entrepreneurship. Furthermore, countries such as France or the Netherlands restructured their telecommunication enterprises gradually, while New Zealand, for example, has radically privatized its telecommunication provider. The national timing of privatization also differs greatly from country to country. Japan, New Zealand and the United Kingdom already initiated privatizations in the 1980s. In contrast, other countries such as Switzer-

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Canada were excluded since the telecommunication sectors in these countries had been organized privately before the period of observation began.

[8] Since no theoretical justification for the selection of α and β exists, sensitivity analyses were applied using different weightings. The results do not differ substantially by using different weightings. Therefore formal and material privatization is weighted equally in this paper with formal privatization being subdivided into two different types. This means that α equals .75 and β .5.

land and Finland did not jump onto the privatization bandwagon until the 1990s. Overall, a clear downward convergence trend is observable, even though the state has not completely withdrawn from telecommunication services in most countries.

Method

The basic assumption of this paper is that privatization policy diffuses across space. Spatial interdependencies can be modelled by including a spatial term as a regressor (spatial lag model) (Anselin 2003). The general spatio-temporal autoregressive model (STAR) can be expressed as follows where y is the private involvement in the telecommunication sector:

(2) $y = \rho \cdot Wy + \phi \cdot My + X\beta + \varepsilon$

The private involvement is measured by 1 minus the level of public entrepreneurship I (for the 'Index of Public Entrepreneurship I', see above).[9] ρ is a spatial autoregressive coefficient and Wy is the weighted average of the dependent variable (spatial lag). The spatial weight matrix W (NTxNT) reflects the relative connectivity of each country i to every other country at time t. The effect on a focal country is then a weighted sum of outcomes across countries (Lee and Strang 2006). ϕ is the temporal autoregressive coefficient and M is a NTxNT matrix to create the first order temporal lag (ones on the minor diagonal). X is a set of exogenous right hand side variables.

Before analyzing the different diffusion mechanisms, it must be checked whether there is spatial association in the dependent variable. Moran's I as well as Geary's C indicate spatial correlation for all estimated models. Furthermore the local indicators for spatial association show that the spatial correlation is not caused by a single value.

True spatial interdependence has to be carefully distinguished from other sources of spatial association in order to solve Galton's problem. Spatial patterns in the dependent variable might also be caused by common shocks or trends or unobserved spatial heterogeneity. The only possibility to disentangle spatial dependence from its alternatives is to model it and include appropriate right hand side variables (Plümper and Neumayer 2010, p. 215). A failure to account for such alternatives will bias the spatial lag coefficient. To control the common shocks, I added period dummies. Furthermore, a lagged dependent variable captures common trends and temporal dynamics. A lagged dependent variable has the disadvantage of accounting for the largest part of the variance in the dependent variable and of absorbing the explanatory power of the other substantial right hand variables. However, the focus in this paper is on guaranteeing reliable results for the spatial lags and *not* on identifying the substantive influence for the control vari-

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9   To avoid confusions about the sign, the private involvement is taken and not the level of public entrepreneurship.

ables. Therefore, the procedure can be seen as a conservative test strategy for the hypotheses on spatial interdependencies since "a statistically significant effect (...) under such a condition, (…) is a valuable evidence of a causal effect" (Kittel 1999, p. 230). To cope with unobserved spatial heterogeneity unit, fixed effect models are estimated. Additionally, using OLS for a spatial diagnostic tests on the residuals of the non spatial model , gives further information about the nature of the spatial association. The Robust Lagrange Multiplier Test against the spatial lag or spatial error alternative might indicate whether the spatial association is caused by unobserved factors. Therefore the results of the tests are displayed in the regression tables (Franzese and Hays 2007, 2008; Anselin et al. 1996).

In the empirical analysis, I analyze instantaneous spatial interdependencies and time-lagged spatial interdependence. The reason is that we do not know if privatization policies in different countries influence each other simultaneously or with a time lag. The estimation of instantaneous spatial interdependencies causes several methodological problems. The spatial lag on the right hand side of the equation is a weighted average of the left hand side variable. Therefore the spatial lags are endogenous and covary with the residuals, while spatial OLS estimations would be inconsistent and affected by simultaneity bias. To deal with this problem, I estimate spatial maximum likelihood models. Spatial maximum likelihood estimation provides consistent and efficient parameter estimates in the case of instantaneous interdependencies (Franzese and Hays 2007 2008; Hays 2009). The models with a temporally-lagged spatial lag are not affected by simultaneity bias (in the absence of temporally autocorrelated residuals) and can therefore be estimated by spatial OLS regressions. In the spatial OLS models, I dealt with heteroscedasticity by estimating the models with robust standard errors.

Weight Matrices and Control Variables: Measurement

When estimating spatial lag models, the weighting matrix must be carefully specified. In order to test the hypotheses, I use several different weighting matrices. The baseline model weights the privatization policy of all other countries equally. To test the hypothesis of whether the geographical proximity determines spatial interdependencies, the privatization policy is weighted by the inverse distance between the capitals (H1). The spatial lag expressing linguistic proximity is a binary variable which is expressed by the number one (variable one?!) if two countries share a common language (H2). Weighting the change of public entrepreneurship with the sum of exports and imports between two countries as a percentage of the total trade volume, allows a check on whether trading partners adopt similar policies (H3). Hypothesis 4 assumes that governments implement privatization policies which are associated with the intended microeconomic improvements. To test H4, I use the annual change in the turnover of the

national telecommunication provider for the weight matrix. Since the growth of turn-over might be negative, the values are rescaled on a range from 0 to 1. All weighting matrices are row standardized so that each row adds up to a total of one.

Furthermore, I include a comprehensive set of political and economic control variables discussed in the research literature to determine the extent and timing of privatization policy. Leftist governments are assumed to engage less in privatization policy. The higher the percentage of cabinet seats controlled by leftist parties, the lower the retreat of the state from telecommunication services should be (Boix 1997). The openness of the economy as an indicator for global integration is measured by the sum of imports and exports in relation to GDP. According to the efficiency hypothesis, a highly open economy should be associated with a reduction of public involvement in economic affairs (Garrett and Mitchell 2001). Since privatization is often seen as an instrument for restoring public budgets, I assume that an increase in the deficit as a percentage of the GDP is associated with greater privatization efforts (Bortolotti et al. 2003). The level and the growth of GDP indicate the economic situation of the country. A high level of GDP growth should go hand in hand with moderate privatization policy due to the relatively low economic pressure that this entails (Bortolotti et al. 2003). Privatization is assumed to be promoted by European integration, which is taken account of with a dummy for EU membership (Schneider and Häge 2008). Moreover, the institutional setting may impose constraints on the possibilities for implementing privatization policies (Immergut 1992). Theoretically, a high number of veto points should be associated with low levels of privatization.[10] The details of the measurements of all variables are presented in Table A1.

5. EMPIRICAL ANALYSIS

Table 1 presents the findings for the maximum likelihood estimations that test instantaneous spatial interdependencies. All the right hand side variables with the exception of the spatial lag are serially lagged by one year to address potential problems of endogeneity. Models 1 to 5 test the different spatial lags using different theoretically informed weight matrices. Model 1 is the baseline model and includes a spatial lag weighting the privatization policies of all other countries equally. The coefficient of the spatial lag in the baseline model 1 is not significant. In contrast, the hypothesis that governments adopt the policies of countries which are located in close proximity to them is supported by the empirical evidence. The spatial lag in model 2 using the geographical distance as

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[10] Competition is often mentioned in this context. However, competition is not a cause of privatization. It is rather a
      consequence of or the result of the same underlying process.

Table 1: Spatial Interdependencies in Privatization Policy (Maximum Likelihood Estimation)

Dependent variable: Private Involvement in the Telecommunication Sector[a]

Independent variables	(1) EQUAL	(2) DISTANCE	(3) LANGUAGE	(4) TRADE	(5) TURN-OVER
Private Involvement$_{t-1}$	.848*** (.024)	.842*** (.024)	.845*** (.024)	.845*** (.024)	.848*** (.024)
Openness	.0002 (.0005)	.0001 (.0005)	1.01e-06 (.0005)	.0002 (.0005)	.0002 (.0005)
GDP per capita	1.52E-06 (1.60E-06)	1.19E-06 (1.53E-06)	2.20E-06 (1.43E-06)	1.48E-06 (1.48E-06)	1.50E-06 1.59E-06
GDP growth	-.004* (.002)	-.004 (.002)	-.004 (.002)	-.003 (.002)	-.004 (.002)
Deficit	-.002 (.001)	-0.002 0.001	-0.002 0.001	-0.002 0.001	-0.002 0.001
Institution	.016 (.013)	.015 (.013)	.021* (.013)	.012 (.013)	.016 (.013)
EU Membership	.032 (.022)	.032 (.022)	.029 (.022)	.030 (.022)	.032 (.022)
Leftist Government	-1.74e-05 (9.75e-05)	-3.34e-05 (9.76e-05)	-2.43e-05 (9.79e-05)	-.3.75e-05 (9.77e-05)	1.81e-05 (9.75e-05)
Spatial Lag (average)	.085 (.070)				
Spatial Lag (distance)		.124** (.059)			
Spatial Lag (language)			.029 (.024)		
Spatial Lag (trade)				.116** (.052)	
Spatial Lag (turnover)					.087 (.068)
RLM (Spatial Lag)	2.971*	7.483***	1.981	5.530**	3.389*
RLM (Spatial Error)	1.314	2.567	.478	.802	1.566
Wald Chi	7157.24***	4163.46***	6098.64***	4348.59***	4476.09***
N	468	468	468	468	468

Note: The fixed effects are suppressed to conserve space; standard errors in parentheses; *** z, $p<0.01$, ** z, $p<0.05$, * z, $p<0.1$; a: The private involvement is measured by 1 minus the Index of Public Entrepreneurship I (see pp. 11f); RLM = Robust Lagrange Multiplier Test on the residuals of the nonspatial OLS models against the spatial lag or spatial error alternative

the weighting, clearly improves the model fit in comparison to the baseline model. The coefficient is positive and significant at the 5%-level and the sub-stantive effect (.124) is stronger than in the baseline model. If countries retreat from telecommunication services, countries in close geographical proximity move in the same direction. Further-

more, governments tend to follow the policy trend which is dominant among important trading partners and they implement privatization strategies when economically related countries reduce their public involvement in the telecommunications sector. The coefficient has a substantive size of .116. and is also significant at the 5%-level. Rather strikingly, there is little evidence that a common language leads to countries mimicking culturally similar countries.

The hypothesis that countries adopt the policies from other countries with similar cultural background is not sustained empirically. The coefficient is substantively low and far from being significant. The results for the spatial lag weighted by the development of turnover in model 5, are similar to those for the spatial lag in the baseline model. This finding does not support the hypothesis that governments implement the policies chosen by countries with relatively well-performing telecommunication providers. In sum, the relevant spatial interdependencies appear to be determined by the geographical and economic attributes of the countries concerned, rather than by cultural attributes, such as a common language or the economic performance of the public enterprises in question. The control variables remain mainly insignificant primarily due to the inclusion of the lagged dependent variable. However, the inclusion of the lagged dependent variable is necessary to control the common trends.

Table 2 presents the results based on the assumption that privatization policies influence each other with a one year time lag.[11] Models 1 to 3 analyze the relevance of the spatial lag weighting the policies equally, by trade and distance. The results for time-lagged spatial interdependencies in models 1 to 3 support the findings of table 1. The coefficient of the spatial lag in model 1 is insignificant. Model 2, which uses the distance-weighted spatial lag, clearly demonstrates that the geographical proximity is highly relevant for the diffusion of privatization policy. The spatial lag weighted by economic interdependence performs better than the baseline model in terms of efficiency. In contrast, the models using common language or the turnover growth, once again indicate that the spatial interdependencies are not defined by a common cultural background or the operational development of the companies (not reported).

Model 4 and 5 test the hypotheses of whether the impact of diffusion is conditioned by the domestic party ideology or the openness of the economy.[12] While estimating interaction effects, coefficients and effects have to be carefully distinguished (Franzese

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[11] A decreasing coefficient for the estimations including two-year and three-year lagged spatial lags (not reported) indicates that policies diffuse in close temporal proximity (i.e. over relatively short spaces of time).

[12] To conserve space, the results for the interaction effects are only presented for the spatial lag weighted by the distance. The findings for the spatial lag and the interaction effect using the trade-weighted spatial lag remain the same.

Table 2: Spatial Interdependencies in Privatization Policy (Spatial OLS)

Dependent variable: Private Involvement in the Telecommunication Sector[a]					
Independent variables	(1) EQUAL	(2) DISTANCE	(3) TRADE	(4) INTER-ACTION	(5) INTER-ACTION
Private Involvement$_{t-1}$	.837*** (.043)	.826*** (.045)	.832*** (.044)	.810*** (.047)	.821*** (.047)
Openness	.0002 (.0006)	6.70e-05 (.0006)	8.41e-05 (.0006)	-.001b (.001)	-2.55e-05 (.0006)
GDP per capita	8.26E-07 (1.58E-06)	5.69E-07 (1.39E-06)	1.62E-06 (1.21E-06)	-8.78E-07 (1.52E-06)	4.34E-08 (1.36E-06)
GDP growth	-.004 (.002)	-.003* (.002)	-.003 (.002)	-.002 (.002)	-.003 (.002)
Deficit	-.002 (.002)	-.002 (.002)	-.002 (.002)	-.003* (.002)	-.002 (.002)
Institution	.013 (.016)	.013 (.015)	.011 (.016)	.009 (.016)	.013 (.015)
EU Membership	.041 (.028)	.043 (.029)	.040 (.029)	.053 (.029)	.462 (.029)
Leftist Government	6.14E-06 (.0001)	-7.36e-06 (.0001)	-1.40e-05 (.0001)	-6.0e-05 (.0001)	-9.41e-06b (.0001)
Spatial Lag$_{t-1}$ (average)	.168 (.128)				
Spatial Lag$_{t-1}$ (distance)		.214** (.102)		.291***b (.114)	.233**b (.106)
Spatial Lag$_{t-1}$ (trade)			.148* (.083)		
Spatial Lag$_{t-1}$ (distance) x Openness				.002*** (.001)	
Spatial Lag$_{t-1}$ (distance) x Left					-.0005 (.0004)
F	774.96***	762.72***	767.73***	855.24***	787.94***
N	450	450	450	450	450

Note: The country and period fixed effects are suppressed to conserve space; standard errors in parentheses; *** p<.01, ** p<0.05, * p<0.1; a: The private involvement is measured by 1 minus the Index of Public Entrepreneurship I (see pp. 11f) b: the standard error and significance level refer to the situation when the other part of the interaction effect equals its mean

and Kam 2010). The effects of the spatial lag depend on the level of the other variables with which the spatial lag interacts. Since the variables have been centred before building the interaction term via crossproducts, the coefficient of the spatial lag only tells us something about the situation when the other part of the interaction effect equals the mean. Therefore, the development of the spatio-autoregressive coefficient (and the stan-

dard error) according to the openness of the economy and the party ideology, is separately presented in table 3.[13]

The results for the interaction effects, strongly support the assumption that national characteristics influence the impact of diffusion mechanisms. Open economies are highly spatially interdependent. The governments are more receptive to international trends in open economies than in less open economies. The coefficient of the spatial lag when the openness of the economy equals the minimum is .211, .291 at its mean and .473 at its maximum. The effect of the diffusion variable (Spatial lag distance) is duplicated by turning (switching) from an economy which is internationally isolated to an economy which is highly involved in international trade flows. The party ideology also matters, but to a lesser extent. If the cabinet does not include a leftist party, the coefficient equals .255 and is significant at the 5%-level. In contrast, in a 100% leftist cabinet, the coefficient of the spatial lag is .200 and turns out to be less significant. Table 3 summarizes the development of the coefficient and the respective standard error of the spatial lag in accordance with the conditioning factors.

Table 3: *Coefficient of the Spatial Lag according to the Openness of the Economy or the Party Ideology*

Openness		Party Ideology	
Value of Openness	Coefficient of Spatial Lag	Value of Party Ideology	Coefficient of Spatial Lag
20	.211** (.102)	0	.255** (.110)
50	.259** (.109)	20	.244** (.108)
80	.307*** (118)	40	.233** (.106)
110	.354*** (.128)	60	.222** (.105)
140	.402*** (.139)	80	.211** (.104)
170	.449*** (.151)	100	.200* (.105)
185	.473*** (.158)		

Note: Standard error in parentheses, *** p<.01, ** p<0.05, * p<0.1

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[13] The marginal effect $\delta y/\delta x$ is calculated by $\beta_X + \beta_{XZ} * z$. Therefore the same sign of β_X and β_{XZ} strengthen the effect of x and vice versa.

Overall, four empirical findings stand out. First, the results clearly show that spatial interdependencies matter regarding privatization policy despite controls has been made for alternative sources of spatial patterns, such as common trends or spatial clustering in the explanatory variables. Governments do not implement privatization policies independently of each other. Second, the relevant spatial interdependencies are determined by geographical proximity and economic relationships. Countries clearly tend to privatize when trading partners or countries that are geographically close to them do so. Third, there is no evidence that governments adopt policies of countries with similar cultural backgrounds or simply where privatization leads to the intended outcomes at the company level. Fourth, the diffusion of privatization policy is highly influenced by the openness of the economy. Open economies are more receptive to diffusion mechanisms than economies that are only moderately involved in the international market.

6. CONCLUSION

This paper has investigated whether privatization policies in the telecommunication sector have diffused throughout the OECD-world and, if so, what the main diffusion mechanisms are. To address this question, a new database which captures public entrepreneurship in the telecommunications sector of 18 OECD countries for the period 1980 to 2007 was compiled. The need for a new indicator stems from the fact that comparative quantitative empirical studies so far have by and large only taken into account the material dimension of privatization. This index makes it possible for the first time to comprehensively depict privatization by integrating formal privatization (a change in legal status to more market-oriented organizational forms) and material privatization (the divestment of public enterprises).

The descriptive results presented in the paper clearly show a downward trend in public entrepreneurship, although in general the state has not completely backed out of the telecommunication sector. All analyzed countries have formally privatized their telecommunication providers. However, in most of the countries, the state still holds public shares in these companies. Besides the mentioned common trends, countries differ greatly in terms of the timing, initial size and dynamics of the reform process.

The basic assumption of this contribution was that privatization policies are spatially interdependent. The wave of privatization swept across these countries in a specific way and through specific channels of diffusion. Several hypotheses regarding possible diffusion mechanisms were derived and tested by applying spatial econometric techniques. The empirical findings of the quantitative analysis support the assumption that while analysis of privatization, spatial interdependencies have to be considered. It has been shown that governments adopt the policy strategy of those countries which are important trading partners or are located in close geographical proximity. It is therefore the

policy trend amongst geographically and economically related countries that drive the diffusion of privatization policy forward. One striking result is that countries seem not to adopt the policy strategies of countries with a similar cultural background. Furthermore, policy diffusion is not influenced by the microeconomic performance of the national telecommunication provider. Whether policies have the desired consequences and lead to the intended outcomes at the company level does not appear to influence the decision of decreasing public involvement in the sector.

There are several avenues for future research. Extending the analysis to other sectors in order to obtain a more comprehensive picture of the sector-specific diffusion mechanisms would be one more far-reaching step. Furthermore, the significance of the political consequences (such as changed voting behavior) that a reform may have on the diffusion of policies, is highly under-investigated. For example, do political actors adopt those policies which promise to ensure their re-election or those which promise to actually lead to the desired policy outcomes? The analysis of different diffusion mechanisms or factors that trigger or condition diffusion processes, even with regard to privatization and liberalisation policies, is still in its infancy,

REFERENCES

Anselin L. (2003) "Spatial Externalities, Spatial Multipliers, And Spatial Econometrics," *International Regional Science Review*, 26, pp. 153-166.

Anselin L., Bera A., Florax R. J., and Yoon M. (1996) 'Simple diagnostic tests for spatial dependence," *Regional Science and Urban Economics*, 26, pp. 77-104.

Armingeon K., Leimgruber p., Beyeler M. and Menegale S. (2008) *Comparative Political Data Set 1960-2006*. Bern: University of Bern.

Beck N., Gledditsch K.S. and Beardsley K. (2006) "Space is More than Geography: Using Spatial Econometrics in the Study of Political Economy," *International Studies Quarterly*, 50, pp. 27-44.

Belke A., Baumgärtner F., Schneider F., and Setzer R. (2007) "The Different Extent of Privatization Proceeds in OECD-countries: A Preliminary Explanation Using a Public-Choice Approach", *Finanzarchiv*, 63, 2, pp. 211-243.

Boes D. (1986) *Public Enterprise Economics*, Amsterdam: North Holland.

Boix C. (1997) "Privatising the Public Business Sector in the Eighties: Economic Performance, Partisan Responses and Divided Governments," *British Journal of Political Science*, 27, 4, pp. 473-496.

Bortolotti B., Fantini M. and Siniscalco D. (2003) "Privatization around the World: Evidence from Panel Data," *Journal of Public Economics*, 88, pp. 305-332.

Bortolotti B. and Siniscalco D. (2004) *The Challenges of Privatization. An International Analysis*, Oxford: Oxford University Press.

Brooks S. (2007) "When Does Diffusion Matter? Explaining the Spread of Structural Pension Reforms across Nations," *The Journal of Politics*, 69, 3, pp. 701-15.

Brune N., Garrett G. and Kogut B. (2004) "The Privatizations by Shares in the World Economy: Credible Ideologies and International Financial Institutions," *IMF Staff Papers*, 54, pp. 195-219.

Castles F. G. (1993) *Families of Nations. Patterns of Public Policy in Western Democracies*, Aldershot: Dartmouth Publishing Company.

Clifton J., Comín F. and Fuentes D. (2003) *Privatization in the European Union. Public Enterprises and Integration*, Dordrecht: Kluwer.

Dolowitz D. and Marsh D. (2000) "Learning from Abroad: The Role of Policy Transfer in Contemporary Policy-Making," *Governance*, 13, pp. 15-24.

Elkins Z. and Simmons B.A. (2005) "On Waves, Clusters, and Diffusion: A Conceptual Framework," *The ANNALS of the American Academy of Political and Social Science*, 598, pp. 33-51.

Franzese R. and Hays J. (2007) "Spatial Econometric Models of Cross-Sectional Interdependence in Political Science Panel and Time-Series-Cross-Section Data," *Political Analysis*, 15, pp. 140-64.

Franzese R. and Hays J. (2008) "Interdependence in Comparative Politics: Substance, Theory, Empirics, Substance," *Comparative Political Studies*, 41, 4/5, pp. 742-780.

Franzese R. J. and Kam C. D. (2010) *Modeling and Interpreting Interactive Hypotheses in Regression Analysis*, Michigan: Michigan University Press.

Garrett G. and Mitchell D. (2001) "Globalization, government spending and taxation in the OECD," *European Journal of Political Research*, 39, pp. 145-177.

Gilardi F. (2010) "Who learns from What in Policy Diffusion Processes?" *American Journal of Political Science*, 54, 3, pp. 650-66.

Hays J. (2009) *Globalization and the New Politics of Embedded Liberalism*, Oxford: Oxford University Press.

Heston A., Summers R. and Aten B. (2009) *Penn World Table Version 6.3*, Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania.

Holzinger K. and Knill C. (2005) "Causes and conditions of cross-national policy convergence", *Journal of European Public Policy*, 12, 5, pp. 775-96.

Immergut E. M. (1992) *Health Politics: Interests and Institutions in Western Europe*, Cambridge: Cambridge University Press.

IMF *Direction of Trade Statistics. Yearbook.* Washington, D.C.: IMF.

Jahn D. (2006) "Globalization as 'Galton's Problem': The Missing Link in the Analysis of Diffusion Patterns in Welfare State Development," *International Organization*, 60, pp. 401-31.

Kittel B. (1999) "Sense and sensitivity in pooled analysis of political data", *European Journal of Political Research*, 35, pp. 225-253.

Kogut B. and MacPherson M. (2008) "The decision to privatize: economists and the construction of ideas and policies," pp. 104-140 In B. A. Simmons, F. Dobbin and G. Garrett (eds.) *The Global Diffusion of Markets and Democracy*, Cambridge: Cambridge University Press.

Lee C. K. and Strang D. (2006) "The International Diffusion of Public-Sector Downsizing: Network Emulation and Theory-Driven Learning," *International Organization*, 60, pp. 883-909.

Lenschow A., Liefferink D. and Veenman S. (2005) "When the birds sing. A Framework for Analysing Domestic Factors behind Policy Convergence," *Journal of European Public Policy*, 12, 5, pp. 797-816.

Levi-Faur D. (2003) "The Politics of Liberalization: Privatization and Regulation-for-Competition in Europe's and Latin America's Telecoms and Electricity Industries," *European Journal of Political Research*, 42, pp. 705-740.

Levi-Faur D. (2005) "The Global Diffusion of Regulatory Capitalism," *The ANNALS of the American Academy of Political and Social Science*, 598, pp. 12-32.

Levy J. S. (1994) "Learning and Foreign Policy: Sweeping a Conceptual Minefield," *International Organization*, 48, 2, pp. 279-312.

May P. (1992) "Policy Learning and Failure," *Journal of Public Policy*, 12, 4, pp. 331-54.

Majone G. (1997) "From the Positive to the Regulatory State: Causes and Consequences of Changes in the Mode of Governance," *Journal of Public Policy*, 17, 2, pp. 139-167.

Martin C. (2010) "Interdependences and Political Ideology: The Conditional Diffusion of Cigarette Taxation in the US States", *World Political Science Review*, 5, 4.

Megginson W. L. and J. M. Netter (2001) "From State to Market: A Survey of Empirical Studies on Privatization," *Journal of Economic Literature*, 39, pp. 321-389.

Meseguer C. (2004) "What Role for Learning? The Diffusion of Privatisation in OECD and Latin American Countries", *Journal of Public Policy*, 24, 3, pp. 299-325.

Meseguer C. (2005) "Policy Learning, Policy Diffusion, and the Making of a New Order," *The ANNALS of the American Academy of Political and Social Science*, 598, pp. 67-82.

Meseguer C. (2009) *Learning, Policy Making, and Market Reforms*, Cambridge: Cambridge University Press.

OECD (2008) *Economic Outlook No. 84*, Paris: OECD.

Pluemper T. and Neumayer E. (2010) "Model specification in the analysis of spatial dependence," *European Journal of Political Research*, 49, pp. 418-442.

Schneider V. and Häge F.M. (2008) "Europeanization and the Retreat of the State," *Journal of Public Policy*, 15, 1, pp. 1-19.

Shleifer A. and Vishny R. (1997) "A Survey of Corporate Governance," *Journal of Finance*, 54, 2, pp. 417-517.

Simmons B. A. and Elkins Z. (2004) "The Globalization of Liberalization: Policy Diffusion in the International Political Economy," *American Political Science Review*, 98, 1, pp. 171-89.

Strang D. (1991) "Adding social strucutre to diffusion models: An event history framework," *Sociological Methods and Research*, 19, 3, pp. 324-53.

United Nations Statistics Division (UN) (2009) *National Accounts Statistics Database*, New York: United Nations.

Weyland K. (2006) *Bounded Rationality and Policy Diffusion*, Princeton: Princeton University Press.

Zohlnhöfer R. and Obinger H. (2006) "Selling Off the "Family Silver": The Politics of Privatization," *World Political Science Review*, 2, 1, pp. 29-52.

Zohlnhöfer R., Obinger H., Wolf F. (2008) "Partisan Politics, Globalization, and the Determinants of Privatization Proceeds in Advanced Democracies (1990-2000)", *Governance,* 21, 1, pp. 95-121

APPENDIX

Table A1: Measurement and Sources of the Variables

Variable	Description	Source
Private Involvement	1- Index of Public Entrepreneurship	Own data source
Leftist Government	Cabinet seats of leftist parties as a percentage of total cabinet posts (weighted by days)	Armingeon et al. (2008)
Openness	Sum of exports and imports as a percentage of GDP	Heston et al. (2009)
Deficit	Annual deficit (government primary balance) as a percentage of GDP	Armingeon et al. (2008)
GDP per capita	Real GDP per capita	UN (2009)
GDP growth	Growth of real GDP	OECD (2008)
EU Membership	EU membership on an annual basis (1=yes; 0=no)	Own assessment
Institution	Additive index of constitutional structures composed of five indicators: (1) federalism (0=absence, 1=weak, 2=strong) (2) parliamentary government =0, versus presidentialism or other =1 (3) proportional representation =0, modified proportional representation=1, majoritarian=2 (4) bicameralism (1=weak, 2=strong), (5) frequent referenda=1.	Armingeon et al. (2008)
Weighting Matrix - Turnover	Annual point changes in the turnover of the national telecommunication provider	Own data source
Weighting matrix - Distance	Inverse distance between the capitals in km	http://www.theglobetrotter.de/weltreise/weltreise/planung/entfernungen.html
Weighting Matrix - Trade	Sum of exports and imports between two countries as a percentage of the total trade volume	IMF Direction of Trade Statistics
Weighting Matrix - Language	Binary variable (1=sharing a common language; 0=not sharing a common language)	Own assessment

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