

# Explaining Regional and Local Government: An Empirical Test of the Decentralization Theorem

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*Decentralization of policy provision is omnipresent yet we are not able to sufficiently account for the extent of this phenomenon. The decentralization theorem explains the decentralization of policy provision as a trade-off between heterogeneous preferences, interjurisdictional spillovers (externalities), and economies of scale. Empirical tests of the theorem have been hampered by a measurement problem on the independent as well as on the dependent variable. This article tackles these problems by using a new data set that combines a measure of externalities and scale effects of policies obtained from an expert survey with the actual provision of policies across governmental tiers in 40 countries. The analyses provide an empirical test of the decentralization theorem by showing that decentralization of policy provision is to a large extent determined by functional characteristics of policies and heterogeneous preferences but other country-specific variables, such as democracy, economic development, and European subsidies, also matter.*

## Introduction

Virtually no central government during modern history has provided and implemented policies on its own. Even the tiny states of Malta and Luxembourg have two levels of government.<sup>1</sup> In theory, multilevel government should be common, yet, few theories have been rigorously tested. The predominant approach is summarized by the “decentralization theorem” (Alesina and Spolaore 2003; Bolton and Roland 1997; Breuss and Eller 2004; Oates 1972; Osterkamp and Eller 2003; Stegarescu 2005). This theorem states that the optimal degree of decentralization depends on the heterogeneity of preferences, on the one hand, and interjurisdictional spillovers (externalities) and economies of scale, on the other (Alesina and Spolaore 2003; Oates 1972, 1999). An externality or spillover arises when a decision produces costs or benefits to people other than those making the decision (Tullock 1969). Scale effects occur when additional units of a good or a service can be produced with relatively less input costs (Tullock 1969).

The externalities and scale effects of most policies provided by government—for example, health, education, economic development,

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spatial planning, environment, and welfare services—are such that they require some degree of decentralization coupled with some centralized coordination (Ahmad, Hewitt, and Ruggiero 1997; Shah 2006). Hence, multilevel government should be very common (see also Hooghe and Marks 2001). However, clear recommendations for the practical assignment of policy tasks is hampered by tensions created by the trade-off between the realization of scale effects and the internalization of externalities, on the one hand, and the consideration of local preferences, on the other (Breuss and Eller 2004, 41). A recommendation is further fettered by country-specific factors, such as politico-economical variables, which should also be taken into account (Breuss and Eller 2004). Therefore, to examine whether countries follow the normative considerations of the decentralization theorem requires an empirical and case-by-case analysis (Breuss and Eller 2004). Such an analysis, however, is complicated by measurement problems. First, the dependent variable—allocation of policy provision tasks over governmental tiers—is difficult to measure (Oates 1972; Page 1991; Treisman 2007, 26–27). As Wallace Oates (1972, 196) and Edward Page (1991, 14) note, a direct measure requires a list of public goods provided by each level of government in each country.

Second, empirical analysis requires measurement of externalities and scale effects but it is difficult to make unequivocal statements concerning which governmental tier should provide a policy. For example, Teresa Ter-Minassian (1997a) argues convincingly that primary education should be provided, at least partially, by local governments and that defense should be a national responsibility. However, to claim that primary education is (always) best provided by a jurisdiction with a population size of about 20,000 people is problematic. Even if one knows how preferences are distributed over jurisdictions, it is still a very challenging task to determine which jurisdictional size optimizes internalization of externalities and scale effects.

This article tackles both problems by using a new data set that combines a measure on externalities and scale effects of policies obtained from an expert survey, conducted by Liesbet Hooghe, Gary Marks, and Arjan H. Schakel in 2006, with the actual provision of policies by governmental tiers in 40 countries obtained from detailed country studies by the Council of Europe (1996–2006) and Local Government and Public Reform Initiative (Horváth 2000; Kandevara 2001; Munteanu and Popa 2001). Empirical analysis of the data set provides evidence that countries do indeed follow patterns predicted by the decentralization theorem. That is, the allocation of policy provision tasks over governmental tiers is indeed a result of externalities and scale effects associated with policies and local preferences.

The article is organized as follows: The next section summarizes the hypotheses posed in the literature to explain jurisdictional policy provision. The subsequent section deals with the data, operationalization of the variables, and methodological issues. Then the results are reported, which are followed by concluding remarks.

## Hypotheses

This section summarizes expectations concerning when to expect local, regional, and national policy provision. According to the decentralization theorem externalities and scale effects associated with policies and local preferences should play a role but also other country-specific factors like politico-economical variables. Three country-specific factors are discerned: level of democracy, economic welfare, and European Union membership. The hypothesized causes of multilevel policy provision are subsequently dealt with.

### Externalities and Scale Effects

The two most important characteristics of public goods are externalities and scale effects (Besley and Coate 2003, 2628). The optimal jurisdictional size from a functional perspective is the one that internalizes externalities and reaps benefits of scale. It is important to note that in this perspective *each* policy has its own optimal jurisdictional size.<sup>2</sup> Deviations from functionality arise when local preferences are heterogenous. Optimality in the perspective of the decentralization theorem concerns the trade-off between functionality and heterogenous preferences. In this article, however, a measure of *functional optimal* jurisdictional size is used and deviations from this pattern will be explained by the hypotheses posited below.

### Local Preferences

Different local preferences regarding public goods may lead to decentralized policy provision. Geographical diversity in tastes for public services can be especially expected when ethnic-cultural-language-regional identities differ (Alesina and Spolaore 2003; Oates 1972). Individuals with different ethnocultural traditions may desire heterogenous mixes of public goods, such as education, welfare, and economic policy (see for empirical evidence Osterkamp and Eller 2003).

Also, individuals sharing ethnocultural norms may desire self-rule on intrinsic grounds leading to a demand for decentralized policy provision (Duchacek 1970; Keating 1998; Loughlin 2001; Page and Goldsmith 1987). Autonomy demands are usually mediated by political mobilization, for example, by regionalist parties that demand decentralization (Brancati 2005, 2006; De Winter and Gomez-Reino Cachafeiro 2002; Rokkan 1999; Rokkan and Urwin 1983; Sharpe 1993; Urwin 1985). It is therefore expected that—to the extent that ethnic/regional minorities are politically mobilized—the relationship between local preferences and decentralized policy provision strengthens.

Decentralization might also result from differences in, for example, economic or ideological preferences. Alesina and Spolaore (2003) argue

that democratization makes the political system more responsive to heterogeneous preferences. The authors are indifferent regarding the source of heterogeneity of policy preferences that, thus, can have multiple roots. In order to test the argument made by Alesina and Spolaore, the model below introduces the variable *general preferences*, which is measured by the Vanhanen index. This index consists of two components: competition and participation. Competition indicates the degree of power sharing among political parties (Vanhanen 2000, 253). The degree of participation indicates the extent of “the people” taking part in politics, that is, the extent of “direct democracy” (Vanhanen 2000, 253). When all power is in the hands of one political party and hardly any people are eligible to vote, more central government concentration of policy provision is to be expected.

### **Country-Specific Variables: Democracy, Economic Development, and European Integration**

It is hypothesized that authoritarianism leads to deconcentrated rather than decentralized policy provision. Treisman (2007, 40–42) identifies two views of the link between authoritarian regimes and decentralization. The first is that authoritarian leaders impose whatever policy they like, limited only by functional and economical pressures. A second view sees authoritarian rulers as constrained, although in different ways than democratic politicians. An authoritarian regime also needs support of a substantial number of its citizens and one way to achieve this may be decentralizing policy provision according to local preferences. The result of both causal processes, however, is deconcentration rather than decentralization; that is, in authoritarian regimes, policies are provided by central government agents rather than by locally elected politicians.

It is expected that economically affluent countries make more use of decentralized policy provision than less developed countries. Some scholars note that economic development, not democracy per se, may explain the association between decentralization and democracy (Prud’homme 1995; Treisman 2002). Economic development might make decentralization of policy provision to subnational tiers affordable (Oates 1972, 228–229; Wheare 1963, 51). Another explanation is that it is only at relatively high levels of per capita income that decentralization is demanded by citizens in the sense that its benefits can be more fully exploited without the problems or disadvantages that tend to be more present in countries at lower levels of development (Bahl 1999; Bardhan 2002; Martinez-Vazquez and McNab 2003).

A final hypothesized cause of decentralization is the process of European integration. Three causal paths are put forward. First, subnational tiers are likely to seek access to EU decision-making processes in those cases where EU policies cut across their domestic competence base (Jeffery 2000). This development might have led to a shift of decision-making power to the advantage of subnational tiers.

Second, European integration leads to an increase in economic viability of regions that subsequently results in subnational mobilization. European integration removes large barriers to trade diminishing the economic advantage of large state size and, at the same time, increasing the prosperity of small countries and large regions (Alesina and Spolaore 2003; Marks and Hooghe 2000). Therefore, the decentralization demand of subnational actors is made more realistic and more politically influential by European integration (Jolly 2006, 2007).

A third hypothesized causal path concerns the instrument of EU funding, which is thought to enhance subnational mobilization as the EU distributes money directly to subnational governments (Hooghe and Marks 2001; Jeffery 2000; Marks et al. 1996). Furthermore, EU funding pressures national governments to empower subnational authorities in EU cohesion policy (Brusis 2002; Hooghe 1996). Consequently, EU subsidies might also lead to decentralized policy provision.

## Data, Operationalization, and Method

### Expert Survey and Country Studies

To derive measures for functional characteristics of policies, I use an expert survey (Hooghe, Marks, and Schakel 2006) in which 36 policy experts indicate for 34 policies which jurisdiction should have a role in provision considering only scale effects and externalities.<sup>3</sup> Appendix S1 (available online) gives more details and deals with interexpert reliability, structural error, and validation of the expert survey. From the expert survey, an *externalities and scale effects* variable for each tier is constructed, and these are operationalized as the percentage of experts who place an X in that jurisdiction for a given policy. The percentages are weighted by the total number of placed X's per expert so that each expert has a weight of one. The variable *externalities and scale effects* measures the probability that tier A in country B has a role in the provision of policy C. As mentioned above, this variable is used as a measure of optimal jurisdictional size from a *functional* perspective. An example is given below.

The expert survey data are matched with data on the actual policy provision by governmental tiers in 40 countries, that is, 16 West European, 15 Central and Eastern European, and 9 Caucasian republics. These data are collected by combining country studies undertaken by the Council of Europe and the Local Government and Public Service Reform Initiative (Horváth 2000; Kandeve 2001; Munteanu and Popa 2001). The country studies provide information on policy provision for 34 policies that coincide with the policies used in the expert survey. Appendix S2 (available online) provides more details on the country studies and deals with selection bias and validation.

The country studies indicate whether a particular tier has a role in policy provision, but the roles are not clearly specified in terms of *depth*

and *scope*. First, the role of a tier may range from autonomous decision making on policies to implementation according to strict central guidelines. Unfortunately, the country studies do not differentiate between regulation and executive powers. Second, the dependent variable does not provide information on the scope of the role either as it is not possible to discern the precise division of tasks between tiers. For example, when a policy is performed at the local as well as the regional level, one does not know whether the division of tasks between these tiers is 30–70% or 70–30%, etc. What one can argue, however, is that when the national, regional, and local tier coprovide the policy, the country is more decentralized than in the case when the national government solely provides the policy.

The dependent variable is operationalized as a multinomial variable to account for the fact that the extent of decentralization cannot be discerned. That is, the data may indicate that decentralization has taken place, but they do not allow me to discern with respect to the *depth* (decision making vs. implementation powers) or *scope* (finance, infrastructure, personnel, etc.) of decentralization.

However, the operationalization of the dependent variable does not affect the empirical test of the decentralization theorem. The decentralization theorem states that policies should be adapted toward heterogenous preferences and decentralization is an instrument to achieve this in an optimal manner. But the decentralization theorem does not say anything about the required depth or scope of decentralization. As Treisman (2007, 11) notes, “an all-powerful central government, implementing [policies] via subordinate field agents, could achieve the same efficiencies.”

In this article, I am interested in the question when policy tasks are decentralized to tiers where heterogenous preferences have, or are likely to have, influence on policy implementation. A centrally appointed executive, who is responsible to the national government only, can relatively easily neglect heterogenous preferences. Therefore, I include only tiers where “*voice*” is organized, that is, tiers with a parliament, assembly, or council.<sup>4</sup>

Some countries combine deconcentration with self-governance at the same governmental tier either by creating separate administrations (Denmark, France, Norway, Romania, and Sweden) or by a centrally appointed executive head (Albania, Belgium, Lithuania, Poland, and the Netherlands). These governmental levels are included as some of these countries elect representatives in the executive of the deconcentrated state administration and/or the executive head is responsible to the council with respect to the deconcentrated tasks (Belgium, Denmark, Luxembourg, the Netherlands, and Sweden). In other countries, the policy portfolio of the deconcentrated state administration is rather limited (France, Norway, Poland, and Romania). In Albania and Lithuania, the executive heads are centrally appointed but there is an advisory council present. The Caucasian republics make extensive use of centrally appointed executives which are under strict central government control. These subnational tiers

are still included as long as there is an advisory council present. The model analyzed in this article introduces a variable which controls for the extent of democracy within a country.

To summarize, the dependent variable indicates whether a *particular tier or a combination of tiers, where "voice" is organized, has a role in policy implementation.*

### Data Structure

The process of matching the expert survey with the country study data is displayed in Table 1A,B. The first column of Table 1A shows five jurisdictional sizes as used in the expert survey. The column "experts" column presents the percentage of experts that put an X in that jurisdiction for a given policy. The percentage is taken as a proxy for the probability that the jurisdiction has a role in providing the policy when only externalities and scale effects are considered. The sum of percentages over five jurisdictions is 1.

The next columns represent the country data. For each local, regional, and national tier of a country, an average population size is calculated (data on population size are obtained from the country studies and <http://www.statoids.com>, last consulted on August 20, 2007). A tier of a country is first classified into the jurisdictional scales used in the expert survey. Subsequently, it is determined whether this tier has a role in providing the policy. Finally, the outcome category is established that is matched to the percentages from the expert survey. The resulting data structure is presented in Table 1B.

To give an example, in country A, the national, the regional as well as the local tier provide the policy that results in the outcome category NRL. This outcome category constitutes the dependent variable while the percentages from the expert survey are used as independent variables. For country A this means that the outcome category NRL is matched with *percentage National tier = 0.4; percentage Regional tier = 0.2 and percentage Local tier = 0.1*. For country C this means that outcome category N is made dependent upon *percentage National tier = 0.2 and percentage Local tier = 0.1*. This is repeated for 40 countries and 34 policies.

### Controls: Ceiling Effect and Multilevelness

To analyze the data, it is necessary to control for two policy-specific functional characteristics. In this section, I argue that one should control for country size and the "multilevelness" of policies.

Country D exemplifies why one should correct for country size. The population size of country D is about one million and therefore *percentage National tier = 0.2*. According to the experts—who only take externalities and scale effects into consideration—country D would do a better job when the policy is provided by a jurisdiction of about five million

TABLE 1A  
**Matching of the Expert Survey and Country Study Data**

Jurisdictional Size	Experts	Country A	Country B	Country C	Country D
<20,000	0.1	Local tier: 1	Local tier: 0	Local tier: 0	Local tier: 1
±100,000	0.1	Regional tier: 1	Regional tier: 1		Regional tier: 0
±1 million	0.2	National tier: 1	National tier: 1	National tier: 1	National tier: 1
±5 million	0.4				
±10 million	0.2	NRL = 1	NR = 1	N = 1	NL = 1
Outcome category					

TABLE 1B  
**Resulting Data Structure of the Combined Expert Survey and Country Study Data**

Country	Policy	Outcome Category	Percentage Tier			Ceiling Effect	Multilevel	Other Independent Variables→
			Local	Regional	National			
A	1	NRL	0.1	0.2	0.4	0.2	74	
B	1	NR	0.1	0.2	0.2	0.0	74	
C	1	N	0.1	—	0.2	0.0	74	
D	1	NL	0.1	0.1	0.2	0.6	74	

Notes: The “experts” column in Table 1A indicates the percentage of experts that indicate that a tier of a given jurisdictional size should have a role in the provision of the policy considering only scale effects and externalities. Outcome category represent policy provision by the: N = national tier only; NR = National + Regional tier; NL = National + Local tier; NRL = National + Regional + Local tier.



people. To conclude that country D deviates from the pattern predicted by externalities and scale effects would be incorrect. Country D cannot “push the policy up” to larger jurisdictions and is therefore not able to provide the policy more efficiently. The best country D can do is to provide the policy through the national tier. As a consequence, more policies will be provided by the national tier of country D than the regional tiers in country A and country B despite the fact that they all have approximately the same population size. To correct for this, the variable *ceiling effect* is introduced and is operationalized as the sum of the percentages assigned to the jurisdictions scales larger than the country. For country D, this means a value of 0.6 for the ceiling effect. Country A scores 0.2 on the ceiling effect, whereas countries B and C score 0.0 (see Table 1B). A high score on the ceiling effect variable should lead to more policy provision by the national tier and less policy provision by local and regional tiers. The variable *ceiling effect* varies over countries and policies.

A second functional characteristic of policies is the “multilevelness” of policies. So far I have assumed that each policy has its own optimal jurisdictional size. However, some policies, such as environmental protection and roads, are efficiently handled by multiple jurisdictions and experts place X’s at multiple jurisdictional scales. To correct for the degree of “multilevelness,” the variable *multilevel* is introduced into the model and this variable is operationalized as the total number of placed X’s by the experts per policy. This variable varies over policies only (see Appendix S1).

## Model

Table 2 summarizes the operationalization of the independent variables introduced in the model. Appendix S3 (available online) provides statistical information on the independent variables.<sup>5</sup>

*Multinomial logit regression analysis* is a suitable analytical technique as the outcome categories constitute a multinomial variable.<sup>6</sup> In this type of analysis, probabilities of policy provision by the different tiers and combinations of tiers can be calculated without making any assumption on the rank order or intervals of the different categories. Robust standard errors are used as policies are clustered within countries.<sup>7</sup> The following multinomial model is estimated:

$$\begin{aligned} \text{Pr}(\text{outcome category}) = & \beta(\text{percentage National tier}) + \beta(\text{percentage Regional tier}) + \beta(\text{percentage Local tier}) + \beta(\text{ceiling effect}) + \beta(\text{multilevel}) + \beta(\text{ethnic fragmentation}) + \beta(\text{strength of ethnoregional parties}) + \beta(\text{democratic openness}) \\ & + \beta(\text{polyarchy}) + \beta(\text{economic welfare}) + \beta(\text{EU-membership}) + \beta(\text{EU-subsidies}) + \text{constant} \end{aligned}$$

With multinomial logit regression, each outcome category may be compared with each other outcome category for all independent

TABLE 2  
**Operationalization of the Independent Variables**

Variable	Operationalization	Source
<b>Functional: externalities and scale effects</b>		
Percentage National tier Percentage Regional tier Percentage Local tier	Percentage of experts that indicate that a given tier should have a role according to externalities and scale effects	Expert survey (Appendix S1)
Ceiling effect	Sum of the percentages given by the experts to jurisdictions which are above the countries national tier	Expert survey
Multilevel	Total number of placed <i>X</i> 's by the experts per policy	Expert survey (Appendix S1)
<b>Preferences</b>		
Ethnic fragmentation	The probability that two randomly selected individuals belong to a different ethnic group <sup>a</sup>	Fearon (2003) and Annett (2001)
Strength of ethnoregional parties	Percentage of seats for the ethnoregional party in the lower chamber of parliament <sup>b</sup>	Schakel (2009) and the PARLINE database
General preferences	Vanhanen overall index ( <i>Competition multiplied by Participation</i> )	Vanhanen (2000)
<b>Country specific</b>		
<i>Democracy</i>		
Polyarchy	Combined Polity Score (Polity IV) ranges from +10 (strongly democratic) to -10 (strongly autocratic) <sup>c</sup>	Marshall and Jaggers (2004)
<i>Development</i>		
Economic welfare	Natural log GDP (real) per capita	Heston, Summers, and Aten (2006)
<i>European integration</i>		
EU-membership	Dichotomous variable (1 = country was member of the EU before 1995)	Dinan (2005)
EU-subsidies	Average receipt of regional funds as fraction of GDP <sup>d</sup>	Ederveen, de Groot, and Nahuis (2006)

Notes: All scores refer to *one* year between 1996 and 2001 depending on the country. Descriptive statistics can be consulted in Appendix S3.

<sup>a</sup>Thirty-six country scores are taken from Fearon (2003) and scores for Iceland, Luxembourg, and Malta are taken from Annett (2001). The Pearson correlation between both measures is 0.928 ( $P < 0.01$ ;  $N = 27$  countries).

<sup>b</sup>Using the criteria developed by Schakel (2009) the Caucasian republics Armenia, Azerbaijan, Belarus, Kazakhstan, Moldova, Ukraine, and Uzbekistan do not have ethnoregional parties represented in national parliament (1995–2001). The PARLINE database of the Inter-Parliamentary Union (IPU) is available on <http://www.ipu.org/parline-e/parlinesearch.asp> (last accessed December 14, 2007).

<sup>c</sup>The scores for Bosnia and Herzegovina, Malta, and Luxembourg are assigned by the author.

<sup>d</sup>Data refer the situation in 1995 as data for later years are not available.

variables. We need to compare each category outcome with each other category outcome because there are multiple ways to observe decentralization. The most obvious case of decentralization would be that any of the outcome categories gain role in policy provision compared with the probability that the national tier solely provides the policy. However, we may also speak of decentralization when, for example, the regional and local tier gain role at the same time when the national, regional, and local tier combined lose role. Therefore, it is important to look at all possible comparisons, and in our case, this means that we have (for three-tier countries):  $7 \times 6$  category outcome comparisons  $\times$  12 independent variables. In order to reduce complexity and enhance interpretation, the results are presented in two ways. First, a table with the number and sign of significant beta coefficients is produced in order to get a glance of general tendencies in decentralization of policy provision. Second, the magnitudes of the effects of the independent variables are explored by looking at changes in predicted probabilities for outcome categories.

## Results

The results of the multinomial logit regression analysis for 26 three-tier countries are given in Table 3.<sup>8</sup> To enhance interpretation and reduce complexity, only the number and signs of the significant beta coefficients are given in Table 3 and the size of beta coefficients are left aside for the moment as these cannot be summed (Long 1997).

The "national tier" column shows the results when the national tier is the base category. An increase in the percentage that the national tier provides a policy (*percentage National tier*) coincides with a decrease in probability for five outcome categories. This means that the probability that the national tier solely implements a policy increases to the expense of the probabilities of five other outcome categories; hence, the +5 in the first cell of Table 3. This is repeated for each outcome category. In each row of Table 3, the total number of "+" and "-" is equal. When a "+" and "-" are combined in one cell it means that an increase in the independent variable leads to a higher *and* a lower probability for the base category depending on which other outcome category one compares.

By presenting the positive beta coefficients in bold, tendencies of policy provision across categories becomes apparent. A higher *percentage National tier*, for example, leads to a gain in policy provision by the national tier only and a combination of the national, regional, and local tiers. Conversely, a higher *percentage National tier* leads to a reduced role in policy provision by the regional and local government alone and by the combinations national plus local and regional plus local tiers. Similar interpretations account for *percentage Regional tier* and *percentage Local tier*. For all three tiers, these probability variables have their hypothesized effect.

TABLE 3  
Explaining Policy Provision: Number and Sign of Significant Beta Coefficients

Independent Variables	Policy Provision by the:					
	National Tier	Regional Tier	Local Tier	National + Regional Tier	Regional + Local Tier	National + Regional + Local Tier
<b>Functional</b>						
Percentage national tier	+5	-1	-2	—	-1	+2/-1
Percentage regional tier	+2	—	+1/-1	+3	-2	+1/
Percentage local tier	-4	-4	+5	-4	+3	+3/-1
Ceiling effect	+1	—	+1	+1	-4	+1
Multilevel	-6	+1/-3	+1/-3	+1/-2	+4	+5
<b>Preferences</b>						
Ethnic fragmentation	-2	+2	-3	+3	-4	+1
Strength of ethnoregional parties	—	-2	—	+1	—	—
General preferences	—	+3	+2	-2	—	-2
<b>Country specific</b>						
<i>Democracy</i>						
Polyarchy	—	-1	-1	+3	—	-1
<i>Development</i>						
Economic welfare	-1	—	-1	—	+1	+1
<i>EU-integration</i>						
EU-membership	—	—	—	—	—	—
EU-subsidies	-1	—	-2	+4	-1	+2

Notes: The table displays the number of significant beta coefficients and their sign. Each column represents a run of the same multinomial model but with the outcome category in the column as a base category. Only beta coefficients that are significant at the 5% level ( $P < 0.05$ ; clustered corrected standard errors) are included. Beta coefficients that are positive are shown in bold. Out of 504 comparisons ( $7 \times 6$  category comparisons  $\times 12$  independent variables) 148 beta coefficients are found to be significant at the 5% level.

Overall model parameters:

$N = 853$  country\*politics (26 countries)

Pseudo-likelihood = -1,168.21

McFadden pseudo- $R^2$ : 22.0%

Cox & Snell pseudo- $R^2$ : 53.8%

Full results can be obtained from the author.

The *ceiling effect* leads to a higher probability that the national tier will be involved in policy provision whereas the regional and local tier combined obtain a lower probability. The *multilevel* variable has also its hypothesized effect as the probabilities of policy provision by the national, regional, or local tier only decreases, whereas the probabilities of policy provision by combinations of tiers increases.

The combined effect of *ethnic fragmentation* and the *strength of the ethnoregional parties* leads to a higher probability that the regional tier and, to a lesser extent, the local tier have a role in policy provision. Ethnic fragmentation leads to more policy provision by the regional tier alone or any combination in which the regional tier is part of. Political mobilization of ethnoregional minorities lead to higher probabilities of policy provision by the national and regional tier combined and the local tier in combination with the regional tier. Although the probabilities that the national tier and local tier will have a role in policy provision decrease when ethnic fragmentation increases, once the ethnoregional minorities are politically mobilized, the probability that national and local government gains a role in policy provision increases. However, the gain for the national tier seems to be offset when preferences in general are politically mobilized. An increase in *general preferences* leads to a decrease in the probability of coprovision by the national plus regional and regional plus local tier and by a combination of all three tiers whereas the probability of policy provision by the local or regional tier only increases. In sum, however, heterogeneous preferences lead to decentralization of policy provision.

The country-specific variables show centralizing and decentralizing trends. Contrary to expectations, democracy leads to centralized policy provision as the local tier loses and the national tier gains role. *Polyarchy* increases policy provision by the national plus regional tier and leads to less policy provision by the local or regional tier only or by all three tiers combined.

Development leads to decentralized policy provision as *economic welfare* decreases the probability that the national tier solely provides the policy and increases the probability that policies are coprovided by the national and local or all three tiers together. However, development also leads to less provision by the local tier solely, which signifies some centralizing tendency.

Finally, *EU membership* seems to have no bearing at all on which governmental tiers provide the policy, but *EU subsidies* have. When a country receives EU subsidies, the probability that a policy is provided by a local tier decreases. The probability of policy provision by the local tier solely, by a combination of the national and local tier, or by a combination of the regional and local tier decreases, which is possibly not offset by the increase in the probability of policy provision by all three tiers together. The regional and, to a lesser extent, the national tier seem to get a higher probability of being involved in policy provision as the increase in the probability that a combination of the national and regional tier and/or all

three tiers coproviding the policy probably makes up for and more of the loss in probability for the national tier only, a combination of the national and local tier, and a combination of the regional and local tier. EU subsidies have thus also a decentralizing and a centralizing effect.

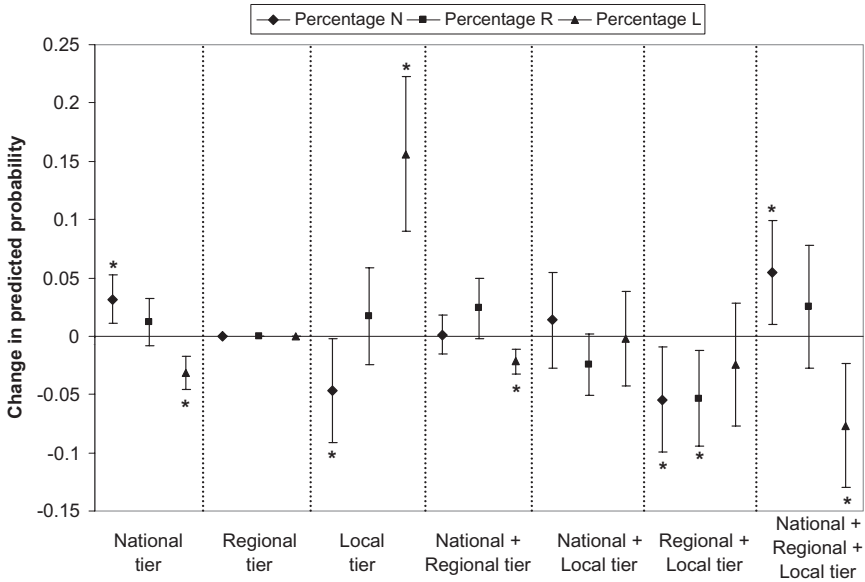
How may one explain the decentralizing and centralizing influence of the country-specific variables? If one focuses on the combined effect of the country-specific variables, one can see in Table 3 that the probabilities that policies are implemented by tiers on their own decrease, whereas the probabilities that a combination of tiers have a role in policy provision increase. The country-specific variables, apparently, do not have clear decentralizing or centralizing effects but they do lead to more multilevel government. Closer examination reveals that these variables pit the Caucasian republics and the Eastern European countries<sup>9</sup> against the Western European countries. The Caucasian republics and the Eastern European countries are not a member of the EU (before 2002) and score significantly lower ( $P < 0.05$ ; ANOVA) on democracy, economic development, and general preferences but not on the other independent variables. The need for multilevel government may increase when citizens become more involved in politics and economies become more developed, interdependent, and integrated.

The results presented in Table 3 show that all independent variables, except *EU membership*, have a bearing on which governmental tier or combination of tiers provides a policy. However, from Table 3, the effect of the independent variables on the outcome categories cannot be discerned. To assess the contribution of the independent variables, changes in predicted probabilities are calculated (Figures 1–3). Shown in Figure 1 are the changes in predicted probabilities for the seven outcome categories in the 26 three-tier countries when the percentage variables for the national, regional, or local tier increase with one standard deviation while all other independent variables are held at their mean.

In general, the results in Figure 1 confirm the results in Table 3. An increase in *percentage N* of one standard deviation leads to more policy provision by the national tier solely (+3.2%) and by the national, regional, and local tier combined (+5.5%), whereas the local tier solely (−4.7%) and the regional and local tier combined (−5.4%) lose role. *Percentage L* has an opposite effect because an increase of one standard deviation leads to a decrease in policy provision by the national tier solely (−3.2%), by the national plus regional tier (−2.2%), and by the regional plus local tier (−2.4%) but leads to a significant increase in policy provision by the local tier solely (+15.6%). The local tier loses role when the regional level is considered to be the most optimal one for policy provision. When *percentage R* increases, the local tier combined with the national or regional tier lose role (−2.5% and −5.3%, respectively) whereas the national and regional tier combined gains role (+2.4%).

Figure 2 explores the effects of the variables *ceiling effect* and *multilevel*.

**FIGURE 1**  
**Change in Predicted Probabilities for Policy Provision by**  
**Governmental Tiers**



Notes: Shown are changes in predicted probabilities and their 95% confidence interval (delta method) for policy provision by seven outcome categories when the variables *percentage N*, *percentage R*, or *percentage L* increase with one standard deviation while all other variables are held at their mean.

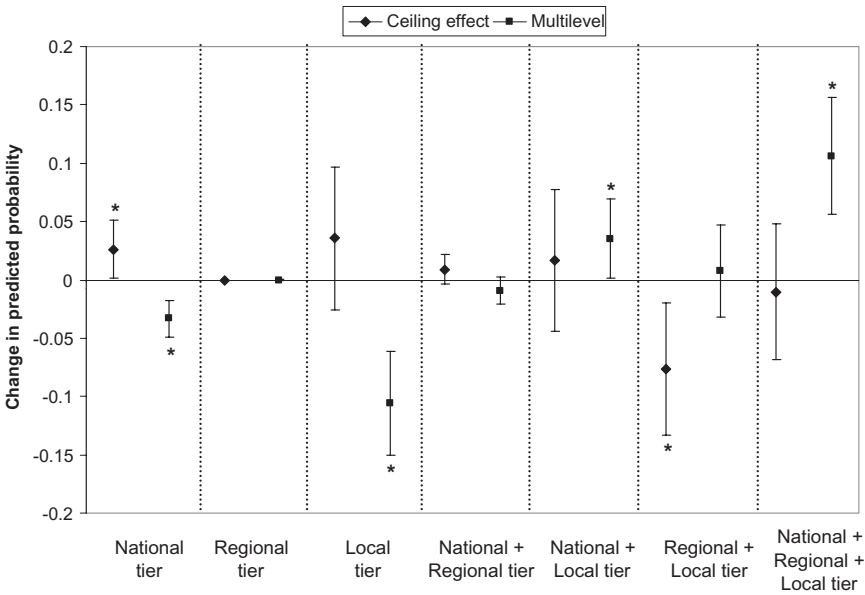
See notes in Table 3 for overall model parameters, Table 2 for the operationalization of the independent variables, and Table 1 in Appendix S3 for descriptive statistics. Estimates are obtained with the *prvalue* command in Stata.

\* $P < 0.05$  (two-tailed).

As hypothesized for the variable *ceiling effect*, the national tier in small countries gain role in policy provision (+2.5%) whereas the local and regional tier combined loses role (-7.7%). Multilevel policies are indeed less likely to be provided by single tiers (national tier: -3.3%; local tier: -10.6%) and more likely to be provided by a combination of tiers (national + local tier: +3.5%; national, regional, and local tier: +10.6%).

Figure 3 displays the effects of preferences relating to identity (i.e., *ethnic fragmentation* and *strength of ethnoregional parties*) separately from those resulting from heterogeneity of general preferences (*general preferences*) as these variables affect outcome categories in different and opposing ways (see Table 3).

**FIGURE 2**  
**Change in Predicted Probabilities for Policy Provision by Governmental Tiers**



*Notes:* Shown are changes in predicted probabilities and their 95% confidence interval (delta method) for policy provision by seven outcome categories when the variables *ceiling effect* or *multilevel* increase with one standard deviation while all other variables are held at their mean.

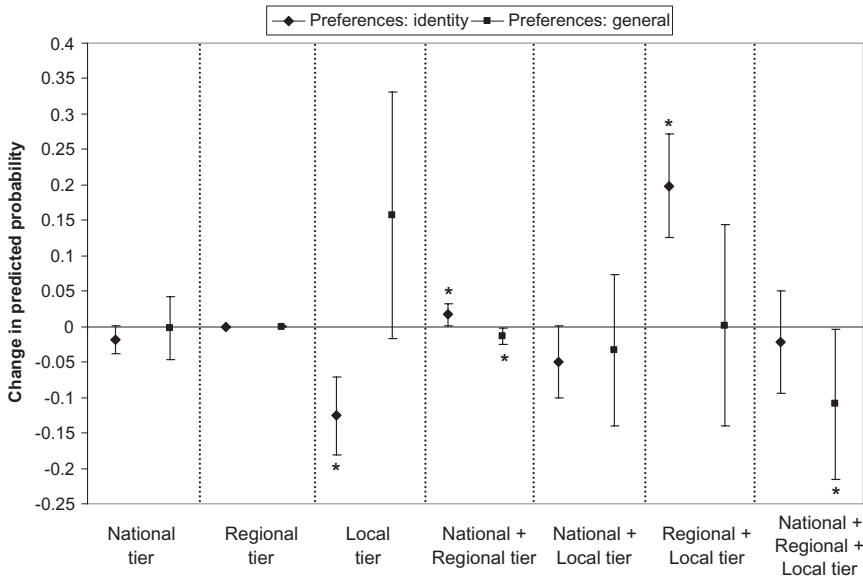
See notes in Table 3 for overall model parameters, Table 2 for the operationalization of the independent variables, and Table 1 in Appendix S3 for descriptive statistics. Estimates are obtained with the *pvalue* command in Stata.

\* $P < 0.05$  (two-tailed).

When ethnoregional minorities are present and become politically mobilized, the national and local tiers lose role while the regional tier gains role in policy provision. The probability that policy provision by the national and local tier solely (-1.9% and -12.6%, respectively) and in combination (-5.0%) decreases while the probabilities for national plus regional tier (+1.7%) and regional plus local tier increase (+19.9%). *General preferences* increases the probability that the local tier solely (+15.7%) provides the policy but the national and regional tiers lose role since the probability that policies are provided by the national combined with the regional tier or all three tiers together decreases (-1.4% and -10.9%, respectively).



FIGURE 3  
**Change in Predicted Probabilities for Policy Provision by  
 Governmental Tiers**



Notes: Shown are changes in predicted probabilities and their 95% confidence interval (delta method) for policy provision by seven outcome categories when *ethnic fragmentation* and *strength of ethnoregional parties* (preferences: identity) and *general preferences* (preferences: general) increase with one standard deviation while all other variables are held at their mean.

See notes in Table 3 for overall model parameters, Table 2 for the operationalization of the independent variables, and Table 1 in Appendix S3 for descriptive statistics. Estimates are obtained with the `prvalue` command in Stata.

\* $P < 0.05$  (two-tailed).

From Figure 3, the differential effect of identity and general heterogeneous preferences becomes clear. All variables have their hypothesized decentralizing effect, but in case of identity, the regional tier seems to gain role whereas for general preferences, it is the local tier that gains role. How can one account for this differential effect? A closer examination on the data reveals an interesting pattern. *General preferences* is negatively correlated with *ethnic fragmentation* (Pearson  $r$ ;  $-0.39$ ;  $P < 0.05$ ). If we look at the countries that score high on democratic openness but low on ethnic fragmentation, we observe that the Nordic countries (Denmark, Finland, Norway, and Sweden) are pitted against the other countries. Indeed, Nordic countries score significantly higher on general preferences (36.7

vs. 25.5) and lower on ethnic fragmentation (0.137 vs. 0.370) but not on the other independent variables ( $P < 0.05$ ; ANOVA).<sup>10</sup> If we calculate the proportion of policies that are provided by the local tier solely out of total policies, we find a striking average of 52% for the Nordic countries versus 24% for the other countries ( $P < 0.05$ ; ANOVA).

A difference in ideological preferences between countries may explain this finding. Political scientists often group the Nordic countries together with respect to the form of political organization and in terms of central–local relations. The vertical state structure of Nordic countries may be described as decentralized unitary countries with strong local autonomy (Loughlin 2001; Page and Goldsmith 1987). The evolution of this state format might be explained by the growth of the welfare state. The scale effects and externalities of educational, social welfare, and health policies are such that implementation needs to be decentralized (Ter-Minassian 1997b) and as the Nordic countries have a long-standing tradition of local democracy combined with social democratic hegemony during the last five decades (Huber and Stephens 2001), local governments have been strengthened at the same time as the welfare state was developed.

Changes in predicted probabilities for the other independent variables (democracy, development, EU membership, and EU subsidies) are also calculated but do not reach significance except for three outcome categories. A standard deviation increase in *polyarchy* leads to less policy provision by the regional and local tier combined (–7.5%) and EU subsidies leads to a higher probability that the national plus regional tier (+1.7%) or all three tiers combined (+10.4%) provides a policy. These results corroborate the conclusion that policy provision is, by and large, a result of a tradeoff between functionality and heterogeneous preferences.

### Concluding Remarks

This article shows that policy provision is determined by policy characteristics, on the one hand, and local preferences and country-specific factors, on the other. Countries seem to follow the recommendations of the decentralization theorem. Functional characteristics, preferences, democracy, European subsidies, and economic welfare all have a bearing on which particular tier or combinations of tiers will provide a policy although the strength of these factors varies considerably. The real added value of this article, however, is to show that these effects hold while controlling for the other independent variables and thus providing a systematic empirical test of the decentralization theorem.

The results show that heterogeneous preferences lead to decentralization of policy provision. First, a difference in ideological preferences between countries may explain the decentralization of policies to local governments in the Nordic countries. An increase in heterogeneity of general preferences leads to policy provision by the local tier. Second, heterogeneous preferences with respect to identity increase the probability that the

regional tier is involved in providing policies whereas the probability for the national and local tier decreases. This means that, in the perspective of the national government, the presence of ethnoregional minorities and the political mobilization of these minorities, leads to decentralization of policy provision. However, from the viewpoint of local governments, it means centralization (see also Toonen and Steen 2008).

The other independent variables show centralizing and decentralizing results, but their overall effect is that the probability that policies are solely provided decreases whereas the probability that multiple tiers have a role in policy implementation increases. Democracy, economic development and European integration may lead to more multilevel government.

The results exemplify that centralization and decentralization should be conceived as concentration, respectively, diffusion or sharing of authority rather than “closer to or away from the national government” as it is normally understood (e.g., Oates 1972; Page and Goldsmith 1987; Treisman 2007; Watts 2008). Decentralization is better conceived as sharing of authority over multiple tiers whereas centralization should denote concentration of authority at a particular tier, which scale might range from the local to the global.

In my view, there are three interesting avenues for further empirical research on the decentralization theorem. As the dependent variable concerns tiers where “voice” is present, it is useful to complement the dataset with data on policy provision by general purpose deconcentrated state agencies or deconcentrated state agencies arranged per ministry.

Another promising line of research is to increase the number of policies and to investigate policy-specific effects. Policies like defense and foreign relations are always provided by the national government, whereas other policies, like garbage collection, are most often provided by local governments. The externalities and scale effects of those policies are so intense that deviation from the functional optimal jurisdictional size is (very) costly. A policy-specific hypothesis would then be that the probability for a policy to be decentralized is dependent upon the intensity of its externalities and scale effects or that social-cultural policies have a higher probability to be decentralized than other policies as it may be expected that ethnic minorities will prioritize having autonomy over these policies.

Finally, increasing the informative nature of the data deserves attention. The dependent variable used in this article is a simple dichotomous variable that varies over outcome categories. It is very difficult to tell what is behind the 0s or 1s in terms of depth and scope. A 1 may range from autonomous decision making on policies to implementation according to strict central guidelines. In terms of authority, these two possible situations constitute extremes. Also, it would be interesting to see when policies are shared, that is, when multiple tiers score a 1, to measure which tier is responsible for finance, personnel, redistribution, infrastructure, etc.

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## Notes

1. Andorra and San Marino have only one level of government, but the citizens in those states are (partly) reliant on policy provision by the French and Spanish, respectively, the Italian governments.
2. Another functional characteristic are scope effects/transactions costs which, however, are not policy specific. Scope effects arise when multiple policies are provided by the same governmental tier at lower relative costs compared when each policy is provided by different governmental tiers. This cost reduction is a result of reduced transaction costs and/or internalization of spillovers between policies. Scope effects/ transaction costs may have great explanatory power with regard to the number and type of subnational tiers as it is more economically efficient and effective to establish two or three general-purpose subnational tiers than several specific-purpose governmental tiers (Hooghe and Marks 2003).
3. The question remains whether the expert survey solves the conceptual problems of measuring externalities and scale effects. I do not know whether the expert survey sufficiently solves these problems simply because we do not have a “golden standard” of how to measure functional/economic characteristics of policies. For example, Dear, Fincher, and Curie (1977) used psychometric methods to measure intangible external effects as perceived by citizens of public programs such as locational decisions of a landfill or mental health facility. Another study (Weigher and Zerbst 1973) measured externalities of neighborhood parks by comparing house prices of houses adjacent to a park with houses one block away from the park to determine whether public provision of these parks is economically justified. Price differentials are often used to quantify externalities (e.g., Eshet et al. 2007; Irwin and Bockstael 2001; Le Goffe 2000) but these studies do not investigate the scale—in area and population size—in which externalities occur. Other studies which have looked at the optimal distribution of competencies across levels of government are in essence expert judgment themselves (Alesina, Angeloni, and Schuknecht 2005; Breuss and Eller 2004). Two major advantages of the expert survey in this article are, first, that I use more expert judgments than previous attempts, which allows me to assess reliability. Second, the design of the expert survey allows me to assess validity concerning structural error as well. In addition, Shah’s (1997) analysis is used to validate the expert survey (see Appendix S1).
4. When policy provision is the responsibility of the national government, it does not mean that the national government can or does not recognize, for

example, heterogenous preferences. The national government may decentralize policy provision via deconcentrated agencies which might adapt policies according to heterogenous preferences as even with delegation there is some room for influencing policy implementation (see, e.g., Lipsky 1983; Meyers and Vorsanger 2003; Scott 1997; Sowa and Coleman Selden 2003). Austria and Serbia (within Serbia and Montenegro) are examples of countries which make use of general-purpose deconcentrated state administrations without councils or assemblies. An Appendix, available from the author upon request, shows whether the national government makes use of deconcentrated general-purpose agencies and/or other deconcentrated state agencies. It turns out that *all* countries make use of deconcentrated policy provision although in a different manner (i.e., via general purpose state administration and/or deconcentrated agencies arranged per ministry) and to a different extent. In this way, the influence of *voice* is not guaranteed and it is left to the head of the deconcentrated agency or a national ministry to recognize heterogenous preferences in the decision how, where and when to provide the policy.

5. From the Pearson correlation table in Appendix S3 (Table C2), one can see that the *general preferences* and *polyarchy* variables correlate highly (i.e., Pearson correlation  $> 0.77$ ). Despite this multicollinearity, however, the results appear to be robust, that is, the estimations do not significantly change when *general preferences* or *polyarchy* is excluded.
6. A potential weakness of the multinomial model is the independence of irrelevant alternatives (IIA) assumption. IIA means that the ratio of the categorical probabilities for two alternatives, A and B, is independent from all other alternatives in the categorical set (see Long 1997). I compute Hausmann and Small-Hsiao test statistics for both the three-tier and two-tier country dataset, which suggests that the IIA assumption is not violated.
7. Robust standard errors cannot be estimated while simultaneously correcting for clustering of policies within countries and countries within policies. The results reported are robust when policies clustered instead of country clustered robust standard errors are used.
8. Here I examine three-tier countries, however, the results reported are robust when examined in a two-tier format (see Appendix S2).
9. Albania, Belarus, Bosnia and Herzegovina, Croatia, Hungary, Kazakhstan, Latvia, Lithuania, Moldova, Poland, Romania, Russian federation, Serbia and Montenegro, Ukraine and Uzbekistan.
10. The Scandinavian countries also score significantly higher on economic welfare but an increase of one standard deviation in economic welfare, while all other variables are held at their mean, has no significant effect.

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### Supporting Information

Additional Supporting Information may be found in the online version of this article:

**Appendix S1: Expert Survey**

**Appendix S2: Country Data**

**Appendix S3: Descriptive Tables**

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