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EXTENDED ABSTRACT

Title:

Government centralization and local population growth: Evidence from the Danish structural reform 2007

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Long Abstract:

Introduction

This work is concerned with the spatial consequences of institutional changes in local government systems. Specifically, we use the case of the Danish structural reform (Strukturreformen) of 2007 to investigate how a major territorial reform affects population growth and population composition at the local level. Gaining insights on the effects of territorial reforms on local economic development has recently attracted considerable new interest among scientific scholars and policy makers both from the perspective of centralization, especially municipal amalgamation (e.g., Ebinger et al., 2019, Patrucco et al., 2020) as well as decentralization, for instance, the relocation of public sector activities from central to peripheral locations (e.g., Dall Schmidt et al., 2020). This work is concerned with what we label “up-scaling fiscal centralization”, which characterized the merger of small local administrative units to larger ones, primarily, as a means to increase the efficiency of the local government system. While prior research on this matter has mainly focused on a comparison of the administrative performance before and after the merger (see Ebinger et al., 2019, for an overview), we take a more general regional economic approach and assess the heterogeneous population effects in municipalities affected by institutional changes in the course of the reform.

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The Danish structural reform offers several attractive features for our research endeavor. First, the reform was associated with a fundamental redistribution of tasks between the different administrative layers of the public sector in Denmark, which upgraded the competences of the local municipal level, for instance, in terms of their budgetary autonomy etc. Second, while the reform shifted administrative power from higher (central) to the lower (municipal) level, at the same time, it significantly reduced the number of municipalities from 271 to 98 and thus affected local territories in an asymmetric way through up-scaling fiscal centralization: While only 32 of the initial 271 municipalities were kept unchanged in this territorial reform process, all others were amalgamated to 66 geographically larger units. This implies a significant reduction in the number of administrative centers in the newly designed municipal system.

In this context, we test if changes in the status of being an administrative center are associated with local economic development trends. Our underlying hypothesis is that administrative centers perform better in terms of the local population growth compared to municipalities losing this status. We argue that such tests can be meaningfully be made in our sample setup as the universal nature of the reform effectively rules out selection biases given that all municipalities below a certain population threshold were required to merge with others. In the estimation approach we will accordingly control for population size and further regional characteristics, which allow us to test whether the reform was “as good as” randomly assigned or not (Tyrefors Hinnerich, 2009).

From a policy perspective, the main focus of this paper lies on an econometric analysis of the distributional aspects of the policy reform. While earlier studies have started to look at the effects of the Danish structural reform from the perspective of (national) allocational efficiency (Blom-Hansen et al., 2016) according to our best knowledge, no prior study has yet assessed the spatial consequences of this reform with regard to local population growth in Denmark. This issue is, however, very relevant in the light of the current socio-political debate in Denmark that has raised concerns about growing regional inequalities and increasingly questions the progress of territorial cohesion in the country and. The term Udkantsdanmark (“peripheral Denmark”) mainly reflects this debate about a growing spatial polarization within the country between well-functioning urban centers, on the one hand, and those areas that are cut-off from the rest of the country in terms of inferior economic activity and fewer employment opportunities etc. Opponents of the structural reform had already argued back in 2007 that the centralization process in the local government system will further empty out public institutions in smaller places. This research can thus shed new light on the question whether the municipal reform of 2007 has fostered such polarization processes.

Literature Review

The role of local administrative status and public sector activities in general have often been neglected within the literature on urban agglomeration economies. This neglect is surprising since governments are powerful actors which for several reasons try to influence the spatial allocation of factors via fiscal (taxes, expenditures) and regulative instruments. Thus, a theory of the spatial distribution of economic activity and population that omits these forces is incomplete and not applicable to real world problems (Roos, 2004). However, there is a small but growing body of literature examining the interrelations between political and economic geography. From a

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theoretical point of view, most of these studies are based on the assumption that sub-national administrative territories such as federal states, counties or municipalities compete for mobile production factors via the provision of local public goods (Tiebout, 1956; Rubinfeld, 1987). A model that explicitly analyzes the influence of the public sector on the agglomeration process was developed by Roos (2004). Combining the theory on local public finance and the New Economic Geography (NEG) in two-region model, he could demonstrate that locally provided public goods can unfold centripetal forces, which can cause processes of circular causation. By increasing the supply of a public good, local governments can increase a region's attractiveness for immigrants. Higher numbers of immigrants to a region lead to increasing tax revenues so that more of the public good can be produced. Depending on the relative strength of the centripetal force which is determined by the productivity of the technology used for the provision of the local public good, the process of circular causation can lead to full agglomeration of the mobile population within one region. Moreover, Roos shows that strategic behavior of the local governments can lead to overprovision of the public good and suboptimal agglomeration.

A similar but slightly different line of argumentation has been elaborated by Dascher (2000), who put a special focus on public goods that are exclusively produced in administrative centers or capital cities. Dascher argues that a household's utility towards these public goods is distance-sensitive and that citizens living in the capital city might benefit more from their provision than citizens living in the political hinterland. Hence, capital city goods violate the principle of fiscal equivalence, stating that that the beneficiaries of a public good should be those who's tax payments are used for it's provision and vice versa (Olson, 1969). For example, important public institutions and cultural amenities located in capital cities are often financed by federal tax revenues, whereas the benefits are mainly local. Consequently, holding all other factors constant, individuals living in the capital city might be better off than individuals living in the periphery, creating incentives to migrate to the capital city. This capital city effect is not limited to the federal level but also appears at lower administrative tiers such as counties and municipalities, which often held important governmental functions such as the administration of social welfare payments, the promotion of regional economic development or the planning of public infrastructure.

While the above-described theoretical frameworks mostly focus on the supply effects of the public sector, other authors have emphasized the demand and spillover effects of public employment. Becker et al. (2020) argue that public sector employment impacts the private sector via a range of different channels. First, purchases by the public sector and public sector workers could boost local demand. Second, there could be knowledge and productivity spillovers from the public to the private sector, for example if firms learn about new policy initiatives. Some sectors such as consulting services or media might also especially benefit from physical proximity to political decisionmakers. Last but not least, public sector activities could enhance the quality and quantity of local amenities for example helping to improve the quality of local public goods or by diverting disproportional shares of national public spending to capital cities or centers of public employment. Evidence for this form of amenity spillover has been found by Turner (2014), who, found for a panel of U.S. metropolitan areas that the level of public employment and expenditure per government employee decreases with increasing distance from the regional capital.

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In summary, both, the spatially asymmetric supply effects described by Roos (2004) and Dascher (2000) as well as the productivity and amenity spillovers described by Becker et al. (2020) would result in a significant redistribution of economic activity and population if administrative functions/public employment are shifted from one city to another. This effect has been empirically tested in a yet only small amount of quasi-experimental studies on different spatial scales. First of all, Dascher (2000) tested his hypothesis for a cross section of former and present county capitals in the aftermath of the West German county reforms in the 1970s. His estimates show that holding the county capital status has a significantly positive effect on urban employment growth of nearly 7 % compared to a control group of cities which had lost their administrative status. Dascher's results were later confirmed by Heider et al. (2018), using Differences-in-Differences (DiD) estimations and panel data from the county reforms in East Germany (1990-2013). The authors conclude that losing county capital status has a significant and long-term negative effect of on average around -0.37 percentage points on urban population growth.

Becker et al. (2020) used DiD estimates as well as a synthetic control method to test for the above-described productivity and amenity spillovers of public employment in the city of Bonn, which has been the capital city of West Germany between 1949 and 1990. While gaining capital city status led to a strong increase in public employment, the multiplier effects on private sector employment were rather modest. The estimates suggest that one additional public sector job is associated with a reduction of industry employment by around 0.2 jobs while just around one additional job in other parts of the private sector is created. In their discussion of the empirical results in the light of the above-mentioned model, the authors conclude that the effect was rather driven by an increase in endogenous consumption amenities in Bonn while private sector productivity has not been affected. The multiplier effects of public sector employment relocations have also been examined for local authorities in the UK by Faggio and Overman (2014), estimating a significant effect of public employment on the sectoral composition but no significant impact on the total level of private sector employment. However, subsequent studies based on geographically fine-grained data from the UK (Faggio, 2019) as well as Spanish cities (Jofre-Monseny et al., 2020) found that each additional job in the public sector raises private sector employment by 1.1 to 1.5 jobs.

While the above-mentioned studies examined the effects of government and/or public employment relocations, other authors have looked at how changes in national or regional government expenditures affect economic development in capital cities compared to the political hinterland. Early evidence for the special role of capital cities within urban systems has been found by Carroll and Meyer (1982) who estimated that economic growth in US state capital cities was disproportionately high during times of massive state expansion in the 1960s and 70s. These results were later confirmed by Dascher (2004) for a panel of county capitals in the German federal state of North-Rhine-Westphalia, estimating that increases in the county budget are significantly associated to increasing numbers of commuters from the county's hinterland to the county capital. Moreover, Turner and Turner (2011) estimated for US metropolitan areas there is a statistically significant relationship between state expenditures and income in the capital relative to the rest of the jurisdiction.

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Although, municipal boundary reforms have been used extensively to estimate the relationship between jurisdiction size and fiscal efficiency and the quality of local public goods (e.g., Hansen et al., 2014; Welling Hansen, 2014; Blesse and Baskaran, 2016; Blom-Hansen et al., 2016; Steiner and Kaiser, 2017), there are to our knowledge until today no studies that examine the effects on the internal economic geography of municipalities. While the degree of public employment and the quantity of public goods produced at the municipal level might be lower than at higher administrative tiers such as states or counties, municipal amalgamations occur more frequently than other measures of political centralization. Thus, municipal mergers provide a broader empirical base to study the relationship between the political and the economic hierarchy of cities.

Policy Setup and Data

The Danish structural reform (*Strukturreformen*) came into force on January 1, 2007 and fundamentally changed the spatial and functional setup of the public sector in Denmark (Committee for the Evaluation of the Local Government Reform, 2013). The structural reform consisted of three key elements: 1) a reorganization of the spatial dimension of the local government system (the 271 existing municipalities was merged into larger units creating 98 new municipalities), 2) a redistribution of tasks between the different administrative layers of the public sector (municipalities, regions and the federal state level) and 3) the implementation of a new financial system, which reduced the number of taxation levels as main source of public sector revenues. In the case of Denmark, this reform had far reaching implications given that municipalities have a great deal of budgetary autonomy and play important roles in managing schools, child and health care, infrastructure etc.

On key problem of empirical investigations dealing with major institutional changes is that the underlying data series used for the analysis typically come with a structural break, which prevent “before-after”-type comparisons over time. In the case of Danish municipal data, official time series at the municipal level are, accordingly, only available at the level of 271 “old” municipalities until 2006 and at the level of 98 “new” municipalities from 2007 onwards. In order to run difference-in-difference DiD estimations comparing the population growth trends between municipalities keeping and losing the status of being an administrative center, we thus artificially build a prolonged sample of 271 “old” municipalities after 2007. To do so, we resort to small-scale geographical data, which measure population development at the level of Danish parishes. The territorial design of these parishes has been unaffected by the structural reform and, hence, allows us to perfectly aggregate data to the municipal level (see Figure A1). Based on this aggregation, we construct our main outcome variable as the annual population growth at the “old” municipal level for the period 1993-2015. Additionally, we also work with household data at the parish level, which allows us to track the labor market status of the principal household member.

We run a series of DiD estimation, which include an interaction term for municipalities being administrative centers in the new organization of municipalities after the structural reform in 2007 (before that date each “old” municipality was an independent administrative center). We control for various municipal characteristics in a conditional DiD framework using propensity score estimation to create sample weights.



Empirical Results

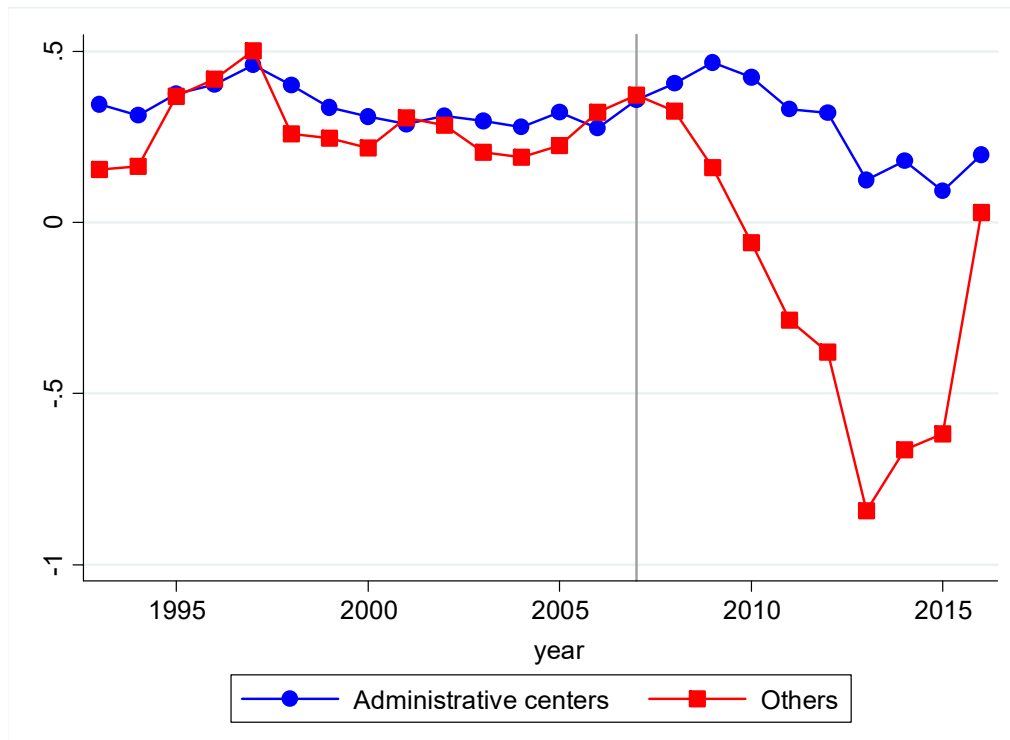
Key empirical estimation results are reported in Table 1. As the table shows, the included DiD term indicates that municipalities keeping their status as being an administrative center after the reform have a statistically significant higher population growth trend compared to municipalities losing this status. As visual inspection of the population trends in the treatment and comparison group show that the conditional DiD framework is successful in ensuring a common pre-trend development (see Figure 1). After the reform, we observe the municipalities losing the status of being an administrative center experience a significant relative decline in their annual population growth rates. Similar results are observed for the number of households being active on the labor market. This indicates that municipal reforms significantly affect the allocation of productive resources in space.

Table 1: Conditional DiD estimation results for municipal population growth

Specification	(1)	(2)	(3)	(4)
Dependent Variable →	Population Growth (logs)	Population Growth (logs)	Population Growth (logs)	Population Growth (logs)
Regressors ↓				
Population level (logs, t-5)	0.00144*** (0.000448)	-0.0242*** (0.00838)	-0.0219** (0.00857)	-0.0219** (0.00858)
Dummy treatment group	-0.000583 (0.000566)			
Dummy treatment period	-0.00452*** (0.000941)	-0.00375*** (0.00103)	-0.00274 (0.00372)	-0.00281 (0.00372)
DiD Term	0.00386*** (0.00124)	0.00425*** (0.00143)	0.00421*** (0.00144)	0.00432*** (0.00145)
Pseudo DiD Term 2004				0.00175* (0.000927)
Pseudo DiD Term 2005				-0.000606 (0.00120)
Pseudo DiD Term 2006				0.000411 (0.00136)
Observations	7,201	7,201	7,201	7,201
Region-fixed Effects	No	Yes	Yes	Yes
Time-fixed Effects	No	No	Yes	Yes

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; clustered standard errors at the municipal level in brackets.

Figure 1: Trends in population growth (%) at the municipal level before/after the reform



Notes: Comparison regions (others) calculated on the basis of weights from propensity score estimation.

References

Becker, S.O., Heblich, S., Sturm, D.M., 2020. The Impact of Public Employment: Evidence from Bonn. *Journal of Urban Economics*, 103291. 10.1016/j.jue.2020.103291.

Blesse, S., Baskaran, T., 2016. Do municipal mergers reduce costs? Evidence from a German federal state. *Regional Science and Urban Economics* 59, 54–74. 10.1016/j.regsciurbeco.2016.04.003.

Blom-Hansen, J., Houlberg, K., Serritzlew, S., Treisman, D., 2016. Jurisdiction Size and Local Government Policy Expenditure: Assessing the Effect of Municipal Amalgamation. *American Political Science Review* 110 (4), 812–831. 10.1017/S0003055416000320.

Carroll, G.R., Meyer, J.W., 1982. Capital cities in the American Urban System: the impact of state expansion. *American Journal of Sociology* 88 (3), 565–589. 10.1086/227708.

Dascher, K., 2000. Are Politics and Geography Related?: Evidence from a Cross-Section of Capital Cities. *Public Choice* 105 (3/4), 373–392. 10.1023/A:1005151611464.

Dascher, K., 2004. County capital cities, county public finance and county economic geography. *Economics of Governance* 5 (3), 213–233. 10.1007/s10101-004-0076-8.

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Faggio, G., 2019. Relocation of public sector workers: Evaluating a place-based policy. *Journal of Urban Economics* 111, 53–75. 10.1016/j.jue.2019.03.001.

Faggio, G., Overman, H., 2014. The effect of public sector employment on local labour markets. *Journal of Urban Economics* 79, 91–107. 10.1016/j.jue.2013.05.002.

Hansen, S.W., Houlberg, K., Pedersen, L.H., 2014. Do Municipal Mergers Improve Fiscal Outcomes? *Scandinavian Political Studies* 37 (2), 196–214. 10.1111/1467-9477.12020.

Heider, B., Rosenfeld, M.T.W., Kauffmann, A., 2018. Does Administrative Status Matter for Urban Growth? Evidence from Present and Former County Capitals in East Germany. *Growth and Change* 49 (1), 33–54. 10.1111/grow.12213.

Jofre-Monseny, J., Silva, J.I., Vázquez-Grenno, J., 2020. Local labor market effects of public employment. *Regional Science and Urban Economics* 82, 103406. 10.1016/j.regsciurbeco.2018.11.001.

Olson, M., 1969. The Principle of "Fiscal Equivalence": The Division of Responsibilities among Different Levels of Government. *American Economic Review: Papers and Proceedings* 59 (2), 479–487.

Roos, M.W.M., 2004. Agglomeration and the public sector. *Regional Science and Urban Economics* 34 (4), 411–427. 10.1016/S0166-0462(03)00058-9.

Rubinfeld, D.L., 1987. Chapter 11 The economics of the local public sector, in: Auerbach, A.J., Feldstein, M. (Eds.), *Handbook of Public Economics*. Vol. 2. Elsevier, pp. 571–645.

Steiner, R., Kaiser, C., 2017. Effects of amalgamations: evidence from Swiss municipalities. *Public Management Review* 19 (2), 232–252. 10.1080/14719037.2016.1153704.

Tiebout, C.M., 1956. A Pure Theory of Local Expenditures. *Journal of Political Economy* 64, 416–424.

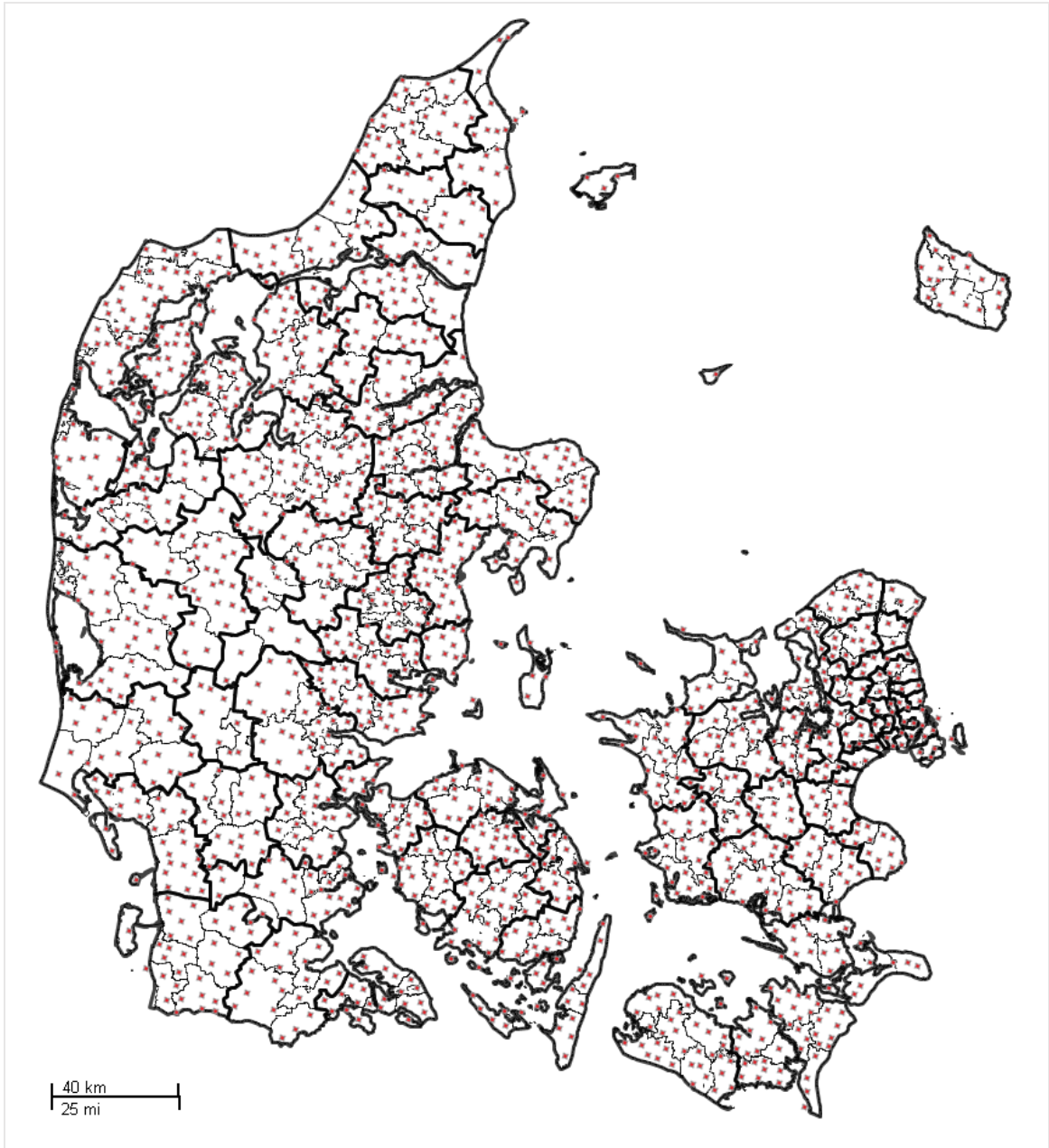
Turner, S.C., 2014. Public Sector Agglomeration in Developed Countries: The Role of Oversight. *Growth and Change* 45 (2), 191–210. 10.1111/grow.12048.

Turner, S.C., Turner, R.N., 2011. Capital cities: a special case in urban development. *Annals of Regional Science* 46 (1), 19–35. 10.1007/s00168-009-0321-8.

Tyrefors Hinnerich, B., 2009. Do merging local governments free ride on their counterparts when facing boundary reform? *Journal of Public Economics* 93 (5-6), 721–728. 10.1016/j.jpubeco.2009.01.003.

Welling Hansen, S., 2014. Common pool size and project size: an empirical test on expenditures using Danish municipal mergers. *Public Choice* 159 (1-2), 3–21. 10.1007/s11127-012-0009-y.

Figure A1: Local administrative boundaries in Denmark (old and new municipalities)



Notes: Red stars denote centroids of Danish parishes; thin grey lines show territorial boundaries of old and thick grey lines of new (amalgamated) municipalities.