

## **The Effects of Sub-National Government Consolidations**

*Quasi-Experimental Evidence from a Large-Scale Danish Structural Reform*

Høst, Anders Kamp

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# **THE EFFECTS OF SUB-NATIONAL GOVERNMENT CONSOLIDATIONS**

QUASI-EXPERIMENTAL EVIDENCE FROM A  
LARGE-SCALE DANISH STRUCTURAL REFORM

**BY  
ANDERS KAMP HØST**

DISSERTATION SUBMITTED 2021



**AALBORG UNIVERSITY**  
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**AALBORG UNIVERSITY**  
DENMARK

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PhD supervisor: Prof. Jørgen Goul Andersen  
Aalborg University

Assistant PhD supervisor: Head of Research Hans Thor Andersen  
Aalborg University

PhD committee: Professor Morten Balle Hansen  
Aalborg University (chair)

Professor Vicki Johansson  
University of Gothenburg

Associate Professor Niels Opstrup  
University of Southern Denmark

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## CV

Anders Kamp Høst studied sociology (BA and MA) at University of Copenhagen, where he graduated in 2011.

Before starting as a PhD Fellow at the Department of Politics and Society at Aalborg University in 2017, he has been employed at ViVe - The Danish National Centre for Social Research, Kraks Fond - The Danish Institute for Urban Economic Research, and the Danish Ministry of Higher Education and Science.

At the Department of Politics and Society, he has been affiliated with Centre for Research on Regional Dynamics and Disparities (REDY), and been a member of the research groups, Centre for Comparative Welfare Studies (CCWS) and Centre for Organization, Management and Administration (COMA).

His research interests include public sector efficiency, local democracy, regional labour market dynamics, the population settlement patterns, the effects of social housing initiatives, and effects of the geography of educational institutions and educational guidance on educational choices.





# ENGLISH SUMMARY

In the Ph.D. thesis, I assess the effects of local and regional government amalgamations on the most often mentioned issues addressed in comprehensive consolidation reforms, including local public sector efficiency, the quality of local democracy and local private-sector employment. I exploit a large-scale structural reform in Denmark in 2007 that substantially reshaped the boundaries of local and regional jurisdictions and unique register and survey panel data. The Ph.D. thesis includes four self-contained research articles.

In research article 1: *Kommunalreformens og sanktionslovgivningens betydning for den geografiske centralisering af kommunernes administration og service*, I assess the spatial redistribution of local public funds, including the employment in local government administration, childcare, primary school and eldercare until six years after the reform. I further assess how the relative power of the mayor, the financial executive committee, and the municipal managers condition the location decision. The results suggest that the local government consolidations resulted in a spatial centralisation of the local public administration. However, it had no or modest effects on the locations of the core public services, given the relative political power of the mayor, the financial executive committee, and the municipal managers.

In research article 2: *Jurisdiction size and local government administrative expenditures - Quasi-experimental evidence on the effect of spatial centralization, and labor input*, I estimate the causal effects of consolidations and population size on technical efficiency in local government administration, measured by the administrative expenditures per capita. I further disentangle the contributions from the reduction in fixed operating input through the spatial centralisation of the local government administration and the containment of administrative labour input. The results suggest that the consolidations on average did not improve the technical efficiency in the local public administration. However, the local authorities, who complied with the intent of the reform, reducing fixed operating input and labour input, improved technical efficiency. More specifically, some of the amalgamated municipalities reduced administrative cost per capita by up to 8.4 per cent through a comprehensive spatial centralisation of local government administration. Similarly, the municipalities that reduced labour input reduced administrative cost by up to 6.2 per cent as compared to the median labour input growth in continuing jurisdictions. However, most of the municipalities failed to contain or reduce labour input, which constitutes the bulk of public expenditures. A plausible interpretation of the results is that the spatial centralisation of local government administration is a politically acceptable instrument to reap economies of scale, while laying-off administrative employees is hampered due to organizational lock-in, congestion, or quality backlogs.

In research article 3: Polity size, spatial representation, and local democracy - Quasi-experimental evidence from a large-scale structural reform in Denmark, I disentangle the effect of the population size and the spatial centralisation of the local government administration on citizens' system support. It includes their confidence in local politicians and the local regime, as well as their sense of community attachment. The results suggest that it is the spatial centralisation of the local government administration, rather than the increase in population size, that affects citizens' political support. It gives rise to local democratic disparities across the centre and the periphery of the amalgamated municipalities. The gap in community attachment and political confidence between the center and the periphery increased by up to an equivalent of the difference between the median and approximately the 20th- or the 80th-percentile in the distribution of the citizens' attachment and confidence before the reform. It is a substantial difference. For comparison, the attachment and confidence gap between citizens having completed lower secondary school or holding a Master's degree is less than half that size. A plausible interpretation is that citizens view the location of local government institutions as a result of geographic redistributive games and local favouritism, dividing citizens between 'winners' at the beneficiary centre of the amalgamated jurisdictions and 'losers' at the marginalised periphery.

In research article 4: The effect of high skill public jobs on local private sector employment - Quasi-Experimental Evidence from a Large-Scale Structural Reform in Denmark, I assess the localized long-run effects of high-skill jobs in public administration on private sector employment. I include the spatial centralisation of public administration within the local and regional authorities, judiciaries and police districts. I find no effect on total private-sector employment, but a change in the distribution of sectors and skills. Moreover, 10 high-skill public-sector jobs crowded-out 4.3 jobs in the tradable sector, while stimulating the creation of 14.5 particularly high-skill jobs in knowledge-intensive services, including consulting and real estate services, and 4.5 business service jobs, including security and administration services. The effects are highly localized, and spillover effects into neighbouring areas attenuate sharply over distance. It reflects that the spatial centralisation of local government administration further affects the spatial distribution of economic activity within the new jurisdiction boundaries.

In the summary report, I synthesize the research questions and provide a more thorough discussion of the theoretical and methodological approaches in the research field. From the empirical evidence, I conclude that the spatial centralisation of the sub-national government administration is crucial for our understanding of the sub-national government consolidation effects on public sector efficiency, local democracy and private sector employment.

# DANSK RESUME

I ph.d. afhandlingen belyser jeg betydningen af kommune- og regionssammenlægninger for de tre oftest nævnte områder, der adresseres i omfattende strukturelle reformer af den offentlige sektor, herunder effektiviteten i den offentlige sektor, kvaliteten af nærdemokratiet og den geografiske fordeling af beskæftigelsen i den private sektor. Jeg udnytter den omfattende strukturreform i Danmark i 2007, der omdefinerede kommunernes og regionernes administrative grænser og unikke paneldata, herunder register og spørgeundersøgelser. Ph.D. afhandlingen omfatter fire selvstændige forskningsartikler.

I forskningsartikel 1: Kommunalreformens og sanktionslovgivningens betydning for den geografiske centralisering af kommunernes administration og service, belyser jeg betydningen af kommunesammenlægningerne for den geografiske fordeling af lokale offentlige midler, herunder beskæftigelsen i den kommunale forvaltning, børnepasning, folkeskole og ældrepleje indtil seks år efter reformen. Jeg belyser yderligere betydningen af borgmesterens, økonomiudvalgets, kommunedirektørernes og forvaltningschefernes relative indflydelse i kommunaladministrationen på placeringen af de tre sidstnævnte. Resultaterne tyder på, at kommunesammenlægningerne resulterede i en betydelig geografisk centralisering i den offentlige forvaltning, mens det ikke havde nogen eller kun beskednen betydning for placeringen af de centrale offentlige services, givet borgmesterens, økonomiudvalgets, kommunedirektørernes og forvaltningschefernes relative merindflydelse.

I forskningsartikel 2: Jurisdiction size and local government administrative expenditures - Quasi-experimental evidence on the effect of spatial centralisation, and labor input, estimerer jeg den kausale effekt sammenlægningerne og befolkningsstørrelsen i de nye kommuner på den effektiviteten i den kommunale forvaltning, målt ved de administrative udgifter pr. indbygger. Jeg belyser yderligere bidraget fra den geografiske centralisering af kommunale forvaltning og begrænsningen i antallet af ansatte i den kommunale forvaltning. Resultaterne tyder på, at sammenlægningerne i gennemsnit ikke øgede effektiviteten i kommunernes forvaltning. De kommuner, der imidlertid fulgte hensigten med reformen gennem centralisering af kommunale forvaltning og en reduktion i antallet af ansatte i forvaltningen, øgede effektiviteten. Nogle af de sammenlagte kommuner reducere således de administrative omkostninger pr. indbygger med op til 8,4 procent gennem en omfattende geografisk centralisering af den lokale forvaltning. Derimod undlod de fleste kommuner at begrænse antallet af ansatte i administration, hvilket udgør hovedparten af de offentlige udgifter. De kommuner, der gjorde det, reducerede de administrative omkostninger med op til 6,2 procent i forhold til mediantilvæksten i antal ansatte i fortsætterkommunerne. En mulig fortolkning af resultaterne er, at den geografiske centralisering af den lokale forvaltning er

et politisk acceptabelt instrument til at udnytte stordriftsfordele, hvorimod afskedigelsen af administrative medarbejdere hæmmes grundet organisatorisk lock-in, stordriftsulempler eller et kvalitetsefterslæb.

I forskningsartikel 3: Polity size, spatial representation, and local democracy - Quasi-experimental evidence from a large-scale structural reform in Denmark, adskiller jeg effekten af den øgede befolkningensstørrelse og den geografiske centralisering af den kommunale forvaltning på borgernes tillid til politikerne, til det lokale selvstyre og demokrati og deres tilknytning til kommunen. Resultaterne tyder på, at den geografiske centralisering af den kommunale forvaltning og ikke den øgede kommunistørrelse påvirker borgernes politiske tillid og tilknytning. Det giver anledning til lokale forskelle i det demokratiske underskud på tværs af det nye administrative centrum og periferi i de sammenlagte kommuner. Tabet af kommunal tilknytning og tillid i periferien øgede forskellen med op til forskellen fra medianen til omkring 20.- eller 80.-percentilen i fordelingen af borgernes tilknytning og tillid. Det er en væsentlig forskel. Til sammenligning er forskellen i tilknytning og tillid mellem borgere, der har afsluttet folkeskolen eller gymnasiet, og borgere, der har en kandidatgrad, mindre end halvdelen heraf. En sandsynlig fortolkning er, at borgerne ser den geografiske lokalisering af den kommunale forvaltning som et resultat af et geografisk omfordelingsspil og lokal favorisering, der deler borgere mellem 'vindere' i de administrative centre og 'taberne' i den marginaliserede periferi.

I forskningsartikel 4: The effect of high skill public jobs on local private sector employment - Quasi-Experimental Evidence from a Large-Scale Structural Reform in Denmark, belyser jeg de lokale langsigtede effekter af akademiske job i offentlige administration på beskæftigelsen i den private sektor. Jeg inkluderer den geografiske centralisering af den offentlige administration og forvaltning i kommuner, regioner, retskredse og politidistrikter. Jeg finder ingen effekt på den samlede beskæftigelse i den private sektor, men en ændring i fordelingen af sektorer og kompetencer. Mens 10 offentlige akademiker job medfører en reduktion i antallet af beskæftigede i industrien med ca. 4,3 job, stimulerer det oprettelsen af 14,5 nye især akademiker job inden for videnstunge serviceydelser, herunder rådgivning og ejendomsmæglingstjenester, og 4,5 jobs inden for erhvervsservice, herunder sikkerheds- og administrationsydelser. Effekterne er stærkt lokaliserede, og spillover effekter aftager hurtigt over afstand. Det afspejler, at den geografiske centralisering af den offentlige forvaltning yderligere påvirker den geografiske fordeling af den økonomisk aktivitet inden for de nye administrative grænsedragninger.

I den sammenfattende rapport syntetiserer jeg forskningsspørgsmålene og diskuterer de teoretiske og metodiske tilgange. Ud fra de empiriske resultater konkluderer jeg, at den geografiske centralisering af den offentlige forvaltning er afgørende for vores forståelse af kommune og regionssammenlægningernes betydning for effektiviteten i den offentlige sektor, kvaliteten af lokaldemokratiet og beskæftigelsen i den private sektor.





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I am grateful to my colleagues at the Department of Politics and Society and in particular the members of the research groups CCWS and REDY, with whom I have been affiliated during my PhD period. Thank you for having facilitated an inclusive, and supportive work environment. Presenting my research in CCWS and REDY has always been a constructive and encouraging experience. I also wish to thank the members of the research group COMA for giving me a warm welcome to the research group.

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# RESEARCH PAPERS AND THEIR PUBLICATION STATUS

## Research articles

This thesis comprises of four self-contained research articles together with this summary report. The four research article are listed below:

Research article 1: Høst, A.K. (2018). “Kommunalreformens og sanktionslovgivningens betydning for den geografiske centralisering af kommunernes administration og service”. *Politik og Økonomi*, 91(4): 50-63

Research article 2: Høst, A.K. (2021). “Jurisdiction size and local government administrative expenditures - Quasi-experimental evidence on the effect of spatial centralization, and labor input”. *Unpublished manuscript*.

Research article 3: Høst, A.K. (2021). “Polity size, spatial representation, and local democracy - Quasi-experimental evidence from a large-scale structural reform in Denmark”. *Unpublished manuscript*.

Research article 4: Høst, A.K. (2021). “The effect of high skill public jobs on local private sector employment - Quasi-Experimental Evidence from a Large-Scale Structural Reform in Denmark”. *Unpublished manuscript*.

## Other relevant publications

Høst, A.K. and Winther, L. (2019). “Job polarization in the new economy in Danish cities: location, size, and the role of the public sector”. *European Planning Studies*, 27(9):1661-86

Sørensen, E.S., and Høst, A.K. (2015): “Does distance determine who is in higher education?”. *MPRA Paper*, 74517

Høst, A., Jensen, V.M. and Nielsen, L.P. (2013). “Increasing the admission rate to upper secondary school: the case of lower secondary school student career guidance”. *Education Economics*, 21(3): 213-29



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# CHAPTER 1. INTRODUCTION

Since the 1950s, a wave of comprehensive structural reforms has swept the developed world. It has increased the population size of local and regional jurisdictions and enhanced the administrative capacity of sub-national government authorities. The structural reforms range from compulsory, large-scale, and radical amalgamations to voluntary, spatially confined, and incremental amalgamations (Gendźwiłł, Kurniewicz, and Swianiewicz 2021). The reform wave encompasses countries of all sizes, all types of regimes, and welfare states models, from Luxemburg to the US, from unitary states to decentralised federations and from universal to liberal welfare states (Blom-Hansen et al. 2016). In contrast, the few scattered and arbitrary cases of sub-national government fragmentation, de-amalgamation, and secessions most often occur as a result of the pressure and preferences of local factions of political elites and communities (Gendźwiłł, Kurniewicz, and Swianiewicz 2021).

The aims of sub-national government consolidations are several. First, consolidations are thought to improve the technical efficiency of the public sector through economies of scale and bolster local authorities against the volatility in local government revenues (e.g. Allers and Geertsma 2016; Blesse and Baskaran 2016; Cobban 2017; Blom-Hansen, Houlberg, and Serritzlew 2014; Blom-Hansen et al. 2016; Hansen 2015; Hansen, Houlberg, Pedersen 2014; Moisio and Uusitalo 2013; Slack and Bird 2013). Second, consolidations enhance local administrative capacity to comply with national legal standards and conform to the preferences of local citizens and firms (e.g. Mouritzen 1989; Newton 1982; Ostrom 1972). Finally, consolidations ensure that sub-national authorities internalise economic and labour market externalities from sub-national government policies. (e.g. Gendźwiłł, Kurniewicz, and Swianiewicz 2021; Hall, Matti, and Zhou 2020).

However, consolidations may have adverse effects. First, consolidations may offset the economies of incentives that reinforce technical and allocative efficiencies, as senior officials face lower political scrutiny in large bureaucracies, allowing them to shirk, slack-off, and rent-seek (Fisman 2001; Gilpatric 2008; Niskanen 1968,1971; Ostrom 1989). A consolidated sub-national government structure further confines the competition for geographically mobile tax-payers, including constituents and companies (e.g. Oates 1999). Finally, consolidations may hamper the local and regional authorities' awareness and knowledge concerning the social and economic preferences, hinder the direct political influence of the local constituents and companies, and limit their choice between tax-service packages (e.g. Downs 1967; Ostrom 1989; Tullock 1965).

Structural reforms are often accompanied by complementary institutional and public administration reforms (OECD 2017), including the decentralisation of administra-

tive, political and financial responsibilities to sub-national government tiers and agencies through comprehensive administrative reforms and (Loughlin, Hendriks, and Lidström 2011; Pollitt and Bouckart 2011). Decentralisation range from deconcentration, across delegation, to devolution. Deconcentration captures the partial transfer of administrative autonomy to territorial branches appointed by and accountable to the central government. Delegation refers to the transfer of political responsibilities to locally elected authorities under regulations by the central government. Finally, devolution refers to the complete political and fiscal autonomy of locally elected authorities with exclusive responsibilities (Loughlin, Hendriks, and Lidström 2011; Pollitt and Bouckart 2011).

The political intent of decentralisation varies substantially across state traditions and welfare state models. In the liberal welfare regimes in the US, UK, New Zealand and Australia, fiscal federalism and devolution is often been linked to the introduction of market-like conditions in local government. In the corporatist-conservative welfare regimes of Germany and France, the delegation of political and administrative responsibilities and autonomy has typically served to alleviate the congested central regulatory public organisations. In the universalist welfare state regimes in Scandinavia, devolution has typically served to buttresses the local self-government and democracy (Loughlin, Hendriks, and Lidström 2011; Pollitt and Bouckart 2011).

In the Ph.D. thesis, I evaluate the effects of sub-national government amalgamations in Denmark, a unitary state with a high level of devolution, on the three most often stated concerns of comprehensive consolidation reforms, including the technical efficiency in the public sector, the quality of local democracy, and local economic development. I argue that the spatial centralisation of the sub-national government administration following amalgamations may enhance the technical efficiency in the public administration, while it may induce local spatial disparities in local democracy and economic activity.

In this summary report, I contextualise and clarify the contribution in the research articles. I present and discuss the general theoretical approaches and empirical evidence concerning the effects of consolidated and fragmented sub-national government structures on public sector efficiency, local democracy and economic activity. It includes the effect of sub-national government capacity and jurisdiction size. I draw on the insights from a range of literature strands within political science and economics, including public administration and political sociology as well as public and urban economics.

The effects of local government capacity on the technical efficiency in public administration and service provision and the effects of the local jurisdiction population size on the quality of local democracy are widely studied. The recent quasi-experimental

evidence suggests that at best administrative capacity and population size constitute a trade-off between the technical efficiency in the public sector and citizens' effectiveness (e.g. Allers and Geertsma 2016; Blesse and Baskaran 2016; Cobban 2017; Blom-Hansen, Houlberg, and Serritzlew 2014; Blom-Hansen et al. 2016; Bhatti and Hansen 2019; Hansen 2015; Hansen, Houlberg, Pedersen 2014; Hansen and Kjaer 2020; Lassen and Serritzlew 2011; Moisio and Uusitalo 2013; Slack and Bird 2013). Moreover, while consolidations have proven to partially ameliorate public sector technical efficiency through economies of scale (see Chapter 3), consolidations have been found to deteriorate citizens' political efficacy, support, and participation (see Chapter 4). These effects are generally well-established and attributed to the increase in the local administrative capacity and the local population size, respectively. However, most theoretical and empirical contributions neglect the effects of the spatial location of local government administration and service institutions following the consolidations.

The economic dividend from local and regional authority consolidations is less studied (Hall, Matti, and Zhou 2020). An emerging literature evaluates the effect of the spatial centralisation of the public administration on the spatial distribution of economic activities within the consolidated jurisdictions (Egger, Koethenbueger and Loumeau 2018; Harjunena, Saarimaab, and Tukiainen 2021). The sparse literature suggests that the spatial centralisation of sub-national government administration result in a spatial centralisation of the economic activity inducing local disparities in house prices, population growth and economic activity (Egger, Koethenbueger and Loumeau 2018; Harjunena, Saarimaab, and Tukiainen 2021). A related, but emerging literature in urban economics, evaluating the effect of public sector jobs on local private sector employment and wages, partially confirm the findings. The evidence suggests that public sector jobs spur the demand for labour in the private service sector, while crowding-out jobs in the manufacturing industries (Becker, Heblich, and Sturn 2018; Jofre-Monseny, Silva, and Vázquez-Grenno 2020; Faggio 2019; Faggio and Overman 2014). Hence, a spatial relocation of jobs in the public administration following consolidations may equally change the sectorial distribution and skill formation within the amalgamated jurisdictions, inducing local economic disparities. However, the effect of public sector job relocations following sub-national government consolidations on local private sector employment has not been studied.

## 1.1. RESEARCH QUESTIONS

In the Ph.D. thesis, I evaluate the effects of the consolidations on the spatial location of the public administration and services and the effect of the spatial centralisation of the public administration on local public sector efficiency, the quality of local democracy and local private-sector employment. It is the three major issues facing government reformers when laying out comprehensive structural reforms.

### 1.1.1. SPATIAL CENTRALISATION

The first article: “Kommunalreformen og sanktionslovgivningens betydning for den geografiske centralisering af kommunernes administration og service” is inspired by the literature suggesting that local government amalgamations unleash geographic redistributive games, local favouritism and geographic misrepresentation, dividing citizens between ‘winners’ at the beneficiary centre and ‘losers’ at the marginalised periphery (Jakobsen and Kjaer 2016; Voda and Svačinová 2020).

The aim of the first article is twofold. First, I examine the redistribution of local public funds following local government amalgamations, including the spatial centralisation of local government administration and core local public services, including childcare, primary school and eldercare. Second, I assess how the relative power of the mayor, the financial executive committee, and the municipal managers condition the location decision.

The research question is:

To what extent are local public funds spatially centralised following amalgamations and how does the relative power of the budget guardians and advocates affect the spatial centralisation?

### 1.1.2. PUBLIC SECTOR EFFICIENCY

The main objective of local government consolidations is to reap economies of scale reducing fixed operating and labour inputs per capita. Some studies find evidence of scale economies (Hanes 2015; Mughan 2019; Reingewertz 2012) or diseconomies of scale (Blom-Hansen et al. 2016; Moisio and Uusitalo 2013; Slack and Bird 2013) in selected services, while most studies find no effect on service expenditures per capita, but substantial decreases in administrative cost (Allers and Geertsma 2016; Blesse and Baskaran 2016; Blom-Hansen et al. 2016; Cobban 2017; Moisio and Uusitalo 2013). Except from a few studies (Mughan 2019; Reingenwertz 2012), most studies fail to disentangle the contribution from fixed and labour inputs. It limits our understanding, why most local authorities fail to reap economies of scale. More specifically, prior studies evaluate the average effect of local government mergers and the increase in population on technical efficiency measured by the expenditures per capita, but fail to account for the reorganisation of local government administration and service provision.

The aim of the second research article is twofold. First, I (re)assess the causal effects of consolidations on technical efficiency in local government administration, including the effect of the change in the government capacity. Second, I disentangle the



contributions from the reduction in fixed operating input through the spatial centralisation of the local government administration and the containment of administrative labour input.

The research question is:

What are the causal effects of consolidations on technical efficiency in local government administration, the reduction in fixed operating input through spatial centralisation, and the containment of administrative labour input?

### 1.1.3. LOCAL DEMOCRACY

An often-stated concern during large-scale structural reform processes aiming to consolidate local jurisdictions is the detrimental effect of population size on local democracy. Recent systematic reviews find “*overwhelming*” evidence supporting this claim (McDonnell 2020: 340; Tavares 2018: 11). The bulk of the evidence exploits the Danish quasi-experiment determining the effect of polity size on internal efficacy (Lassen and Serritzlew 2011), satisfaction with local government performance and democracy (Hansen 2015), confidence in local authorities (Hansen 2012), community attachment (Hansen and Kjaer 2020), and the voter turnout rate (Bhatti and Hansen 2019).

Prior studies assessing the effect of polity size on local democracy, however, assume that the effect of the reorganization of the local government funds is constant across former amalgamated jurisdictions (Hansen 2012; Hansen 2015; Lassen and Serritzlew 2011). The third research article aims to disentangle the effect of the polity size and the spatial centralisation of the local government administration on citizens’ system support, including their confidence in local politicians and the local regime, as well as their sense of community attachment.

The research question in the third article is:

What is the causal effect of the polity size and the spatial centralisation of the local government administration on citizens’ confidence in local politicians and the local regime, as well as their sense of community attachment?

### 1.1.4. LOCAL EMPLOYMENT

Finally, the spatial centralisation of the sub-national government administration may further result in local economic disparities. In the theoretical and empirical literature

concerning the economic dividend of local and regional authority capacity, the effect of spatial centralisation of public funds on local economic disparities remain und-researched. As stated above, recent studies suggest that the spatial centralisation of local government administration centralise the economic activity inducing local disparities in house prices, population growth and economic activity (Egger, Koethen-buerger and Loumeau 2018; Hall, Matti, and Zhou 2020; Harjunena, Saarimaab, and Tukiainen 2021). An emerging literature in urban economics suggest the spatial centralisation of public jobs may affect the private labour market structure, as it stimulates the demand for intermediate services, while crowding-out jobs in the manufacturing industries (Becker, Heblich, and Sturn 2018; Faggio 2019; Faggio and Overman 2014; Jofre-Monseny, Silva, and Vázquez-Grenno 2020).

The aim of research article four is to assess the local long-term effect of high-skill jobs in public administration on private sector employment, divided by sector and skills.

Hence, the research question in article four is:

What is the causal long-run effects of high-skill jobs in the public administration on private-sector employment growth separately for sectors and skills, and hence the effect of the spatial centralisation of high-skill public jobs following consolidations?

## CHAPTER 2. THE DANISH LARGE-SCALE STRUCTURAL REFORM IN 2007

I now turn to the Danish local self-government structure and the process preceding and succeeding the Danish structural reform in 2007, as it constitutes the institutional setting of the research articles of the Ph.D. thesis and the fundament for the applied method (see section 6.1). It includes the reform process from the political initiation and adoption of the reform, the impact of the reform on procedural and substantive qualities of local government, and the expansion and containment of sub-national government autonomy in the aftermath of the reform.

Compared to the Danish SR in 1970 (see Appendix A) and similar reforms in other OECD countries, the large-scale SR in 2007 was swift from initiation to implementation, exogenous to the local authorities, citizens and firms, and radical in its scope affecting all government tiers across most of the country (Blom-Hansen et al. 2016). Some nuances, however, should be emphasized here.

In the first section of Chapter 2, I describe the main features of local government authorities before the reform, defined through the large-scale SR in 1970. In the second section, I introduce the reform process during the five years preceding the large-scale SR in 2007, the successive adjustments of local authorities' fiscal and political discretion, and the reform outcome concerning the procedural and substantive qualities of local self-government. In the third section, I highlight the main implications of the reform process for the empirical design and the interpretation of the results.

### 2.1. THE GOVERNMENT STRUCTURE

Denmark is, like other Nordic countries, a unitary state with three government tiers, including central, regional, and local government authorities (Houlberg and Ejersbo 2020), and considered among the most devolved states in the OECD, fiscally, politically, and administratively (Ivanyana and Shah 2014; Ladner et al. 2016). Throughout the period, the local authorities administer approximately 50 percent of the total public spending in Denmark and 25 percent of GDP (Houlberg, Voigt, and Pedersen 2018). It increases slightly as a result of the SR in 2007 (see section 2.2.3). Local government administration expenditures accounted for about 10 percent of local public expenditures (Blom-Hansen, Houlberg, and Serritzlew 2014).

Three bodies constitute the political system of local government, the mayor, the council, and the standing committees. The local council is elected for 4-year terms in local

elections with turnout rates typically between 70 and 80 percent. Local branches of the national parties typically dominate the local party systems, but some local lists exist (Bhatti and Hansen 2019). The mayor is elected indirectly by the city council. As the only full-time politician, the mayor presides over the council, is chairman of the economic committee, and the head of the local administration (Berg and Kjaer 2005; Blom-Hansen and Heeager 2011). Hence, the mayor constitutes the executive power in the local self-government in cooperation with the chairmen of the standing committees (Ibid.).

To ensure professional and responsible financing and allocation of local services, local authorities have since a large-scale SR in 1970 been obliged to form a Financial Executive Committee and at least one other standing committee with executive power. This requirement was maintained after the reform in 2007 (Ibid.). The Financial Executive Committees, chaired by the mayor and consisting of the mayor and two to four city council members, is by statute responsible for the day-to-day administration of the jurisdictions' budget and finances, including liquidity and debt management, and obliged to inform the city council of all financial and general administrative matters (Berg and Kjaer 2005; Blom-Hansen and Heeager 2011; Mouritzen 2010). Most local authorities have established three to six committees in addition to the mandatory Financial Executive Committee, including a school and culture committee, a social committee, and a technical committee (Blom-Hansen 2002; Blom-Hansen and Heeager 2011). The council members of the committees are elected by the city council and the chairman of each committee by the committee members.

In the former counties, the political system was similar to the system of the municipalities, including county councils and a chairman as well as standing executive and sectoral committees. After the SR in 2007, the regions maintained regional councils, consisting of 41 council members and the regional chairman. However, while the regional councils may transfer the responsibilities of the daily administrative affairs to an executive committee, they are not allowed to establish standing sectoral committees (Blom-Hansen and Heeager 2011).

A common four-year period budget system, introduced in 1977, provides local city councillors comprehensive information to adopt policy prioritization taking long-term consequences of local public expenditure allocation into account while enabling the central administration to calculate the common budget for the whole public sector. However, the budget system does not include information on local service quantity and quality (Christoffersen and Klausen 2012). The common budget system was maintained after the large-scale structural reform in 2007.

Local income taxes are the main revenue source accounting for almost two-thirds of the average revenue (Houlberg and Ejersbo 2020). General government subsidies, including the general grants and equalization schemes, are independent of the de facto

local spending founded in general social criteria independent of local resource allocation. In contrast, the reimbursements are employed in the administration of social transfers.

Hence, the state compensates local authorities for any increase in the expenditure per capita imposed on the local authorities through devolution, welfare expansion, or price and salary increases. It is intended to underpin the local political and administrative autonomy, while simultaneously curbing local spending (Christoffersen and Klausen 2012). The general features of the general government subsidies and reimbursement schemes were maintained after the SR in 2007.

The corporatist and collective agreements agreement between the state and the corporatist association of the local authorities in Denmark, Local Government Denmark (LGDK), constituting non-legally-binding recommendations were initially limited to restrictions in the local authorities' borrowing, construction expenditures, and tax levy. However, the agreement has become increasingly extended to a short-term economic policy instrument and regulation of local dispositions and real expenditure growth rate (Christoffersen and Larsen 2000; Houlberg and Ejersbo 2020).

In 2001, the local authorities' right to raise taxes was further limited, due to a general tax stop. Local authorities are only allowed to raise taxes if other local authorities lower theirs. Consequently, local authorities refrain from lowering the local taxes, as they may not be allowed to raise taxes again when needed (Houlberg and Ejersbo 2020).

## **2.2. THE LARGE-SCALE STRUCTURAL REFORM IN 2007**

The debate concerning a local government reform took form in the 1990s (Mouritzen 2010), as a continuous expansion of the legal service requirements and central administrative control with local budgets since the 1980s increasingly constrained the political discretion of the local self-government regime and burdened local authorities' administrative. The augmented administrative expenditures for legal consulting, specialist staff, and information technologies put pressure on particularly small municipalities without the capacity to comply with central administrative demands (Christoffersen and Larsen 2000).

By the turn of the millennium, several municipalities initiated a discussion concerning strengthened cooperation or municipal amalgamations (Mouritzen 2010), while Houlberg (2000) and the Ministry of the Interior (2000) found that local jurisdictions with between 20,000 and 40,000 inhabitants would uphold the lowest operating expenses per capita as a proxy for technical efficiency. The conclusion was later repeated by OECD (2002) and the Danish Economic Council (2002).

Another and equally important rationale for the SR in 2007 was the general dissatisfaction in the central government and administration concerning the counties, including the two-tier status of the City of Copenhagen and the Municipality of Frederiksberg. This debate intensified during the work of the Greater Copenhagen Commission in 1995 and 1996 (Mouritzen 2010).

### 2.2.1. THE INITIATION OF THE REFORM

As late as the 20th of June 2002, the Minister of the Interior and Health, Lars Løkke Rasmussen maintained that the *“Government has no plans for changing the municipal structure”* (cf. Mouritzen 2010: 27). A discussion in the media concerning the efficiency of the local government system during summer 2002, however, gave the central government a window of opportunity to change the governmental structure.

The Danish central government initiated the reform process in October 2002 appointing the Commission on Administrative Structure to provide *“a technical and expert analysis to be used as a decision basis with respect to changes of the framework for the performance of public sector tasks”* (Mouritzen 2010: 27). It included a revision of all functions across the three government tiers, the number of local and regional authorities and government tiers and the public financial structure.

The 12 members of the Commission included a chairman, three independent expert members, two representatives of the local and regional government corporatist association, the LGDK and the Danish Regions Association (DRA), two high-level local government administrators representing the City of Copenhagen and the Municipality of Frederiksberg, and four civil servants from the central administration representing the two government parties (Ibid.). The Commission published a three-volume report in January 2004 recommending a large-scale SR. The only anonymous recommendation was to consolidate the municipalities, bolstering the local authorities and administrative capacity (Ibid). In contrast, the Commission proposed three structural models varying by the number and size of municipal and county jurisdictions, the division of public policy and service provision between governmental tiers, as well as the state funding and equalization schemes (see Mouritzen 2010 for more details).

Five months later the centre-right minority government presented a bill on the reform, receiving support from the Danish People's Party and passed by a narrow majority. Following the agreement, all municipalities with fewer than 20,000 citizens were obliged to arrange for amalgamations before January 2005. However, local authorities were allowed to continue as independent municipalities, if they engaged in formal service provision cooperation with neighbouring municipalities with a total population base of the cooperating municipalities exceeding 30,000 inhabitants (Ministry of the Interior and Health 2004).

Further, the agreement outlined the transfer of a range of functions from the counties to the municipalities (See section 2.2.3). The counties were consequently reduced to five regions lead by an elected council and with the main task of administering the hospital health services, but without any independent power to levy taxes. Finally, the agreement outlined a fundamental revision of the public service funding, including reimbursement schemes, block grants, and extending the comprehensive National Equalization Schemes (Ministry of the Interior and Health 2004).

The opposition parties, including the Social Democrats and the Danish Social-Liberal Party, withheld their support, mainly as they opposed that the counties were deprived of most of their tasks and their independent power of taxation (Mouritzen 2010)<sup>1</sup>. The LGDK on the other hand supported it, partially to dissolve an internal faction of 110 financially deprived municipalities each with fewer than 10,000 inhabitants, partially to counter the pervasive state interventions in the political and financial discretion of local government administrations, and partially to enhance the scope of their political responsibilities (Ibid.). However, many mayors in the small rural municipalities often representing the Liberal Party and among the faction of the 110 financially deprived municipalities, opposed the reform. However, the reform constituted a solution to their financial anguishes. In contrast, most mayors in the larger cities welcomed the reform, presumably intending to “*expand their kingdom*” (Mouritzen 2010: 38).

## 2.2.2. THE POLITICAL ADAPTATION

Apart from the general size requirements, the government did not intervene directly in the amalgamation negotiations, except approving the amalgamations suggested by the local authorities. Most amalgamations were settled through one or two negotiation iterations between the city councils or local public administrations. In 73 cases, local referenda were held, most often involving a small fraction of the population in the former municipalities. Only a few amalgamations were settled through the intervention of an umpire, appointed by the central government, and in two instances, the central government did not approve local wishes (Mouritzen 2010).

Of the 208 former municipalities with less than 20,000 citizens, only five refrained from engaging in mergers, including three island jurisdictions<sup>2</sup> and two jurisdictions in the Copenhagen Region. However, 36 of the 63 former municipalities with more

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<sup>1</sup> Evidently, the DRA also opposed the agreement, but was not invited to the negotiations (Mouritzen 2010).

<sup>2</sup> I define island jurisdictions as municipalities located on an island without a bridge connection to the main land.

than 20,000 inhabitants also decided to merge. As a result, 239 of the former municipalities were merged into 66 new municipalities whereas the remaining 32 municipalities continued<sup>3</sup>. Typically, neighbouring municipalities simply decided to merge, but 14 former municipalities were divided between neighbouring municipalities, predominantly decided through local referenda. For the most part, less than 15 pct. of the population in the divided jurisdictions resided in the smaller of the separated areas. One municipality was divided into two with an approximately equal share of the population.

Above the population size threshold of 20,000 inhabitants, structural conditions, including the tax base, social service expenditure needs<sup>4</sup>, and block grants and equalization scheme revenues per capita that varied across geography may partially have affected the municipalities' inclination to engage in mergers (Christoffersen and Ravn-Joensen 2005)<sup>5</sup>. Moreover, whereas in the Capital Region, five of the 23 local municipalities with a population size above 20,000 engaged in amalgamations, 32 of the remaining 40 municipalities outside the Capital Region with more than 20,000 inhabitants did, including larger municipalities such as Aalborg and Esbjerg. Similarly, in the Capital Region, two of the 21 municipalities with a population size below 20,000 did not merge. Of the remaining 192 municipalities with a population size below 20,000 located outside the Capital Region, only three island jurisdictions without a bridge connection did not engage in mergers. The continuing municipalities outside the Capital Region with a population size above 20,000 included the two largest urban municipalities, Aarhus and Odense, as well as a few suburban and rural municipalities, including Fredericia and Morsø (Christoffersen and Klausen 2012).

Concerning the choice of merging partners, the main predictor was commuting patterns between the local jurisdictions, as during the 1970 reform. In contrast, neither the local economy, defined by the tax base and long-term debt nor the local politics, such as the mayor's party wing and the tax-service packages, had any impact on the partnering decision (Bhatti and Hansen 2011). Hence, the amalgamations broadened the variation in the spatial scope of the local jurisdictions. Particularly in the north- and middle-regions of Jutland the median spatial scope of the local jurisdictions more

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<sup>3</sup> The 271 initial municipalities include the two former jurisdictions located on the island of Årø that merged in 2006. However, as the merged new municipality counted only 7,000 inhabitants it had to engage in cooperative arrangements after the SR.

<sup>4</sup> The expenditure needs per capita are calculated annually for the distribution of the national equalization schemes and subsidies, including the sum of the socioeconomic and the age-determined expenditure needs (Ministry of the Interior and Health 2007: 57-58).

<sup>5</sup> The data applied by Christoffersen and Ravn-Joensen (2005) includes the amalgamations reported to the Ministry of health and the interior by December 2004, but deviates only slightly from the final amalgamations.



than tripled. Moreover, in Jutland, while only a few local jurisdictions constituted independent travel-to-work-areas (TTWA) before the reform, about 50 pct. of the local jurisdictions did after the reform (Christoffersen and Ravn-Joensen 2005).

The consolidations reduced the variation in population size and local public budgets but broadened the variation in spatial scope. Before the large-scale structural reform in 2007, local jurisdictions in Denmark were small to medium-sized in comparison with other European countries, while smaller than in Sweden, they were larger than in Norway and Finland (Larsen 2002). The reform increased the average population size from about 20,000 to 55,000 and the average spatial scope from about 160 to 454 km<sup>2</sup>. However, the service expenditure needs and the tax base per capita of the amalgamated jurisdictions remained largely unaffected (Christoffersen and Ravn-Joensen 2005)<sup>6</sup>.

In contrast, the county politicians and administrative staff did not influence the county amalgamation process nor the subsequent changes in the regional government model. The decision of which counties to merge solely took population size, geographic scope, and connectivity into consideration (Ministry of the Interior and Health 2004). The majority of former counties were merged undivided, however, a few local regional boundaries were adjusted following the municipal mergers. Moreover, the regions' boundaries were strictly defined within the framework of the new municipality boundaries. As a result of the SR, the number of counties was reduced from 14 to 5.

### 2.2.3. DEVOLUTION AND CENTRALISATION

Besides the financial and administrative consolidation of local authorities, the reform transferred tasks from the regional to the local government tier. This included responsibility for environmental regulation, regional roads, as well as so-called “specialised social services” such as rehabilitation, health promotion, services for people with a handicap, primary education and institutions for children and young adults with special needs, social and behavioural problems, special education for adults. Similarly, the partial responsibility of the local environmental protection and regional roads was transferred from the counties to local authorities (Houlberg and Ejersbo 2020). In contrast, the regional councils were stripped from their political and financial discretion and their right to levy regional taxes. The main official aim was that local authorities became the main access to public services for citizens and firms. The new service

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<sup>6</sup> As the number of local authorities was reduced by two third, the relative weight of the continuing predominantly urban jurisdictions increased, increasing the overall variation in the tax base per capita (Christoffersen and Ravn-Joensen 2005).

function and responsibilities of local authorities amounted to an 8 percent increase in their budgets (Blom-Hansen et al. 2016)<sup>7</sup>.

However, the local authorities' political discretion is continuously contained by the annual corporatist agreements between the state and the LGDK defining service levels of target services, including care guarantee for nursery and preschool children, etc. After the reform, the agreements further required that the local authorities obtained an annual productivity increase amounting to 0.4 pct. of the operating costs. Productivity gains, however, are notoriously difficult to measure hampering the central control with local authority budgets, and as the productivity gains are not deducted from the block grants, but designated for further service expansion in local jurisdictions, local authorities may shirk (Christoffersen and Klausen 2012).

Further, due to massive local budget overruns and subsequent central government bailouts following the reform, amounting to DKK 2.1 billion in 2007, 3.1 billion in 2008, and 5.0 billion in 2009, a part of the general block grant was made conditional on the local authorities' budget compliance and balancing. In 2010 and 2011, the conditional block grant amounted to DKK 1 and 3 billion, respectively, of which 60 pct. imposed on the local authorities with budget overruns and 40 pct. imposed collectively (Ministry of Economic Affairs and the Interior 2011, 2012).

Finally, the annual corporatist agreements between the state and the LGDK continuously limited local authorities' tax rights and while local income taxes remain the main revenue source, accounting for almost two-thirds of the average revenue, the national equalization grants became an important and viable part of local authorities' revenue after the reform in 2007 (Houlberg and Ejersbo 2020).

The equalization schemes, based on several demographic and economic expenditure need indicators, now redistribute 61 pct. of the national inter-municipal differences in expenditure needs relative to the local tax base and an additional 27 pct. in the capital region. Across the local jurisdictions, the general grants, including the equalization scheme, accounts for between 35 and minus 30 pct. of the revenue (Ibid.).

#### **2.2.4. PROCEDURAL AND SUBSTANTIVE QUALITIES**

The SR did not affect the core democratic institutions of local governments, including the election of laymen for political office, responsible for the political prioritizations and democratic control of the local public administration. However, the spatial loca-

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<sup>7</sup> In contrast, tax assessment administration was transferred from local to central government (Houlberg and Ejersbo 2020).

tion of the public administration, the spatial democratic representation, and the administrative models changed substantially. The reform caused a spatial centralisation of public administration and changed the division of power between the politicians and the administration.

First, as part of the amalgamation process, the town hall was closed in 177 and preserved in 66 of the 244 amalgamated jurisdictions. Often the town hall was preserved in the jurisdiction with the largest number of citizens before the reform. Moreover, it increased the spatial distance between the centre and periphery of the amalgamated jurisdictions as defined by the location of the local government administration. In most of the peripheral jurisdictions, the local public administration tasks were reallocated to the new town hall. However, in some of the amalgamated jurisdictions, the local public administration remained spatially decentralised across the former jurisdictions (Høst 2018).

Second, concerning descriptive representation, the constituents in the peripheral areas of the amalgamated jurisdictions became over-represented by an average of almost 20 pct. of the seats in the city councils. In terms of substantial representation, local politicians' representing peripheral constituents were 10 pct. more prone to advance local interests, particularly in jurisdictions, where the largest of the former jurisdictions was more than twice as large as the second-largest (Jakobsen and Kjaer 2016). In contrast, the periphery became under-represented in terms of winning the mayor's seat, which local constituents view as the dominant figure in the local political process in Denmark. After the reform, however, the political parties holding the mayoralty suffered higher democratic costs due to dissatisfaction with the municipal service in amalgamated municipalities (Kjaer and Klemmensen 2015).

Third, the amalgamations shifted the political power in local government, augmenting the political power of the mayor and the influence of top administrative officers, at the expense of back-bench councillors (Kjaer, Hjelmar, and Olsen 2010). While the top managers did not change their daily operations due to the increase in size, their political influence increased. It includes formulating ideas and visions, providing political counselling to the mayor, staying informed about political signals and maintaining external relations, and representing the administration on external matters (Krøtel, Villadsen, and Hansen 2017). One explanation for higher-level officials' enhanced attention to political signals, external relations, and political counselling may be that enlarged local jurisdictions attract greater interest from the media and the general public, increasing the need for avoiding unfavourable press coverage increases. Another explanation may be that large-sized public organizations are too unwieldy for politicians to fully manage and control.

Fourth, the number of standing committees and administrative organizational units in local public administration increased considerably in the amalgamated jurisdictions the first years after the reform in part due to new local authority tasks and an increased

workload (Baekgaard 2009). The unexplained part of the increase in the number of organizational units may originate from political norms or compromises giving most articulated local interests and tenured administrative managers a position in the new organizations, as Baekgaard (2009) hypothesizes.

It is further reflected in the change in the primary administrative model, from a traditional public sector-based model to an executive board model, intended to strengthen the coordination and collaboration across departments and committees. Hence, in most jurisdictions several directors formed the top management, collectively responsible for the administration and the preparation of policy decisions and services the committees, cutting the ties between committee members and administrative leaders of single service departments (Baekgaard 2011).

Fifth, the evidence suggests that the reform affected the local authorities' fiscal management capacity. While local councillors exploited the amalgamations to finance local projects after the amalgamations were settled, but before they were administratively implemented, labelled the common pool problem (Blom-Hansen 2010), the amalgamations improved the local authorities' fiscal management capacity. It includes the capacity to balance revenues and expenses (Hansen, Houlberg, and Pedersen 2014).

Finally, the statutory sanctions inherent in the conditional general block grants reduced the budget overruns (Houlberg 2016). Whereas the local authorities overran the expenditure budgets until 2010, they undercut the expenditure budgets by DKK 2.4-5.9 billion each year in the following period. Moreover, from 2010 to 2014, the realized service costs were reduced by DKK 9 billion (Ibid.).

However, the fiscal austerity following the economic crises and the statutory budget sanctions shifted the political power, including agenda-setting and decision making, from backbench municipal councillors to members of the municipal finance committees, when assessed by the non-members. Similarly, as the administration becomes budget guardians during times of austerity, the leading administrators' informational advantage further hampers the backbench municipal councillors' realization of the political ideas that diverge from those of the leading administrators (Houlberg, Voigt, and Pedersen 2018).

## 2.3. THE REFORM AS RESEARCH DESIGN

The reform process, including the political initiation and adoption of the reform, the effect of the reform on procedural and substantive qualities of Danish local self-gov-

ernment, and the containment of the local authorities' autonomy through central control in the aftermath of the reform are important for the interpretation of the results presented in the research article of the Ph.D. thesis.

Through the research articles, I regard the reform as exogenous to sub-national authorities, local constituents and companies, following prior studies exploiting the municipal amalgamations to assess the effect of population size on procedural and substantive qualities of local government (e.g. Blom-Hansen 2010; Houlberg, and Serritzlew 2014; Blom-Hansen et al. 2016; Bhatti and Hansen 2019; Hansen 2015; Hansen, Houlberg, Pedersen 2014; Hansen and Kjaer 2020; Lassen and Serritzlew 2011).

The main argument is that the national government initiated and forced the reform process by obliging counties and municipalities to merge. However, a substantial number of voluntary amalgamations of the municipalities with a population size above 20,000 inhabitants outside the Capital Region as compared to the Capital Region partially questioning the validity of the argument. It may reflect that the mayors in the larger cities outside the Capital Region aimed to "expand their kingdom" (Mouritzen 2010: 38) or differences in structural conditions (Christoffersen and Ravn-Joensen 2005).

Compared to prior amalgamation reforms in Denmark and other OECD countries, the Danish SR in 2007 was swift. The pace of the reform is important, as local constituents and companies may otherwise have selected out of the amalgamations and local authorities adjusted their political and financial decisions following the expected outcomes of the reform in the years before the reform.

The massive central government bailouts of local governments during the first years after the reform and the extended equalization schemes may partially have offset the amalgamated local authorities' incentive to reap economies of scale. However, the containment of local government spending through the annual corporatist agreements limiting local authorities' tax rights and dictating an annual 0.4 pct. productivity increase and the introduction of the conditional general block grant and the fiscal austerity that followed the financial and economic crises had the opposite effect reducing the budget overruns.

The descriptive and substantive over-representation of the constituents in the peripheral areas of the amalgamated jurisdictions the first years after the reform may have ameliorated their perception of the local democracy. However, the under-representation of the citizens in the periphery in terms of winning the mayor's seat, as well as the shift in the power towards the mayor and the top administrative officers at the expense of back-bench councillors may have had the opposite effect.

## CHAPTER 3. LOCAL PUBLIC SECTOR EFFICIENCY

In article 1: “Kommunalreformens og sanktionslovgivningens betydning for den geografiske centralisering af kommunernes administration og service”, I assess the local government incentive to spatially centralise the local public administration and services. I contribute to the literature assessing the effect of the relative political power of the budget guardians and the advocates on the centralisation of public services. Whereas the guardians are expected to argue for cutting public spending in the periphery, the advocates are assumed to advocate for an expansion of the public spending in the periphery.

In article 2: “Jurisdiction size and local government administrative expenditures - Quasi-experimental evidence on the effect of spatial centralization, and labor input”, I further assess the effect of municipal amalgamations on technical efficiency in the local government administration. I contribute to the literature disentangling the contribution from the reductions in the fixed operating inputs and labour input.

It refers to the continuous struggle in the political science literature to define and measure the multidimensional concept of public sector efficiency and identify the optimal local authority size for public sector efficiency (Andrews and Entwistle 2013; 2014; Rutgers and van der Meer 2010). The debate intensified during the 1970s and the 1980s, due to the continuous and substantial expansion of the public sector in most OECD countries, while structural and administrative reforms were put in place to curb public spending. However, the efficiency gains from the structural and administrative reforms remain contested on theoretical and empirical grounds.

To contextualise and clarify the contribution in articles 1 and 2, the current chapter discusses different concepts of efficiency, their measurement, as well as the relationship between local government size and efficiency. The chapter is structured as follows. In section 1, I present five different concepts of efficiency. The methodological struggles about measurement of public sector efficiency are presented and discussed in Section 2. In sections 3 and 4, I present theories and empirical evidence concerning the effect of a consolidated and fragmented local government structure on public sector efficiency. A much shorter version of this review and discussion is contained in article 2 of the thesis.

### 3.1. PUBLIC SECTOR EFFICIENCY

The concept of public sector efficiency is multidimensional, reflecting the multitude of public sector outcome measures, including continuity, stability, freedom, and equity. The outcome measures are often incompatible, constituting public administration trade-offs (Fernández-Gutiérrez and Van de Walle 2018).

Drawing on the concept of economic efficiency, see section 3.1.3, Andrews and Entwistle (2013; 2014) define public sector efficiency as the optimum utilization of scarce public resources generating the highest public value. It includes 1) the optimization of the service production, lowering the cost of the produced goods and services, 2) the optimization of the current societal utility of the combination of produced goods and services, 3) the investments in future production capacity, and 4) the distribution of public resources across the population.

In the public administration and public economics literature different concepts, including technical and substantive efficiency in the former literature strand, and technical, allocative, dynamic, and distributive efficiency in the latter, are explicitly or implicitly intended capture the dimensions of public sector efficiency as defined above.

Following Andrews and Entwistle (2013, 2014), the concepts of allocative, dynamic, and distributive efficiency may contribute to a constructive reframing of the public sector efficiency debate in political science literature regarding the public value, underpinned by the responsiveness and accountability in public administration, inherent in the concept of substantial efficiency (Andrews and Entwistle 2013, 2014).

#### 3.1.1. TECHNICAL EFFICIENCY

Drawing on insights from Scientific Management (Taylor 1911), Gulick and Urwick (1937) introduced the concept of technical efficiency in the public administration and management literature, to capture the optimization of outputs through specialization and standardization in production. In this perspective, technical efficiency is achieved through the production of goods or services at the lowest cost possible, while maintaining or improving the level of service quantity and quality<sup>8</sup>.

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<sup>8</sup> Later in this chapter, I refer to the input-output-quantity ratio and input-output-quality ratio when distinguishing between technical efficiency measured in terms of service quantity and service quality, respectively.

The modern definition of the concept as the ratio between inputs and outputs was later developed in the field of economics through the work by Koopmans (1951), and Farrell (1957). While the methods for evaluating technical efficiency frontier vary substantially (Sickles and Zelenyuk 2019), technical efficiency is generally considered obtained when it is technically impossible neither to increase any output without simultaneously increasing one or more inputs nor to reduce any input without simultaneously reducing one or more outputs.

The concept of technical efficiency, as defined in the field of economics, gained footing in the public administration literature in the late 1980s through what Hood (1991) later labelled the new public management (NPM) approach. The NPM approach is inspired by a wide array of theories (Gruening 2001), including public choice theory (e.g. Niskanen 1968, 1971), neo-managerialism (e.g. Terry 1998), and neo-classic public administration (e.g. Simon 1976) and often viewed as the main proponent for technical efficiency in the public administration and management literature in political science (Rutgers and van der Meer 2010).

### 3.1.2. SUBSTANTIVE EFFICIENCY

Public administration scholars in opposition to the science of administration and NPM literature, such as the so-called Neo-Weberian-State (NWS) literature (e.g. Olsen 2006; Pollitt and Bouckaert 2011), explicitly or implicitly subscribe to a concept of substantive efficiency (Rutgers and van der Meer 2010). Substantive efficiency refers to the good public stewardship of scarce public resources conditioned by the specific skills and technical knowledge of impartial public servants and in particular their motivation to deliver public value, whether it is legitimacy, equity, freedom, security, etc.

Consistent with the philosophical roots of the term efficiency, defined by Aristotle, substantive efficiency applies to the bureaucrats' character, expertise, and "*ability to get things done*" serving the public interest, rather than to the optimal organization of the public goods and service production (Rutgers and van der Meer 2010). Hence, substantive efficiency may include state agencies' responsive orientation towards citizen's needs, including service satisfaction, the stability and continuity in the provision of public goods and services, the social equity and security, the legitimacy and fairness of public administration, and similar concepts or values (Lynn 2008).

It reflects, that (technical) efficiency is contrasted with other values, such as equity, security, and freedom in the political science and public administration literature (Hood 1991; Stone 2012), constituting a trade-off between incompatible outcome measures (Fernández-Gutiérrez and Van de Walle 2018). The critique of the (technical) efficiency concept was coined and succinctly worded by Waldo (1948): "*Things are not simply 'efficient' or 'inefficient.' They are efficient or inefficient for*



*given purposes*” (Waldo 1984: 193, cf. Rutgers and van der Meer 2010). In this perspective, public administration and management are viewed as the balancing of incompatible public sector outcome measures (Pollitt and Bouckaert 2011; Greener 2013; Andrews and Van de Walle 2013; de Graaf, Huberts, and Smulders 2016).

In the NPM approach (Hood 1991) (technical) efficiency is further distinguished from public economy and (cost-)effectiveness (Pollitt and Bouckaert 2011). Whereas the economy concept refers to the balance between required inputs and available resources, including resource allocation, budget compliance, liquidity and debt management, and the negotiation of supplier and procurement prices, public sector effectiveness is defined as the ratio between input and outcomes (Ibid.). It captures the cost of (politically) determined outcome measures other than the quantity and quality of outputs. However, other outcome measures or values, such as freedom and security are not easily quantified (Stone 2012).

### 3.1.3. ECONOMIC EFFICIENCY CONCEPTS

In economics, economic efficiency is defined as the optimum allocation and distribution of scarce resources between production and consumption, maximizing total current and future utility in society. It reflects an optimization of quantity, quality, and variety of produced goods and services across space and time. The concept of economic efficiency is obtained through technical, dynamic, and allocative efficiency. In addition, in welfare economics, the concept of distributive efficiency describes the politically motivated redistribution adjusted to the continuously changing market allocation of wealth (Andrews and Entwistle 2014).

In public economics, the concept of dynamic efficiency captures the distribution of resources across time. Dynamic efficiency is concerned with the optimal balance between current production and capital investments to maintain or improve technical efficiency and consumption utility over time<sup>9</sup>. Public-sector capital investments include, e.g., the construction and maintenance of schools, elder homes, local administration offices, infrastructure, and investments in human, social, and natural capital. Considerations on dynamic efficiency typically surface in national government investment decisions in large-scale projects, such as hospitals and infrastructure; as such decisions tend to be informed by cost-benefit analyses exploiting the evidence from prior investments. On the other hand, local investments in schools, elder homes, etc.

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<sup>9</sup> The evaluation of dynamic efficiency assessment encompass the evaluation of the current revenue over the real interest rate. In private markets, dynamic efficiency relates to the “Golden Rule” of capital accumulation obtained when the interest rate is equal to the population growth rate (Diamond 1965).

are rarely the object of such analysis (Andrews and Entwistle 2014; Barrell and Weale 2010).

Allocative efficiency commonly refers to an optimization of the allocation of inputs and outputs over input and output prices (Musgrave 1959). In private markets, allocative efficiency is obtained when consumers' marginal utility is equal to the marginal cost of production. More precisely, when the allocation of resources, including the production of the output bundle and investments for future production and consumption, accommodates consumer preferences evaluated over the cost of current and future production (Andrews and Entwistle 2014). In public economics, allocative efficiency translates to the balance between the levied taxes, the provided service bundle, and public investments, and hence the optimal allocation of common public resources - aligning the provided tax-service-investment-package and citizens' preferences (Oates 1969).

Finally, in welfare economics, distributive efficiency constitutes a fourth aspect of public sector efficiency, introduced by Lerner (1944). Distributive efficiency refers to the optimum distribution of wealth and welfare in society as well as legal and procedural equality. Moreover, distributive efficiency reflects both Weberian procedural justice and Rawlsian social justice. Unsurprisingly, the criteria for evaluating distributive efficiency is debated<sup>10</sup>, and while the public redistribution of the market allocation constitutes a core in welfare economics (Kleinberg, Ma, and Weiss 2012), other economists dismiss the notion of distributive efficiency as a purely political question unfit for economic assessment (Samuelson and Nordhaus 2005).

Slightly polemical, one may argue that the concepts of distributive, allocative, dynamic, and technical efficiency, in that order may contribute to the efficiency measures of the aspects inherent in the definition of politics that most political science scholars subscribe to, synthesized by Lasswell as a question of "*Who Gets What, When, and How*" Lasswell (1936), and repeated in the public administration values of equity, security, freedom, and efficiency synthesized by Stone (2012).

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<sup>10</sup> It justifies both the absence of redistribution based on the Pareto optimality criteria and complete redistribution based on the critique of the assumptions underpinning the Pareto efficiency. The Pareto efficiency is achieved when any alteration of the welfare distribution to improve the welfare of one group will make another group worse off. However, as all individuals' utility of consumption is regarded equal, the Pareto efficiency is shaped by technical efficiency and not by equity or equality measures and does not necessarily result in a socially desirable distribution. In contrast, if the utility of consumption decrease by the consumed volume, due to diminishing marginal returns to consumption, disregarding the social costs of the redistribution, the optimal distributive efficiency is achieved through perfect economic equality. However, as the redistribution of wealth affects the total wealth, perfect economic equality is undesirable (Lerner 1944).

## 3.2. MEASURING PUBLIC SECTOR EFFICIENCY

### 3.2.1. ECONOMIC EFFICIENCY CONCEPTS

The concepts of technical, dynamic, allocative, and distributive efficiency all require an adequate measure of current or future production inputs and service outputs. The standard input measures include current or future sectoral costs of the labour and capital, such as salary payments, rent, procurement, and maintenance of buildings and material, or the overall public spending defined by tax revenue (Andrews and Enwistle 2014)<sup>11</sup>.

The measurement of partial or total output quantity is in principle straightforward, reflecting the activity level. Depending on the available information, it may be approximated by the number of citizens, who are eligible for or receive public services. For instance, an output measure for local public schools could be the total number of primary school-aged children or the number of pupils attending public schools. For the local government administration, the output measure would encompass the total population or the number of handled cases.

For distributive efficiency, the output measures include the perceived and objective distribution in procedural outcomes in the legal and administrative system across social groups, as well as economic and social distribution, such as the Gini coefficient or the access to local public services, including public schools and public facilities (Andrews and Enwistle 2014).

Following Hirsch (1959), in article 2, I employ administrative expenditures per capita as a proxy for technical efficiency in the public administration, omitting changes in the quality of the output bundle and the exogenous inputs. Depending on the production function of the distinct public services, omitting the quality of the service output and the exogenous inputs, however, may bias the estimated efficiency gains from administrative and structural reforms.

#### **The quality of the output bundle**

It is less evident, however, how to approximate the service quality and variety aligned with citizens' preferences. Unlike the private market service offerings, public services

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<sup>11</sup> Alternative input measures refer to the production volume, including the number of employed staff or the available capital and equipment capacity. The volume measures, however, may in part reflect the activity level and hence the output quantity

are not assigned a pecuniary value through a transaction. In the social science literature, attempts have been made to assign prices paid for similar services in the private sector (e.g. Simpson 2009), or to use contingent valuations from the stated preference in surveys (e.g. Fujiwara et al. 2019), community satisfaction surveys (Rodríguez et al. 2009), or revealed preferences from citizens' usage of public services and goods (Bourgeat 2015). Others have applied hedonic pricing models exploiting the variation in real estate prices across geography to evaluate the social value of place-specific public attributes and amenities (e.g. Gibbons and Machin 2008). Still, other measures include survey instruments or ballot box results (James and John 2007)<sup>12</sup>. As illustrated, measures of public sector efficiency are by no means a simple task, and the quality measures are contested, including revealed preferences (Koszegi and Rabin 2007), contingent valuation, and survey instruments (Bouckeart and Van de Walle 2003).

The time-series comparison of efficiency measures omitting service quality, implicitly or explicitly assume that the service quality is constant. If the local public authorities reinvest the economic gains from improved technical efficiency in the attempt to improve the service quality, it will downward bias the estimated efficiency gains from public sector reforms. Conversely, local authorities may choose to reduce labour inputs deteriorating the quality of local government administration and service provision introducing an upward bias in the estimated efficiency gains. More specifically, while the input-output-quantity increase, the input-output-quality decrease, resulting in de facto constant technical efficiency.

In article 2, I do not measure the quality of the local government administration. However, disentangling the contribution from spatial centralisation and labour input on administrative expenditures the results qualify our understanding of the mechanisms driving the economic outcomes from municipal consolidations. Moreover, one may argue that while the decision to cut operating costs through the spatial centralisation of local government administration is unrelated to the concern regarding service quality, the decision to cut labour input cost is (see section 3.3.2).

### **Exogenous inputs and externalities**

The input measures may further include exogenous inputs and externalities. Exogenous inputs comprise the coproduction of citizens receiving public services. For ex-

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<sup>12</sup> Alternative output measures of quality may reflect citizens' experience of the output effects, the public school pupils' standardized grade point average, the nursing home residents' life quality, or the number of local public busses arriving on time. However, output measures reflecting citizens' output experience relate to the concept of effectiveness (Andrews and Entwistle 2014; Blom-Hansen et al. 2021).

ample, the transport costs and time spent from home to the school constitute coproduction activities (Alford and O'Flynn 2009). Efficiency measures omitting exogenous inputs overstate the efficiency gains from public sector reforms if the exogenous inputs increase following the reform. This may apply to the spatial centralisation of local government administration, evaluated in article 2, as the average transport distance between the citizens and the municipal offices and citizen service centres increase imposing additional transport costs on the citizens, introducing an upward bias in the results concerning the efficiency gains from spatial centralisation of the local public administration.

Externalities encompass costs internalized by citizens other than those financing or benefitting from the public services. For example, local authorities and citizens may benefit from urban sprawl within their jurisdiction, as it expands the local jurisdiction property tax base to finance public services. However, urban sprawl may also be associated with economic productivity losses caused by traffic congestion or air pollution in neighbouring jurisdictions (Brueckner 2000; Ewing, Pendall, and Chen 2002). Failure to observe and include costs externalities may bias the estimation of administrative and structural reform effects on public sector efficiency, as costs may transfer between jurisdictions or sectors or between the public and the domestic sphere. The indirect local labour market effects of the spatial centralisation and labour input increase in local government administration following municipal consolidations, as I assess in article 4, could constitute a costs externalities in neighbouring jurisdictions, but are otherwise not developed further here.

In a similar vein, the input measure of distributive efficiency further includes the estimates of the societal cost of different equity levels, including the displacement of societal activities given the redistribution of public resources. For example, increasing social transfer payments to single-parent households to overcome poverty among children may decrease labour supply and thereby introduce an additional cost beyond the simple cost of the transfers and their administration (Andrews and Entwistle 2014).

### **3.2.2. SUBSTANTIVE EFFICIENCY**

Finally, the concept of substantive efficiency is vaguely defined and not easily operationalized empirically (Rutgers and van der Meer 2010; Alford and O'Flynn 2009). Moreover, the different approaches so far have failed to define the public value of provided services and to assess public servants' determination to provide services of public value (Bryson, Crosby, and Bloomer 2015). The suggested approximations include the use of performance auditing and public value scorecard (Pollitt and Bouckaert 1995).

### 3.3. THEORETICAL APPROACHES

In the literature, two stylized reform approaches are presented as promoting public sector efficiency in general and technical and allocative efficiency in particular. The first approach recommending structural reforms to enhance *the economics of production* or *bureaucratic capacity* subscribes to the arguments for local government consolidations. The second approach subscribing to the arguments for a fragmented government structure has emphasized administrative reforms strengthening *economies of incentives* and *professional management*, as reflected, not least, in the ideas of New Public Management.

#### 3.3.1. THE ECONOMIES OF INCENTIVES

Neo-institutional economic theory, including public choice, principal-agent, and transaction cost theory, as applied in the NPM literature, builds on the assumption that all public officials are self-interested rational actors, exploiting the information asymmetry between the agent and the principal to pursue their interests. This includes politicians, managers and ordinary public servants across all levels of the public sector organization.

In the front line, street-level bureaucrats employ coping strategies to overcome dilemmas, trade-offs, and resource constraints in the everyday front line discretion (Lipsky 1980), while managers may discount slack into the budget to guard against budget cuts (i.e. shirking) or lower the performance accordingly (i.e. slack-off) (Gilpatric 2008). Similarly, in local government administration, local administrative bureaucrats may maximize agency budgets within the social welfare break-even constraint, to enhance the prestige of the agency and their salaries (i.e. rent-seeking) (Fisman 2001; Niskanen 1968, 1971). Finally, local politicians may maximize district policy budgets to obtain re-election within their district, while the costs are spread across the jurisdiction as a whole (i.e. the common-pool-problem) (Blom-Hansen 2010). It follows that without an appropriate incentive structure or monitoring system, the public sector will tend to produce public goods and services at suboptimal technical, dynamic, and allocative efficiencies.

#### **Fragmented local government structure**

Following neo-institutional economic theory, the combination of a fragmented local government structure and fiscal decentralisation shapes the incentive structure of politicians and bureaucrats. It introduces market-like elements in public policy and service provision while providing politicians and public managers the tools to articulate, implement, monitor, and control organizational performance objectives. Moreover,

the fragmented local government authorities and citizens' empowerment to voice through democratic institutions or "vote with their feet" may improve productive, dynamic, and allocative efficiency (Rodriguez-Pose, Tijmstra, and Bwire 2009).

First, public choice theorists posit that a fragmented government structure may enhance competition for geographically mobile tax-payers, due to shorter geographic distances across jurisdictions and districts (Oates 1999). It gives local authorities the incentive to provide public services-tax-packages accommodating citizens' demands for efficiency and equity. Hence, they ameliorate the technical efficiency to lower the tax rate or enhance the service quality, and improve allocative efficiency, aligning the service bundle, the distribution of public resources, and public investments with citizen demands. A larger number of jurisdictions further allows for the optimization of allocative efficiency through household sorting across jurisdictions, as citizens have more service providers to choose from (Tiebout 1956).

In a similar vein, assuming that the endogenous and exogenous factors affecting household preferences deteriorate sharply over distance, public choice theorists posit that in small jurisdictions, delimited by the geographic scope of the jurisdiction, citizens' political preferences and demands are *ceteris paribus* more homogeneous and consequently accommodated by one-size-fits-all public services (Niskanen 1971; Oakerson 1999; Wallis and Dollery 2006; Weisbrod 1997). In contrast, as the heterogeneity in political preferences and service demand increases by jurisdiction size, the discrepancy between demand and supply widens (Holcombe 1989).

Further, small public bureaucracies may narrow the gap between politicians and their constitutions. Moreover, the channels for citizens and firms to express their preferences are more accessible and effective in small bureaucracies, and hence the political debate and the administrative procedures are more likely to account for the local preferences (Downs 1967; Ostrom 1989; Tullock 1965). In contrast, as the scale of the political bureaucracy increase, the reliance on hierarchy and bureaucratic organizational structures grows, potentially misrepresenting citizens' preferences in the political debate and the administrative procedures (Mouritzen 1989). Due to the complexity of large bureaucracies, senior officials face lower political scrutiny, allowing them to shirk, slack-off, and rent-seek exploiting information asymmetry between the politicians and the administration (Fisman 2001; Gilpatric 2008; Niskanen 1968, 1971; Ostrom 1989). It counteracts the optimization of productive and allocative efficiency.

The arguments generally build on the assumption that citizens are fully informed about the tax-service packages across relevant jurisdictions, comprehending and comparing the service specifications and service quality evaluations across an array of service providers and select the service provider they find adequate, maximizing their tax-service-package-utility through settlement and engage in public debate. It further implies that citizens are not locally attached and that the cost of relocation and democratic participation is low.

Finally, it entails the alignment of fiscal instruments and accountability at lower government tiers with fiscal and political discretion (Oates 1999). It includes i.a. that 1) local government bailouts and intergovernmental transfers are based on clear rules and not on political discretionary bargaining and local fiscal volume, 2) the division of fiscal and political responsibilities between government tiers is clear, and 3) the information on local government fiscal performance and behaviour is available for capital markets and constituents. If so capital markets will constrain local government credit and lending of lavishing governments and constituents will vote to squander incumbents out of office (Ibid.).

Applying the terminology by Wildavsky (2002), the behaviour of the budget advocates include the concepts of shirking, slacking-off (Gilpatric 2008), rent-seeking (Fisman 2001; Niskanen 1971), and bureau-shaping (Dunleavy 2014) behaviour of the local public administration managers. However, as argued by Houlberg, Voigt, and Pedersen (2018) the local public administration managers may assume the role of guardians of the local public financial compliance depending on the institutional and economic setting (Oates 1999; Wildavsky 2002).

Moreover, following Houlberg, Voigt, and Pedersen (2018), the mayor, the financial executive committee, and the municipal managers constitute budget guardians in the Danish local government in the period after the structural reform, due to the statutory sanctions inherent in the conditional general block grants and the public fiscal austerity (Houlberg, Olsen and Pedersen 2016). Moreover, while they *“are bureau- and budget-maximizers working to increase budgets in times of abundance, they become budget guardians in times of austerity”* (Houlberg, Voigt, and Pedersen 2018: 105). In contrast, backbench councillors remain budget advocates.

In article 1, I assess the effect of the relative power of budget guardians and advocates in local government on the decision to centralise the public service institutions as a means to reap economies of scale (see section 3.3.2).

### **Fragmented and private local service providers**

In the NPM literature, it translates into two stylized administrative reform strategies for local agencies: the market strategy and the management strategy, of which the



former is particularly relevant for the discussion of agency size<sup>13</sup> (see Hood 1991; Pollitt 2003). More specifically the market strategy, including competitive tendering through privatization of public sector monopolies, the division of purchasing and providing public agencies, and the disaggregation into single-purpose administrative agencies, is intended to reduce service cost and improve service quality (Hansen 2011). It entails fiscal accountability, managerial freedom, public benchmarking of service providers, and the free choice of citizens to choose between service providers for motivating local service providers to pursue optimization of budgets, lowering prices, or improving service quality (Hood 1991).

Population size and administrative capacity may, however, condition the fragmentation of local government agencies and the incentive of local authorities and private contractors to engage in private-public service provision (Bel and Fageda 2007, 2009; Foged 2015). Moreover, local government administrative capacity to contracting-out, increase with population size (Bel and Miralles 2003), and private contractors may find large markets more attractive, increasing competition among private contractors (Foged 2015). However, as the population size increases municipalities may exploit economies of production, including economies of scale, scope, and density, as discussed in section 3.3.2, lowering their incentive to contracting-out. In contrast, while private contractors operating across municipal jurisdictions may exploit economies of production despite small, fragmented local government (Bel and Fageda 2007; O'Toole and Meier 2004)<sup>14</sup>.

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<sup>13</sup> The management strategies complement the market strategies. The performance management programs, including management by objectives (Odiorne 1965), total quality management (Hackman and Wageman 1995), balanced scorecard (Kaplan and Norton 1992), management by contract (Walsh 1995), applied in contracting-in public or contracting-out private suppliers. It is intended to provide the management tools to define employee and organizational performance efficiency standards aligned with the political or organizational vision and strategy, measure and evaluate individual and organizational performance and workflows, employee performance assessments, training, performance-related pay and job transfer, and workforce planning (Cleveland, Murphy, and Williams 1989). However, performance standards may increase the tendency to creaming in the frontline services improving performance measures but reducing distributive efficiency.

<sup>14</sup> The production function and market characteristics of specific services may further condition the effect of population size on contracting-out. In sectors, where service outcomes are complicated to measure the technical capacity of the local government administration may be of particular importance, while private contractors may find services in free-choice schemes particularly appealing. Similarly, production economies are particularly pronounced in capital-intensive services with low face-to-face contact and high fixed cost, including urban public transport, water supply, and quality control, and waste management (Foged 2015), see below.

### 3.3.2. THE ECONOMIES OF PRODUCTION

Structural reforms aimed at enhancing the economics of production or bureaucratic capacity pursue the efficiency gains obtained through consolidating the capacity of lower government tiers or public sector agencies. Economies of production refer to three mechanisms economies of scale, scope, and density obtained through production capacity, product variety, and agent spatiality, determined by population size, bureaucratic capacity, and urbanization, respectively (Bel 2013), as well as externalities as part of the production function and efficiency measures.

Economies of scale refer to the inverse relationship between the production volume and the production cost; the larger the production volume, the smaller the cost per produced unit of goods and services. It is derived from two production inputs. First, as the cost of fixed inputs, that is inputs unaffected by production volume, are spread over a larger production volume, the cost per unit produced is lowered, improving the ratio between input and the production output quantity (Bel 2013). Similarly, for non-rivalry consumption goods and services with near-zero marginal cost, that is goods and services that are not exhausted by additional consumption, such as water quality control (Santerre 2009), the fixed costs are spread over a larger number of service recipients. Second, as the production volume grows, it allows for further division of labour, including specialization and case-specific knowledge. It reduces the time spent on each task and the share of procedural errors and hence labour input per unit produced. Whereas the first improves technical efficiency measured as the input-output-quantity ratio, the latter improves the input-output-quantity and/or quality ratio.

However, above a certain threshold, diseconomies of scale may offset the marginal efficiency gains of a further increase in production volume. Decreasing returns to scale is the term commonly used to capture the increase in management costs, including communication, coordination, and control costs, due to bureaucratic congestion as production volume increases (Bel 2013). A larger staff requires more layers of management, hampers the transmission of accurate information, increases time spent on controlling that decisions are put into effect as intended and correct errors due to coordination failure (Williamson 1967). Economies and diseconomies of scale depend on the employed technology. For example, new information and communication technologies may lower communication, coordination, and control costs in large bureaucracies (Blom-Hansen et al. 2016).

Economies of scope refer to the efficiency gains obtained through the joint production of distinct services (Bel 2013), and as one may argue through the decentralisation of public sector responsibilities. It relates to the fixed cost of economies of scale, as fixed inputs are shared across different, but often related service outputs. It may include administrative tasks, material, and capital. Economies of scope are obtained either through the reorganization of public responsibilities within local authorities or through the collaboration or transfer of tasks between government tiers that increase

the number and diversity in services produced by local public agencies (Arcelus et al. 2015). Moreover, as such economies of scope do not require local government consolidations. However, the consolidation of bureaucratic capacity may facilitate the reorganization of administrative tasks (Ibid.). Similar to economies of scale, diseconomies of scope, due to bureaucratic congestion as the diversity of the provided services increases, may offset the technical efficiency gains.

Economies of density refer to cost savings obtained through the effect of the spatial proximity between suppliers, service providers, and consumers. In densely populated areas, the spatial proximity between service providers and consumers lowers the distribution cost, including transport cost and fixed infrastructure costs. Moreover, economies of density are not obtained through consolidations or collaboration of agencies and local government, but through urbanization. Economies of density, however, may justify public consolidations to achieve distributive and allocative efficiency. While the technical efficiency is higher in urban and metropolitan areas, distributive and allocative efficiency is achieved through regional cross-subsidies, funding the service distribution in less-densely populated rural and peripheral areas (Bel 2013)<sup>15</sup>.

Finally, the existence of cost externalities may further provide an important argument for consolidations. Assuming that local governments have a greater incentive to address externalities affecting constituents residing within the jurisdiction, consolidations of local government jurisdictions further improve allocative, distributive, and dynamic efficiency. In contrast, whereas local governments tend to oversupply policies if the cost externalities spill over onto citizens residing outside the jurisdiction, they undersupply policies, if the benefits spill over onto citizens residing outside the jurisdiction. However, economies of scale scope, and density, as well as cost externalities, may vary substantially across public services hampering the identification of the optimal jurisdiction size and scope (Blom-Hansen et al. 2016)<sup>16</sup>.

Public administration scholars in opposition to the NPM literature, such as the NWS approach, provide additional arguments that could support the consolidation of bureaucratic and jurisdiction capacity to improve allocative, dynamic, and distributive efficiency. It is argued that the capacity of local and central bureaucracy enables the

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<sup>15</sup> Public transport, water supply, electricity supply, and waste management are often mentioned examples of services, where economies of density may exist. However, economies of density may theoretically be found in any public service requiring transport between service providers and the citizens, including home care services in the public elder care sector (Bel 2013).

<sup>16</sup> The described returns to scale are also labelled internal scale economies, reflecting an increase in organizational efficiency. External scale economies are relevant in the private sector, reflecting the return to sector expansion with multiple firms benefitting from cost improvements (Bel 2013).

public administration to address comprehensive local and national social and economic issues effectively (Pollitt and Bouckaert 2011). Moreover, the NWS approach accommodates the notion by Waldo (1984) that the realization of economic stability and social equity requires a centralized and hierarchical bureaucracy as well as competent and professional bureaucrats dedicated to secure an efficient implementation of political policies and programs. This is in line with Max Weber, according to whom the bureaucratic organization is superior “*in precision, in stability, in the stringency of its discipline, and in its reliability*” (Weber 1980 [1921]: 128 cf. Denter et al. 2014). It relates to the notion in the political science literature that state capacity may underpin democratic legitimacy and representative democracy, as discussed in chapter 4 below.

However, the NWS approach further emphasizes that the professionalism, technical skills, and knowledge of bureaucrats and public managers may underpin political responsiveness, citizen orientation, and service innovation. Hence, whereas the ‘Weberian’ principles encompass neutral and accountable state agencies and local government administrations anchored in representative democracy, the ‘Neo’ principals include the orientation towards citizens anchored in the professional bureaucratic culture, and public consultation, and direct citizen involvement as a supplement to the representative democracy, as well as a service orientation anchored in management professionalism including monitoring, evaluation and some degree of performance management (Byrkjeflot et al. 2017). The NWS approach intends to straddle across rather contradictory paradigms combining bureaucratic procedures and management performance, standardized service provision, and tailor-made citizen solutions, political legalism, and market orientation. This paradox of the NWS approach as presented by Pollitt and Bouckaert (2011) and the inherent tensions and possible dysfunctions are, however, often underplayed or disregarded.

In article 2, assess the effect of the fixed operating inputs and labour input, as included in the concept of economies of scale, on technical efficiency in the local government administration.

### 3.4. EMPIRICAL EVIDENCE

The empirical literature on public sector efficiency is immense and yet inconclusive. It is beyond the scope of the thesis to give a full and systematic review of the empirical literature, however, the conclusions from a few reviews are highlighted here, while the conclusions drawn from quasi-experimental studies concerning the effect of scale economies in local government are presented in more detail.

Scale economies of local government enhancing technical efficiency, measured in terms of the general expenditure per capita, are widely studied. In a survey of reviews,

including U.S, Canadian, UK and Australian studies (Bish 2001; Boyne 1995; Byrnes and Dollery 2002; Ostrom 1972) as well as Dutch (Derksen 1988), and mixed European studies (Martins 1995), Blom-Hansen, Houlberg, and Serritzlew (2014) conclude: *“There is, at best, mixed evidence on this theory. No survey study has found unequivocal evidence in favor of positive scale effects”* (2014: 792). In an extended review, including additional reviews by Fox and Gurley (2006) and Holzer et al. (2009), Blom-Hansen et al. (2016) maintain the overall conclusion, while emphasizing the conclusion drawn from the study by Holzer et al. (2009) examining 65 studies from a broad range of countries. Holzer et al. (2009) find that while there is little evidence of economies of scale for a population size between 25,000 and 250,000, efficiency in specialized services may increase with size for municipalities with less than 25,000 inhabitants, but depending on the contexts.

Recent studies employ quasi-experimental designs, exploiting exogenous amalgamation and annexation reforms, to compare amalgamated and continuing local government jurisdictions across the time of the reforms (see Gendźwiłł, Kurniewicz, and Swianiewicz 2021 for a recent review). Three of the studies find a reduction in total expenditure per capita, including Israel (Reingewertz 2012), Sweden (Hanes 2015), and Australia (Mughan 2019). For Sweden, Hanes (2015) finds evidence of a U-shaped correlation between the amalgamation size and total per capita expenditure growth in Sweden. In contrast, for Australia, where local authorities provide “services to property”, including maintenance of roads, water, sewage, and solid waste disposal, Mughan (2019) finds that voluntary and not forced mergers decrease partial expenditures. A few studies that amalgamations increase expenditures in most service categories in Finland (Moisio and Uusitalo 2013), for fire, solid refuse, parks, and recreation services in Canada (Slack and Bird 2013), and labour market activation in Denmark (Blom-Hansen et al. 2016).

In contrast, most of the studies find no effect on total net expenditure per capita, but substantial decreases in administrative cost per capita in Denmark (Blom-Hansen et al. 2016), Netherlands (Allers and Geertsma 2016), Germany (Blesse and Baskaran 2016), Finland (Moisio and Uusitalo 2013) and Canada (Cobban 2017). Moreover, whereas amalgamations reduce spending on general administration, it has no significant effect on aggregate spending or taxation. In Germany, compulsory annexations seem to facilitate the obtainment of scale economies in local administration, while voluntary amalgamations do not affect administrative costs (Blesse and Baskaran 2016) while one study finds no effect of amalgamations on administrative cost per capita in Germany (Roesel 2017).

Further, in labour-intensive non-tradable public services, such as schools (see Colegrave and Giles 2008 for a review) universities (see Toutkoushian and Lee 2018; Zhang and Worthington 2018 for reviews), nursing homes (see Tran et al. 2019 for a review) and hospitals (see Freeman et al. 2020 for a review) the evidence suggests that *institution-level* scale and scope effects exist.

It generally suggests that face-to-face contact in the labour-intensive non-tradable public services, such as childcare, primary school, eldercare and health care, may hinder local authorities to exploit economies of scale following municipal amalgamations, while extensive institution mergers reduce fixed operating costs for building maintenance and allow managers to optimize the workflow reducing labour input (Boadway and Shah 2009; Walker and Andrews 2015; Blom-Hansen et al. 2016).

In contrast, the tradable public sector with limited or temporary direct face-to-face contact with the public, including the local government administration, labour market and citizen service centres, and capital-intensive utility services are arguably more suitable for spatial centralisation to cut fixed operating inputs and exploit labour specialization to reduce labour input<sup>17</sup>.

However, one study evaluating the effect of the political geographic representation on the spatial distribution of local administration and public services following municipal mergers (Harjunena, Saarimaab, and Tukiainen 2021) find that the local representation affected the spatial relocation of health and social care services, while the local public administration was centralized irrespective of local representation. It may suggest that while the spatial centralisation of the local administration is intended to improve technical efficiency, the spatial distribution of services is guided by local interests rather than common efficiency considerations.

In contrast, other evidence predominantly on US data suggests that a fragmented government structure may improve the technical and allocative efficiency of the public sector. In a recent literature review, Saltz and Capener (2016) surveying 40 articles assessing the Tiebout hypothesis since 2000, find compelling evidence of Tiebout style outcomes concerning the tax rates, migration, the relative cost and quality of public schools, welfare policy variety, pollution levels, and comparative economic and personal freedom (Saltz and Capener 2016: 72).

Finally, evidence concerning the effect of population size on contracting-out is mixed (see Bel and Fageda 2007; Foged 2015). While 13 studies find positive size effects, 5 studies negative effects, and 12 studies find mixed or insignificant size effects. A Danish study (Foged 2015) exploiting the Danish SR in 2007 finds a negative effect of population size for the contracting-out of capital-intensive services, but positive effects for labour-intensive services with outcomes that are difficult to measure or characterised by free-choice.

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<sup>17</sup> Concerning the scope and density effects in public administration and services at the municipal level, the evidence suggests that economies of scope and density may exist for high-cost capital-intensive services, including infrastructure and transport, waste management, and water supply (see Bel 2013 for a review).

The results are less compelling, as a systematic review (Petersen, Hjelm, and Vrangbaek 2018) conclude that technical efficiency gains documented in international contracting-out literature are much greater in capital-intensive services than in social labour-intensive services, while they have been decreasing over time. However, efficiency gains are about twice as large in Anglo-Saxon countries compared with other countries. Potentially due to more extensive free-choice markets.

The inconclusive evidence suggests that the effects of economies of production and incentives are highly case-dependent and conditioned on the history of inter-government cooperation, financial and collective agreements, political structure, spatial organization, and political will to consolidate local government. Moreover, heterogeneity in unobserved endogenous and exogenous characteristics may drive the differences in the results.

### 3.5. CONTRIBUTION

In article 1, I contribute to the literature assessing the redistribution of local government administration and core public services, including childcare, primary school and elder care, following local government amalgamations. Second, I assess the effect of the relative power of the mayor, the financial executive committee, and the municipal managers as compared to backbench councillors on the location of public services. I find a substantial spatial centralisation in the local public administration following the Danish SR in 2007 concentrated around the location of the new town hall often within the larger of the former jurisdictions. In contrast, I find no or a modest relocation of the core public services. Further, the local budget guardians' relative political power did not affect the spatial distribution of childcare and eldercare, but primary school services. More specifically, the results suggest that the municipal managers induced a spatial centralisation of the public school services, while the mayor and the financial executive committee had the opposite intent.

Further, in article 2, I contribute to the literature by providing quasi-experimental evidence of the effects of municipal amalgamations on technical efficiency in local government administration, disentangling the contributions from the reduction in fixed inputs through the spatial centralisation of the local government administration, and the exploitation of labour specialization decreasing administrative labour input.

I find no clear evidence that neither the amalgamations nor the increase in population size reduce administrative costs per capita. In contrast, I find evidence of substantial sunk costs during the implementation, increasing with the amalgamation size and the spatial centralisation. However, some amalgamated municipalities reduce administra-

tive costs through spatial centralisation, while most fail to reduce administrative labour input. Spatial centralisation and reduced labour input are, however, associated with substantial reductions in administrative costs per capita.

The failure to reduce administrative labour input may originate from shirking, as senior officials and local managers face lower political scrutiny in larger and more complex bureaucracies with pronounced information asymmetries between the politicians and the administration (Fisman 2001; Gilpatric 2008; Ostrom 1989; Niskanen 1968, 1971), counteracting the optimization of technical efficiency. However, diseconomies of scale may equally increase labour input, increasing layers of management as well as personal managing communication, coordination, and control, increasing bureaucratic congestion as production volume increases.

In contrast, the reduction of fixed cost obtained through the spatial centralisation of the local government administration may be more political opportune and it is not easily misrepresented in the communication between local politicians and the administrative management by the information asymmetries in the larger and more complex bureaucracies.

The results suggest that failure to reorganize the local government administration confine the expected reduction in administrative expenditures per capita from municipal amalgamations, while the substantial implementation costs partially offset the economic gains. However, consolidations may bring a promise of substantial cost savings, if local authorities exploit the full potential for spatial centralisation and labour specialization.

It is in line with the results of a few prior studies. Whereas Mughan (2019) evaluates the effect of consolidations on labour cost, materials and contracts, and other costs in Australia, Reingenwertz (2012) divides total expenditures by labour costs, and service costs subtracting labour cost in Israel. They find that while consolidations do not affect labour costs, fixed operating costs included in the category of other costs and service costs subtracting labour costs, are reduced.



## CHAPTER 4. THE QUALITY OF LOCAL DEMOCRACY

In article 3, “Polity Size, Spatial Representation, and Local Democracy - Quasi-experimental evidence from a large-scale structural reform in Denmark”, I assess the effect of population size and the spatial centralisation of local administration on citizens’ local system support, including their support for the local incumbents, the local self-government, and local democracy as well as their community attachment.

It refers to one of the most enduring struggles in political science since Plato; to define the optimal polity size for effective representation and efficient governance shaping citizens’ political efficacy, system support, and participation (Bhatti and Hansen 2019; Hansen 2012; 2015; Hansen and Kjaer 2020; Lassen and Serritzlew 2011) and hence the accountability, responsiveness, and legitimacy of local self-government (Beetham and Weir 1999). The theoretical arguments and the empirical studies, however, neglect the effects of the spatial distribution of local government administration and service institutions.

In chapter 4, I present the main controversies concerning the conceptualization and operationalization of citizens’ system support, as well as the theoretical arguments and empirical evidence on the diverse effects of polity size on citizens’ system support, to contextualise and clarify the contribution of the article 3.

Chapter 4 follows the same structure as in chapter 3. In sections 1 and 2, I discuss the development and subsequent contributions to the conceptualisation and operationalisation of citizens’ system support. In sections 3 and 4, I present the theoretical arguments and the evidence on the effect of municipal size on citizens’ system support. In section 5, I summarize the contribution from article 3.

### 4.1. SYSTEM SUPPORT

In political science, citizens’ system support is regarded as one of the key indicators of the overall health of democratic systems (Craig, Niemi, and Silver 1990) underpinning their active support, including formal and informal participation (Dahl 1989; Hetherington 1998, 1999; Rosenstone and Hansen 1993; Verba, Schlozman, and Brady 1995; Wright 1981). Subsequent contributions, however, claim that citizens’ political dissatisfaction and scepticism may encourage formal participation and informal activism (Klingemann 1999; Geissel 2005; Norris 2011).

The concept of political support, coined by Easton (1957), constitutes the point of departure for most scholars assessing citizens' political support. While Easton developed the framework for the evaluation of citizens' support of the national political system, it has been applied to assess citizens' support in regional or local governments across different state settings (Christensen, Yamamoto, and Aoyagi 2020; Denk 2012; Sears et al. 1978). The Eastonian concept of system support is intended to capture the multiple attitudes by which citizens orient themselves towards the political system either favourably or unfavourably, positively or negatively (Easton 1975). Whereas the distinction between different objects is important for the interpretation of the concept, the distinction between specific and diffuse support is essential (Schnaudt 2019).

#### 4.1.1. OBJECTS OF SUPPORT

Easton identifies three different objects of support, including the political authorities, the political regime, and the political community (Easton 1965), ranging from the most manifest to the most intangible object. In article 3, I evaluate the consolidation and centralisation effects on citizens' support for all three objects.

Easton defines the authorities as *“all public officials from chief executives, legislators, judges, and administrators down to local city clerks and policemen, as well as the institutions, such as legislatures or courts, of which they are part”* (Easton 1975: 438). Drawing on subsequent contributions, in article 3, I distinguish between ‘representative’ and ‘regulative’ political authorities (Denters, Gabriel, and Torcal 2007). Whereas the representative authorities progress and pass public policies, laws, and regulations, the regulative authorities implement and administer them. The former include the parliament, the (local) government, (local) political parties, and the (local) politicians and the latter, an array of institutions and officials, from the central administration and civil servants, across the courts, the police, judges, and police officers to local city administrations and clerks, or local public schools and school principals. In article 3, I assess citizens' support for the representative local politicians.

Easton further defines the political regime as the political structures, the specific operating rules, and the general regime principles (Easton 1965), manifested through *“the processes by which the country is run”* (Easton 1975: 447). Drawing on subsequent contributions concerning citizens' regime support in representative democracies, in article 3, I divide the functioning of the regime by the workings of the local self-government and the local democracy (Norris 1999). The former encompasses the power-sharing arrangements and checks-and-balances underpinning an effective and impartial political decision-making process (Norris 2011), the latter may be defined by free and fair popular elections (Schumpeter 1952), and an array of formal political institutions such as equality before the law, freedom of speech and association, human rights, etc. as defined by Dahl (1956).

Finally, the political community comprises of the members of the political system, linked by their politically defined rights and obligations within the boundaries of the political territory (Easton 1965). As Easton's framework is developed to capture citizens' national system support, the political community is generally considered a political constant, only occasionally altered at the fringe of the citizenship or the territory. However, at the subnational level, political communities are temporary and continuously altered through consolidations or fragmentations (Blom-Hansen, Houlberg, and Serritzlew et al. 2014) challenging the viability of the local political community. In article 3, I define the political community by the enforced legal administrative boundaries of the municipalities defining citizens' rights and obligations within the jurisdiction of the local government.

While Eastons' theoretical distinction between objects of support is widely accepted in the political science literature, a long-standing debate about whether the objects of support are distinguishable to the citizens remains. Some scholars maintain that citizens can evaluate the functioning of the regime, disregarding the momentary actions of any single official that may otherwise discredit the institutions they represent (Lipset and Schneider 1983). Others claim that citizens refer to the officials' political statements and actions when evaluating the performance of the regime, as the officials are viewed as acting on behalf of the institutions they represent (Bowler and Karp 2004; Kaina, 2008). Moreover, the reputation, appearances, and performances of the political authorities may affect citizens' support of the process by which the political system is run (Muller and Jukam 1977).

Similarly, some scholars posit that citizens evaluate political authorities by their compliance with the regime principles and operating rules, as perceived by the individual citizens. The intangible objects constitute the principles defining citizens' normative expectations by which manifest objects are evaluated. Hence, citizens' political support for the authorities is shaped by their support for the regime principles and operating rules (Craig, Niemi, and Silver 1990; Miller and Listhaug 1990; Owen and Dennis 2001). In article 3, I do not claim that the objects of support are distinguishable to the citizens. In contrast, I find that the measures of citizens' support for the incumbents and the political process are partially correlated, as found in prior studies (Craig, Niemi, and Silver 1990), and yield similar results concerning the consolidation and centralisation effects.

Finally, subsequent contributions argue that the political community may coincide with or deviate from historical, cultural, or linguistic communities (Norris 2011: 25) inherent in the concepts of social communities and geographic places. The former, defined in classic urban sociology studies (Kasarda and Janowitz 1974), constitute the social connections and interactions between citizens. The latter, defined in classic phenomenological geography studies (Tuan 1975), comprises of the connotations associated with a geographic area (see Trentelman 2009 for a discussion). It may introduce multiple and potentially conflicting community loyalties and place identities

within the political community. It is particularly relevant in a local political setting, where cities, parishes, or former municipalities deprived of any political content, may constitute such local communities and identities.

#### 4.1.2. SPECIFIC AND DIFFUSE SUPPORT

Easton further distinguishes between specific and diffuse support to explain the coexistence of monumental political upheavals and general political continuity (Easton 1965). The former captures the citizen's valuation of the authorities' current performance anchored in their instrumental evaluation of the political outputs and outcomes. Specific support is the cognitive evaluation of the current performance of the political system, including specific political programs, legislation, and service provision, and expressed through the *"satisfactions that members of a system feel they obtain from the perceived outputs and performance of the political authorities (...) according to the extent to which these demands are perceived to have been met"* (Easton 1975: 437-439).

The latter captures their *"confidence (...) that the political system (...) will produce preferred outcomes even if left untended"* and *"a belief in the legitimacy of political objects"* (Easton 1975: 447-451). The first dimension captures citizens' instrumental confidence in the authorities and the regime's *"ability to rule"* and develops over time depending on a persistent record of momentary political (dis)satisfaction with the performance of the incumbents, and hence on the citizens' specific support (Easton 1975). The second dimension captures their perception of the authorities and the regime as legitimate with the *"right to rule"* (Easton 1975: 447-451). It reflects whether the authorities and the regime conform to the citizens' *"own moral principles [and] sense of what is right and proper in the political sphere"* (Easton, 1975: 451)<sup>18</sup>.

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<sup>18</sup> I build on Schnaudt (2019), who apply the terminology by Fuchs (1989), arguing that citizens' political confidence reflects an instrumental dimension of support concerning the individual citizens' future utility whereas citizens' evaluation of the system's legitimacy reflects a moral dimension. Hence, Easton's distinction between confidence and sense of legitimacy relates to the common distinction in political science between substantive and procedural qualities of a political system. It is evident in Lipset's distinctions between *"effectiveness"* and *"legitimacy"* (Lipset 1959: 86), Scharpf's two faces of democratic self-determination, including *"government for the people"* and *"government by the people"* (Scharpf 1999: 7) and the fundamental analytical distinction between *"system capacity"* and *"citizens' effectiveness"* in Dahl and Tufte's (1973: 22) seminal book on the effect of polity size on democratic quality. However, when conceptualising confidence and legitimacy, most political science scholars usually consider the two concepts as mere synonyms (Thomassen, Andeweg, and van Ham 2017).

Diffuse support reflects citizens' more profound integration with the political system (Easton 1975: 444-45). While momentary inferior government performance may deteriorate citizens' specific support, it normally does not dislodge their diffuse support, reflecting a more profound integration of the system. However, Easton argues that citizens' diffuse support is not easily rebuilt when broken. In article 3, I evaluate the consolidations and centralisation effects on citizens' diffuse support and hence on the fundamental underpinnings of a stable and viable local self-government and democracy.

### **Incumbent and regime qualities**

Easton's conceptualization of confidence and legitimacy, however, remains contested. Subsequent contributions suggest that citizens' confidence in and their sense of legitimacy in the representatives and the regime builds on an affective evaluation of their perceived qualities and compliance with the regime principles and operating rules (Citrin and Muste 1999; Craig, Niemi, and Silver 1990; Hardin 1999; Norris 2011; Pitkin 1967) while treating confidence and legitimacy as mere synonyms (Thomassen, Andeweg, and van Ham 2017).

Some of the suggested qualities of the authorities in a representative democratic setting include integrity, responsiveness, competence, and honesty (Craig, Niemi, and Silver 1990), neutrality, impartiality, transparency, and factuality (Tyler 2011), regularity, reasonableness, and efficiency (Sztompka 1999), or commitment, accountability, and reliability (van der Meer and Dekker 2011) (cf. Schnaudt 2019). Integrity, responsiveness, and competence are the most often mentioned (Denters et al 2014).

The qualities of the representative democratic regime refer to qualities such as transparency, inclusiveness, and accountability of the popular elections (Schumpeter 1952), equality before the law, freedom of speech and association, etc. (Dahl 1956) as well as power-sharing arrangements and checks-and-balances shaping the political decision-making process in government and underpinning an efficient political leadership and problem-solving capacity in response to citizens' preferences (Craig, Niemi, and Silver 1990; Denters et al. 2014; Hansen 2015; Norris 2011)<sup>19</sup>. However,

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<sup>19</sup> Following Schnaudt (2019), most of the mentioned values can be boiled down to the distinction between system effectiveness and legitimacy. Hence, one may argue that whereas the transparency, inclusiveness, and accountability of popular elections and the incumbents' integrity relate to structural and personal legitimacy, the problem-solving-capacities of local self-government and the responsiveness and competences of the incumbents may categorize as system effectiveness.

the relevant qualities of both representatives and the regime may vary across democratic settings, defined by citizens' perception of appropriate governance and fundamental democratic values (Norris 1999).

Similar qualities of the incumbent and the regime are regarded as determinants of citizens' external political efficacy, defined as their sense of effectiveness to influence political decisions. Incumbent-based efficacy is defined as the beliefs about the motivation and ability of incumbents to respond to citizen demands (Shingles 1988: 5, cf. Craig, Niemi, and Silver 1990: 291), and regime-based efficacy is defined as their belief that rules and procedures for policy formation and implementation facilitate the influence of the citizens on the decision process (Shingles 1988: 7, cf. Craig, Niemi, and Silver 1990: 291). In this perspective, political confidence refers solely to their belief that future political output will be aligned with the public interest, irrespective of citizens' political participation, leaving the political system untended (Craig 1979; Craig, Niemi, and Silver 1990).

While the two concepts of confidence and external efficacy are theoretically distinguishable, the concepts of political confidence and external efficacy have proven difficult to disentangle empirically and often conflated in the empirical literature (Craig, Niemi, and Silver 1990; McDonnall 2020). One explanation may be that *"In a democratic culture where the norms of citizen participation and governmental responsiveness are widely valued, it may be impossible to distinguish empirically between IBT [trust] and IBE [external efficacy] because the two are so often seen as part of the same package"* (Craig, Niemi, and Silver 1990: 300). Another explanation, one may argue, is that the same qualities underpin the subtle distinction between receptiveness to public preferences and interests and the responsiveness to the individual citizens' voice of individual preferences and interests (McDonnall 2020).

In article 3, I view citizens' diffuse support as anchored in their affective evaluation of the perceived qualities of the incumbents conforming to the regime principles and operating rules of the representative democracy and their satisfaction with the functioning of the political process in referring to their notion of the ideal local democracy and self-government. For the operationalisation, I draw on the operationalisation by Denters et al. (2014), Hansen (2013, 2015) and Norris (2011), see section 4.2. In article 3, I include the instrumental and moral dimension in the definition of citizens' diffuse support for the incumbents and the regime institutions.

### **Community qualities or local identity**

It is less evident how citizens' support of the political community is captured within the framework of diffuse support. One could argue that political community attachment builds on the confidence in the community to recognize the individual as a member and the legitimacy of the community defined by civic or ethnic grounds, including

rights or duties enforced by the regime, or the common culture, symbols, and history. However, employing the terminology by Fuchs (1993), political community support is interpreted as citizens' expressive orientation, transcending their instrumental and moral support of the system (Schnaudt 2019). Moreover, community attachment is expressed through attributes of the individual citizens towards other members, such as patriotism, loyalty, or identity.

As such, political community attachment becomes synonymous with the sentiments expressed in various concepts tapping citizens' affective attachment to the social community or geographic place, as opposed to the effective attachment based on their political function within the community (Hansen and Kjaer 2020). The main difference is that while the social community or geographic area is defined by the citizens, the political community is limited by the administrative boundaries of the territory or citizenship.

## 4.2. MEASURING SUPPORT

The concept of system support is broad and operationalizing Easton's refined conceptual framework has proven difficult (Thomassen, Andeweg, and van Ham 2017). The operationalisations of citizens' diffuse support, including their confidence in and their sense of legitimacy of the political objects, encompasses general and specific measures.

### 4.2.1. GENERAL MEASURES OF SUPPORT

First, most scholars measure citizens' confidence in the authorities and the regime employing direct questions about how much the respondent trust specified authorities and institutions or finds the specified authorities and institutions trustworthy (Grönlund and Setälä 2007; Schnaudt 2019)<sup>20</sup>. Such items are applied in the World Values Survey Wave 7 (WVS 2017) with the wording *"Do you agree or disagree with the following statements? I am usually cautious about trusting politicians"*, or *"Most politicians are honest and truthful"*. In the European Social Survey (ESS 2018) similar items are worded as *"Using this card, please tell me on a score of 0-10 how much you personally trust each of the institutions I read out. 0 means you do not trust an institution at all, and 10 means you have complete trust. Firstly... ..politicians?"* and

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<sup>20</sup> Most scholars employ confidence and trust as interchangeable terms. In contrast, Norris (2017) argue that confidence may represent the belief in the authorities' capacity to perform effectively, while trust reflects the belief in the authorities' motivation, and Schnaudt (2019) that trust unlike confidence requires reciprocity.

“...[country]’s parliament?”. More recently, a similar item has been adopted in The American National Election Studies (ANES 2021) with the wording “*How much do you agree or disagree that most politicians are trustworthy*”. In contrast, citizens’ valuation of the incumbents’ and the institutions’ legitimacy has not been measured directly referring to concepts of legitimacy or illegitimacy, but commonly implied in the general measure of trust (e.g. Schnaudt 2019).

Further, it is common to apply items concerning citizens’ satisfaction with the form of government in general and the workings of democracy in particular as general measures of citizens’ diffuse support for the regime. The items capture the citizens’ belief that the decision-making process and democratic practice of the regime, referring to “*the processes by which the country is run*” (Easton 1975: 447) or the “*democratic reality*” (Rohrschneider and Schmitt-Beck 2002: 37), conform to citizens’ notion of ideal governance and democracy. It refers to substantial and procedural qualities of the regime (e.g. Anderson and Guillory 1997; Dahlberg, Linde, and Holmberg 2015; Kumlin and Esaiasson 2011; Linde 2012; Linde and Erlingsson 2013; Linde and Peters 2020; Norris 1999, 2011; Wagner et al. 2009).

In the WVS (WVS 2017) the items are worded “*How satisfied are you with the following?: The way the government performs its duties in national office*” and “*The way democracy is developing in our country*”. Similar items in the ANES (2021) include: “*Does respondent approve or disapprove the way the U.S. Congress has been handling its job?*” and “*How satisfied are you with the way democracy works in the U.S.*”. Finally, in the ESS (2018), the items most similar are “*Now thinking about the [country] government, how satisfied are you with the way it is doing its job?*” and “*on the whole, how satisfied are you with the way democracy works in [country]?*”<sup>21</sup>.

Hence, respondents’ are required to compare the current regime practice with their notion of the ideal and not by the principles upon which it rests. This approach is believed to provide a common standard of citizens’ diffuse support for the political regime practice, rooted in their experiences, while generally viewed as distinguishable from measures of citizens’ support for the principles of democracy (Linde and Erlingsson 2013; Norris 2011) (see e.g. Magalhães (2014) for the operationalization of support for the democratic principles).

Finally, other scholars adopt the items employed in the ANES 1987 pilot study (Craig, Niemi, and Silver 1990), including “*Whatever its faults may be, the American form of government is still the best for us*”, “*There is not much about our form of government to be proud of*”, “*It may be necessary to make some major changes in our form of government to solve the problems facing our country*”, and “*I would rather live*

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<sup>21</sup> The items capturing citizens’ satisfaction with government performance is viewed as a more specific type of support (Rohrschneider and Schmitt-Beck 2002; Hanspeter 2018, Hartevelde et al. 2021).



*under our system of government than any other that I can think of*" (see Avery 2009; Martinez and Delegal 1990; Mutz and Reeves 2005). However, one may argue that the items tap regime practice and principles alike.

The general measures of diffuse support are suited for the comparison of citizens' system support and the quality of government and democracy across regimes (Norris 1999). However, the measures are somewhat sensitive to different institutional contexts, defined by the regime principles, allowing the respondents to define the qualities implied, which may deviate from the definition applied by the researcher (Linde and Ekman 2003).

#### 4.2.2. SPECIFIC MEASURES OF SUPPORT

Some scholars specify a set of qualities defined by the incumbents' actions and the functioning of the regime conforming to the principles of representative democracies (Citrin and Muste 1999; Craig, Niemi, and Silver 1990; Hardin 1999; Pitkin 1967).

Integrity, responsiveness, and competence (Craig, Niemi, and Silver 1990; Hardin 1999; Miller et al. 1980) are the most often mentioned qualities of the incumbents (Denters et al. 2014; Hansen 2012) and have been measured in several ways (Citrin and Muste 1999), often based on items developed in the ANES in 1958 (Norris 2011). Consensus has, however, not been established (Parker, Parker, and Towner 2014). The studies by Craig, Niemi, and Silver (1990) and Niemi, Craig, and Mattei (1991), employing the ANES 1987 pilot, are among the most influential studies developing standardized measures of diffuse support. The former study is one of the few studies partially succeeding in disentangling confidence in the incumbent and the regime as well as confidence and external efficacy (Parker, Parker, and Towner 2014).

Measures of the incumbents' responsiveness refer to their genuine and reactive interest in public opinion and public justification of political acts that are contrary to public opinion. Measures of competencies gauge citizens' evaluation of the incumbents' abilities to act upon the intention and provide effective leadership, defining and achieving collective goals and prioritizing and solving public issues. Finally, measures of integrity include questions about whether incumbents set aside their personal and other special interests and do not abuse their political power for personal gains if they are trustworthy and honest (Craig, Niemi, and Silver 1990; Hardin 1999; Scharpf 1999; Denters et al. 2014).

More specifically, in the ANES, the incumbents' responsiveness is measured by the item: *"How much do you agree or disagree that public officials don't care much what people like you think"*, their competencies by the item *"Do you feel that almost all of the people running the government are smart people who usually know what they are*

*doing, or do you think that quite a few of them don't seem to know what they are doing?"* and their integrity<sup>22</sup> by the items *"Do you think that quite a few of the people running the government are crooked?"*<sup>23</sup>.

Measures of citizens' diffuse support for the regime commonly tap their belief that the government act in response to public opinion anchored in the workings of the democratic institutions (Craig, Niemi, and Silver 1990), their confidence in the government capacity to solve social problems and create societal opportunities, implied by the concept of effectiveness (Denters et al. 2014; Hansen 2015) and their belief that government policies are intended to benefit all and not the few (Craig, Niemi, and Silver 1990).

In the ANES, the item *"How much does having elections make the government pay attention to what the people think"* refers to the workings of the democracy and is commonly included in the index measuring citizens' external efficacy (Niemi, Craig, and Mattei 1991; Citrin and Muste 1999; McDonnall 2020)<sup>24</sup>.

Concerning government capacity, integrity, and responsiveness, in the ANES (2021), the item *"How good of a job is the government in Washington doing in dealing with the most important problem"* captures the problem-solving capacity of the government (Torcal 2014). The measure of government integrity is worded *"Is the government run by a few big interests looking out for themselves or the benefit of all the people?"* and the item *"How much attention does the government pay to what people think when it decides what to do"* measures the government responsiveness (Craig,

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<sup>22</sup> Related items in the ANES (2021) measuring the incumbents integrity are *"How widespread is corruption such as bribe taking amongst politicians in the U.S.?"*, *"How many people running the government are corrupt?"*, or *"How much do you agree or disagree that most politicians care only about the interests of the rich and powerful?"*

<sup>23</sup> Similar items are found in the WVS, where the incumbents' responsiveness, competence and integrity is measured asking the respondents whether they agree or disagree with a range of statements. Citizens' confidence in the incumbents' responsiveness is measured by statements, including *"Politicians don't respect people like me"* and *"Politicians usually ignore my community"*, their competence by the statement *"Politicians are often incompetent and ineffective"* and finally their integrity by the statement *"Politicians often put country above their personal interests"*.

<sup>24</sup> Similar and more recent items in the ANES (2021) further refer directly to the transparency, inclusiveness, and accountability of elections, including *"How well do elections ensure that the views of voters are represented by members of the U.S."* as well as *"How often do the following things occur in this country's elections - votes counted fairly"*, *"-rich people buy elections"* or *"-election officials are fair"*.

Niemi, and Silver 1990)<sup>25</sup>. The last item has further been included in the index measuring citizens' external efficacy (Citrin and Muste 1999; McDonnall 2020; Niemi, Craig, and Mattei 1991).

The measures relate to similar items as measures of the quality of government referring to citizens' experience of political corruption (e.g. Linde and Erlingsson 2013) and procedural fairness (Magalães 2016), government performance, and Subjective representation (Dahlberg, Linde, and Holmberg 2015), as determinants of diffuse support for the regime.

In article 3, the measurement of citizens' diffuse support for the local incumbents, I apply two items adopted as an elaborated translation of the items applied in the ANES (2021) concerning the incumbents' responsiveness and the number of crooked incumbents. The items are: *"Local politicians do not care much about what the local citizens think"* and *"Considering the situation in the municipality where you live, how many of the local politicians do you think abuse their power for personal gain?"*.

Similarly, for the measurement of citizens' diffuse support for the local regime, in article 3, I apply two items similar to the ANES (2021) referring to citizens' belief that the decision-making process and democratic practice of the local regime conform to their notion of the ideal governance and democracy. The items are worded as *"All things considered, how well does your municipality live up to your perception of what constitutes good local self-government?"* and *"All things considered, how satisfied are you with the way local democracy works in your municipality?"*.

#### 4.2.3. COMMUNITY SUPPORT

Finally, the concept of political community attachment is most often measured as citizens' general sense of belonging and attachment to different embedded political communities, asking respondents how attached they are to their municipality, region, country, and supranational communities (Norris 2011; Denters et al. 2014; Hansen and Kjaer 2020; Sellers and Lidstrom 2012). In the WVS (2012), the wording is: *"I see myself as part of my local community"*. A similar wording is found in the ESS (2018) concerning the respondent's country: *"How emotionally attached do you feel to [country]? Please choose a number from 0 to 10, where 0 means not at all emotionally attached and 10 means very emotionally attached"*. In article 3, I apply the wording by Denters et al. (2014: 85): *"On a scale from 0 to 10 where 0 means 'No attachment at all' and 10 means 'Very strong attachment', please indicate how*

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<sup>25</sup> The item *"Does the government waste a lot of money?"* is commonly include in the same index of government trust, as well as the incumbent based trust items: *"Are most politicians crooked?"*; *"Do politicians know what they are doing?"* mentioned above.

*strongly you are attached to each of these areas ... The municipality in which you reside? ”.*

One may argue, however, that community attachment could be conceptualized by emotions, such as pride and loyalty. To the best of my knowledge, it has yet to be validated empirically. In contrast, the concepts of social community attachment have been operationalised in various ways referring to different aspects of attachment. As an example, Stinner et al. (1990) and Goudy (1990) employ indicators of amity and social bonds, involvement, and sentiment to capture the respondent’s attachment to a social community. Whereas amity and social bonds refer to the number of friends the respondent has in the community, involvement measures how greatly the respondent is involved in community-wide activities, and sentiment captures the respondent’s level of satisfaction with the community.

### 4.3. THEORETICAL APPROACHES

The arguments concerning the effect of local government consolidations on citizens’ system support often refer to two stylized hypotheses, labelled the “little-is-lovely” and “big-is-beautiful” (Denters et al. 2014) or “the small-is-beautiful” and “big-is-lovely” hypothesis (Kelleher and Lowery 2004). The two opposing views reflect that jurisdiction size and administrative capacity has diverging effects on local government procedural and substantive qualities, giving rise to “*strikingly contradictory conclusions*” (Oliver 2000: 362). Moreover, jurisdiction size and administrative capacity constitute several trade-offs concerning procedural and substantive qualities, of which the relative values are continuously disputed (Keating 1995). It is captured in the conclusion by Dahl and Tufte that “*No single type or size of unit is optimal for achieving the twin goals of citizen effectiveness and system capacity*” (1973: 138).

The two opposing views draw on theories developed in political sociology and public economics literature. The effects of jurisdiction size and administrative capacity on citizens’ system support are derived from the effects on procedural and substantive qualities of local government. Moreover, it is generally assumed that citizens are capable of gathering, comprehending, and reflecting on information concerning government policy decision-making process and service provision, shaping their satisfaction and confidence in the procedural and substantive performance of the incumbents and the regime (Denters et al. 2014). Conversely, it is assumed that the theoretical arguments are not contradicted if citizens’ perception of the system’s effectiveness and legitimacy differ from the de facto effectiveness and legitimacy of the political objects, accommodating citizens’ preferences. In contrast, the effect of polity size on citizens’ political community attachment is anchored in the effect of size on their knowledge of common interests and identification with their fellow citizens.

To contextualise and clarify the contribution of article 3, I present the main argument concerning the effect of municipal size on citizens' system support in line with and beyond the limited discussion found in article 3.

#### 4.3.1. COMMUNITY QUALITIES

Reviewing the central arguments for the diverging effect of polity size on citizens' system support, Dahl and Tufte (1973), present the core arguments concern the diverging effects of polity size and citizens' community attachment and system support, assuming that citizens' social identification and attachment affect their system support (Coleman 1990; Newton 1999; Putnam, Leonardi, and Nanetti 1993).

Following the arguments of what has been denoted the “social-embeddedness-hypothesis” (Almond and Verba 1963), citizens' sense of social embeddedness decreases by the community size, deteriorating their perceived reciprocity, sense of common interest, and social trust. The argument draws on two assumptions. First, assuming that the endogenous and exogenous factors, affecting household preferences deteriorate sharply over distance, the smaller the jurisdiction, the more homogeneous the citizens are concerning political beliefs, values, and demands. Moreover, both endogenous effects, including household settlement patterns and the mutual influence between neighbours, as well as the exogenous effects, encompassing the local amenities and labour market opportunities, affecting household preferences, attenuate sharply over distance. Second, frequent face-to-face contacts and neighbourly relations, as opposed to associational involvement, enhance citizens' social embeddedness<sup>26</sup>.

However, the “*social-embeddedness-hypothesis*” is contested. Following what has been denoted the “*mobilization- model*” (Verba and Nie 1972), a larger population size may result in a diverse social integration (Fischer 1995) generating “*multiple loyalties to various communities*” (Dahl and Tufte 1973: 14). Moreover, while small jurisdictions may enhance some citizens' social embeddedness, large jurisdiction may free others from the strong pressures for social conformity, political nepotism, and favouritism (Dahl and Tufte 1973) and allow major social issues and conflicts to surface on the agenda that otherwise are glossed over (Kelleher and Lowery 2004).

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<sup>26</sup> These sentiments may further become reinforced during times of conflict, defined as a “rally-around-the-flag” effect, across the political spectrum. It may include the effects of globalization, international refugee crises, participation in a war, or even the consolidation of local jurisdictions (Porat et al. 2019).

### 4.3.2. PROCEDURAL QUALITIES

Dahl and Tufte (1973) further review the central arguments for the diverging effect of polity size and administrative capacity effects on the procedural qualities of local government and citizens' system support. The arguments have resurfaced in most subsequent contributions (Lassen and Serritzlew 2011; Hansen 2012; Hansen 2015). The arguments revolve around three stylized mechanisms: 1) citizens' political knowledge, 2) citizens' control of the political system, and 3) citizens' political representation<sup>27</sup>. While the first and the second argument constitute an inverse relationship between citizens' system support and the size of local government, the third underpin the opposite effect.

First, assuming that citizens are locally orientated, political science scholars posit that citizens' political knowledge is inversely associated with jurisdiction size and administrative capacity, including the scope of the social issues addressed by the local political decisions, public policies, and services (Kelleher and Lowery 2009). In small jurisdictions and small bureaucracies, citizens are familiar with the local political affairs through their everyday experience as it concerns a limited number of policies, public institutions, and citizens. In large jurisdictions and large bureaucracies, by contrast, local political affairs are complex and often not immediately attainable to the citizens (Oliver 2000). It follows that citizens' pecuniary and emotional costs of participation are inversely associated with jurisdiction size and government capacity (Dahl and Tufte 1973; Lassen and Serritzlew 2011). Hence, in line with the arguments proposed by the resource model of participation, claiming that citizens' resources underpin their participation (Brady, Verba, and Schlozman 1995), small jurisdictions and small bureaucracies yield greater net benefits of participation, ameliorating citizens' system support (Dahl and Tufte 1973: 41)<sup>28</sup>.

Second, as the institutional distance and social divergence between the incumbents and the constituents increase with the polity size and the size of the bureaucracy, it may result in an asymmetric political communication between incumbents and their constituents, weakening citizens' direct access to and control of the political system and consequently their system support (Dahl and Tufte 1976). The argument builds on two assumptions. If for no other reason than the time limitations faced by representatives engaging in the political dialogue with citizens, other council members, and

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<sup>27</sup> The effect of polity size on the perceived local government challenges, including the local unemployment rate, crime rate, and demographic challenges may further affect their confidence in local government, particularly in their elected representatives (Denters et al. 2014).

<sup>28</sup> While it is generally accepted that citizens' internal political efficacy affects their democratic participation, the effect of internal political efficacy on citizens' system support, however, is contested (see Denters et al. 2014).

the public administration, the proportion of citizens, who effectively influence the political decision-process beyond popular elections deteriorates sharply by polity size and government capacity. Further, the social distance, defined by occupation, education, and income, etc., increases with the number of constituents per representative due to the professionalization of public office (Ibid.). The arguments generalize to any political participation beyond popular elections, requiring the mobilization of a larger group of citizens (Dagger 1981; Kelleher and Lowery 2009; Tavares and Carr 2013; Verba and Nie 1972). In turn, it weakens citizens' confidence in their representatives' accessibility, responsiveness, and accountability (Lowndes and Sullivan 2008).

In contrast, it is argued that the formal political representation of different political values and the diversity of political associations increase by jurisdiction size and government capacity, as the representation of minority interests requires a critical population mass (Kelleher and Lowery 2004; Newton 1982). It has two effects on the procedural quality of local government that result in a more differentiated and competitive democratic system. It reduces the likelihood that a single citizen segment dominates the political agenda, as suggested by the "*mobilization-model*" (Verba and Nie 1972), and enhances citizens' sense of identification with the political agenda and decisions of one or more incumbents, and hence citizens' participation. Moreover, it fosters pluralism in civil society and political debates, ameliorating the responsiveness of the political system (Dahl and Tufte 1973; Verba and Nie 1972). Further, the extended competition within political parties, given a larger pool of qualified political candidates, allows for the selection of more politically skilled incumbents, assumed to enhance citizens' confidence in the responsiveness, integrity, and competence of local government officials (Denters et al. 2014).

#### 4.3.3. SUBSTANTIVE QUALITIES

In the public economics literature, two stylized approaches, denoted economies of incentives and economics of production in chapter 3, offer opposing views concerning the effect of polity size on the substantive qualities of local government. They are often referred to as the public choice and the reformist approach respectively, following Mouritzen (1989). The former approach is concerned with the local government's incentives to provide public policies and services aligned with local public demands through a fragmented government structure. The latter, providing support for consolidations, is concerned with local government capacity to produce services at the highest quality and lowest cost, while addressing a wider range of social issues. The arguments concerning the effect of local government consolidations on productive and allocative efficiency in the public sector are described in more detail in chapter 3.

Neo-institutional economic theory provides three main arguments, why consolidations increasing population size and administrative capacity, may deteriorate the

alignment between citizens' service demand and public service supply and consequently citizens' satisfaction with the system performance: 1) the preference homogeneity and household sorting, 2) local government competition, 3) internal political control of the bureaucracy.

First, in line with the "*social-embeddedness-hypothesis*", it is argued that in small jurisdictions citizens' political preferences, beliefs, values, and demands are more homogeneous and more easily accommodated by one-size-fits-all public policies and services. In contrast, the discrepancy between demand and supply widens by population size due to the heterogeneity in political preferences (Holcombe 1989; Niskanen 1971; Oakerson 1999; Wallis and Dollery 2006; Weisbrod 1997). Hence, household sorting across jurisdictions tends to enhance the alignment between citizens' service preferences and the services provided (Tiebout 1956).

Second, the neo-institutional economic theory posits that the local authorities' incentive to provide services aligned with citizens' demands is reinforced in small and fiscally autonomous jurisdictions, as the local competition for geographically mobile tax-payers increase, due to shorter geographic distances between jurisdictions (Oates 1999). As I argue in chapter 3, the "*citizens-vote-with-their-feet*"-argument build on the assumption that citizens are fully informed about the tax-service packages across relevant local governments and that they are not locally attached, as assumed in "*social-embeddedness-hypothesis*", but willing to maximize their tax-service-package-utility through settlement.

Third, the neo-institutional economic theory further posits that consolidations may widen the gap between citizens' service preferences and the services provided, as the capacity of the politically unaccountable bureaucracy increase. Moreover, citizens' preferences may become increasingly misrepresented in the political debate and the administrative procedures, as bureaucratic capacity may increase the political influence of the administration (Mouritzen 1989). It builds on the assumption that local government administration managers and public servants are self-interested, utility-maximizing, and rational agents exploiting the information asymmetry between the agent and the principal to pursue their interests<sup>29</sup>.

In contrast, the economies of production approach posits that consolidations enhance the functional capacity of local governments, including the specialization and profes-

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<sup>29</sup> Building on the argument concerning the deteriorating effect of institutional distance on citizens' effectiveness, one may argue, that the devolution may also deteriorate the procedural and subsequently the substantive quality of local government. Moreover, as devolution enhance the bureaucratic capacity and the complexity of administered local policies and social issues, the political power in local government may shift from councillors to the top administrative officers.



sionalization of the local public administration and service provision improving service quality and variety. First, exploiting scale-economies of specialization, consolidations may improve service quality. While consolidations enable local authorities to exploit scale-economies increase productivity by reducing costs, local authorities may choose to reinvest the economic gains in the attempt to improve the service quality, as opposed to cutting taxes (Mouritzen 1989; Ostrom 1972; Newton 1982).

Second, in line with the mobilization model concerning jurisdiction size and political representation, the economics of production approach suggests that specific services are provided if the demand reaches a certain threshold. It allows larger jurisdictions to produce a more fine-grained set of specialized services accommodating the demand for service provision diversity.

In Dahl and Tufte's terminology (1973), local government capacity enhance the ability to solve problems, produce services and establish necessary physical facilities, allowing citizens to influence a wider range of political decisions indirectly through their vote in local elections. Moreover, citizens gain indirect control over a larger set of social issues by compromising their direct influence on a few issues.

#### **4.3.4. THE SPATIAL DISTRIBUTION OF PUBLIC FUNDS**

The theoretical contributions concerning the effect of polity size on the procedural and substantive qualities of local government, however, generally neglect the effects of the spatial distribution of public funds, including the location of local government administration and service institutions (Harjunena, Saarimaab, and Tukiainen 2021). As polity size increases geographic redistributive games and local favouritism are unleashed dividing citizens between 'winners' at the geographic centre and 'losers' at the marginalised periphery (Jakobsen and Kjaer 2016; Harjunena, Saarimaab, and Tukiainen 2021; Voda and Svačinová 2020). In article 3, I argue, that the spatial distribution of public funds and not the polity size in geographically larger jurisdictions affect citizens' valuation of efficient governance and effective representation and identification with the political community.

The effect of the spatial distribution of public funds on citizens' system support remains however undeveloped. A related literature concerning the effect of power struggles more generally on citizens system support, suggests that 'winners' value efficient governance express higher confidence and find legitimacy in majoritarian systems where the winning party is given dominance in political power. Political 'losers' on the other hand effective representation. Moreover, 'losers' express higher confidence and find legitimacy in consensual systems where minority parties maintain greater influence (Anderson and Guillory 1997; Klingemann 1999; Lijphart 1999; Wells and Kriekhaus 2006). Similarly, the geographical cleavage and local favouritism may

affect citizens' local patriotism, loyalty, or identity, increasing the geographic divide between centre and periphery during the time of conflict, defined as a 'rally-around-the-flag' effect (Porat et al. 2019).

## **4.4. EMPIRICAL EVIDENCE**

The empirical literature is immense but inconclusive. The scarce quasi-experimental evidence included in recent systematic reviews, encompassing evidence from amalgamation and annexations, suggests that jurisdiction size has limited deteriorating effects on citizens' community attachment and more substantial negative effects on their confidence in the incumbents and the regime and their sense of the legitimacy of the incumbents and the regime (McDonnell 2020; Tavares 2018).

### **4.4.1. COMMUNITY ATTACHMENT**

The scarce empirical evidence concerning the effect of polity size on citizens' community attachment is particularly inconclusive (Hansen and Kjaer 2020). As noted by Hansen and Kjaer (2020), while a few studies find a deteriorating effect of local community size on citizens local attachment (Mandal 2016; McKnight et al. 2017), most studies find no evidence of any relationship between municipal size and local community attachment (Denters et al. 2014; Kasarda and Janowitz 1974; Westin 2016; Wicki et al. 2019), while one study finds an ameliorating effect of size (Bühlmann 2012). In contrast, citizens' length of residence in the municipality is found to have an ameliorating and substantially larger effect on their community attachment (Denters et al. 2014; Lewicka 2011; Bühlmann 2012; Westin 2016; Wicki et al. 2019). Only one study finds a deteriorating effect of length of residence (Kübler 2018). The identification of the latter effect may, however, suffer from endogeneity problems, due to reverse causality. Moreover, citizens with stronger community ties may tend to stay, while citizens with weaker community ties relocate.

Two quasi-experimental studies concerning the effect of jurisdiction size on citizens' community attachment find no effect of population size on community attachment. A single study finds that the amalgamation of local jurisdiction did not affect community attachment in Canada (Kushner and Siegel 2003). However, evidence from Denmark suggests that while neither the consolidation nor the increase in the absolute size of the municipality affected the level of attachment, the relative increase in size did (Hansen and Kjaer 2020). Moreover, the consolidations had a detrimental effect on citizens residing in the smaller of the former jurisdictions. In a related study, assessing the effect of municipal amalgamations on local population growth in Japan, Suzuki and

Sakuwa (2016) find that the population declined in the smaller of the merging municipalities following the mergers.

#### **4.4.2. LOCAL INCUMBENT SUPPORT**

Concerning the effect of jurisdiction size on citizens' confidence in local politicians, the only quasi-experimental study, based on survey data collected before and after the amalgamation reform in Denmark, measuring citizens' evaluation of the politicians' responsiveness, competence, and integrity, suggests that population size has a detrimental effect (Hansen 2012).

The wider non-experimental cross-sectional evidence confirms the negative association between jurisdiction size and citizens' confidence in the incumbents including Switzerland, Norway, the Netherlands, and Denmark (Denters 2002; Denters et al. 2014), China (Huang and Deng 2017) (see McDonnell (2020) for an extensive review), while others find no or moderate effects of municipality size on political confidence as emotional and political participation as manifest support in Sweden (Denk 2012) and Denmark (Larsen 2002). A related study assessing differences in citizens' confidence in local authorities following a municipal merger, disaggregation, and clustering (Beerli and Zaidan 2021) find that citizens who had experienced reforms involving voluntary coalitions and municipality clustering, compared to citizens who had experienced top-down amalgamation reforms, were more likely to have confidence in their local authority.

#### **4.4.3. LOCAL REGIME SUPPORT**

Similarly, the evidence concerning the effect of polity size on citizens' confidence in the problem-solving capacity of the local self-government and the functioning of the local democracy is scarce. A single study employing a quasi-experimental design, exploiting survey data collected before and after the amalgamation reform in Denmark, find that polity size deteriorates citizens' confidence in the problem-solving capacity of the local self-government and the functioning of local democracy as well as their satisfaction with public facilities and services (Hansen 2015).

In a European context, and particularly in the Scandinavian countries, the scarce cross-sectional studies seem to confirm the deteriorating effect of size on citizen satisfaction (Denters et al. 2014). In Switzerland, Norway, the Netherlands, and Denmark Denters et al. (2014) generally find that satisfaction with person-based services tends to be higher in small municipalities while size has no substantial effect on facilities-based services or problem-solving capacity, mediated through citizens' perception of local

challenges and the confidence in local incumbents (Denters et al. 2014: 210) confirming prior results for Denmark (Mouritzen 1989) and Norway, (Såheim and Fjermeros 1997). In Norway, the reverse effect, however, is found for technical services (Såheim and Fjermeros 1997). Finally, in related studies, Drew, Dollery, and Kortt (2016) find an inverted ‘U-shaped’ relationship between population size and service satisfaction for Victorian councils in Australia. Beerli and Zaidan (2021) find that citizens’ experiencing reforms involving voluntary coalitions and municipality clustering are more likely to have confidence in their local government’s problem-solving capacity and to be satisfied with the local service provision.

#### **4.4.4. VOTER TURNOUT RATES**

Long-term voter turnout rates are generally viewed as indicators of citizens’ system support and are often more accessible than the measures of citizens’ system support. Hence, the effect of polity size on the local voter turnout rate is extensively researched and the evidence of a deteriorating effect of polity size on voter turnout is compelling. Recent quasi-experimental studies assessing the effect of jurisdiction size on voter turnout rates, as an indicator of citizens’ system support, find that amalgamations reduce the voter turnout rates in the long run in Japan (Horiuchi, Saito, and Yamada 2015), Israel (Zeedan 2017), Portugal (Rodrigues and Tavares 2020), Switzerland (Koch and Rochat 2017), Germany (Roesel 2017) and Austria (Blesse and Roesel 2019; Heinisch et al. 2018), Finland (Lapointe, Saarimaa, Tukiainen et al. 2018), Denmark (Bhatti and Hansen 2019).

The non-experimental cross-sectional evidence confirms the negative association between size and voter turnout. It includes two recent meta-studies encompassing a total of 46 unique observational studies (Cancela and Geys 2016; van Houwelingen 2017) and a recent study including 12 countries and almost 15,000 municipalities (Gendźwiłł and Kjaer 2021). The cross-sectional studies further include similar findings from Denmark, the Netherlands, Norway, Switzerland, and the United Kingdom, of which the detrimental effect is strongest in Denmark and The Netherlands (Frandsen 2002), Poland (Gendźwiłł and Swianiewicz 2016), the US (Holbrook and Weinschenk 2014; Carr and Tavares 2014), and South Africa (Cameron and Milne 2013). Only a few studies find no statistically significant effect (see McDonnell (2019) for a review). A related study (Rose 2002) find that polity size further tends to deteriorate non-electoral participation in the Netherlands, Norway, and Denmark.

## 4.5. CONTRIBUTION

An emerging literature evaluates the effect of municipal mergers and local representation (e.g. Jakobsen and Kjaer 2016; Voda and Svačinová 2020) and the geographic distribution of public funds (Harjunena, Saarimaab, and Tukiainen 2021; Hodler and Raschky 2014). Two recent studies, exploiting municipal amalgamations in the Czech Republic (Voda and Svačinová 2020) and Finland (Harjunena, Saarimaab, and Tukiainen 2021) suggest that political and cultural-economic centres of bigger relative size in amalgamated municipalities are over-represented in the municipal council compared with smaller political and cultural-economic peripheries and units.

The evidence from Finland further suggests that local representation affected the location of health and social care services, while local public jobs in the administration were centralized irrespective of local representation (Harjunena, Saarimaab, and Tukiainen 2021). The spatial redistribution of health and social care services, however, reduced local house prices, suggesting that the perceived quality of the service-tax bundle deteriorated in peripheral municipalities (Harjunena, Saarimaab, and Tukiainen 2021). A study exploiting the large-scale structural reform in Denmark (Jakobsen and Kjaer 2016) found that municipal mergers lead to a numerical over-representation of the periphery in the legislature of the amalgamated jurisdiction.

I contribute to this literature by evaluating the effect of polity size and the spatial location of the local government administration on citizens' confidence in local politicians, their confidence in the local regime, and their sense of community attachment.

I find that the spatial centralisation of local government administration, rather than the increase in polity size, deteriorates the political support of the citizens residing in the smaller of the former jurisdictions constituting the periphery of the amalgamated municipalities. It suggests that the reform process divides local citizens between 'winners' and 'losers' at the jurisdiction centre and the periphery, respectively induce substantial local democratic disparities.

I argue that the relocation of the local government administration may serve as an indicator of local geographic redistributive games and local favouritism dividing the local citizens between 'winners' living near the centre of the amalgamated jurisdictions, and 'losers' living in the periphery, defined according to the location of the local government administration.

## CHAPTER 5. ECONOMIC DEVELOPMENT

In article 4, “The effect of high skill public jobs on local private sector employment - Quasi-experimental evidence from a large-scale structural reform in Denmark”, I assess the effect of the spatial centralisation of the sub-national authority administrations following the SR in Denmark in 2007 on local private sector employment, as an indicator of local economic activity.

It relates to the growing political concern for the well documented regional economic divergence in most countries (Rodríguez-Pose and Gill 2004; Storper 2018), from China (Lu and Wang 2002), across most of Europe (Petrakos 2001; Puga 2002) to the US (Bernat 2001), and the substantial expansion of regional development policies supporting lagging regions (Pike, Rodríguez-Pose, and Tomaney 2017). Today, the annual spending in the US amounts to \$95 billion in regional development policies, while the EU has designated an annual €40 billion, equivalent to one-third of the overall 2014-2020 budget (Ehrlich and Seidel 2018).

The sub-national government structure is thought to shape the development, implementation, and administration of regional economic development policies, including the distribution of EU and US economic development funds (Hall, Matti, and Zhou 2020). The choice between consolidated and fragmented sub-national government structures refers to the capacity and incentive of the public sector administration to address local economic issues (Ibid.).

Drawing on economic theory, I argue that sub-national government consolidations, enhancing administrative capacity and resulting in a spatial centralisation of public funds, including high-skill jobs in the public administration, affects the spatial distribution of economic activity within the new and larger jurisdictions (Egger, Koethenbuerger and Loumeau 2018; Harjunena, Saarimaab, and Tukiainen 2021).

In chapter 5, I present different concepts and measures of regional economic development as applied in the economic literature, contextualising the contribution of article 4. I further present the theoretical arguments for the effects of a consolidated and fragmented government structure on administrative capacity and incentives. Finally, I provide a brief presentation of the evidence on the effect of consolidated and fragmented sub-national government structures on regional economic development and disparities, and the effect of public sector jobs on the local economy.

Chapter 5 follows a structure similar to chapters 3 and 4. In the first section, I present different concepts and measures of regional economic development. In sections 2 and 3, I present the theoretical arguments and the evidence on the effect of the sub-national

government structure on economic development. In section 4, I summarize the contribution from article 4.

## 5.1. REGIONAL DEVELOPMENT AND DISPARITY CONCEPTS

Economic development and growth are commonly regarded as one of the main aims of regional development policies to enhance regional welfare. In recent years, the concept of regional development has been broadened, including health, quality of life, sustainability, and environmental issues (Pike, Rodríguez-Pose, and Tomaney 2017).

In article 4, I apply realized private-sector employment as an indicator of economic activity and labour demand. To contextualise the findings in article 4, I provide a brief account of the different concepts and measures of economic output and regional disparities as well as the different indicators emphasized in the economic literature, as causal explanatory variables for the overall economic growth.

### 5.1.1. ECONOMIC OUTPUT AND DISPARITIES

Economic growth is often defined as the contribution of a long-term expansion of “purposive” economic activity to enhanced societal welfare as manifested through the “quantitative” increase in regional output per capita (Kuznets 1961). The most widely employed measure of regional economic development is the regional equivalents of GNP or GDP per capita, defined as the total value of all income or goods and services produced within and outwith a region. The unadjusted GDP per capita reflects the “potential” rather than the “realized” economic welfare (Shearer 1961), but has occasionally been adjusted by the Gini coefficient (e.g. European Commission 2009; Pike et al. 2012), purchasing power parity (e.g. Wagner 1995), the contribution from informal work (e.g. Charmes 2020), and commuting (e.g. Harvie et al. 2009).

Emphasizing productivity and regional comparative advantage, subsequent contributions employ Gross Value Added (GVA) per worker (Barzotto and Propris 2019). Regional GVA is defined as the total economic contribution from regional production and is calculated as the total output subtracted the price of intermediate goods and services used in production, or as the sum of the factor incomes generated by the production process including wages, profits and rental income from machinery, equipment, and real estate. Hence, the regional GVA is equivalent to the GDP subtracting taxes and adding subsidies (Pike, Rodríguez-Pose, and Tomaney 2017).

The concept of regional economic disparities is often defined with reference to Dalton's definition of economic equality as *"the ratio of the total economic welfare attainable under an equal distribution to the total economic welfare attained under the given distribution. This ratio is equal to unity for an equal distribution, and is greater than unity for all unequal distributions"* (1920: 361). Moreover, regional disparities are defined as the relative deviation from the equal distribution of GDP per capita or GVA per worker across regions.

It can be added that there are a large number of measures of regional (territorial) disparities, mostly various types of deprivation and variation measures (Portnov and Felsenstein 2010). Such measures are employed to assess the regional disparities over time (Petrakos and Psycharis 2016), or across countries (Maza, Hierro, and Villaverde 2010; OECD 2016). Following Dalton (1920), Ezcurra and Rodríguez-Pose (2009), and Portnov and Felsenstein (2010), four principles guide the choice of measure of disparities: the principles of transfer<sup>30</sup>, proportional addition to incomes<sup>31</sup>, proportional addition to population<sup>32</sup>, and the principle of scale variance<sup>33</sup>. Whereas the principle of transfer and the principle of proportional addition to incomes constitute the definition of income equality and regional disparity, the last two principles ensure the comparability of measures across countries and time. Moreover, it ensures that differences originate from disparities and not from a change of scale. The sparse methodological literature evaluating the compliance of the various measures to the four principles and the magnitude and severity of non-compliance is inconclusive (Ezcurra and Rodríguez-Pose 2009; Gluschenko 2018; Novotný 2007; Portnov and Felsenstein 2010; Spiezia 2003).

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<sup>30</sup> The transfer principle requires that an income transfer from affluent to lagging regions decrease the measure of regional disparities. It reflects that progressive taxes and transfer payments, or equalisation grants and schemes between regional authorities *ceteris paribus* ameliorate the overall equality (Ezcurra and Rodríguez-Pose 2009).

<sup>31</sup> The principle proportional addition to incomes implies that a proportional increase in regional income diminishes the regional measure of disparities and conversely, reflecting that the relative disparity decreases as overall welfare increases (Ezcurra and Rodríguez-Pose 2009).

<sup>32</sup> The principle of scale variance implies that if regional incomes are multiplied by the same scalar, the measure of regional disparities remain the same. Measures complying with the principle of scale variance allows for the comparison across countries despite differences in the purchasing power parity and time despite inflation (Ezcurra and Rodríguez-Pose 2009).

<sup>33</sup> The principle of population implies that a proportional increase in the population size of each region does not affect the measure of regional disparities (Ezcurra and Rodríguez-Pose 2009).



### 5.1.2. MEASURES OF ECONOMIC ACTIVITY

Economic development is, however, a multifactorial process and the evaluation of economic activity may involve the assessment of the contributing drivers of the regional GVA, decomposing the regional output. Below I give a brief account of why different factors are emphasized within four stylized approaches to regional economic growth, including neo-classical, post-Keynesian, New Economic Geography (NEG) and Proper Economic Geography (PEG).

#### Neo-classical economic theory

‘Neo-classical regional growth theory’ builds on the standard neo-classical growth model formulated by Solow (1956) and Swan (1956). The most often applied include the standard Solow model (Barro and Sala-i-Martin 1995) and the Augmented Solow model (Mankiw, Romer, and Weil 1992) (cf. Alexiadis 2012). The neo-classical models posit that the capital and labour supply growth rate, and the technological progress, drive the regional output growth rate (Dunford 2017). Technology is assumed exogenous to capital and labour inputs; instantly and evenly diffused throughout the economy at a near-zero cost (Solow 1956). Hence, the substantial effect of technological progress on labour productivity growth does not contribute to regional economic development and disparities in the long run (Camagni and Capello 2010).

The capital stock, defined as the net inflow of capital and investment, is determined by the relative rate of return on investments and the local savings rate, and the labour supply, defined by the net worker-in-migration and population growth, is determined by the local relative wage rate and birth rate (Barro and Sala-i-Martin 1995)<sup>34</sup>. An increase in the capital stock per worker also labelled capital deepening, is assumed to increase labour productivity and consequently the regional output (Pike, Rodríguez-Pose, and Tomaney 2017).

Following neo-classical regional growth theory, capital and labour supply, including the net inflow of capital and investment and the net worker-in-migration and population growth, as well as the capital-labour-ratio constitute core indicators for the evaluation of regional economies.

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<sup>34</sup> In the Augmented Solow model, the human capital formation rate, determined by the time workers devote to acquire skills instead of working, is further included in the model as direct predictor of the regional output (Mankiw, Romer, and Weil 1992).

### **Post-Keynesian regional growth theory**

The theoretical concepts, developed by John Maynard Keynes in opposition to the neo-classical approach during the 1930s (Keynes 1936) to describe national economic developments, has similarly been applied to describe spatial disparities in post-Keynesian contributions. It includes “export base theory” (Armstrong and Taylor 2000), and the theory of “circular or cumulative causation” (Myrdal 1957; Kaldor 1967).

Contrary to the supply-led neo-classical theories, the post-Keynesian economic theory posits that the aggregate demand drives the regional economic development, accommodated by the supply of capital, labour, and technology (Dunford 2017). Aggregate regional demand denoted the regional income identity, includes the sum of regional private consumption, net government spending and net export in addition to capital investments as included in the standard neo-classical models (Keynes 1936).

In the private sector, the export revenue from the external demand for tradable goods and services constitute a substantive driver of economic growth, as emphasised in the “export base theory” (Armstrong and Taylor 2000). Besides the income levels in the importing regions, the export demand is determined by the exporting regions comparative advantage given by the relative quality and price of the exported goods and services, given endogenous investments in human capital and technology. The export revenue and income generate demand across the aggregate local economy through the demand for intermediate goods and services and private consumption, also known as the multiplier effect (Myrdal 1957). Finally, market failures are viewed as an inherent part of the capitalist system, including imperfect information, competition, and mobility, continuously inhibit market adjustment and result in allocative inefficiencies, including excess labour supply measured by the unemployment rates.

Following the post-Keynesian theory, investment in capital, human capital, and technology, labour demand and wages, as well as local economic inefficiency measures such as the unemployment rate constitute core indicators of economic growth.

### **New Economic Geography**

The New Economic Geography (NEG) approach, coined by Krugman (1991), heavily draws on the endogenous growth theory (EGT) developed during the 1980s and 1990s, while explicitly incorporating the spatial dimension to explain location decisions and the existence of regional agglomerations and economic disparities. The three main sources of economic growth are endogenous technological development and human capital accumulation, agglomeration economies, and lower transaction and trade costs.

First, as in the post-Keynesian theory, the EGT and NEG treat technological development and adaptation as endogenous. Research and development investments improve the firms' comparative advantage and human capital accumulation. It attracts further capital investment and enables further technological absorptive capacity. Hence, technology innovations diffuse unevenly across space.

Second, the NEG incorporates the concept of externalities, coined by Marshall in 1890 (Marshall 1890). It includes the concepts of pecuniary and technological externalities (Scitovsky 1954). Whereas the former captures the ameliorating effect of the market size for intermediate inputs on the price, quality, and variety of intermediate input (Venables 1996), the latter comprises technology and knowledge spill-overs between firms through labour market pooling (Martin 1999)<sup>35</sup>. It is further divided by Marshall-Arrow-Romer or localisation externalities, capturing the spillovers *within* sector industries (Marshall 1920; Arrow 1962; Romer 1987), and Jacobs or urbanisation externalities (Jacobs 1969) capturing the spillovers *between* sector industries. Whereas the former result in local specialisation, the latter result in larger and diversified locations where creation, adoption, and combination of knowledge and technologies occur across unrelated sector industries (Henderson, Shalizi, and Venables 2001). In contrast, negative externalities, including 1) congestion and pollution, due to increased density, 2) lower profits, due to increased competition, and 3) cost inflation for core factors of production, due to factor shortage<sup>36</sup>.

Third, transport and trade costs increase the comparative advantage of local firms, as cost savings, due to the geographic proximity to customers and suppliers, offset the productivity differences originating from agglomeration effects. As transportation and trade costs across regions fall, agglomeration effects dominate (Krugman and Venables 1995)<sup>37</sup>.

Following the NEG approach, core indicators include investment in physical and human capital, ICT development and adaptation, and indicators of agglomeration, such as market size for intermediate inputs, the extend of intra-regional forward- and

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<sup>35</sup> Whereas pecuniary externalities may spread across geography through the price mechanisms, the latter effects are more locally confined attenuating sharply with distance.

<sup>36</sup> Whereas congestion and pollution are pure external diseconomies of scale affecting the whole economy, competition and factor shortage originate from market imperfections including information asymmetry and land prices, factor immobility and competition asymmetry and may affect single sector industries (Alexiadis 2012). One may argue, that positive and negative externalities are not constant, but altered through the technological development within production, housing, transport, communication, etc.

<sup>37</sup> Trade cost further refers to cognitive, organizational, institutional and social proximity facilitating the interaction of economic agents.

backward-linkages, the level of labour market pooling within and between sector industries, in addition to the indicators implied in neo-classical and post-Keynesian theory.

### **Proper Economic Geography**

‘Proper’ economic geography (PEG) encompasses a range of overlapping, yet distinct approaches. Since the 1980s it includes i.a. “neo-Marshallian”, “systemic institutionalist”, and “evolutionary-structuralist” approaches (Laranja et al. 2008; Pike, Rodríguez-Pose, and Tomaney 2017; Rodríguez-Pose 2011). Common to the PEG models of thought is the emphasis on cognitive, organisational, institutional, and social proximity enabling the transfer of tacit knowledge, the accumulation of knowledge, and the promotion of learning and innovation, as an explanation for why economic agglomerations arise and persist (Boschma 2005)<sup>38</sup>. Hence, the PEG intend to capture explanatory factors beyond the dynamics implied by the NEG approach (Storper 2018).

Neo-Marshallian approaches include concepts such as “innovative milieus” (Aydalot 1986), “learning regions” (Morgan 1997). It refers to spatial clusters, where spatial proximity facilitates frequent face-to-face contacts that lower uncertainty, builds trust, and transmits common values. The systemic institutionalist approach, including the “regional innovation systems” (Cooke, Uranga, and Etzeberria 1997), stress the importance of formal and informal institutions, including business, patenting and appropriability regulations, technical standards, as well as cultural and social norms as implied in the Neo-Marshallian approach<sup>39</sup>. Finally, the evolutionary-structuralist approach (Nelson and Winter 1977) emphasizes the importance of collective cognitive capacity to adopt and alter common perceptions and routines avoiding lock-in through diverse and heterogeneous networks (Rodríguez-Pose 2011; Laranja et al. 2008; Pike, Rodríguez-Pose, and Tomaney 2017).

The PEG approaches describe an array of drivers capturing and prolonging agglomeration effects, including the nurture of entrepreneurs and the cultivation and commercialisation of innovations, the transformation of production into spin-offs, etc.

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<sup>38</sup> As described in the concepts of path creation, dependence and destruction in evolutionary theory (Pike, Rodríguez-Pose, and Tomaney 2017).

<sup>39</sup> In economics, Acemoglu, Johnson, and Robinson (2005) describes the self-reinforcing and circular process political institutions, including the government system, and resource distribution shape the de jure and de facto political power, respectively, affecting economic institutions, including taxation, property right, wage bargaining, reservation wages, determine the incentives of and the constraints on economic actors, and shape economic performance. In contrast, informal institutions conceptualized as culture is given no explanatory power.

(Storper 2018). While differing from the formal modelling in the NEG approach, the PEG approach subscribe to most of the same indicators, while emphasising measures of innovation, including the number of patents, start-ups, and ICT adaption (Ibid.).

### 5.1.3. MEASURING LABOUR DEMAND

Evidently, in article 4, I merely scrape the surface of the potential effects of public sector jobs and public sector institutions on the spatial distribution of regional economic activity and growth, as I assess the effect of high-skill public sector jobs on private-sector employment. However, several arguments support the choice of this economic indicator.

First, referring to the concepts of multiplier and displacement effects developed within the post-Keynesian approach and maintained in the theoretical concepts of the NEG and PEG, labour demand is the direct indicator for the induced demand for intermediate and private consumption goods and services through the redistribution of public sector funds. Moreover, drawing on the theoretically supported causal explanations of regional economic development, I evaluate the long-run effect of high-skill public sector jobs on local private-sector labour demand, assessing whether the local presence of high-skill public sector jobs spurs the local demand for intermediate and consumption goods and services, while crowding-out tradable sector jobs.

Second, the detailed geographic scale, applied in article 4, is appropriate for the identification of multiplier, spillover, and displacement effects from small size job relocations, while assessing the spatial range and attenuation of the effects over distance. In contrast, it inhibits the identification of general equilibrium effects, including wages, unemployment, housing prices and in-migration (Faggio 2019).

Finally, innovation indicators such as patents, start-ups, and ICT adaption emphasised in the NEG and PEG approaches derive from the presence of institutional setups nurturing entrepreneurs, cultivating and commercialising innovations, and transforming production into spin-offs, etc. (Storper 2018). It includes product development centres targeting strategic competitive and technologically innovative export sectors and customized job training programs enhancing human capital formation, and not merely the redistribution of high-skill jobs in general sub-national government administration.

In article 4, I apply the number of full-time and part-time positions in the private sector as proxy for labour demand. In the empirical literature, the concept of labour demand, however, is often defined more narrowly, including the total number of vacant positions, or more broadly, including the number of vacant and occupied positions.

The vacant positions may be measured through employer surveys asking employers about the number of recently posted vacancies within a predefined period, such as in the Job Openings and Labor Turnover Survey (JOLTS) in the US or labour force surveys asking workers if they were recently hired. Other methods include counting job posts in selected media, including web crawling.

However, as realized employment fails to account for excess demand, as inherent in vacant positions, the estimated multiplier effects of high-skill public jobs constitute a lower bound. Moreover, demand may be higher, but not redeemed through labour supply.

## 5.2. THEORETICAL APPROACHES

The theoretical arguments on the economic dividend from sub-national government capacity and a fragmented sub-national government structure echo the theoretical arguments regarding the substantial effects of consolidations presented in Chapter 4 and hence the effects of economies of incentives and production (Mouritzen 1989)<sup>40</sup>. As in Chapter 4, the former approach provides the theoretical arguments for the effect of a fragmented sub-national government structure on sub-national government authorities' knowledge and incentives to provide public policies and services aligned with local business demands. The latter concerns the effect of sub-national government capacity to develop, implement and administer a wider range of regional development policies, instruments, and initiatives.

### 5.2.1. ECONOMIES OF PRODUCTION

Following the theoretical arguments provided by the economies of production approach, sub-national governments exploiting a larger administrative capacity may establish specialized departments focusing on economic development and regional planning. It is thought to improve the coordination and expertise within related policy areas, including housing, zoning, and similar programs (Fleischmann and Green

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<sup>40</sup> The effect of consolidations and devolution on the substantial quality in local government service provision, described in chapter 4, may further relate to the economic dividend, as the favourable fiscal and welfare effects promote the region's attractiveness and increase population and labour supply.

1991)<sup>41</sup> and enable the authorities to engage in systematic analyses, development, implementation, and administration of a wider range of regional development strategies, policies, and tools (Fleischmann, Green, and Kwong 1992; Reese 1997; Swanstrom 2001).

It relates to the professionalization in the economic development strategies through training and education of civil servants, supporting policy- and decision-makers, ameliorate the evaluation and planning techniques, increasing their use (Pelissero and Fassenfest 1989; Reese 1992, 1997)<sup>42</sup>.

A larger population size further enhances the tax base (Morgan, Hoyman, and McCall 2019; Feiock and Carr 1997; Besser, Recker, and Parker 2009) underpinning the fiscal capacity to devote more resources to economic development, developing a supportive infrastructure, and engaging in large-size development projects, such as mass transit systems and sports stadiums.

Larger jurisdictions may further provide the sub-national authorities with incentives to engage in larger economic development projects, as the benefits are predominantly internalized by citizens and firms located within the jurisdiction. In contrast, as the geographic size of the jurisdiction decrease, the benefits from larger economic development projects are increasingly internalized by citizens and firms, who do not internalise the costs, as they are located outside the jurisdiction. It will consequently result in the undersupply of otherwise desirable and profitable regional development initiatives (Feiock, Dubnick, and Mitchell 1993).

Larger jurisdictions may further lower the transaction costs for business activity and uncertainty for private investors, as it may simplify and consistency the regulatory process and facilitate cooperation across jurisdictions (Foster 1997). It includes the possibility of gathering the issuance of related permits in one government agency, as opposed to different agencies and authorities (Carr and Feiock 1999) or the ability of the appointed administrator to effectively negotiate with regional business groups (Jeong 2006).

To summarise, in the literature, it is argued that larger jurisdictions and enhanced administrative capacity provide the basis for devolution and hence the political and fiscal

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<sup>41</sup> The opposite perspective, advanced by Rubin (1988), is that local officials and administrations apply all instruments available to support job growth and private investment: “Shoot Anything that Flies; Claim Anything that Falls” (Rubin 1998: 236). Hence, administrative capacity has no importance for the number of initiatives.

<sup>42</sup> However, a larger staff divided into specialized agencies may hamper the information transmission and result in coordination failure (Fleischmann and Green 1991).

ability to address local issues. In contrast, small sub-national governments may possess inadequate jurisdiction, legal powers, and tax revenues to address economic development issues (Carr and Feiock 1999).

### 5.2.2. ECONOMIES OF INCENTIVES

Echoing the arguments described in chapter 4, public choice theory provides two generalized arguments, as to why the size of jurisdictions of sub-national authorities deteriorate the substantive qualities of development policies, including in-depth knowledge about the regional business structure and sub-national government competition (Kim and Jurey 2013; Vihanto 1992; Stansel 2012).

First, it is argued that a larger number of smaller sub-national jurisdictions governed by politically and fiscally autonomous authorities increase competition for geographically mobile firms, due to shorter geographic distances between jurisdictions (Oates 1999; Ostrom 1969; Premus 1977; Tiebout 1956; Wagner and Weber 1975). It includes a reduction in the tax level and the provision of attractive development policies and support functions for regional companies drawing in new businesses, increasing the employment and income growth rate. The underlying assumption that firms are fully informed about the tax-policy packages across relevant sub-national governments and that they relocate to optimize profits seems more plausible.

Second, a larger jurisdiction size widens the gap between structural challenges of local firms and the provided development policies, as the capacity of the politically unaccountable bureaucracy increase (Martin and McKenzie 1975) and the local in-depth knowledge concerning the structural challenges of local firms, local markets, and social conditions erode (Oates 1999). As described in chapter 4, the former argument builds on the assumption that local government administration managers and public servants are self-interested, utility-maximizing, and rational agents exploiting the information asymmetry between the agent and the principal to pursue their interests.

However, the economies of incentives may disproportionately benefit prosperous regions, as they have the administrative and fiscal capacity to capitalize on their political and fiscal autonomy (Prudhomme 1995; Rodríguez-Pose and Gill 2004). First, it imposes a disproportional administrative cost on lagging regions, as they have less access to skilled employees, are located further away from larger markets, and, have fewer resources, hampering their in-depth knowledge of sub-national government and their fiscal ability to address them (Rodríguez-Pose and Gill 2004). Second, sub-national governments in prosperous regions may intend to attract firms from lagging regions offering tax privileges and subsidies to firms that relocate (Martinez-Vazquez and McNab 2003).



### 5.3. EVIDENCE

A literature review summarizes the evidence from the US (Kim and Jurey 2013). A range of studies finds a negative effect of sub-national government fragmentation on economic growth in US metropolitan areas between 1962 and 1982 (Foster 1997), between 1976 and 1996 (Nelson and Foster 1999) and between 1992 and 2002 (Grassmueck and Shields 2010). It suggests that sub-national government size is positively correlated with economic growth.

It is further substantiated by a study by Hawkins (2010), who finds that local governments in fragmented regions are less inclined to engage in joint ventures with neighbouring local governments to stimulate the economy based on a survey among local government officials in 425 US local government in 2006.

Conversely, Hammond and Tosun (2011) find that fragmentation of single-purpose government is positively associated with population and employment growth in US metropolitan areas, while the fragmentation in general-purpose government is negatively associated with population and employment growth in nonmetropolitan counties, covering the period from 1970 to 2000. It is confirmed by Stansel (2005), who finds a positive relationship between economic growth and sub-national government fragmentation, measured as the number of municipalities and counties per 100,000 residents and the central city population share of the total regional population, in 314 US metropolitan areas in the period from 1960 to 1990.

It is further substantiated by Bickers and Stein (2004), who find that fragmentation in the US metropolitan area between 1993 and 1996 is positively associated with the acquisition of federal grants. While controlling for local government expenditure needs Bickers and Stein (2004) argue that it reflects inter-jurisdictional cooperation among communities that share common geography to apply for state funds.

The evidence concerning the effect of consolidations on economic growth is not compelling. Domazlicky (1996) find that the size of US state-level governments, measured by government employment, has no effect on economic growth between 1977-1989. It is confirmed in a study by Reed (2009) suggesting that government size, measured as the log federal, state and local employees per capita, is negatively associated with US state economic growth from 1970 to 1999.

Further, a few quasi-experimental studies exploiting US city-council consolidations find no evidence of an economic dividend of consolidations. Including nine consolidations covering the period from 1950 to 1993, Carr and Fieock (1999) find no evidence of an increase in the annual growth in manufacturing, retail, and service establishments following the consolidations. Finally, a recent study employing synthetic control from three US city-council consolidations find that the effect of consolidations

on economic growth is highly case dependent and does not guarantee economic development, but may yield both positive and negative effects (Hall, Matti, and Zhou 2020).

## 5.4. CONTRIBUTION

I contribute to the literature evaluating the effect of consolidations on the spatial distribution of economic activity including housing prices and land use in Germany and Finland (Egger, Koethenbuerger and Loumeau 2018; Harjunena, Saarimaab, and Tukiainen 2021). These studies suggest that the economic activity concentrates near the administrative centres.

The study further relates to an emerging literature evaluating the private labour market effect of public administrative employment in Germany, the United Kingdom, and Spain (Becker, Heblich, and Sturn 2018; Faggio 2019; Faggio and Overman 2014; Jofre-Monseny et al. 2020). While the geographic scale, period, and applied methods vary, the conclusion typically is that the effect of government jobs on private-sector employment is modest at best and predominantly driven by the increase in non-tradable services.

It refers to the effect of the higher concentration of public-sector jobs in lagging regions in Italy (Alesina, Danninger, and Rostagno 2001), and Spain (Mar-qués-Sevilano and Rosselló-Villalonga 2004), the dispersal of central government jobs in the United Kingdom (Faggio 2019), Sweden (Nilsson 1992), Norway (Trondal and Kiland 2010) and Denmark (Danish Ministry of Finance 2018) and the decentralisation of university activities in Sweden (Anderson, Quigley, and Wilhelmsson 2009).

Finally, the study relates to an emerging literature assessing the spatial range of the multiplier effect as discussed in the post-Keynesian, NEG and PEG approaches, including organizational agglomeration economies (Rosenthal and Strange, 2003), human capital spillovers (Rosenthal and Strange 2008) network spillovers (Arzaghi and Henderson 2008) and university activity spillovers (Anderson, Quigley, and Wilhelmsson 2009). The evidence generally suggests that multiplier effects on employment and productivity gains attenuate sharply over distance.

I find that the centralisation of high-skill jobs in public administration had no statistically significant long-run effect on total private-sector employment in the designated areas, but changed the sectoral distribution of local employment towards services. Moreover, while 10 high-skill public-sector jobs crowded-out 4.3 jobs in the tradable sector, while stimulating the creation of 14.5 jobs in knowledge-intensive services, including consulting and real estate services, and 4.5 business services jobs, including security and administration services. The effect on real estate service employment

near the public workplace was partially achieved through displacement. Finally, the centralisation of high-skill public sector jobs spurred the creation of 11 high-skill labour with a college or university degree. The effects are highly localized and I find no evidence of spillover effects into neighbouring areas.

## CHAPTER 6. DATA AND METHODS

In chapter 6, I present the data and methodological approach employed in the research articles. First, I present the main methodological design applied throughout the research articles and discuss the underlying identifying assumption. Second, I present the applied panel data sources, including register and survey data, and describe how the various data sources are combined in the research articles. Third, I present the variables measuring the increase in population size and the change in the spatial location of public sector employment. Whereas the latter constitutes the dependent variable in the first article and the main explanatory variable in article 4, both variables are included as the main explanatory variables in articles 2 and 3.

### 6.1. METHODS

In response to recent attempts to promote state-of-the-art methods in the empirical public administration and management literature, including the merits of experiments for estimating causal effects (Anderson and Edwards 2015; Blom-Hansen, Morton, and Serritzlew 2015; Grimmelikhuijsen, Tummers, and Pandey 2017), I rely on the reduced form approach exploiting the Danish SR as a quasi-experimental setting throughout the research articles.

It allows me to identify the causal effect of government capacity, population size and the spatial centralisation of sub-national government authorities on public sector efficiency, the quality of local democracy, and private sector employment. It is denoted the average treatment effect on the treated (ATT):

$$ATT = E(Y_{A=1,t} | A_i = 1) - E(Y_{A=0,t} | A_i = 1) \quad (1)$$

where the first term,  $E(Y_{A=1,t} | A_i = 1)$ , depicts the outcome of the treated units in year  $t$  after the reform, and the last term,  $E(Y_{A=0,t} | A_i = 1)$ , depicts the counterfactual and unobserved outcome in the treated unit the same year, but in the absence of the reform. As the counterfactual outcome for the treated unit is unobserved, I employ the average outcome of the control units for comparison.

### 6.1.1. THE DIFFERENCE-IN-DIFFERENCES DESIGN

The SR and the subsequent spatial relocation of the sub-national government administration divided local authorities, local constituents, and local output areas into treatment and control groups, allowing for the comparison of differences in the change in outcome across the year of the reform.

Exploiting rich and unique panel data, including local authorities' administrative accounts, panel citizen survey data, and geo-coded employment register data (see section 6.2), I employ extended versions of the well-known difference-in-differences design to identify the ATT (Angrist and Pischke 2009):

$$Y_{i,t} = \alpha + T_t\gamma_t + \delta A_i + (A_i \cdot T_t)\theta_t + X_{i,t}\beta + u_{i,t}, \quad (2)$$

where  $Y_{i,t}$  is the outcome of unit  $i$  at year  $t$ . The vector,  $T_t$ , is an indicator variable that takes the value one at year  $t$ , and 0 otherwise. Hence, the associated parameter vector,  $\gamma_t$ , captures the average change in the outcome from the base year to year  $t$  that is common to treated and control units. The second term,  $A_i$ , is an indicator variable taking the value 1 identifying treated units and 0 otherwise. The associated parameter vector,  $\delta$ , captures the average initial difference between treated and control units in the base year. The interaction term,  $A_i \cdot T_t$ , is an indicator variable taking the value 1 for treated units at year  $t$  and 0 otherwise.

The standard DiD-design is readily extended while the basic features of the DiD-design are retained (Wooldridge 2009). It includes multiple treatment periods allowing the ATT to vary across years, multiple treatments identifying the effect of competing explanatory treatment variables, treatment intensity variables identifying the heterogeneous treatment effects (Angrist and Pischke 2009), and the multiple continuous treatment intensity variables across distances identifying the potential spillover and displacement effects across neighbouring areas (Gibbons, Overman, and Sarimäki 2011; Faggio 2019).

### 6.1.2. IDENTIFYING ASSUMPTIONS

In quasi-experimental settings, the assignment into treatment and control groups is non-random, as opposed to randomised controlled trials and natural experiments. Consequently, the outcome of the treatment and control groups may differ, due to differences in observable and unobservable characteristics between the treatment and control group other than the exposure to treatment (Blom-Hansen, Morton, and Seritzlew 2015). The DiD-design disentangle the effect of the intervention from time-constant covariates causing initial outcome differences between the treatment and

control groups. However, three key assumptions apply, the no-anticipation-effects assumption, the stable unit treatment assumption (SUTVA), and the common or parallel trend assumption.

### **No Anticipation Effects Assumption**

First, it is assumed that the large-scale structural reform process, did not affect the potential outcome in the base year (Lechner 2010), due to anticipation effects. Throughout the articles, I find the assumption justified. In articles 1 and 2, I find it reasonable to assume that the reform process preceding the publication of the report by the Commission on Administrative Structure in January 2004 did not affect the spatial location of local government administration nor the local budget negotiations in the fall of 2003, defining the local administrative expenditures during 2004. Similarly, in article 3, I find it reasonable to assume that the local constituents did not anticipate a large-scale structural reform during 2001, as the political implementation of the reform on the 20<sup>th</sup> of June 2002, affecting their local political support or community attachment in the base year. Finally, in article 4, I find it reasonable to assume that the local companies did not adjust their demand for labour or relocate until after the political and administrative implementation of the reform in 2007.

### **The Stable Unit Treatment Assumption**

First, the SUTVA (Rubin 1977), generally applied in causal studies, states that the potential outcome of each observation is unaffected by the treatment assignment of others. More specifically, it is assumed that the observed average outcome of the control group before and after the reform reflects the potential outcome in the absence of the reform. In articles 1 through 3, I assume that the increase in population size and the administrative reorganisation in the amalgamated municipalities did not affect the technical efficiency of the local government administrations and the system support of the local constituents in the continuing municipalities.

In article 2, the SUTVA is violated, if the administrative implementation of the new structure the last year before the reform and the reorganisation of the administration in the amalgamated municipalities the first years after the reform increased the demand for private-sector consulting, legal and technical services affecting administrative expenditures across all municipalities. Hence, the estimated sunk cost effects in 2006 through 2008 are biased towards zero constituting a lower bound of the sunk costs. This effect is however assumed small and spatially confined within TTWAs. Similarly, the SUTVA is violated, if the transfer of administrative responsibilities from the former counties to the municipalities affected the expenditures in the continuing and the amalgamated municipalities differently. It could have contributed to the increase in the administrative expenditures in the continuing municipalities during the

implementation process, while it may have been incorporated without additional cost in the amalgamated municipalities. If so, the estimated sunk cost effects in 2006 through 2008 are biased towards zero constituting a lower bound of the sunk costs. While the effect is unknown, it is assumed confined to the last year before the reform until the first two years after.

Similarly, in article 3, the SUTVA is violated if the reform process affected constituents residing in continuing municipalities. The discrepancy between the scale and scope of the reform on the one hand and the short political process, the absence of a public debate and the narrow political majority supporting the reform on the other may have generally deteriorated the confidence in the national and local political system and the sense of legitimacy. If so, the estimated effect of the increase in population size and the spatial centralisation of the local government administration is downward biased, constituting a lower bound.

Finally, in article 4, I relax the SUTVA, as I treat all Output Areas as treated and more importantly allow for spillover effects given the spatial distance between relocation sites and non-relocation sites (Faggio 2019).

### **Common Trend Assumption**

Most importantly, under the common trend assumption, it is assumed that in the absence of the reform the treated and control units would have had a common average trend in outcomes conditional on the control variables (Angrist and Pischke 2009; Wooldridge 2009). The common trend assumption is the key identifying assumption in the DiD-design, as any deviation in the trend of the observed outcomes of the treated and the control units is attributed to the effect of the treatment. It implies, that any exogenous shock coinciding with the SR in 2007 has the same effect on the treated and the control units conditional on the time-varying covariates.

In articles 1 through 4, I control for a range of unit-specific time-varying covariates that are assumed exogenous to treatment but may affect the outcome while varying across treatment status and time. The purpose of including time-varying covariates is to equalise the differences in group trends that may otherwise bias the results. It renders the common average trend assumption more plausible.

In the empirical literature, the assumption is assumed justified, if the trends in outcomes do not differ between the treated and the control units before the treatment. In articles 2 and 4, I use the placebo-test in the period before the reform between the treated and the control units as an argument in favour of the common trends assumption. In article 3, the data contains only two survey waves, one before and one after the reform, rendering a placebo-test in the period before the reform impossible to implement.

The common trend assumption is further supported by the argument concerning exogeneity of the treatment assignment conditional on the control variables. In article 2, I argue that the Danish large-scale SR in 2007 was partially exogenous to the local authorities, as it was initiated, planned and negotiated by the Central Government and the Parliament. It is in line with the assumption in prior studies (e.g. Blom-Hansen, Houlberg, Serritzlew 2014; Blom-Hansen et al. 2016). However, as I describe in Chapter 2 the mergers were optional to the local authorities.

First, while 98 percent of the 208 former municipalities with less than 20,000 inhabitants engaged in mergers, three island jurisdictions without a bridge connection and two jurisdictions in the Copenhagen Region continued as independent municipalities. In article 2, I argue that the continuing island jurisdictions are inappropriate for comparison, due to their geographic location. More specifically, while their remote location may have affected their choice to continue, it may similarly have resulted in a substantial out-migration in the years after the reform, violating the common trend assumption and introducing a substantial upward bias in the estimated efficiency gains. Accordingly, as I omit the three island jurisdictions, I find no effect of the amalgamations on technological efficiency in local government administration.

Second, about 50 percent of the 63 former municipalities with more than 20,000 inhabitants engaged in mergers. Their inclination to merge may partially have been induced upon the request for a merger from neighbouring municipalities with less than 20,000 inhabitants and partially by fiscal pressure forcing them to engage in the mergers. As it is reasonable to assume that the fiscal pressure constrains local public spending, an increase in the fiscal gap between amalgamated and continuing municipalities violates the common trend assumption and introduces an upward bias the average technical efficiency gain from amalgamations. However, as I find no effect of the amalgamations on the average technical efficiency in the restricted sample, I assume that the result holds. Further, I control for an array of proxies for fiscal pressure, equalising the differences in group trends.

Third, one may argue that the obligation to merge is merely a treatment assignment rather than the treatment itself. It becomes evident considering the differences in the reorganisation of the local government administration following the reform. The decision to exploit the spatial centralisation of local government administration and labour specialisation, reducing fixed operating inputs and labour input, is endogenous to the local authorities. As such the estimated effect of the reorganisation of the local government administration relates to the Local Average Treatment Effect, that is the effect of the reform on the compliers.

In article 3, I follow Hansen (2012), Hansen (2015) and Hansen and Kjaer (2020), arguing that it is reasonable to assume that local government amalgamations are ex-



ogenous to the local constituents, as the individual constituents did not directly influence the decision whether the municipalities should engage in mergers or not. Three issues, however, deserve further reflection.

First, 73 local referenda were held (Mouritzen 2010) across 60 municipalities (Hansen and Kjaer 2020) often involving a fraction of the local constituents and concerning the question with which of the neighbouring municipalities to merge. However, among the citizens' residing in amalgamated municipalities local referenda may render the result of the mergers more legitimate, countering the negative effect of the increase in population size and the relocation of the local government administration. More specifically, it is reasonable to assume that a correspondence between the individual citizens' vote and the result of local referenda ameliorates their community attachment and confidence in the local political system after the reform. If the respondents included in the survey agreed with the results of the local referenda, the decision to engage in the merger would be endogenous. It may bias the detrimental effect of the amalgamations on citizens' community attachment and confidence in the local political system towards zero and the estimated effects constitute a lower bound. In contrast, if the individual citizens voted against the result of local referenda, the merger is by definition exogenous.

Further, the respondents could have decided to select out of treatment by moving to smaller municipalities, due to a loss in their municipal attachment and confidence in the local political system. It would bias the detrimental effects towards zero. It seems, however, as argued by Hansen and Kjaer (2020), implausible that citizens, on a large scale, would choose to move to smaller municipalities, due to the increase in population size and the relocation of the local government administration. Further, as only a few municipalities with less than 20,000 inhabitants continued the option for moving to a smaller municipality was substantially limited.

However, the treatment assignment remains non-random, due to the settlement patterns before the reform. Moreover, citizens residing in smaller and peripheral municipalities may differ from the citizens residing in the continuing municipalities or the centre of the amalgamated municipalities across unobserved characteristics confounding the results. It may violate the common trend assumption if the difference in unobserved characteristics determines the citizens' vulnerability to exogenous shocks across the time of the reform deteriorating their confidence in the local political system and their community attachment. To control for unobserved characteristics, I turn to DiD with matching (see section 6.1.3).

Finally, in article 4, it is reasonable to assume that the location decision of the public sector administration is exogenous to the local companies. However, whereas in article 3, I assume that the citizens' settlement patterns following the reform are uncorre-

lated with changes in the population size and the relocation of local government administration, in article 4, I allow local firms to relocate following the reform, as the Output Areas constitute the unit of analysis.

However, as in article 3, the location decision of public sector administration is non-random, and the unobserved characteristics of the local firms and labour market may affect public authorities' decision where to relocate the public administration while confounding the trend and hence violating the common trend assumption. To control for unobserved characteristics, I turn to Difference-in-Difference with Matching (see section 6.1.3).

### **6.1.3. MATCHING PROCEDURES**

In two of the articles, I further employ DiD with matching (DiDM), developed in the program evaluation literature by Heckman, Ichimura, and Todd (1997) and Heckman et al. (1998), to address the potential violations of the common trend assumption. The risk that the assumption is violated increases with selection into treatment on unobservable characteristics. The objective of matching is to balance treated and control units across observed variables improving their comparability and employ the matched and weighted sample for the estimation of the causal effect (Lassen and Seritzlew 2011).

In article 2, I employ a propensity score kernel matching procedure. The propensity score is estimated using a logit model for the probability of residing in the central and peripheral amalgamated jurisdictions as a function of individual characteristics and jurisdiction size, affecting the impact of idiosyncratic shocks on the outcome. Within common support, the untreated respondents are assigned the weights equal to the sum of the kernel-weighted Euclidean distances to the propensity score of treated respondents and the treated respondents the weight 1. To assess whether the balancing properties of the matching procedure are satisfactory, I calculate the standardized bias for all covariates before and after matching. A standardized bias with a numerical value above 20 is considered large (Rosenbaum and Rubin, 1985).

In article 4, I employ inverse-probability weighted regression-adjustment (IPWA) estimation. Moreover, I estimate the propensity score for the probability of treatment on selected pre-reform characteristics and reweight the data using inverse probability weighting. To assess the balancing properties of the matching procedure, I report the covariate-balance summaries from the IPWRA procedures, including the standardized differences and variance ratios for the raw and weighted samples (Faggio 2019).

The procedure requires weaker conditional independence and overlap assumptions than the inverse-probability weighted (IPW) procedure. As some control areas, particularly those located in rural areas, are highly unlikely to be considered for the location of high-skill public sector jobs, the overlap assumption is close to be violated. However, unlike the IPW estimator, the IPWRA estimator is continuously stable as the overlap assumption gets close to be violated. Moreover, the IPWRA estimator is considered ‘double-robust’, as it only requires that the outcome or the treatment probability model is correctly specified to consistently estimate the treatment effects (Fag- gio 2019).

## 6.2. DATA

### 6.2.1. SURVEY DATA

In article 1, I employ survey data provided by Krøtel, Villadsen, and Hansen (2017), including a municipal top manager survey collected in late 2008 in collaboration with municipal manager associations and with a response rate of 81.1% and with respondents from all 98 municipalities. Krøtel, Villadsen, and Hansen (2017) argue that due to the timing of the survey, the data reflects the normal operations in the amalgamated municipalities rather than the change management related to the reform. The study includes top management, defined as the CEO and the directors directly below - typically 2-4 per municipality. I average the responses from each municipality to obtain municipality-level measures of the relative power of the budget guardians including the mayor, the financial executive committee, and the municipal managers.

In article 3, I employ unique balanced panel survey data containing 900 Danish citizens conducted in the first half of 2001 and 2009. It is approximately two years before the SR was first mentioned and two years after it was implemented administratively (Hansen 2012). The survey includes questions measuring citizens’ confidence in the local incumbents, their satisfaction with the local democracy and the local self-government as well as their municipal attachment, besides a range of individual characteristics. The 2001 survey encompasses a two-stage stratified sample. The 275 existing municipalities were divided into six strata according to polity size, and ten municipalities were selected from each strata using systematic sampling. Respondents were then randomly selected from each municipality. The first survey was conducted by Gallup through telephone calls to 2,764 respondents, yielding a response rate of 59 percent, and a follow-up postal questionnaire administered to 2,442, yielding a return rate of 67 percent. In 2009, the survey was repeated by Gallup for respondents randomly selected from the original survey. Respondents were selected and interviewed until the final survey reached 900 respondents. The overall response rate of the follow-up interviews was 53 percent (see Hansen 2012, Hansen 2015, and Hansen and Kjaer 2020, for more details).

### 6.2.2. REGISTER DATA

In article 2, I employ register panel data from the administrative accounts of local authorities containing information on current net yearly administrative operating costs per capita including wages for administrative personnel, emolument for politicians, office rental and building maintenance, administrative equipment, insurance, etc. concerning the municipal council, the secretariat, and the administration. As local government functions vary across the period, the administrative costs are standardized to the 2011 task portfolio.

The administrative accounts data are enriched with public available register panel data provided by Statics Denmark and The Ministry of Interior and Health. It includes the fiscal pressure as the difference between the financial base, including a weighted measure of income, property, company, and other taxes, and the demographic and socioeconomic expenditure needs, calculated according to the objective criteria of the central Equalization Scheme, the annual net unemployment rate of the working-age population, the proportion of the 25 to 64-year-olds without further education, the number of immigrants from non-western countries per 1.000 inhabitants, the proportion of social housing dwellings, and the proportion of children aged 0-17 living in single-parent households and the tax revenue includes total revenue from income, property, and company tax per capita.

The data are further enriched by special data requests from Statistics Denmark and FLD, the Common Municipal Office for Wage Statistics. It includes the average travel time from each citizen to the nearest 2000 fellow citizens as a proxy for dispersed settlement, and the share of local public administrative staff employed at the local public institutions, as a proxy for the transfer of the administrative tasks from the local government administration to lower organizational layers.

In article 3, I enrich the panel survey data with publicly available information of local income tax level and the mayor's party wing across the years of the reform provided by Statics Denmark and The Ministry of Interior and Health. Special data requests from Statistics Denmark include unemployment shocks within local commuting zones and the change in the log average prices of single-family houses within the boundaries of the former jurisdiction structure before and after the reform.

Finally, in articles 1 and 4, I employ detailed administrative employment register data from the Integrated Database for Labour market research (IDL) maintained by Statistics Denmark. The data contain employee-workplace records for the entire Danish workforce for November each year in the period from 1997 to 2016. I combine the employee records with information drawn from the central education register (CER), the income-tax register (INC), and the central administrative person register (CPR). Similarly, I include information on the workplaces from the IDL.

### 6.2.3. EXPLANATORY VARIABLES

#### **Amalgamations, public sector capacity and population size**

The binary indicator variable identifying amalgamated and continuing jurisdictions is applied in the first three articles and is publicly available from The ministry of Interior and Health. I further include the change in the population size from 2004 to 2009 as an explanatory variable in articles 2 and 3. In article 2, I measure the change in population size, employing the mean weighted population size in 2004 as the base year level, where the weights are the population size of the former jurisdiction as a proportion of the total population in 2004 within the jurisdiction structure after the reform. In article 3, I measure the change in the population size from 2001 to 2008 as experienced by the constituents, employing the population size of the former jurisdictions in 2001 as the base year level. Whereas in article 2, the measure is solely considered a proxy for the local government capacity in article 3, it may further refer to other mechanisms including the heterogeneity in the local preferences, as well as the communicative and social proximity between the local incumbents and their constituents.

#### **The spatial centralisation of local public institutions**

For the measure of the spatial location of local government institutions, I employ unique geo-coded register data in all four studies. The data source is the detailed administrative Integrated Database for Labour market research maintained by Statistics Denmark. The data contain employee-workplace records for the entire Danish workforce for November each year in the period from 1997 to 2016.

I link workplace records through unique workplace identifiers to information on the main economic activities and private-public sector identifiers each year, allowing for the identification of employment in public child-care, primary school and elder care, and public administration. I further link workplace records to workplace addresses enabling me to locate workplaces within areas. For the location of high-skill jobs local government administration jobs, I combine the employee records with information on the highest obtained educational level (ISCED codes) drawn from the central education register (CER), see above.

In article 1 and article 3, I calculate the number of public employees separately for child-care, primary school and elder care, and public administration within the former jurisdictions and across the time of the reform to obtain the change in public employment within the former municipal structure. In article 2, I calculate the number of public employees at the largest workplace within the new jurisdictions structure across the time of the reform to measure the change in the spatial centralisation of the local government administration. Finally, in article 4, I calculate the change in the total number of high-skill jobs in public administration at different distances from each included unit area in the period from 2003-2016. Moreover, while public employment

changed incrementally during the period from 2003 to 2016, the measure reflect the cumulative sum of the change in public employment from 2003 to 2016.

## CHAPTER 7. CONCLUSION

In the research articles and summary report, I have discussed and assessed the effects of consolidations on three mayor issues facing government reformers when laying out comprehensive structural and administrative reforms. The outcomes include local public sector efficiency, the quality of local democracy and local private-sector employment. Hence, I draw on the insights from a range of literature strands within political science and economics, including public administration and political sociology as well as public and urban economics. In the concluding chapter, I discuss the theoretical implications of the key findings and the remaining questions.

### 7.1. 7.1 THEORETICAL IMPLICATIONS

The main theoretical argument throughout the PhD thesis is that the location decision of public institutions matter, including the spatial centralisation of local government administration. I substantiate the argument throughout the four self-contained articles.

In the first article, I examine the redistribution of local public funds following local government amalgamations, including the spatial centralisation of local government administration and core local public services, such as childcare, primary school and eldercare. Second, I assess the impact of the relative power of the mayor, the financial executive committee, and the municipal managers, defined as budget guardians, as compared to backbench councillors, defined as budget advocates, on the location decision of public services. I find a substantial spatial centralisation in the local public administration following the Danish SR in 2007 concentrated around the location of the new town hall often within the larger of the former jurisdictions. In contrast, I find no or a modest relocation of the core public services. The relative political power of the local budget guardians did not affect the spatial distribution of the childcare and eldercare but in the primary schools. Moreover, the evidence suggests that the relative power of the municipal managers in the local government administration induced a spatial centralisation of the public school services, while the relative power of the mayor and the financial executive committee had the opposite effect.

The findings contribute to an emerging literature suggesting that local government amalgamations unleash geographic redistributive games and local favouritism dividing former jurisdiction between beneficiary centres and marginalised peripheries (Elklit and Pedersen 2006; Jakobsen and Kjaer 2016; Kjaer 2013). The results have partially been confirmed in a subsequent evaluation of the consolidations in Finland (Harjunena, Saarimaab, and Tukiainen 2019), suggesting that local representation af-

fected the location of health and social care services, while the local government administrations were centralized irrespective of local representation (Harjunena, Saarimaab, and Tukiainen 2019).

While the evidence suggests that local representation and favouritism drive the spatial centralisation of public service institutions, local authorities' attempt to reap economies of scale may be the main explanation for the spatial centralisation of local government administration, reducing fixed operating input per capita. In accordance with the findings above, the bulk of the emerging literature evaluating the effect of consolidations on the technical efficiency in local government find no effect on service expenditures per capita, but substantial decreases in administrative cost (Allers and Geertsma 2016; Blesse and Baskaran 2016; Blom-Hansen et al. 2016; Cobban 2017; Moio and Uusitalo 2013).

In article 2, I assess the causal effects of consolidations and population size on technical efficiency in local government administration. I find, however, that despite the spatial centralisation of the local government administration, local authorities in Denmark, on average, failed to reduce administrative expenditures per capita. What seems to drive the reported scale effects in previous studies (Blom-Hansen, Houlberg, Seritzlew 2014; Blom-Hansen et al. 2016) is three small continuing island jurisdictions that failed to contain administrative cost per capita as the population declined and the task portfolio was enlarged. In contrast, I find evidence of sizeable sunk costs during the year before the reform was fully implemented increasing with the amalgamation size.

Except for a few studies (Mughan 2019; Reingenwertz 2012), most studies fail to disentangle the contribution from fixed and labour inputs, limiting our understanding of why most local authorities fail to reap economies of scale. Hence, I further disentangle the effect of the spatial centralisation of the local government administration and the containment of administrative labour input. I find that while some amalgamated municipalities reduced administrative expenditures per capita in the long run through spatial centralisation of local government administration, most failed to contain administrative labour input growth. As labour input costs constitute the bulk of public expenditures, it explains why local governments fail to reap economies of scale on average. The results confirm recent findings (Mughan 2019; Reingenwertz 2012). Moreover, it suggests that while the reduction in office buildings is feasible, laying-off personnel or containing vacancy openings is hampered. The latter effect may originate in organizational lock-in.

Further, in the empirical literature, it is well-established that local government consolidations deteriorate citizens' political efficacy, support, and participation. Recent systematic reviews find "overwhelming" evidence supporting this claim (Tavares 2018: 11; McDonnell 2019: 340). It includes evidence from the Danish quasi-experi-



ment on internal efficacy (Lassen and Serritzlew 2011), community attachment (Hansen and Kjaer 2020), satisfaction with local government performance and democracy (Hansen 2015), confidence in local authorities (Hansen 2012), and the voter turnout rate (Bhatti and Hansen 2019). These effects are attributed to the increase in the local population size or the local administrative capacity, while assuming that the effect of the local government reorganization is uniform across former amalgamated jurisdictions (Hansen 2012; Hansen 2015; Lassen and Serritzlew 2011).

In the third article, I contest the prior findings, as I find that the spatial centralisation of the local government administration, and not the increase in population size, affect citizens' political support, giving rise to local democratic disparities across the centre and the periphery of the amalgamated municipalities. A plausible explanation is that citizens view the location of local government institutions as a result of geographic redistributive games and local favouritism, dividing citizens between 'winners' at the beneficiary centre of the amalgamated jurisdictions and 'losers' at the marginalised periphery.

Finally, in article 4, I find that besides the local disparities in the democratic deficit measured by citizens' perception of local democracy, the spatial centralisation of public institutions further affects the disparities in private sector employment across sectors and skills. More specifically, it stimulates the demand for intermediate services, high- and low-skill labour near the administrative centres, while crowding-out jobs in the manufacturing industries. The effects partially originate from the displacement of economic activities in areas further away from the public workplaces. I find, however, no effect on total private-sector employment. It generally confirms the results from an emerging literature in urban economics assessing the effect of public sector jobs on local private sector employment and wages, suggesting that public jobs stimulate the demand for (intermediate) services, while crowding-out jobs in the manufacturing industries (Becker, Heblich, and Sturn 2018; Faggio 2019, Faggio and Overman 2014; Jofre-Monseny et al. 2020). The effects are highly localized and spillover effects into neighbouring areas attenuate sharply over distance.



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# APPENDICES

**Appendix A. The Danish large-scale SR in 1970**10Fejl! Bogmærke er ikke defineret.

## Appendix A. The Danish large-scale SR in 1970

For almost a century, in the period between the two large-scale SRs in 1841 and 1970, the geographic boundaries of local jurisdictions remained remarkably stable (Dam 2012) and their functionalities introduced under the absolutist rule remained largely unchanged (Blom-Hansen and Heeager 2011).

This despite substantial upheavals in the national government, demography, and production, including the transition from monarchy to democracy and the ratification of the Danish constitution in 1849, the migration from the farmland to the market towns, and the industrial revolutions in agriculture and urban industry. In the 1850s just about 20 pct. of the national population lived in the cities, divided by 10 pct. in the capital Copenhagen and 10 pct. in other market towns. In the following decades it increased rapidly from 30 pct. in the 1880s, about 40 pct. at the millennium and 45 pct. at the time of the great recession in 1929.

After the Second World War, however, the continuous expansion and decentralisation of the welfare state, the accelerating urbanization, and the growing average commuting distance increasingly challenged the structure of the local authorities.

The economic and administrative capacity of small rural municipalities with less than 5,000 inhabitants proved insufficient to accommodate the welfare state expansion, including the scope and specificity of the legal requirements. It included the the social political reform 1933, introducing the principle of social rights, the expansion of provided public services, such as compulsory schooling in 1958 and the introduction of social benefits intended to balance social inequality through economic redistribution and ensure full employment through financial stability.

Substantive reimbursement schemes, intended to underpin local service provision in small jurisdictions, increased central administrative control and approval of the local service provision, limiting the political discretion and agility of the small rural jurisdictions (Christoffersen and Klausen 2012). Concurrently, the market towns increasingly provided services, infrastructure, and jobs for the sharply growing population in neighbouring rural jurisdictions (Ministry of the Interior 1966).

Until 1970, the economic status, the political and administrative discretion, and fiscal autonomy differed between the market town and rural jurisdictions, defined in the Country Communal Law of 1867, and the Law on Market Towns of 1868. The city councils in the market towns, overseen by the Ministry of the Interior, enjoyed more extensive political autonomy and discretion than the parish councils in the rural areas, while responsible for a more extensive set of public services, including hospital services. Finally, in the capital of Copenhagen, the citizen representation possessed

even more extensive political autonomy and powers (Blom-Hansen and Heeager 2011).

After more than 10 years of planning a large-scale SR was implemented in 1970. It was initiated by the central government appointing the Commission on Municipal Law to review the local jurisdiction size (Mouritzen 2010; Christoffersen and Klausen 2012). The report by the Commission on Municipal Law (1966) recommended that market towns and surrounding rural municipalities, constituting a geo-graphically coherent urban area should merge with a target population of 5,000-6,000 inhabitants to ensure an efficient public service provision and that the distinction between market towns and rural municipalities should be abandoned.

The reform increased the scale and scope of local authorities, consolidating their economic capacity and decentralising the political and financial responsibilities. Further, the local government administration to improve local public efficiencies, curb local public spending, conforming to national economic service standards in-terest (Christoffersen and Klausen 2012).

In the period from 1966 to 1970, local authorities engaged in voluntary mergers, reducing the number of jurisdictions to 1098 by 1970 and the reform further reduced the number from 1098 to 277 and the number of regional jurisdictions from 25 to 14, with the Copenhagen and Frederiksberg municipalities with two-tier status (Mouritzen 2010).

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