ESSAYS ON PUBLIC POLICY AND POLITICAL ECONOMY

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ABSTRACT

This compilation dissertation investigates empirically questions related to public policy and political economy, using microeconometric methods and various large datasets including administrative, survey, and text data. In the first two sub-studies, the focus is on evaluating the impact of public policy using administrative data, whereas the last two sub-studies analyze policy-making and mainly utilize text-based data, which is analyzed quantitatively. The last study also utilizes some survey data.

The first essay examines the causal effects of the decentralization of public employment services (PES) on services offered, municipal behavior, and job seekers' employment, using the difference-in-differences method. No effects on employment, earnings or labor mobility are observed, but decentralization affected placements in activation services. The results of the first essay are also consistent with municipalities shifting costs to the central government.

In the second essay, the effects of regional and occupation-specific exemptions from labor market testing requirements are studied. In this essay, the effects are estimated in a staggered difference-in-differences framework. Effects on wages, labor flows, and other relevant labor market outcomes are examined. The results of the essay suggest that LMT exemptions have negative wage impacts at the bottom of the earnings distribution while most occupations are unaffected.

In the third essay, the difference-in-differences method is used to investigate the effects of media presence on the behavior of politicians. The specific context of the study is the introduction of TV broadcasting of plenary sittings in 1989 to only some of the sittings, which can be utilized to estimate the effects using difference-in-differences. The results suggest TV cameras did not affect the left-right polarization but increased tensions between the government and the opposition. In the study, it is also observed that the attendance of MPs increased as a result of TV broadcasting.

The fourth essay analyzes the evolution of speech differences in parliamentary speeches between various groups over a period of more than 100 years. It is observed that speech differences by gender and education have been large and statistically significant during most of the century, while speech differences by other background variables, such as age (old/young) or place of residence (capital region/other) are not statistically different from the placebo series we estimate.

KEYWORDS: labour market policy, regional policy, labor market testing, political polarization, political representation

TIIVISTELMÄ

Tämä kokoomaväitöskirja tutkii julkisen vallan politiikan ja politiikan taloustieteen kysymyksiä empiirisesti käyttäen mikroekonometrisia menetelmiä sekä moderneja rekisteri-, kysely- ja tekstiaineistoja. Kahdessa ensimmäisessä osatutkimuksessa paino on politiikkatoimien vaikutusarvioinnissa rekisteriaineistoja hyödyntäen, kun taas kahdessa jälkimmäisessä osatutkimuksessa hyödynnetään pääasiassa tekstipohjaisia aineistoja, joita analysoidaan kvantitatiivisesti.

Ensimmäisessä esseessä tutkitaan työvoimapalveluiden alueellistamisen vaikutuksia palvelun tarjontaan, kuntien käyttäytymiseen sekä työnhakijoiden työllistymiseen. Vaikutuksia työllisyyteen, ansioihin tai työvoiman liikkuvuuteen ei havaita, mutta aktivointitoimiin löydetään vaikutuksia. Tulokset kuitenkin viittaavat siihen, että kunnat siirtävät kustannuksia valtiolle.

Toisessa esseessä tutkitaan ulkomaisen työvoiman saatavuusharkinnan alueellisten poikkeusten vaikutuksia palkkoihin, työvoimavirtoihin, ja muihin oleellisiin työmarkkinatulemiin. Esseen tulokset viittaavat siihen, että saatavuusharkinnan poikkeukset johtavat palkkojen alenemiseen ansiojaon alaosassa, kun taas useimmissa ammateissa vaikutusta ei löydy.

Kolmannessa esseessä tutkitaan erot eroissa -menetelmällä median vaikutuksia kansanedustajien käyttäytymiseen. Esseessa hyödynnetään sekä tekstimuotoista dataa, jota analysoidaan kvantitatiivisesti, että muita aineistoja, kuten tilastotietoja kansanedustajien paikallaolosta. Esseessa havaitaan, että televisiokameroiden läsnäolo eduskunnassa ei vaikuttanut oikeisto-vasemmisto -polarisaatioon, mutta kasvatti jännitteitä hallituksen ja opposition välillä. Havaitsemme myös, että kansanedustajien paikallaolo lisääntyi televisioinnin seurauksena.

Neljännessä esseessä kuvaillaan eri ryhmien välisiä eroja parlamentissa pidetyissä puheissa. Havaitsemme, että taustamuuttujista voimakkaimmin parlamentin puheita ennustavat sukupuoli ja koulutus, sillä havaitsemme eroja naisten ja miesten välillä, sekä toisaalta myös korkeasti ja matalasti koulutettujen välillä. Muilla taustamuuttujilla kuten asuinpaikalla (Helsinki/muu Suomi) tai iällä (nuori/vanha) taas ei näytä olevan yhtä suurta merkitystä, koska näissä ei näy puhe-eroja.

ASIASANAT: työvoimapolitiikka, alueellinen politiikka, saatavuusharkinta, poliittinen polarisaatio, poliittinen edustavuus

Acknowledgements

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List of Original Publications

This dissertation is based on the following original publications, which are referred to in the text by their Roman numerals:

I   Nieminen, Jeremias & Kanninen, Ohto & Karhunen, Hannu. The Decentralization of Public Employment Services and Local Governments' Responses to Incentives. *Journal of Economic Geography*, 2023; 23: 1371–1395.

II   Nieminen, Jeremias & Kiviholma, Sanni & Kanninen, Ohto & Karhunen, Hannu. Effects of Regional Exemptions from Labor Market Testing.

III   Nieminen, Jeremias & Simola, Salla & Tukiainen, Janne. Effects of Increased Transparency on Political Divides and MP Behavior: Evidence from Televised Plenary Sittings in Finland. *Legislative Studies Quarterly*, accepted for publication.

IV   Nieminen, Jeremias & Simola, Salla & Tukiainen, Janne. Political representation and the evolution of group differences within parties: Evidence from 110 years of parliamentary speech.

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1 Introduction

In this thesis, I study both public policy and policymaking using empirical tools from applied microeconometrics. The first part of my thesis deals with public policy evaluation as I examine the effects of two different public policies. These two policies are labor market policies but also touch on other other domains of public policy such as fiscal federalism, regional policy and immigration policy. The second part of my thesis deals with policymaking, and analyze questions related to political divides in the Finnish Parliament. My thesis uses many types of micro-level data. First, the first two papers utilize large administrative datasets from Finland. Second, high-dimensional text data is analyzed quantitatively in the remaining two papers. The last paper also utilizes some survey data.

All papers in this thesis are empirical studies in applied economics. Three out of the four essays utilize quasi-experimental methods – namely, the difference-in-differences method – and all of the essays utilize large datasets of some type, be it large administrative datasets or high-dimensional text data. As a whole the thesis can be placed at the intersection of three subfields of economics: labor economics, public economics and political economy. The first two papers fit more to the first two of these while the Essays III and IV speak more to the field of political economy. The latter two essays are also multidisciplinary as they deal with themes that are traditionally in the realm of political science. However, even the latter two studies still assess questions of interest also to economists, and use a recent method that was developed by economists. In general, political economy research is extremely relevant in order to understand how public policy actually works and gets implemented. My dissertation combines both sides of the coin when it comes to studying public policy, by analyzing both how different policies work as well as assessing how public policy-making works under different circumstances.

The first part, i.e., the first two papers of this dissertation, study the effects of public policies with the help of two case studies: public employment service decentralization (Essay I) and the removal of labor market testing requirements regionally (Essay II). The first paper is relevant to labor economics literatures on public employment services (PES) and active labor market policies. It is also very relevant to the empirical fiscal federalism literature that addresses the impact of decentralization of different types of public policies. It makes a clear contribution to that literature, too, as there are only a handful of previous papers that study specifically PES de-

centralization (see Mergele and Weber (2020), Lundin and Skedinger (2006), and Boockmann et al. (2015)). My dissertation Essay I can study the cost-shifting behavior of local governments during PES decentralization more directly compared to previous literature. My dissertation Essay I is the second attempt in the literature to study the causal employment effects of PES decentralization, as the other studies on decentralized PES (except Mergele and Weber (2020)) focused on outcomes other than employment or did not have causal research designs.

The second paper of my dissertation is a policy evaluation of regional exemptions from labor market testing, a policy that has not been evaluated previously in the literature. Labor market testing (LMT) means the requirement that firms need to first advertise the position in Finland before they can hire workers who are non-EU/EEA nationals. The paper also contributes to labor economics literatures on immigration policy, wage effects of immigration, firm effects of immigration, and more broadly on the effects of labor supply shocks on wages.

As mentioned before, the second part of my thesis, i.e., the remaining two papers, are more clearly political economy papers. Both of the papers, thus, deal with politics and especially, with themes related to political divides and political representation. The economic theme in the first paper is the analysis of transparency, which is a theme many economists have been interested in. For example, Holmström (1999) shows that in principal-agent settings full transparency makes the agent more accountable to the principal. Similarly in political settings, it could be thought that transparency of the political process could make politicians more accountable to voters (see, e.g. Ashworth (2012) and Stasavage (2007)). It has also been suggested theoretically that at least in a bipartisan system, transparency in politics could increase divisiveness (Ash et al., 2017). The Essay III of my dissertation assesses empirically whether this kind of a trade-off between transparency and political polarization exists.

The Essay IV, which is the second paper in the political economy part of my dissertation, focuses on political representation and its relationship with how different groups of politicians behave in the Parliament. As many economists have found that the descriptive representation of different groups matters for policy and the provision of public goods (Hyytinen et al., 2018), the paper deals with an important question related to societal resource allocation and public good provision.

This introductory chapter continuing below consists of two parts, first part focusing on *public policy* and the other focusing on *policy-making*. Both parts of this Introduction chapter explain the background for different Essays in my dissertation. More specifically, the first part of the Introduction focusing on public policy issues overviews three themes: the causal evaluation of public policies, the case of public employment service decentralization, and immigration policy. This first part (section 1.1), thus, describes the relevant methods, literature, and context for the first two papers of this dissertation. The second part, in turn, discusses the background for the

remaining two essays, focusing on political divides and other societal phenomena associated with them. The second part also discusses the text-as-data methodology and related literature.

1.1 Evaluating public policies using microeconometric methods

1.1.1 Causal evaluation of public policies

Economics has transformed over the past decades toward a more empirical science, and with that, has also become a field which emphasizes credible, causal research designs. This transformation has sometimes been called the *credibility revolution* in empirical economics (see, e.g., Angrist and Pischke (2010)). My dissertation, which is empirical and utilizes quasi-experimental methods in 3 of the 4 essays (Essays I, II, and III), follows this trend in terms of the methodology used.

The challenge of estimating causal effects comes from the fact that it is not possible to observe a counterfactual outcome for individuals who receive treatment (e.g., a particular type of policy). This issue can be illustrated using the potential outcomes framework (see, e.g., Angrist and Pischke (2009)). In this framework, the average treatment effect on the treated (ATT) can be written as follows:

$$ATT = \mathbb{E}(Y_{1i}|D_i = 1) - \mathbb{E}(Y_{0i}|D_i = 1) \tag{1}$$

In the above equation, Y_{1i} denotes the outcome variable for treated units while Y_{0i} is the outcome for non-treated units. The term $\mathbb{E}(Y_{0i}|D_i = 1)$ is not observed, as Y_{0i} cannot be observed for units who are treated. If this was ignored, and instead, the mean of treatment group was naively compared to the mean of the control group, it would give the following expression:

$$\mathbb{E}(Y_{1i}|D_i = 1) - \mathbb{E}(Y_{0i}|D_i = 0)$$
$$= [\mathbb{E}(Y_{1i}|D_i = 1) - \mathbb{E}(Y_{0i}|D_i = 1)] + [\mathbb{E}(Y_{0i}|D_i = 1) - \mathbb{E}(Y_{0i}|D_i = 0)] \tag{2}$$

The above expression contains also a *selection bias* term $[\mathbb{E}(Y_{0i}|D_i = 1) - \mathbb{E}(Y_{0i}|D_i = 0)]$. If a researcher wants to get rid of this selection problem, it is necessary to address it somehow. Tools to deal with the selection problem include various strategies, not all of which can be regarded as equally good. There is a "hierarchy of evidence".[1] At the top of the hierarchy of evidence, there are randomized controlled trials, and after that, quasi-experimental studies. After these, selection on observables (e.g., controlling for obsevarble covariates in a regression). At the bottom of the hierarchy, there are studies without any comparison group at all.

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[1]This hierarchy of evidence is discussed, e.g., in a short piece I wrote to *Talous & Yhteiskunta* magazine (in Finnish) together with Ohto Kanninen and Hannu Karhunen (see Nieminen et al. (2020)).

While the gold standard of causal inference is the randomized controlled experiment (RCT), economists have developed many other tools to assess causality. This endeavour is important, because only a small subset of research questions in economics can be analysed with RCTs. Despite recent successful RCTs organized in Finland (see, e.g., Verho et al. (2022)), good RCT settings are still relatively rare. Fortunately, econometricians have come up with ways to leverage natural experiments, i.e., research settings created by various rules that are in place in the society. These designs include, for example, instrumentral variables estimation, regression discontinuity, as well as the extremely popular difference-in-differences (DiD) research strategy, which I discuss next. The difference-in-differences method is one that I use in Essays I, II, and III, making it very central to this dissertation.

The very basic challenge in causal inference is that it is not possible to observe the counterfactual of an outcome, i.e., what would have happened would some choice not have been made (Angrist and Pischke, 2009). The difference-in-differences research strategy aims at creating a counterfactual outcome by utilizing a group that evolves similarly to the treatment group in question. The main identifying assumption ensuring that the DiD estimator recovers the causal effect is the parallel trends assumption. This assumption states that in the absence of treatment, the treatment and control groups would have had the same trends (see, e.g., (Angrist and Pischke, 2009)). Mathematically, the parallel trends assumption can be written in the following way, denoting $T = 1$ as the post-period and $T = 0$ as the pre-period:

$$\mathbb{E}[Y_{0i}(1) - Y_{0i}(0)|D_i = 1] = \mathbb{E}[Y_{0i}(1) - Y_{0i}(0)|D_i = 0] \tag{3}$$

The difference-in-difference estimator is as follows:

$$DiD = \{\mathbb{E}(Y_i(1)|D_i = 1) - \mathbb{E}(Y_i(1)|D_i = 0)\} - \{\mathbb{E}(Y_i(0)|D_i = 1) - \mathbb{E}(Y_i(0)|D_i = 0)\} \tag{4}$$

It is possible to show that this estimator above recovers the causal effect (ATT) of the policy, provided that the parallel trends assumption shown in equation (3) holds. Of course, in addition to the parallel trends assumption, the difference-in-differences strategy also requires other key assumptions, such as SUTVA (stable unit treatment value assumption). This means that there cannot be spillover effects, i.e., the treatment cannot affect the control group. There should also be no simultaneous reforms.

In practice, the difference-in-differences estimate is often calculated using the following simple panel data regression

$$Y_{it} = \alpha + \gamma_t + \theta_i + \delta(treat_i * post_t) + \epsilon_{it} \tag{5}$$

where γ_t is the time fixed effect, θ_i is the unit fixed effect, $treat_i$ is the treatment indicator, and $post_t$ is an indicator getting value 1 if the observation is from the post-period, i.e., from the period after the start of treatment. Often the effects are also

estimated in an event study format, which can be accomplished by estimating the following regression model:

$$Y_{it} = \alpha + \gamma_t + \theta_i + \sum_{k=-s}^{s} \delta_k D_{ts}^k + X_{it}^{'}\beta + \epsilon_{it} \tag{6}$$

In the above model, variables D_{it}^k are yearly treatment dummies, i.e., interaction terms between the treatment dummy and the year variable. The coefficients are normalized to year -1 and thus the treatment indicator from year -1 is omitted from the model.

In the case of staggered treatment (as in the Essay II of my dissertation), the two-way fixed effects regression described above may be biased (see, e.g., Callaway and Sant'Anna (2021), Goodman-bacon (2019)). Fortunately, econometricians have developed new and more robust methods to calculate difference-in-differences estimates in the case of staggered treatment. These include, for example the methods developed in Callaway and Sant'Anna (2021) and de Chaisemartin and D'Haultfœuille (2022). In Essay II, the Callaway and Sant'Anna (2021) method is used as a main method but robustness to other methods is also tested.

1.1.2 Case 1: Public employment service provision and its decentralization

As the first essay in the thesis examines public employment services (PES) and specifically the effects of a decentralization reform conducted for PES in Finland, the objective of this section is to present important theory and literature behind this research question. The methods and results of the paper, in turn, are discussed in Section 2 (Summary of the Essays).

The purpose of having public employment services is that they would help the unemployed to find jobs and make it easier for firms to find workers (Holzer and Watanabe, 2015). Thus, it could make the matching process in the labor market, i.e., matching employees to employers, more efficient. Theoretical papers, starting from Pissarides (1979), have examined the issue using search models. The empirical evidence studying PES effectiveness in general is mixed, with some studies showing positive impacts (see, e.g., Fougère et al. (2009)) and others showing PES may lead to worse matches in terms of wages (Addison, 2002; Holzer, 1988). Some studies find no impacts on wages (Weber and Mahringer, 2008; Osberg, 1993). The key tasks of PES offices in Finland include conducting employment and activation plans for job seekers, directing job seekers job search, and placing them in active labor market policies (ALMPs). The ALMPs include services such as labor force training, rehabilitative work and wage subsidies. The degree of decentralization is also likely to affect how much, and which types of, ALMPs are organized by the PES offices.

Many countries have decentralized the provision of public employment services (Mosley, 2012). There are theoretical and empirical arguments that support the decentralization of those public policies that do not have externalities to other regions. Namely, the fiscal federalism literature suggests that if there are no interjurisdictional externalities, policies should be organized locally. This result is called the *Oates decentralization theorem* (see, e.g., Oates (1972) and Oates (1999)) .

The second-generation fiscal federalism literature (see e.g., Besley and Coate (2003)) takes a more political economy focused approach. Weingast (2009) reviews the second generation fiscal federalism literature and Martinez-Vazquez et al. (2017) provides a more general literature review on the fiscal federalism literature, including second generation fiscal federalism. The second generation fiscal federalism literature argues that in centralized provision of public services, common pool problems may be prevalent as local policy makers strive to get their costs paid by the central budget (Besley and Coate, 2003). This argument would then also support local provision of public services.

Another argument for local provision is introduced by Tiebout (1956) whose hypothesis was that if there are no externalities—similar assumption to Oates (1972)—the local provision of public goods is optimal because then different regions can compete against each other, as individuals can move to the one that provides the mix of local public goods that they want.

The effects of decentralization in a broad sense, i.e., when central government functions are decentralized on a large scale, have pointed out to it having positive effects (see, e.g. Faguet (2004)), which would be consistent with the fiscal federalism theories that imply decentralization is efficient. However, the evidence related to the decentralization of PES, specifically, is relatively scarce, and thus, the first paper of my dissertation makes a clear contribution studying a question that has not been adequately answered in the previous literature.

Regarding the papers that have studied reforms related to PES decentralization before, the most credible is the paper by Mergele and Weber (2020). In their paper, they utilize a reform in Germany, where PES was decentralized in some regions but not in others. That is the only previous paper studying causal effects of PES decentralization on employment-related outcomes. They find negative employment effects and some evidence of cost-shifting behavior, which suggests PES decentralization may not be beneficial at least under some circumstances. In addition, evidence pointing at municipal cost-shifting behavior has been observed by Lundin and Skedinger (2006), as well as by Mörk et al. (2022) in a different context. The Essay I in my dissertation is able to dig deeper to the cost-shifting argument compared to previous studies in the literature.

1.1.3 Case 2: Immigration policy and the wage effects of immigration

The second paper of my dissertation studies the effects of a specific type of immigration policy that exempts specific occupations in different regions from labor market testing (LMT) requirements. Here, labor market testing refers to a requirement where a firm has to advertise an open position in Finland before hiring a non-EU/EEA citizen. As these LMT requirements restrict immigration, the region- and occupation-specific exemptions from these requirements can be expected to increase immigration inflows to treated occupation-region units. While effects of labor market testing are not well understood and we are not aware of previous papers studying the exact same question, the paper is, of course, related to the massive literature on the effects of immigration in general. The economic effects of immigration have been a source of both fierce public debate as well as of active academic discussion (Card, 1990; Bratsberg and Raaum, 2012; Dustmann et al., 2017; Borjas, 2006, 2013, 2017, 2018). See, e.g., Edo (2019) for a review on the topic.

Traditional models of labor supply and demand would predict that on the short term, increased immigration would lead to lower wages for native workers, if the immigration shock moves the labor supply curve without affecting labor demand. This would be true especially if the foreign workers were substitutes instead of complements for native workers (Edo, 2019). However, in the long term, as capital and labor demand adjust, the sign of the wage effect of immigration is ambiguous (Edo, 2019). Thus, at the end, it is an empirical question.

There are numerous papers that have addressed the wage effects of immigration empirically, and these papers have found both positive and negative–and sometimes zero–impacts on native wages. In the U.S. context, Card (1990) finds no wage impacts while Borjas (2017) finds a negative wage impact. Also in the European context, both negative and non-negative wage impacts have been observed. Kuosmanen and Meriläinen (2022) finds that the inflow of posted workers to Finland led to a negative effect of 9% in the most vulnerable occupations. Bratsberg and Raaum (2012) utilizes occupational-level variation in licencing requirements in Norway and also finds a negative effect on wages. However, in their paper, price levels of goods and services also decreased as a result of the immigration shock.

Beerli et al. (2021), in turn, do not find any negative wage impact when they evaluate the effects of cross-border workers in Switzerland. To the contrary, they find positive impacts for high skilled workers. Dustmann et al. (2017) study a commuting policy between Germany and Czechia and observe that native wages decrease 0.13% per 1 percent increase in the employment share of workers from Czechia, and the employment of natives decreases by 0.9% when the employment share of Czech workers increases by 1 %. In Algeria, Edo (2020) finds that immigration impacted wages negatively in the short term, but not in the long term.

The fact that the empirical results are so mixed suggests that the wage and employment effects of immigration on native workers depend heavily on the specific context, institutions and the type of immigrants that arrive. Many papers in the literature–e.g., Dustmann et al. (2017) and Beerli et al. (2021)–also suggest that if there are wage effects, they may be different for different types of workers. For example, highly skilled workers may benefit while less skilled groups of natives may suffer wage losses.

The effects of immigration on the economy can go beyond the wage impacts. For example, it is important to understand how firms respond to increased immigration. Although this has been studied before, there is not that much evidence on firm responses compared to the massive literature studying wage impacts of immigration. Of the studies that exist, Beerli et al. (2021) show that high-skilled immigration may boost innovation and firm performance. Their paper is, however, only informative of firm responses to high-skilled migration and do not help to assess the effects of low-skilled immigration on firms. Olney (2013) finds that immigration is associated with increased number of establishment and also with expanded hiring in existing establishments. Dustmann and Glitz (2015) suggest that firms entering to the market and exiting the market is a key mechanism for the labor market adjustment after an immigration shock. Mitaritonna et al. (2017) find that immigration increased productivity of firms and firms' exports.

1.2 Beyond numbers: using computational text analysis to analyse public policy-making

Economists and other social scientists increasingly use text as data in various applications. In their review article on "text-as-data", Gentzkow, Kelly and Taddy (2019) discuss how text data can used in quantitative analyses and what kind of questions have been answered with that approach. They show that in economics, text-as-data has been used, for example, in nowcasting applications, stock price prediction, analysis of central bank communication, and to study innovation. In the study of political economy and political science, using text data is very common. As Gentzkow, Kelly and Taddy (2019) mention, media slant is one phenomenon that has been analyzed using text-as-data methods. One important societal phenomenon that is often analyzed using text data is political polarization, and especially, the polarization of parliamentary speech (see, e.g., Fiva et al. (2023), Gentzkow et al. (2019) and Peterson and Spirling (2018)). This is also the theme that is analyzed in Essays III and IV of this dissertation.

The intuition behind what Gentzkow, Kelly and Taddy (2019) describe in their review article as the standard approach to analyze text data quantitatively is the following. First, according to them, the text data should be represented numerically. One example of how text data can be represented for quantitative analysis is the Bag-

of-Words (BoW) format, which are also used in the analyses in both Essay III and Essay IV od this dissertation. The BoW format means that each column is a different phrase, and columns values represent phrase counts for these different phrases. In the case of my dissertation Essays III and IV, for example, the data is on speaker-year level, while the columns are different bigrams, i.e., two-word phrases.

After the text-format dataset is represented numerically, Gentzkow, Kelly and Taddy (2019) argue in their review article that one can then use the numerical representation of the text data to map the numerical values to predicted values $\hat{V}$ of some unknown outcome V. After that, they argue that the predicted values $\hat{V}$ can be used to conduct descriptive or causal analyses. The partisanship estimator used in Essays III and IV is based on a similar idea. That estimator was developed by Gentzkow, Shapiro and Taddy (2019), and the method is described in the next subsection. In that approach, data is first numerically represented as Bag-of-Words, then the model of speech is estimated, and after that, an average measure of polarization is calculated based on the estimated parameters.

1.2.1 The Gentzkow, Shapiro and Taddy (2019) approach and previous approaches to study political divides and polarization

Two of the last papers of in this dissertation–i.e, those papers focused on analyzing policy-making–mainly rely on the method developed by Gentzkow, Shapiro and Taddy (2019) to measure group differences in high-dimensional choices, i.e., the choice of phrases in their case as well as in our case. Gentzkow et al. (2019) originally developed the method to assess partisanship of parliamentary speech in the U.S. Congress. The method is, however, more general, and can be used to estimate differences between any two groups using text data. In my dissertation, parliamentary speech data from the Finnish Parliament is used in Essays III and IV.

The intuitive idea behind the Gentzkow et al. (2019) method is to calculate a measure of polarization that measures the likelihood of guessing the correct party (or group) affiliation of a politician based on knowing only one phrase spoken by the politician. This measure would get a value 1 under complete polarization and value 0.5 if there is no polarization.

The Gentzkow et al. (2019) method is based on estimating Poisson regressions in parallel. These can be used to approximate the underlying multinomial logistic model set up by Genztkow et al. One very central feature of the Gentzkow et al. (2019) model is the LASSO penalty they include in the regressions. That penalty mitigates the small sample bias caused by the fact that most phrases in the Parliament are spoken very infrequently. The negative likelihood function minimized when calculating the Gentzkow et al. (2019) estimates are of the form shown equation (7) below.

$$\sum_t \sum_i [m_{it} exp(\alpha_{jt} + \gamma'_\mathbf{j}\mathbf{x_{it}} + \phi_{jt}\mathbb{1}\{L_{it}\}) - c_{ijt}(\alpha_{jt} + \gamma'_\mathbf{j}\mathbf{x_{it}} + \phi_{jt}\mathbb{1}\{L_{it}\}) + \lambda_j|\phi_{jt}|]$$

(7)

In equation (7), j indicates phrases, i individuals and t indicates year. Also, m_{it} is the total number of phrases spoken by an individual i during year t, x_{it} contains control variables, L_{it} is an indicator getting value 1 for the group that is studied. For example, when studying left-right differences, the coefficient would get a value 1 for MPs from left-wing parties and 0 for those from right-wing parties. In the equation, $\lambda_j|\phi_{jt}|$ is the LASSO penalty imposed for the coefficients, limiting the small sample bias. The negative log likelihood function for the factorial of J Poisson distributions is the sum of all J likelihoods:

$$\sum_j \{\sum_t \sum_i [m_{it} exp(\alpha_{jt} + \gamma'_\mathbf{j}\mathbf{x_{it}} + \phi_{jt}\mathbb{1}\{L_{it}\}) - c_{ijt}(\alpha_{jt} + \gamma'_\mathbf{j}\mathbf{x_{it}} + \phi_{jt}\mathbb{1}\{L_{it}\}) + \lambda_j|\phi_{jt}|]\}$$

(8)

Once the estimates from the above regressions have retrieved, they can be plugged to the formulae Gentzkow et al. (2019) define for phrase choice probabilities, and subsequently, those can then be plugged to the formula of average partisanship (or polarization). The phrase choice probabilities are defined by Gentzkow et al. (2019) in the following way:

$$q_{jt}^{D_i(x_{it})} = \frac{e^{u_{ijt}}}{\sum e^{u_{ijt}}}$$

(9)

where u_{ijt} is

$$u_{ijt} = \alpha_{jt} + x'_{it}\gamma_{jt} + \phi_{jt}1_{i \in \{D_t=1\}}$$

(10)

The final formula for polarization, then, is:

$$\boldsymbol{\pi}_t(x) = \frac{1}{2}\boldsymbol{q}^{D_i=1}(\boldsymbol{x})\boldsymbol{\rho}_t(x) + \frac{1}{2}\boldsymbol{q}^{D_i=0}(\boldsymbol{x})(1 - \boldsymbol{\rho}_t(\boldsymbol{x}))$$

(11)

where ρ_{jt} is the expected posterior that the observer assigns $D_i = 1$ after hearing the phrase j:

$$\rho_{jt} = \frac{q_{jt}^{D_{it}=1}(x)}{q_{jt}^{D_{it}=0}(x) + q_{jt}^{D_{it}=1}(x)}$$

(12)

The Gentzkow et al. (2019) method is, of course, not the only method that can be used to study polarization. Instead, various methods have been developed, including the one used in Peterson and Spirling (2018). One common approach is to use *word embeddings*, i.e., numerical representations of text, to assess patterns in text data.

Additional analyses using word embeddings are estimated as a robustness check in the Online Appendix of Essay III.

1.2.2   Political divides and their interplay with societal phenomena

Both of the last two papers in this dissertation examine issues related to political divides, either between or within parties. Political polarization is associated with various negative side effects, such as democratic decline (Arbatli and Rosenberg, 2021), gridlock in decision-making (Jones, 2001) and decreased trust in government (Grechyna, 2016). Thus, increased polarization may have effects on societal outcomes, and thus, it is important to know which factors contribute to increased levels of political polarization that have been observed in many countries during the latest decades (see, e.g., Gentzkow et al. (2019) or Boxell et al. (2022)).

My dissertation Essays III and IV may offer some insight into the causes and consequences of polarization, or at least, shed light on what societal phenomena tend to co-occur with polarization. Regarding this theme, Essay III shows using a causal research design, i.e., difference-in-differences, that media presence does not increase polarization but may increase government-opposition tensions. The results in Essay III also suggest that there are positive sides to increased media presence in the Parliament (namely, it increases attedance). Thus, these positive effects of transparency then have to be weighted against the potential negative effect of increased government-opposition tensions. However, based on Essay III, there does not seem to be a tradeoff between transparency and ideological (left-right) polarization.

Especially the Essay IV also focuses on another type of a political divide, i.e., political cleavages within parties. In Essay IV, the long-term evolution of these within-party divides is studied. The theme of within-party divides is also touched in Essay III where in some analyses we estimate the effect of media on within-party speech differences. Regarding within-party divides, an important literature concerns the link between the descriptive and substantive representation of various groups. These concepts of descriptive and substantive representation were introduced in Pitkin (1967) who argued that in addition to studying women's seat share, it is necessary to study representation in terms of how well MPs *act for* certain groups. How this is related to political divides is through the argument that a group may need a certain number of other members of the same demographic in order to speak their mind in the Parliament. In this context, increase in speech differences between two groups could reflect a process where MPs belonging to a group increasingly talk about issues they want. This idea of there being a "critical mass" is, however, somewhat controversial in the literature, some studies finding support for it while some others reject the theory (Childs and Krook, 2006, 2008; Grey, 2002; Towns, 2003).

2 Summary of the Essays

2.1 The Decentralization of Public Employment Services and Local Governments' Responses to Incentives

This is a summary of the first essay "The Decentralization of Public Employment Services and Local Governments' Responses to Incentives", published in the *Journal of Economic Geography*. In the Essay I, the effects of decentralizing the provision of public employment services (PES) in Finland are examined. Here, the decentralization of PES means that the responsibility to arrange these services was temporarily moved from the central government to local governments, i.e., municipalities. We estimate the effects of this temporary reform using the difference-in-differences method which allows the causal identification of the effect this policy had on various outcomes.

Based on the fiscal federalism theories (e.g., Oates (1972)) discussed in section 1.1.2, theory suggests it is possible that decentralization would increase the effectiveness of public services. This argument could easily apply to PES as it is perhaps plausible that municipalities are better informed about the local job seekers compared to the centralized employment offices. However, as previous empirical studies (Mergele and Weber, 2020; Lundin and Skedinger, 2006) suggest, PES decentralization may have unintended consequences such as local governments shifting costs to the central government. In Essay I, we aim to study both potential benefits in terms of employment outcomes as well as cost-shifting behavior of local governments.

The datasets used in Essay I are from Statistics Finland and from the Finnish Ministry of Employment and the Economy (TEM). The datasets from Statistics Finland include data modules such as FOLK Basic, FOLK Income and FOLK Employment modules. Using these, we get some of our main outcome variables, such as earnings and employment months. From TEM, we use TEM Job search and TEM Job seeker modules. From these datasets, we can get information about individuals' job search periods, ALMP participation, and plans conducted by employment offices, as well as other types of information relating to job search. Using TEM datasets, we can also identify the treated individuals, i.e., those job seekers who are transferred from the centralized employment offices to the decentralized ones.

The main method used in Essay I is individual level difference-in-differences

with matching. The analysis is conducted such that we first find a control for each initially treated individual using propensity score matching, and then use difference-in-differences where only the matched individuals are included in the panel. We test robustness (in the Online Appendix of the paper) to using different matching algorithms, such as coarsened exact matching or entropy balancing. The results are robust to using those. When studying the effects on penalty payments paid by municipalities, we also conduct municipal-level difference-in-differences estimations, where we compare treated municipalities to control municipalities without matching adjustments.

Our findings indicate that decentralizing PES did not have meaningful effects on the employment or earnings of individuals. However, the administrative measure of long-term unemployment decreased as a result of job seekers being increasingly moved to ALMPs. When a job seeker participates in these activation services, they are not considered to be unemployed anymore, and thus, the days in activation do not count towards the administrative cutoff for long-term unemployment in the system that was in place at the time.[1].

In addition, the paper studies the cost-shifting process in detail, first observing that municipalities choose to increase their efforts to conduct activation plans at the expense of other employment plans being conducted more infrequently. This suggests that municipalities focused their efforts more to decreasing measured unemployment among those job seekers who are administratively considered long-term unemployed, as those individuals cost the most to the municipality in terms of "penalty payments" the municipality have to pay to the central government. After observing this effect on the plans conducted, we observe an increase in ALMP participation, and subsequently, a decrease in the administrative measure of long-term unemployment. Finally, when we estimate municipal level difference-in-differences estimations where the outcome variable is the amount of penalty payments municipalities have to pay to the central government, we observe that these decreased by 10 %.

The Essay I makes a clear contribution in the literature as there is only one previous paper, i.e., Mergele and Weber (2020), that studies the causal employment effects of PEs decentralization. The paper also clearly expands our knowledge on the cost-shifting behavior of decentralized employment offices. Whereas previous literature has focused on this indirectly (Mergele and Weber, 2020) or not in a decentralization reform setting (Mörk et al., 2022), our study is able to study the issue more directly by looking at the effects on the penalty payments municipalities have to pay.

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[1]At present, the Finnish Government is planning to reform this system in a way that also days spent in ALMPs would count toward the long-term unemployment cutoff(s).

2.2 Effects of Regional Exemptions from Labor Market Testing

This is a summary of the Essay II: "Effects of Regional Exemptions from Labor Market Testing". In the Essay II, we examine the effects of a regional immigration policy, where regions can exempt specific occupations from labor market testing (LMT) requirements. Labor market testing refers to the requirement that firms have to first assess whether they can hire a worker from inside the European Union (EU) before they can hire someone from outside the EU.

In the paper, the two main research questions are 1.) whether removing LMT requirements increases the inflow of non-EU workers to the trated occupation-region units, and 2.) if that is the case, whether that change affects subsequent outcomes, such as the wages of natives working the occupation-region unit. Also other questions, such as the effect on occupational mobility and firm outcomes are studied in the paper.

The essay uses individual and firm level datasets from Statistics Finland and Finnish Ministry of Employment and the Economy. These include FOLK modules (FOLK basic, FOLK employment, FOLK income) as well as the Earnings Structure Survey, and TEM Vacancies. In addition, hand-collected data on regional exemptions from labor market testing is used in the paper.

The main method used in the essay is difference-in-differences strategy with staggered treatment, estimated with Callaway and Sant'Anna (2021) method. The Callaway and Sant'Anna (2021) method is used instead of the more traditional two-way fixed effects (TWFE) specification, as recent econometrics literature has found that with staggered treatment, the TWFE estimator may be biased. In the paper, robustness of the results to using various other event study methods, such as de Chaisemartin and D'Haultfœuille (2022) and the normal TWFE, is tested, and the results are found to be robust.

The paper also contains some firm-level estimations where the Callaway and Sant'Anna (2021) method cannot be used, as on the firm level, it makes more sense to use define treatment continuously, because firms that are more exposed to the treatment should be considered to be treated more intensively than other firms. In these analyses, thus, we use an ordinary TWFE regression with an intensive treatment indicator getting values between 0 and 1. These firm-level estimations are, however, not the main results of our paper, and the estimation method is perhaps not as convincing as the Callaway and Sant'Anna (2021) method used when estimating the main results on occupation-region level.

The main finding of the paper is that removing labor market testing requirements led to an increase in the inflow of foreign (non-EU/EEA citizen) workers. It is also observed that most of the increase in foreign workers is due to immigrants already in Finland starting to work in the occupation. This suggests that groups that may not

have work authorization for full-time work may use these exemptions to gain a work permit to Finland.

The paper makes a clear contribution to the literature, as we are not aware of any published or working papers that would address the effects of regional exemptions from labor market testing.[2]

2.3 Effects of Increased Transparency on Political Divides and MP Behavior: Evidence from Televised Question Hours in the Finnish Parliament

This is a summary of Essay III: "Effects of Increased Transparency on Political Divides and MP Behavior: Evidence from Televised Question Hours in the Finnish Parliament", published in the *Legislative Studies Quarterly*. In Essay III, we use the difference-in-differences methods, as well as computation text analysis to measure the effect of increased transparency in the parliament on political divides.

The paper asks a question whether there exists a *transparency-polarization trade-off*, i.e., whether increasing the transparency of parliamentary speeches would result in higher polarization in the Parliament. In the paper, polarization is measured along the left-right axis, between the government and the opposition, between specific parties, as well as within parties.

The data used in the paper was first digitized and used in Simola et al. (2023). However, the original dataset is extended considerably by adding dates (day number and month) to the speeches, as originally it only contained the parliamentary year for each speech. Detecting the day number and month is necessary in order to identify which speeches are given in treated sittings and which ones in control sittings. Day numbers and month are directed using optical character recognition (OCR) and the raw speech documents in a similar fashion that the original speeches had been digitized. The dates can be extracted using a specific type of regular expression that captures only the dates. Once the dates and page numbers for them are captured, they can be linked to the original speeches using the page number information.

The main method used to estimate polarization of parliamentary speeches is the Gentzkow et al. (2019) method. Once polarization is calculated separately for the treated question hours (first Thursdays every month) and the control sittings (question hours on other Thursdays), the difference between polarization levels in the first and the other question hours each year is then manually compared to the difference between the polarization levels of the groups in year 1988, which is the year preceding the start of television broadcasting. Confidence intervals are then calculated using the subsampling method as standard non-parametric bootstrap cannot be used

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[2]There is a PhD thesis chapter by Christina Bratu that analyzes the Swedish case of removing LMT requirements altogether in all occupations and regions, but the paper has not been distributed as a working paper or published in a journal.

with LASSO Gentzkow et al. (2019). This facilitates a difference-in-differences research design, albeit it is estimated manually as opposed to regression. The estimates and the subsampled confidence intervals are be plotted in a typical event study type of figure.

The key result in the paper is that the increased transparency through televised question hours did not affect left-right polarization in parliamentary speech, and thus, there does not seem to be a trade-off between transparency and ideological (left-right polarization). No effects are observed either on the differences between individual parties or in within-party group differences. However, increased transparency seemed to increase attendance of MPs, highlighting that transparency may have positive impacts such as increasing the effort of politicians. The paper makes a clear contribution to the literature as there are no previous papers that would have studied the exact same question of what is the causal impact of TV broadcasting of parliamentary sessions on the polarization of parliamentary speech. However, there are related papers such as Ash et al. (2017) and Gennaro and Ash (2022) that study related questions. The latter of these uses a similar difference-in-differences strategy but studies effects on a different outcome, the emotionality of parliamentary speeches.

2.4 Political representation and the evolution of group differences within parties: Evidence from 110 years of parliamentary speech

This is a summary of Essay IV, titled "Political representation and the evolution of group differences within parties: Evidence from 110 years of parliamentary speech". The Essay IV examines the relationship between the descriptive and substantive representation of different demographic groups in the Parliament. We use the method introduced by Gentzkow et al. (2019) to measure the extent to which members of parliament (MPs) with different background characteristics speak differently. It analyzes a similar research question compared to a Norwegian paper by Fiva et al. (2023), but with a much more extensive time frame encompassing more than 100 years.

While the essay is primarily descriptive, i.e., the objective is to describe the evolution of within-party speech differences in the Finnish parliament over a very long time period of more than 100 year, the essay also relates to some hypotheses in the literature on women and politics. Namely, the paper offers suggestive support for the hypothesis that women's descriptive representation–i.e., their seat share in the Parliament–may play a role in the substantive representation of women.

Similarly to Essay III, the data used in the paper was first digitized for a project that is now a working paper by Simola et al. (2023), not included in this thesis. The dataset contains phrase counts for more than 50,000 bigrams for all MPs in the Finnish Parliament for a whole century. The dataset contains data for 110 years

(1908-2018).

The method that is used to estimate polarization is the Gentzkow et al. (2019) method, which estimates a polarization score between 0.5 and 1 for each year. The method–which is discussed briefly also in the Introduction section of this dissertation– relies on estimating how well group affiliation predicts the usage of different phrases, and then based on those phrase choice probabilities, the Gentzkow et al. (2019) polarization measure can be computed. The actual estimation procedure, following Gentzkow et al. (2019), utilizes Poisson regressions that can be run in parallel. These regressions can approximate the underlying multinomial logistic model constructed in Gentzkow et al. (2019).

The results of the paper suggest that gender and university education are the most clear predictors of parliamentary speech, while other MP characteristics are not. This is because the estimated speech differences between men and women, as well as between highly and non-highly educated politicians, are fairly large, while speech differences between other groups–such as urban vs. rural, or young vs. old– are not even distinguishable from a placebo series. The results in the paper also indicate that speech differences both with respect to gender as well as with respect to education level have increased during the last century. The speech differences between men and women grew especially in the period between 1950s and 1970s, co-occuring with increases in women's descriptive representation and with increased specialization in topics such as healthcare and social issues.

The main contribution of the paper is, that unlike previous studies, it can show the evolution of various within-party divides across a very long time frame. While there are many papers in the literature that argue men and women speak differently in the Parliament (see, e.g., Fiva et al. (2023), Catalano (2009), Osborn and Mendez (2010), and Lippmann (2022)), not many have been able to analyze this question over such a long time period. What is more, our paper is able to compare the women-men cleavage in parliamentary speeches to other cleavages, and can do so utilizing such a long time frame. Indeed, the paper suggests that the speech differences between women and men MPs are fairly large and larger than most other cleavages expect for the one between highly educated and less educated MPs.

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