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TRUST IN PUBLIC SECTOR PERFORMANCE: Which is more important; individual or institutional based expectations?

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Abstract

We analyze trust in public sector performance measured in terms of taxpayers' expectations of receiving the necessary help and services needed by using data from a general mass survey of Danish citizens conducted in 2015. We examine if it is individual characteristics or institutional characteristics which has the strongest partial correlation with trust in public sector performance. We find that the individual specific characteristics which have the strongest partial correlation with trust in public sector performance, while institutional characteristics have a less strong partial correlation with trust in public sector performance.

Keywords: Trust, public sector, performance, Institutions, Individual characteristics

JEL Classification: H11, H41, I38

Introduction

Trust in government is a complex concept that covers general and systemic factors such as the legitimacy of the political system, but also more specific experiences with services that the government provides through the administrative system, (Van de Walle and Bouckaert 2003). Citizens are often more critical towards the public sector when asked in general terms but relatively more satisfied with specific services, which has been described as the paradox of distance, (Frederickson 1997), because citizens trust government officials and public institutions who are nearby them but are more skeptical towards institutions located far away.

Denmark is an interesting point of reference, when it comes to analyzing trust in the government and the public sector since Denmark has a strong democratic tradition and scores high on income per capita. Furthermore, Denmark is the country with the world's highest general level of trust among citizens,

(Inglehart et al. 2004), but a level of trust in government approximately equal to the average level in the OECD countries, (OECD 2017). Finally, Denmark has one of the largest and most comprehensive welfare states in the world. The high levels of generalized and institutional trust are probably some of the main reasons of the emergence and preservation of the Danish welfare state, (Svendsen and Svendsen 2016).

The Danish municipalities are responsible for the main part of the public services that Danish citizens receive from the welfare state¹. For instance, the 98 Danish municipalities are responsible for the production and delivery of preschool daycare, primary and secondary school, elder care, health care (except hospitals), social benefits, libraries and other cultural activities. Around 78 percent of the municipal expenditures in 2014, (Statistics Denmark 2014), were used on services that are not pure public goods - or even quasi-public goods – but rather merit goods, which just as well could be produced by private companies (while they still are allocated and paid for by the government). It is important that citizens' have a high level of trust in the ability of the public sector (municipalities) to provide the necessary help and services when needed, in order to justify a system with a very large tax financed production of services in the municipalities. If trust in public sector performance is too low, the politicians will likely be put under pressure to move the production of services from the municipalities to private companies. It is important to note that citizens can have a high level of trust in democracy and support a comprehensive welfare state while they agree that private firms should produce the services, which the welfare state provides. A central question therefore is what factors determine if citizens trust that they can get the necessary help and services if they need it².

To the best of our knowledge, no one has examined empirically which factors are partially correlated with trust in public sector performance: There is however a closely related literature, which analyzes how demographic factors, political-cultural factors and experience with public services influence people's trust in government. Especially the studies by (Christensen and Lærgreid 2005; Lærgreid 1993) are of specific interest, as these two studies consider the case of Norway which is comprehensive welfare state that resembles the Danish welfare state, which is our focus. These studies find that that woman have a higher level of trust in government than men and that citizens who are employed in the public sector have a higher level of trust in government than individuals who are not hired by the public sector. Furthermore, they find that trust in government increases in age and highly educated citizens have a higher level of trust in government than citizens with a relatively low level of education. It is important to keep in mind, that they consider trust in government and not trust in public sector performance, and it is therefore not a priori clear, if their results generalize to our research questions.

Overall the studies cited above suggest that individual specific characteristics have a partial correlation with trust in government. However, in a Danish context (Nannestad et al. 2014) found that institutional characteristics determine social trust for immigrants, which suggests that institutional characteristics could be strongly correlated with trust in public sector performance. These considerations lead us to the following research question:

¹ One notable exception is that it is the Danish regions, and not the municipalities, which have the responsibility of running the public hospitals.

² We will often refer to this as trust in public sector performance.

Which factors have the strongest partial correlation with trust in public sector performance: Individual specific characteristics or institutional characteristics?

To answer this question, we use a large mass survey conducted by Statistics Denmark (SD), where individuals were asked to which degree they trust that the municipality will provide the necessary help and services when needed (among 37 other questions, including the level of generalized trust and the level of trust in municipal politicians). Our main results are that the individual specific characteristics have a strong partial correlation with trust in public sector performance. Especially generalized trust has a strong partial correlation with trust in public sector performance. The institutional characteristics are not however irrelevant. First, we find that trust in public sector performance is decreasing in the number of habitants in the municipality. Second, we find that citizens who live in a municipality where mayor is not from largest political party, have a lower level of trust in public sector performance than a citizen who lives in a municipality where the mayor does come from the largest political party. We find that the marginal effects of service are negative for individuals who live in a municipality where the mayor is from a left-wing party and for individuals who get most of their income from the private sector.

The rest of this paper is structured as follows: First, we describe our theoretical elaborations and hypothesis. Second, we provide a detailed description of the data we collected followed by empirical results from a model, in which we assume that the marginal effects of the service-level do not differ across individuals and municipalities. Furthermore, we will show results from a complicated model, where we allow the marginal effects of the service-level to depend on individual specific characteristics and municipal specific characteristics. Finally, we conclude.

Theoretical Elaborations and Hypotheses

The structure of our theoretical discussion is similar to the literature, which examines whether culture or institutional quality is the most important determinant for social trust, see for example (Nannestad et al. 2014). However, in our case it is not all the variables that we consider that is easily classified as being cultural or institutional³, and we therefore prefer to group our hypothesizes into two main categories: individually based expectations and Institution based expectations.

Individual based expectations

As there is a lot of individual specific variation in public sector performance, while the variation on a municipality level is much less pronounced, see the appendix, it has specific interest to consider the role that individual specific expectations have on trust in public sector performance. In the following we will describe some sub-hypothesizes which are related to individual specific expectations.

We consider two different types of hypothesis about the influence of individual characteristics on the trust in public sector performance:

- An individual's level of trust in other people affect their trust in the performance of the public sector institutions

³ An example of such a variable is log of disposable income.

- An individual's situation in life affect their trust in the performance of the public sector institutions

Trust in other people

The Danish municipalities are the main providers of goods and services to its citizens. We expect that general trust in municipal politicians is going to be highly correlated with trust in the ability of the municipality to deliver help and services when needed, as the municipal politicians are responsible for the performance of the municipality. However, the relationship between trust in municipal politicians and trust in performance of the municipality is not a simple matter. First, the politicians are not alone responsible for the performance because they delegate the management of the public production of services to the bureaucrats in the administration. Secondly, trust in politicians also covers general trust in the honesty of the politicians (no corruption etc.). Therefore, the citizens may have a high level of trust in politicians and a low level of trust in public sector performance. For example, if the citizens have a low level of trust in management skills of the administration, the citizens will not expect to get the service you need due to an ineffective production of goods in the public sector, but the citizens can still have a high level of general trust in politicians and the local democracy. The citizens can also have a high level of trust in politicians, but a low level of trust in getting the service and help they need, if they believe the public budgets are too small. Furthermore, the level of trust in politicians is probably a mix of trust in their integrity (non-corrupt etc.) and trust in their qualifications.

The above reasoning suggests that the level of trust in municipal politicians is likely to correlate strongly with the level of trust in public sector performance. It is however not clear in what direction the causality runs: Do individuals trust that they can get the necessary help and services from the municipality when they need it because they trust the local politicians, or do individuals have high level of trust in the local politicians because they provide high-level services? As we have not been able to find valid instruments we have not been able to bypass this problem of endogeneity, but as we will argue in the empirical section, it is essential to include trust in municipal politicians in order to get consistent estimates.

One of our central hypotheses is that the level of trust in public sector is increasing in the level of generalized trust. The idea is that individuals who have a high level of trust in other people in general will also expect the municipality to provide the necessary help and services if needed. Hence, we expect that trust is of a very general character.

Situation in life

High-income individuals might be used to buying high quality services in the private markets. This implies that, high income individuals have a higher benchmark when they evaluate public sector performance than low income individuals do. Therefore, trust in public sector performance is expected to decrease in disposable income.

The individual specific expectations with respect to public sector performance might depend on the individual's main source of income. Specifically we would expect that members of the welfare coalition⁴ to

⁴ The welfare coalition, as introduced in (Christoffersen and Paldam 2003), consists of individuals who get most their income the public sector, either because they receive transfer or because they are hired in the public sector. Around

have more trust in public sector performance compared to individuals who get most of their income from the private sector. In addition (Christensen and Lærgreid 2005) demonstrate that trust in the public sector correlates positively with being employed in the public sector and we expect this result to apply to our sample as well. Furthermore (Christoffersen and Paldam 2003) show that municipalities in which a large part of the population receive their main source of income from the public sector have a low tendency to use private firms in the production and delivery of services to its citizens.

An individual's expectations in public sector performance could depend on the specific experiences that the individual has with the public sector. If the experience is predominantly good, the citizen tends to trust the public sector performance in general, see (Kumlin 2002) as well as (Rothstein and Steinmo 2002). In order to control for specific experience, with receiving help and services offered by municipality, we include a dummy variable, which is equal to one if the individual has children living at home. Individuals who have children living at home, have most certainly been receiving recent help and services from the municipality, because their children probably are attending the local school, or the local kindergarten or have participated in the mandatory municipal visiting-nurse-program for newly born babies etc. About 20 percent of Danish children attend a private kindergarten, (Statistics Denmark 2013), or a private school, (Statistics Denmark 2017). We expect the choice of the private alternatives are either due to experiences with a public kindergarten or school, or information about the service-level in both public and private kindergartens and schools. We are unable to determine a better way to control for specific experience than the dummy for children living at home.

Besides child care and school, the municipal services that most citizens receive are social welfare and elderly care, but citizens receiving social welfare are also part of the welfare coalition, and the same applies to citizens receiving elderly care, because they also receive state pension. Therefore, we will not get a pure experience effect if we test for experience with receiving elderly care or social welfare benefits.

Women and men might have different expectations with respect to public sector performance. In terms of employment, women are generally more dependent on the public sector. This is foremost due to the fact that there are a relatively greater proportion of women employed in the public sector than in the private sector indirectly because the public sector has overtaken parts of women's traditional care responsibilities. (Lærgreid 1993) finds that women support the public sector more than men do. Therefore, we expect that gender also correlates with trust in public sector performance. However, since we condition on a larger set of independent variables than (Lærgreid 1993) it is not entirely clear if we would expect to get the same sign of the marginal effects of gender on trust in the public sector.

Age might correlate with trust in public sector performance. Older people grew up in a poorer society with a less developed welfare state and therefore, one might expect older people to be more content with the current service-level. However, if they do not receive enough information about increased service-level in the public sector from their own experience, the news, relatives, friends etc. older people might have a low-level of trust in the public sector to deliver the necessary help and services when needed. We think that it is most unlikely that older people do not have considerable information about the service-level in the Danish public sector since it is a prominent topic in public debate in Denmark. Furthermore, it is most likely

61 percent of the individuals in our sample get either the main part of the income from the public sector and therefore are part of the welfare coalition.

that older people have recently received services from the public sector or know people who have such as relatives, friends etc. Finally, (Christensen and Lærgreid 2005) find that trust in government increases with age in Norway – a country that in many respects (such as culture, a comprehensive welfare state etc.) is similar to Denmark. Therefore, we expect that trust in public sector performance will increase with age.

The expectations in the public sector might differ among ethnic groups. Al Dane and his family are used to a comprehensive welfare state for generations and have a high-level of trust in public institutions that they have experienced to be non-corrupt etc. An immigrant does not have the same experience with the Danish public sector through generations, and is less likely to be part of the Danish high-trust culture. These channels suggest that immigrants should have a lower level of trust in public sector performance than Danes. On the other hand, an immigrant could be more content for high service-level in the Danish public sector compared to the service-level that they have experienced in their home countries. This channel suggests, that immigrations should have a higher level of trust in public sector performance than ethnical Danes. There is also some evidence, that immigrant's level of social trust and life satisfaction tend to converge to the corresponding levels in the countries that they immigrate to, (Helliwell et al. 2016; Nannestad et al. 2014). If we put all this together, we do not have a clear theoretical hypothesis about the difference between immigrants and ethnical Danes in terms of trust in public sector performance.

If trust in public sector performance is differ between Danes and immigrants, and trust is in public sector performance is persistent across generations⁵, then descendants of immigrants might have a different level of trust in public sector performance than Danes. We do however not have a hypothesis concerning whether the descendants of immigrants have a higher or lower level of trust in public sector performance, just that it could be different from ethnical Danes' level of trust in public sector performance.

We expect that the citizens' level of education influence the ability that he or she has to evaluate the performance of the public sector. The reason for this is the cognitive factor, meaning that educated people have a great amount of knowledge about the political administrative system, can distinguish between its various components, and understand how the production of public services is organized and function.

Institution based expectations

We expect that *the level trust* in public sector performance might differ with respect to the party of the mayor of the municipality where the respondents live. According to ownership theory, we might expect a left-wing mayor to be more competent than a right-wing mayor considering handling of a high service-level, because he prefers a big public sector and thus a higher service-level might have a more positive effect on trust in the public sector in a municipality with a left-wing mayor. However, we might also expect that a right-wing mayor would be better at running an efficient production of public goods because he prefers a smaller public sector. Furthermore, if a right-wing mayor maintains a high level of service and expenditure, it might be easier for him to explain that it is necessary than it would be to a left-wing mayor: i.e. the "Nixon-goes-to-China" argument. Therefore, we do not have a clear hypothesis about signs of the partial correlation between the political party of the mayor and trust in public sector performance.

⁵ (Berggren et al. 2018; Ljunge 2014; Uslaner 2008) show that social trust and life satisfaction to a certain degree is persistent across generations.

We consider the effects of mayor reelection on trust in public sector performance. A mayor who is reelected could be a person who has an easy time “getting things done,” and hence the citizens have a high level of trust in the performance of the municipality. However, the reason why the mayor has been reelected could be that he provides high quality services. Hence, we might have problems with reversed causality.

The level of trust in public sector performance might depend on whether the mayor comes from the largest political party, as measured by the number of votes that the political party got in the latest municipal election. The reason is that if the mayor does not come from largest political party in the municipality, the strength behind the mayor could be quite low, which could lead the municipality to deliver low-quality services to the citizens, as the municipal politicians can have a hard making decisions. In addition, the citizens in the municipality could consider the political process after an election to be illegitimate, if it leads to a mayor who is not from the largest political party, and this might affect the level of trust in public sector performance.

Inspired by (Lassen and Serritzlew 2011), who show that there is a negative causal relationship between the size of the municipality and the citizens perceived amount of local democracy, we allow the level of trust in the performance of municipality to depend on the size of the municipality. Specifically, we expect, in line with the findings in Lassen and Serritzlev that individuals who live in smaller municipalities are more likely, *ceteris paribus*, to have a higher level of trust in the performance of the public sector than individuals who live in larger municipalities. However, as emphasized by Lasse and Serritzlev, then a researcher uses cross sectional data there might be a selection bias, where individuals with strong preferences for public service might choose to live in smaller municipalities. Hence, once again, we might suffer from reversed causality.

On the supply-side of the “market of municipalities”, we expect that the ability of the municipalities to deliver help and services to the citizens when needed to depend on the size of the budget compared to needs of the citizens (service-level). Furthermore, it also depends on the efficiency in the public production of goods. If there is a considerable slack in the public production of goods, there might be little or even no connection between the size of the budget and the service-level.

We note that the ownership theory and the “Nixon-goes-to-China” argument, as discussed in the previous subsection, imply that *the marginal effects of additional service* might depend on the political party where the mayor comes from, and not just the *level of trust in public sector performance* as discussed earlier.

Data description

The population of interest

In the year of 2015, SD conducted a large-scale survey concerning subjective life quality. SD chose four municipalities from four out of the five Danish Regions, while they chose all municipalities of the Southern Region of Denmark. The reason why SD only chose four municipalities for each region was purely economic, and Southern Region of Denmark gave SD financial support, so that SD could chose all 22 municipalities in that region. The criteria that SD used to select the four different municipalities in each region are summarized below.

- 1) The largest municipality.
- 2) A municipality with a large average income.
- 3) A municipality located on the outer boarder of the region.
- 4) The municipality with the least variance concerning age.

For each of the chosen municipalities SD interviewed roughly 1000⁶ different individuals (this is excluding individuals SD could not get in contact with or who did not want to answer the questions). The chosen sample in each municipality was representative of the underlying population. There were 39,158 answers.

The questions of interest

Everyone was asked 38 questions concerning their subjective life quality. We have summarized the four questions of interest below; all of them on a scale of 0-10.

Q1) How much do you trust the local politicians from your municipality?

Q2) How much do you trust the members of the parliament?

Q3) How much do you trust the municipality to provide the necessary help and services when you need it?

Q4) To what degree do you think people in general can be trusted?

Figure 1 in the appendix depicts which regions each municipality belongs to and figures 2-5 in the appendix depicts the average of each of the four questions for each chosen municipality. On average, the respondents trust politicians in the parliament least, while they trust their municipal politicians slightly more. It is also seen, that the average value of generalized trust is higher than the average value of trust in both types of politicians. We note that on average, the individuals have a higher score with respect to the question whether they believe they can get the necessary help and services from their municipality when needed, than the scores for trust in both kinds of politicians, but lower than the scores for generalized. These findings are in accordance with the paradox of distance (Frederickson 1997) because the individuals in the sample clearly trust government officials, public institutions etc. who are nearby, but they are more skeptical towards institutions that are located far away. Note that the main part of the municipal institutions that deliver services to its citizens - the local school, the local kindergarten, the local retirement home – are located nearer to the home of the citizen than the city hall. In table 1, we demonstrate the correlations between the four variables.

Table 1: Correlation matrix

	Q1	Q2	Q3	Q4
Q1	1	0.72	0.51	0.36
Q2	0.72	1	0.43	0.33
Q3	0.51	0.43	1	0.36
Q4	0.36	0.33	0.36	1

Note: The sample used is the same sample as used in the regression analysis.

⁶ There was one municipality in the Region of Southern Denmark, where only 600 people answered the questionnaire. That municipality is a small Island (Fanø).

Source: Own calculations based on data from Statistics Denmark.

Table 1 depicts that there is a large correlation between trust in the municipal politicians and trust in the members of the parliament. This is in accordance with the results that trust in government indicates some kind of cumulative pattern, i.e. if citizens trust one of the governmental or political institutions or actors they normally trust the others as well, or if they distrust one they also distrust the others, which many studies have shown, (Bouckaert and Van de Walle 2001). There is a relatively large correlation between trust in municipal politicians and trust in the municipality's ability to provide help and service when needed. The correlations between trust in public performance and the other questions are less pronounced, but still relatively large.

SD kept a unique personal identifier (CPR-number, which was then transformed into an anonymous p-number) for each respondent, so that it is possible to combine the answers to each of the four questions with high quality data from the central personal register. We decided to solely focus on individuals who have answered Q1-Q4⁷, and who had a strictly positive disposable income, and for whom SD have information concerning the individual's highest level of finished education⁸. This left us with 36,932 respondents in the final example.

The econometric model

The question that we will address is: what factors⁹ can explain the citizens level of trust in receiving necessary help and services from the municipality when needed?

As the dependent variable is a categorical variable, in which the magnitudes of its values cannot be given a quantitative meaning, while the ordering can, an ordered probit model is appropriate. In the appendix, we demonstrate the estimated parameters, and the average marginal effects from an ordered probit model, where we do not consider the inter-cluster correlation into account. As these results are roughly consistent with OLS' estimates, we will focus on OLS in the main text.

The linear models that we consider can be written in the following form, which helps to emphasize that our data is clustered by the municipalities:

$$y_{gi} = \alpha + x_{gi}\beta + z_g\gamma + c_g + u_{gi}, \quad g = 1, \dots, G, \quad i = 1, \dots, N_g, \quad (1)$$

Where there are G groups and N_g members of group g . Hence, we need to specify both the individual specific variables, which vary across both clusters and individuals, and the institutional variables that vary across municipalities, but not within municipalities.

⁷ All the conclusions were robust to only considering individuals who had answered Q1, Q3 and Q4.

⁸ Most of the individuals for whom SD does not information regarding their highest level of finished education are immigrants since SD stop interviewing them about their education in 2016. In addition, some individuals are over 80 years old, for whom SD does not have information concerning their education.

⁹ In table A2 in the appendix, we show the correlation matrix between all the independent variables as well as the dependent variable.

In table two, we summarize the individual specific and municipality specific institutional variables that we include in our regression.

Table 2: Variables used in the regression

X_{gi}	Z_g
Trust in the local politicians from the municipality	Service level
Children living at home (Baseline no children living at home)	
Generalized trust	Mayor party affiliation dummy (baseline: left wing)
Log of disposable income	Mayor from largest political party dummy (baseline: mayor from the largest party)
Education dummies (baseline secondary school)	Log of number of inhabitants in the municipality
Gender dummy (baseline: female)	Mayor reelection dummy (baseline: no-reelection)
Age at the beginning of 2015	
Main source of income dummies (baseline: the private sector)	
Descendent/immigrant dummies (baseline: a Dane)	

The cluster error term could reflect unobserved characteristics for the municipal politicians. A central concern is whether these unobserved characteristics are correlated with the service-level provided by the municipality. If this is the case, our estimates will not be consistent. In order to partially control for municipal politicians' unobserved characteristics, we include an individual specific variable, which shows how much trust an individual has in municipal politicians. This, however, introduces a problem with reversed causality as discussed in the theory section. Do individuals trust that they will receive the necessary help and services from the municipality when needed because they trust the municipal politicians? Or do individuals trust the municipal politicians, because the municipality provides the necessary help and services when needed? As we have not been able to find valid instruments or natural experiments, we are not able to determine in what direction the causality goes.

Table 3 demonstrates the results from estimating different variants of (1):

Table 3: The different models

Model	(1)	(2)	(3)	(4)
Dependent variable:	Q3 (Trust in the municipality)			
(Intercept)	3.881***	6.339***	5.015***	3.710***

	(1,022)	(1.155)	(0.962)	(1.189)
Log disp. income	-0.163***	-0.162***	-0.164***	-0.163***
	(0.028)	(0.028)	(0.028)	(0.028)
Service	-0.459	-2.951***	-1.569**	-0.288
	(0,760)	(0.839)	(0.651)	(0.968)
Service × Mayor party affiliation		3.588***		
		(1.085)		
Service × Public employee			1.576***	
			(0.478)	
Service × Transfer payments			1.839***	
			(0.709)	
Service x Children				-0.533
				(0.984)
Is the mayor from the largest party? Baseline not from largest party)	0.157**	0.137***	0.160**	0.158**
	(0.063)	(0.043)	(0.063)	(0.063)
Mator party affiliation (Baseline left-wing)	0.098*	-3.510***	0.097*	0.098*
	(0.053)	(1.110)	(0.053)	(0.053)
Mayor reelection (Baseline not re-elected)	-0.016	-0.031	-0.018	-0.016
	(0.048)	(0.044)	(0.048)	(0.048)
Log inhabitants	-0.079**	-0.075***	-0.080***	-0.079
	(0.031)	(0.028)	(0.031)	(0.031)
Age	0.012***	0.012***	0.012***	0.012***
	(0.001)	(0.001)	(0.001)	(0.001)
Children (Baseline no chrildren)	-0.084***	-0.076***	-0.083***	0.453
	(0.028)	(0.027)	(0.031)	(0.985)
Sex (Baseline woman)	0.114***	0.114***	0.114***	0.114***
	(0.016)	(0.016)	(0.016)	(0.016)
Q1 (Trust in the local politicians)	0.453***	0.453***	0.453***	0.453***
	(0.006)	(0.006)	(0.006)	(0.006)
Q4 (Generalized trust)	0.296***	0.296***	0.296***	0.296***
	(0.009)	(0.009)	(0.009)	(0.009)
Immigrants (Baseline Dane)	0.345***	0.337***	0.344***	0.344***
	(0.058)	(0.057)	(0.057)	(0.058)
Descendants (Baseline Dane)	0.373***	0.371***	0.376***	0.371***
	(0.130)	(0.129)	(0.130)	(0.130)
General upper secondary education (Baseline lower secondary education)	-0.150***	-0.162***	-0.150***	-0.149***
	(0.051)	(0.051)	(0.051)	(0.051)
Vocational education and training (Baseline lower secondary education)	-0.207***	-0.210***	-0.206***	-0.206***
	(0.025)	(0.025)	(0.025)	(0.025)
Academy profession (Baseline lower secondary education)	-0.416***	-0.426***	-0.419***	-0.416***
	(0.052)	(0.052)	(0.053)	(0.052)
Bachelor- or professional bachelor (Baseline lower secondary education)	-0.396***	-0.408***	-0.396***	-0.396***

	(0.039)	(0.039)	(0.039)	(0.039)
Master, PHD or further lever of education (Baseline lower secondary education)	-0.327***	-0.346***	-0.330***	-0.327***
	(0.054)	(0.055)	(0.054)	(0.054)
Public employee (Private employee)	0.265***	0.266**	-1.322***	0.265***
	(0.034)	(0.034)	(0.488)	(0.034)
Transfer payments (Private employee)	0.337***	0.336***	-1.519**	0.337***
	(0.043)	(0.043)	(0.731)	(0.043)
Number of obs.	369,332	369,332	369,332	369,332
R ²	0.33	0.33	0.33	0.33
Marginal effect of service, left wing mayor		-2.951***		
		(0.839)		
Marginal effect of service, right wing mayor		0.637		
		(0.916)		
Marginal effect of service, private employee			-1.569**	
			(0.651)	
Marginal effect of service, public employee			0.00769	
			(0.799)	
Marginal effect of service, transfer payments			0.271	
			(0.977)	
Marginal effect of service, no child				-0.288
				(0.968)
Marginal effect of service, children				-0.821
				(0.679)

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, robust standard errors in parentheses.

Source: Own calculations based on data from Statistics Denmark

In model (1) the marginal effects of the service-level are assumed to be the same across individuals and municipalities. This model provides very little evidence for the hypothesis, that it is ability of the municipality which is important for the citizens' level of trust in public sector performance, as it is only the dummy variable which is equal to one, if the mayor comes from biggest party, which is significant at a 5-pct. significance level. On the contrary all the variables which are related to culturally determined expectations are significant and most of the signs are as expected, although three of the sub results require some comments. First, we find that males have a higher trust in public sector performance than females do. This is a remarkable result since other studies find that females have a higher level of trust than males in the public sector, (Lærgreid 1993). The reason for this difference could be, that we condition on a larger set of independent variables than (Lærgreid 1993) does. Second, individuals who have children living at home have a lower level of trust in public sector performance than individuals who do not children living at home. This is interesting since we have argued that citizens' who have children living at home most likely have been in contact with the public sector in recent years. Third, we find that all the educational dummies are negative and significant, which implies an individual who has only completed secondary primary school have more trust in public sector performance than higher educated individuals, ceteris paribus. It is interesting that other similar studies of trust in public sector performance in Scandinavian comprehensive

welfare states show that there is a positive partial correlation between the level of education and the level of trust in the local government (Christensen and Lærgreid 2005).

In model 2, we allow the marginal effects of service to differ between right and left-wing mayors, as motivated in the theoretical discussion. Here we find that the marginal effect of the service is insignificant for a right-wing mayor, while the marginal effects of service is negative for a left-wing mayor. The reason for this finding could be that a left-wing mayor who sees that the citizens have low level of trust in the municipality will increase the service expenditure in order to increase trust in public sector, while a right-wing mayor does “something else” when he sees that the citizens do not trust the municipality.

In model 3, the marginal effects of service depend on the main source of an individual’s income. Here we find that an individual who gets most of his income from the private sector has a negative marginal effect of service. The reason for this is result is that these individuals on average pay the highest tax-price for the additional service.

In model 4, we allow the marginal effects of service to differ between individuals who have children living at home and individuals who do not have children living at home. Citizens who have children living at home are likely to have been in recent contact with the public sector, it therefore has specific interest to calculate the marginal effects of service for these individuals. Here we find the exact same results as in model 1, where the service level is insignificant.

We also note that it is possible to estimate models with all of interaction terms. However, this model is quite complicate, so here we only state the main results briefly, but the large table is available upon request. When we estimate the “full model”, we find that the marginal effects of service are negative and significant for almost all subgroups where the mayor is left wing¹⁰, while the marginal effects are insignificant for right wing mayors. Hence, model 2 seems to be the most parsimonious representation of the full model, and therefore it is our preferred model.

Robustness checks

In this section we provide several robustness checks. Are point of departure will be model 2, as this is our preferred model. Table 4 depicts the results:

Table 4: Robustness checks

Model	(5) Southern Denmark	(6) Southern Denmark and Lolland	(7) Donald Lang
Dependent variable:	Q3 (Trust in the municipality)		
(Intercept)	6.71*** (1.067)	8.55*** (2.172)	-0.82 (14.462)
Log disp. income	-0.17*** (0.039)	-0.17*** (0.04)	-0.1 (1.321)
Service (ME for left wing)	-3.17***	-4.68***	-2.97

¹⁰ The expectation is that the marginal effects are insignificant for individuals who get most of their income from transfers and who have children living at home.

	(0.744)	(1.779)	(1.796)
Service × Mayor Party Affiliation	3.43*** (0.872)	4.58*** (1.477)	2.96 (2.207)
Is the mayor from the largest party? (Baseline not from largest party)	0.19*** (0.052)	0.24*** (0.054)	0.1 (0.111)
Mayor Party Affiliation (Baseline left-wing)	-3.32*** (0.88)	-4.49*** (1.486)	-2.82 (2.252)
Mayor reelection (Baseline not re-elected)	-0.07 (0.049)	-0.08* (0.047)	0.06 (0.074)
Log inhabitants	-0.08** (0.032)	-0.11** (0.041)	-0.08 (0.087)
Age	0.01*** (0.002)	0.01*** (0.002)	0.01 (0.068)
Children (Baseline no children)	-0.08** (0.04)	-0.08** (0.041)	-0.06 (1.544)
Sex (Baseline woman)	0.13*** (0.023)	0.12*** (0.023)	1.01 (2.518)
Q1 (Trust in the local politicians)	0.45*** (0.008)	0.45*** (0.008)	0.28* (0.147)
Q4 (Generalized trust)	0.29*** (0.013)	0.29*** (0.013)	1.17*** (0.37)
Immigrants (Baseline Dane)	0.31*** (0.067)	0.31*** (0.068)	3.92 (3.093)
Descendants (Baseline Dane)	0.3** (0.146)	0.22* (0.132)	-1.63 (8.041)
General upper secondary education (Baseline lower secondary education)	-0.21*** (0.059)	-0.2*** (0.058)	1.18 (3.905)
Vocational Education and Training (Baseline lower secondary education)	-0.16*** (0.037)	-0.17*** (0.037)	0.07 (2.153)
Academy Profession (Baseline lower secondary education)	-0.37*** (0.065)	-0.36*** (0.066)	-1.47 (4.216)
Bachelor- or Professional bachelor (Baseline lower secondary education)	-0.37*** (0.062)	-0.37*** (0.064)	-2.45 (2.194)
Master. PHD or further lever of education (Baseline lower secondary education)	-0.28*** (0.071)	-0.28*** (0.072)	-1 (2.234)
Public employee (Baseline private employee)	0.27*** (0.051)	0.26*** (0.051)	1.92 (2.096)

Transfer payments (Baseline private employee)	0.39*** (0.065)	0.38*** (0.068)	1.7 (2.285)
Number of obs.	19,959	18,994	36,932
R ²	0.32	0.32	(0.836)
Marginal effect of service for right wing mayor	0.264 (0.730)	-0.104 (0.784)	-0.00957 (1.276)

Note: * $p < 0.1$. ** $p < 0.05$. *** $p < 0.01$. standard errors in parentheses.

Source: Own calculations based on data from Statistics Denmark

Potential selection bias due to overrepresentation the region of Southern Denmark

As all the municipalities of the Southern region of Denmark are included in the sample, while there were only four chosen municipalities in each of the remaining region, one could suspect that we have problems with a selection bias. The selection is however not based on any of the variables in the model, hence it can be considered purely exogenous. However, there is tendency for mayors in the region of Southern Denmark to be right wing, and we therefore provide a robustness check. Here we chose four municipalities from the region of Southern Denmark, using SD's selection criteria. The largest municipality in the region is Odense, Vejle has the largest average family disposable income, and Fanø has the least variance concerning age. As the municipality that is located on the outer part of the region we choose Nyborg, but the results are robust to choosing other municipalities. Model 5 in table 4 demonstrates the results.

The results are roughly the same as those depicted in model 2, and this suggests that our results are not driven by a selection bias in the region of Southern Denmark.

Excluding an extreme municipality

Lolland is the municipality with the lowest average of trust in public sector performance, while the municipality has a high service-level (1.10) and the mayor is from left wing party. Hence, it is quite interesting to check if Lolland affects our results. Table Model 6 in table 5 demonstrates the results from estimating the models without Lolland and using the same four municipalities from the region of Southern Denmark as in model 5. We see that the results in model 5 and 6 are roughly the same, hence Lolland does not affect our results quite much.

Estimation methods that are robust to a low number of clusters

As we only have a small number of clusters, 38, a central concern is whether the cluster robust inference is valid. We therefore use the approach as suggested in (Donald and Lang 2007), hereafter DL. We note that the DL estimator is quite conservative, and hence if we find that a variable is significant using the DL-estimator, this can be taken as a strong result.

DL showed that if we assume $c_g \sim N(0, \sigma_c^2)$ and $u_{gi} \sim N(0, \sigma_u^2)$ in (1), then the t-stats follow a t-distribution regardless of the number of clusters, but where the degrees of the freedom are equal to $G-k-1$, where k denotes the number of variables to be estimated (excluding the intercept). We follow Wooldridge

(2007) and use the between estimator while sticking to the assumptions in DL.¹¹ Also note that in this case we assume homoscedasticity when we calculate the standard errors of our estimates.

In model (6), we demonstrate the results from using the DL estimator to estimate (1). We see that generalized trust has the strongest partial correlation with trust in public sector performance. We also note that the positive partial correlation between trust in local politicians and trust in public sector performance is a quite strong result.

Conclusion and perspectives

We have examined whether individual based expectations or institutional based expectations have the strongest partial correlation with trust in public sector performance. We find that the individual based expectations dominate the institutionally based expectations in terms of partial correlations. The strongest results is the partial correlation between generalized trust and trust in public sector performance. We do however note that institutional based expectations are relevant when it comes to explaining trust in public sector performance: If the mayor is not from the largest political party and the municipality is large trust in public sector performance is going to be low. Finally, we show that the marginal effects of service are negative for left wing mayors but insignificant for right wing mayors.

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¹¹ As explained by DL, when there are many units inside each cluster, we do not need the assumption that u_{gi} is normally distributed, as its average value asymptotically follows a normal distribution by standard central limit theorems.

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Appendix

The different maps

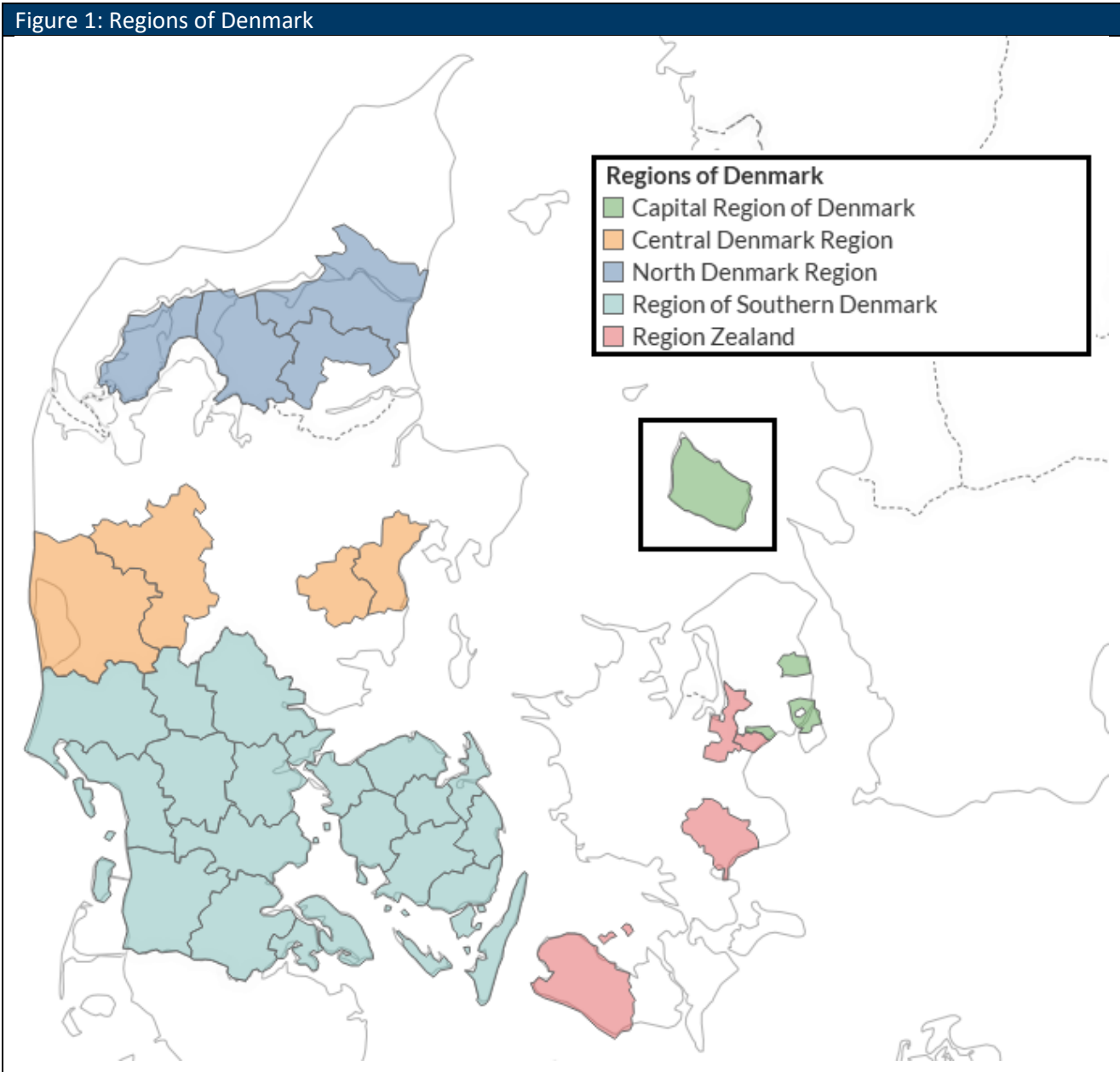
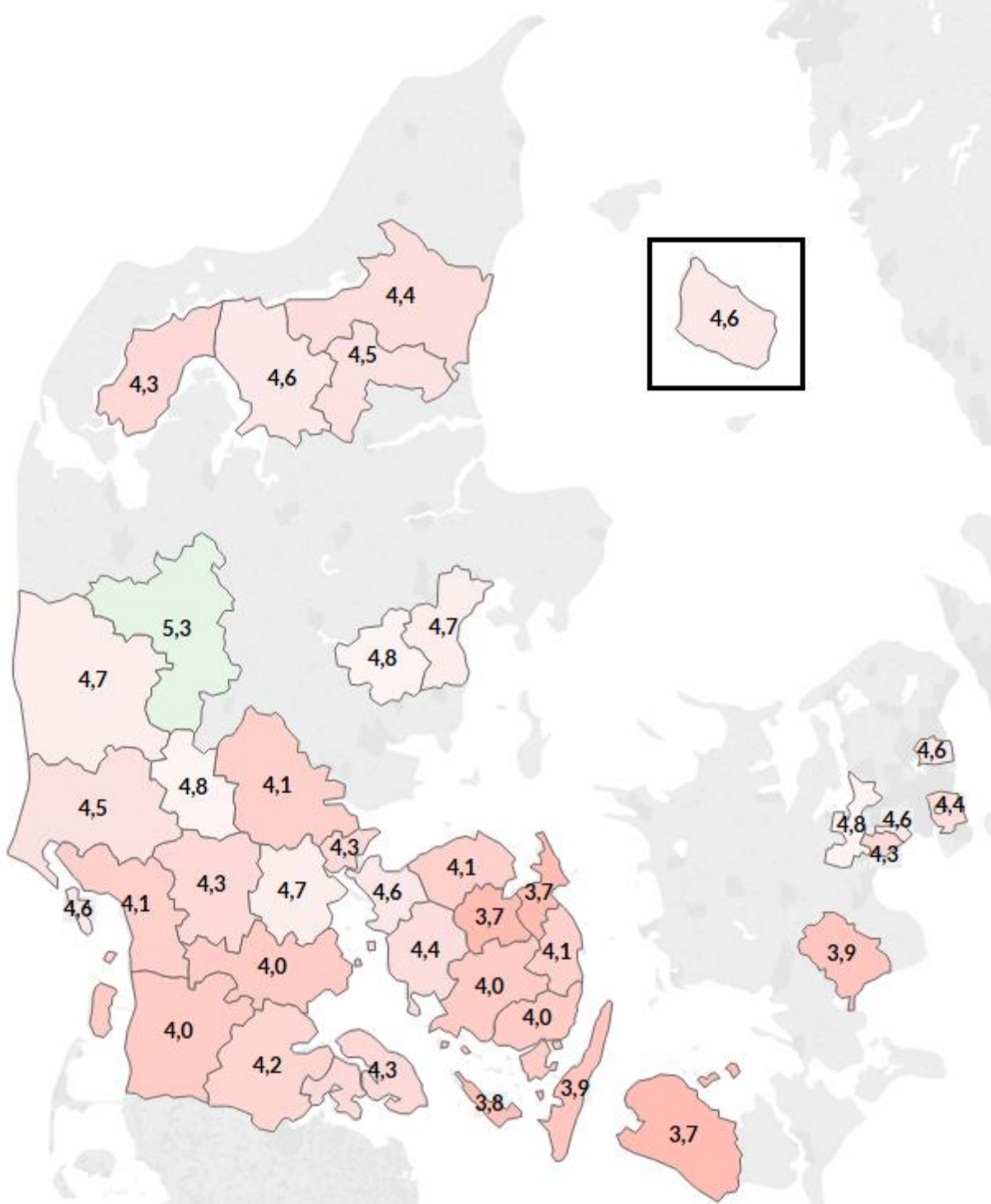


Figure 2. How much do you trust the local politicians from your municipality? (0-10)

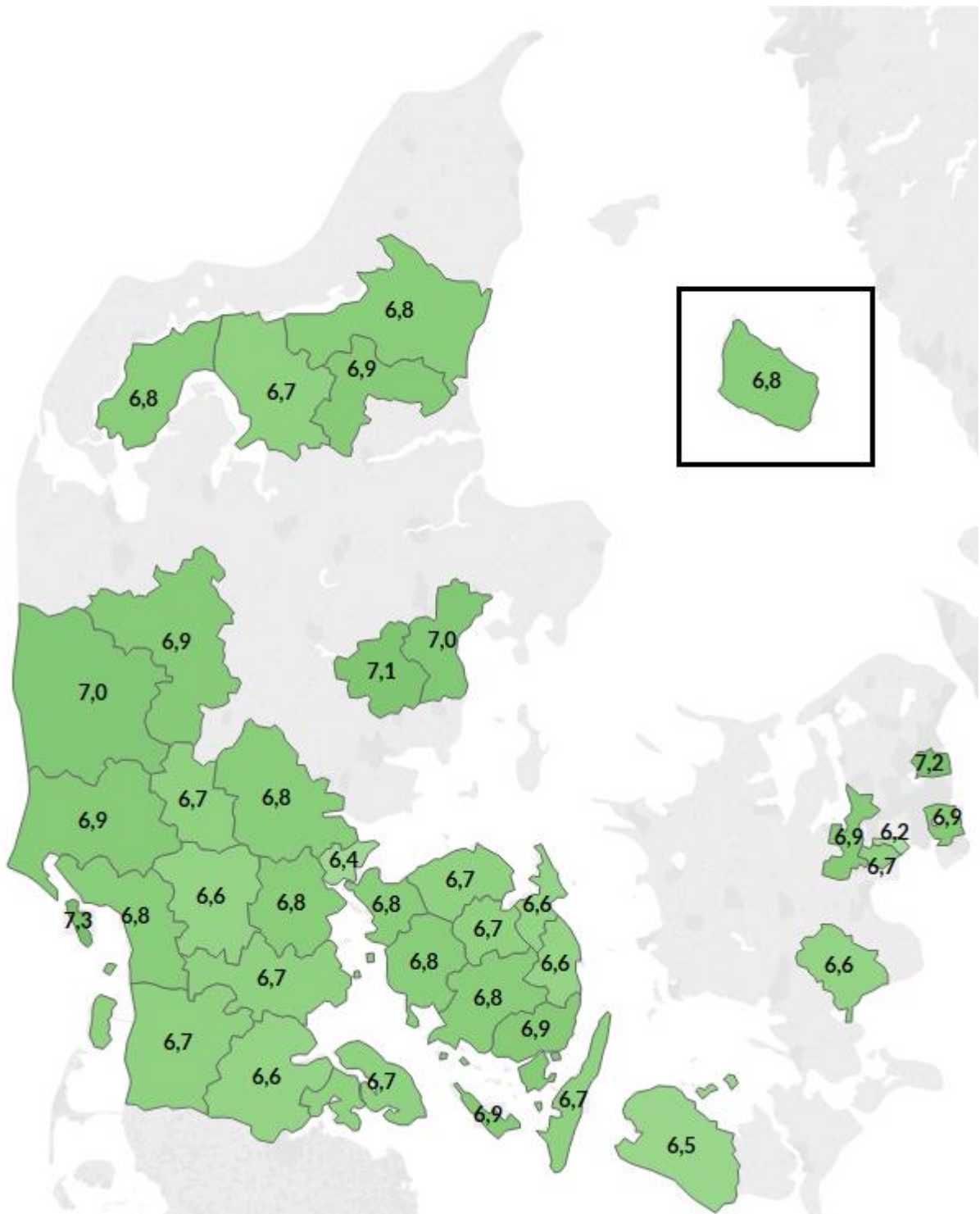
0.0  10.0



Source: Statistics Denmark

Figure 5. To what degree do you think that people in general can be trusted? (0-10)

0.0  10.0



Source: Statistics Denmark

Table A1 depicts some descriptive statistics for the variables of interest.

Table A1: Descriptive statistics

	<u>Mean</u>	<u>Standard deviation</u>
Q1 (Trust in the local politicians)	5.43	2.57
Log disp. income	12.20	0.64
Service	1.01	0.04
Major party affiliation	0.59	0.49
Mayor from biggest party	0.87	0.34
Reelection	0.42	0.49
Log inhabitants	10.86	0.91
Age	52.41	17.22
Children	0.36	0.48
Q3 (Trust in the municipality)	4.38	2.49
Q4 (Generalized trust)	6.91	1.90
Immigrants	0.04	0.20
Descendants	0.01	0.08
General upper secondary education	0.06	0.23
Vocational Education and Training	0.39	0.49
Academy Profession	0.05	0.21
Bachelor- or Professional bachelor	0.17	0.38
Master, PHD or further lever of education	0.07	0.25
Public employee	0.17	0.38
Transfer payments	0.43	0.50
Q2 (Trust in the members of the parliament)	3.70	2.51

Source: Own calculations based on register data from Statistics Denmark.

Q1: How much do you trust the local politicians from your municipality?

Q2: How much do you trust the members of the parliament?

Q3: How much do you trust the municipality to provide the necessary help and services when you need it?

Q4: To what degree do you think people in general can be trusted?

We note the relatively low level of trust in local politicians, and somewhat higher level of trust in the municipality and high level of generalized trust.

Table A2. Shows the correlation matrix

Table A2: Correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	
Q1 (Trust in the local politicians) (1)	1																					
Log disp. income (2)	-0.021	1																				
Service (3)	0.015	-0.026	1																			
Mayor party affiliation (4)	0.029	0.010	0.122	1																		
Mayor from biggest party (5)	0.040	0.010	-0.244	0.147	1																	
Mayor reelection (6)	0.026	-0.004	0.093	0.048	0.184	1																
Log inhabitants (7)	-0.031	0.024	-0.588	-0.264	0.214	-0.095	1															
Age (8)	0.149	0.133	0.097	0.060	-0.034	-0.009	-0.153	1														
Children (9)	-0.077	0.094	-0.041	0.019	0.012	0.008	0.026	-0.534	1													
Q3 (Trust in the municipality) (10)	0.514	0.058	-0.009	-0.009	0.050	0.054	0.020	0.065	0.006	1												
Q4 (Generalized trust) (11)	0.358	0.144	-0.004	-0.003	0.016	0.000	0.019	0.060	0.029	0.360	1											
Immigrants (12)	0.001	-0.050	-0.044	-0.042	0.030	0.002	0.051	-0.055	0.056	-0.002	-0.090	1										
Descendants (13)	-0.010	-0.081	-0.017	-0.034	0.013	0.008	0.014	-0.102	0.043	-0.016	-0.039	-0.016	1									
General upper secondary education (14)	-0.010	-0.107	-0.057	-0.057	0.026	-0.012	0.111	-0.216	0.026	0.011	-0.008	0.030	0.058	1								
Vocational Education and Training (15)	-0.023	0.065	0.041	0.035	-0.033	0.008	-0.081	0.079	-0.025	-0.027	-0.046	-0.028	-0.037	-0.196	1							
Academy Profession (16)	-0.013	0.077	-0.009	-0.015	0.008	0.008	0.005	-0.013	0.028	0.021	0.021	0.008	-0.005	-0.055	-0.176	1						
Bachelor- or Professional bachelor (17)	0.002	0.169	-0.011	-0.021	0.010	-0.004	0.040	0.004	0.051	0.036	0.135	-0.001	-0.008	-0.113	-0.364	-0.102	1					
Master, PHD or further lever of education (18)	0.012	0.245	-0.057	-0.067	0.035	-0.030	0.109	-0.049	0.097	0.055	0.112	0.052	0.001	-0.067	-0.215	-0.060	-0.124	1				
Public employee (19)	-0.014	0.173	-0.007	-0.035	-0.002	-0.005	0.027	-0.160	0.161	-0.005	0.075	-0.005	-0.004	-0.020	-0.051	-0.024	0.245	0.057	1			
Transfer payments (20)	0.107	-0.487	0.058	0.010	-0.016	-0.023	-0.069	0.454	-0.396	-0.002	-0.080	0.001	0.006	-0.031	-0.063	-0.054	-0.092	-0.141	-0.399	1		
Q2 (Trust in the members of the parliament) (21)	0.439	0.071	-0.027	0.011	0.025	0.012	0.028	0.037	0.035	0.722	0.326	0.008	-0.019	0.012	-0.028	0.029	0.037	0.070	-0.001	-0.028	1	

Source: Own calculations based on register data from Statistics Denmark.

Q1: How much do you trust the local politicians from your municipality?

Q2: How much do you trust the members of the parliament?

Q3: How much do you trust the municipality to provide the necessary help and services when you need it?

Q4: To what degree do you think people in general can be trusted?

Where we see, as expected, that there is a large negative correlation between log disposable income and the transfer dummy. There is also a large correlation between age and the transfer dummy. The reason for this is that senior citizens get most of their income from pensions. There is a somewhat large positive correlation between disposable and the dummy variable, which is equal to one if the individual has a master degree or has a PHD. Finally, as noted earlier, there are large positive correlations between trust in the municipality and trust in local politicians as well as generalized trust. All other correlations are more modest.

The ordered probit model

Table A3 shows the estimated parameters for the ordered probit model.

Table A3: Ordered Probit Model

		(5)	
		OP	
Dependent variable:	Q3 (Trust in the municipality)		
Log disp. income	-0,08*** (0,011)	Academy Profession	-0,21*** (0,027)
Service	-0,22 (0,165)	Bachelor- or Professional bachelor	-0,21*** (0,018)
Mayor party affiliation	0,05*** (0,012)	Master, PHD or further lever of education	-0,18*** (0,025)
Mayor from biggest party	0,08*** (0,017)	Transfer payments	0,13*** (0,016)
Mayor reelection	-0,01 (0,011)	Public employee	0,17*** (0,016)
Log inhabitants	-0,04*** (0,008)	Threshold (0→1)	-1,22*** (0,262)

Age	0,01*** (0)	Threshold (1→2)	-0,97*** (0,262)
Children	-0,04*** (0,014)	Threshold (2→3)	-0,56** (0,261)
Sex	0,05*** (0,011)	Threshold (3→4)	-0,18 (0,261)
Q1 (Trust in the local politicians)	0,21*** (0,002)	Threshold (4→5)	0,13 (0,261)
Q4 (Generalized trust)	0,14*** (0,003)	Threshold (5→6)	0,73*** (0,261)
Immigrants	0,19*** (0,027)	Threshold (6→7)	1,1*** (0,262)
Descendants	0,19*** (0,07)	Threshold (7→8)	1,61*** (0,262)
General upper secondary education	-0,08*** (0,025)	Threshold (8→9)	2,33*** (0,262)
Vocational Education and Training	-0,11*** (0,014)	Threshold (9→10)	2,68*** (0,262)
Number of obs.	36,932		

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, standard errors in parentheses.

Source: Own calculations based on data from Statistics Denmark

It is seen that the variables that are significant in the Ordered Probit are the same as the ones obtained from a pool OLS with robust standard errors.

It is also interesting to examine if the average marginal effects from an ordered probit are consistent with the marginal effects from a pooled OLS. Tabel A4 shows the average marginal effects (scaled by a factor 100) for the ordered probit.

Tabel A4: Marginal effects on Q3 (Trust in the municipality)

	Score										
	0	1	2	3	4	5	6	7	8	9	10
Log disp. income	0.5	0.3	0.6	0.7	0.6	0.5	-0.2	-0.8	-1.3	-0.4	-0.5
Service	1.4	0.8	1.8	2.0	1.6	1.5	-0.6	-2.3	-3.5	-1.2	-1.3
Mayor party affiliation	-0.3	-0.2	-0.4	-0.4	-0.3	-0.3	0.1	0.5	0.7	0.2	0.3
Age	-0.5	-0.3	-0.6	-0.7	-0.5	-0.5	0.2	0.8	1.2	0.4	0.4
Mayor from largest party	0.0	0.0	0.1	0.1	0.1	0.1	0.0	-0.1	-0.1	0.0	0.0
Mayor reelection	0.2	0.1	0.3	0.4	0.3	0.3	-0.1	-0.4	-0.6	-0.2	-0.2
Log inhabitants	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0
Children	0.3	0.1	0.3	0.4	0.3	0.3	-0.1	-0.4	-0.6	-0.2	-0.2
Sex	-0.3	-0.2	-0.4	-0.5	-0.4	-0.3	0.1	0.5	0.8	0.3	0.3
Q1 (Trust in the local politicians)	-1.3	-0.7	-1.7	-1.9	-1.5	-1.4	0.6	2.2	3.4	1.1	1.2
Q4 (Generalized trust)	-0.9	-0.5	-1.1	-1.3	-1.0	-0.9	0.4	1.5	2.3	0.7	0.8
Immigrants	-1.0	-0.6	-1.4	-1.7	-1.4	-1.5	0.3	1.8	3.1	1.1	1.3
Descendants	-1.0	-0.6	-1.4	-1.7	-1.4	-1.6	0.3	1.8	3.1	1.1	1.3

General upper secondary education	0.5	0.3	0.7	0.7	0.5	0.5	-0.3	-0.9	-1.3	-0.4	-0.4
Vocational Education and Training	0.7	0.4	0.9	1.0	0.8	0.7	-0.3	-1.1	-1.7	-0.6	-0.6
Academy Profession	1.6	0.8	1.8	1.9	1.4	0.9	-0.9	-2.3	-3.2	-1.0	-1.0
Bachelor- or Professional bachelor	1.4	0.8	1.7	1.9	1.4	1.0	-0.8	-2.3	-3.2	-1.0	-1.1
Master, PHD or further lever of education	1.3	0.7	1.5	1.6	1.2	0.9	-0.7	-1.9	-2.7	-0.8	-0.9
Public employee	-0.7	-0.4	-1.0	-1.1	-0.9	-0.9	0.3	1.3	2.0	0.7	0.8
Transfer payments	-1.0	-0.6	-1.3	-1.6	-1.2	-1.2	0.5	1.8	2.7	0.9	1.0

Source: Own calculations based on data from Statistics Denmark

For concreteness, we consider the marginal effects of log disposable income on the different set of scores. The marginal effects are positive for the low scores and negative for the high scores. Hence, the ordered probit is consistent with a situation where a high-income individual (*ceteris paribus*) has less trust in a municipality's ability to provide the necessary help and services if they need it. This is in accordance with what was found for the linear models.

Similar remarks hold for the other variables, hence the ordered probit model seems to be roughly consistent with a simple linear model.