Labour market policies on a sub-national level

John Brauer¹

Received: 30 December 2020 / Accepted: 20 May 2021 / Published online: 17 June 2021
© The Author(s) 2021

Abstract

For most of the twentieth century, the welfare state was predominantly understood as a national project. In recent years, however, it has been recognized that other political levels — both sub- and supranational — have a profound impact on the design and delivery of social- and labour market policies and programmes. This article looks more closely at labour market policies on the sub-national level. In this domain, political bodies, such as municipalities and regions, have become key actors in developing and delivering programmes on local levels. The underlying assumption is that local actors are better suited to adapt services to the needs of residents in comparison with the national level. This assumption is contested, among other reasons because it leads to increased within-state inequalities. This article analyses Swedish municipalities. They have come to be central stakeholders in the area of active labour market policies. The article looks at data on municipal actions to reduce unemployment. Government data on geography, local political rule and economy of municipalities are used as potential factors that predicts reach of policies. The article also investigates potential neighbourhood effects by utilizing spatial analysis. The findings indicate that there are such effects, and that economic situation is the most influential non-spatial factor in explaining differences in reach of policies. Less well-off municipalities had more extensive reach. Geographic and political factors did also affect the outcomes but was less influential.

Keywords Labour market policies · Public employment services · Sub-national · Governance · Geography · Unemployment

Introduction

Since the 1980s, sub-national agencies have become increasingly involved in delivering labour market services in many welfare states (Eleveld et al. 2020). This development is often associated with the diminished ability of nation states to control

✉ John Brauer
john.brauer@oru.se

¹ School of Law, Psychology and Social Work, Örebro University, Örebro, Sweden

economic development and employment rates by means of macroeconomic interventions. Labour market policies have instead come to focus on adaptation to global markets through supply-side interventions — often on lower political levels than the nation state, such as regions and municipalities (Jessop 1999). Supranational organizations, above all the Organization for Economic Cooperation and Development (OECD) and the European Union (EU), have played a central role in this transformation by encouraging local agencies to fight unemployment (Weishaupt 2011). Not least the EU has exerted influence by funding initiatives made by sub-national agencies. These agencies have in turn become less dependent on national funding (Zimmermann 2019). In this sense, labour market policies exemplify the more profound shift from government to governance, i.e. to a more diverse policy process with an increased number of actors on different levels (van Berkel et al. 2011). In light of the decentralization processes sketched here, it is obvious that the analysis of labour market policies cannot halt at the national level, but must also take into account the sub-national level.

The outcome of the decentralization of labour market policy construction is contested. On the one hand, it is argued that local agencies are better at adapting services to local conditions by collaborating with local actors. Enhancing such local adaptations might be necessary to remain competitive in a rapidly changing global market. Advocates of decentralized labour market policies (cf. Moreno and McEwen 2005) argue that the nation state is an arbitrary division and includes regions that differ in their needs and possibilities. On the other hand, critics of decentralization fear that it may increase inequalities within states by strengthening already wealthy regions and leaving less prosperous regions to decline further (Whitworth 2020). Further, decentralization can also be criticized from a rights perspective, with regard to financial support such as social assistance. Many states have adopted conditionality provisions, i.e. making it mandatory to participate in unemployment programmes in order to qualify for financial benefits such as social assistance (cf. Brodtkin and Marston 2013). If the delivery of labour market policies differs greatly between sub-national political units, in comprehensiveness or quality, there is a risk that within-state inequalities in access to financial support will arise. Hence, decentralization can lead to new possibilities as well as generate new problems or exacerbate old ones.

One state that exemplifies the aforementioned development is Sweden. During the long period of Social Democratic rule in the twentieth century, national labour market policies became vital means for achieving the political goal of full employment. But since the 1980s, the sole emphasis on efforts at a national level has been challenged by interventions developed and delivered by regions and municipalities. The latter, on which this article focuses, have above all been influential with regard to social assistance. As in many other welfare states, Swedish social assistance policy has increasingly placed emphasis on activation, i.e. on programmes that seek to make recipients engage “actively” in job seeking and skill enhancement. The area of municipal activation is nationally regulated in Sweden; however, municipalities have extensive autonomy in deciding whether to arrange programmes, as well as what forms they will take (Panican and Johansson 2016; Kazepov 2010). This relative autonomy has resulted in differences between municipalities when it comes to

activation programmes, both in terms of extent and content (Jacobsson et al. 2017; Vikman and Westerberg 2017).

The aim of this article is to develop the knowledge of sub-national differences in labour market policies using Sweden as an empirical case. It does so by analysing public data on labour market policies in relation to geographic, political and economic data. The analysis looks into three factors: (i) geography, (ii) political orientation of the municipality and (iii) economic situation by asking to what extent these factors increase or decrease the reach of labour market policies.

The article is structured as follows: after this introduction, the policy area is described more extensively. Based on this description, four research questions are presented. The data and analytical process are then described in the section “[Methods and data](#)”. This is followed by a report on the findings, which are then discussed in the section “[Final conclusions](#)”.

The decentralization of labour market policies

During the last 80 years, the labour market policies of several industrial states have gone through two central processes: (i) towards increased centralization and (ii) towards greater decentralization. The twentieth century witnessed significant growth in the political responsibilities of the nation state in the industrialized world. This was not least the case for welfare arrangements, of which the development of labour market policies was a prominent feature. Central governments became the primary unit for intervening in the market, as well as developing and delivering employment services. This development, often referred to as spatial Keynesianism, peaked in the 1970s. In the midst of the energy crises and rising globalization, states began to focus more extensively on the supply side of economic growth rather than on Keynesian interventions (Jessop 1999). One central feature of this development was decentralization of services. Sub-national political bodies, such as municipalities and regions, got more involved in strategies to reduce (local) unemployment and spur (local) economic growth (Brenner 2004). In some states this development was bottom-up, initiated by local agencies that developed policies to supplement national programmes, while in other states, the national government delegated responsibilities from the national to the sub-national level. Since the end of the 1980s, the development of such strategies has been strengthened by supranational organizations—not least the OECD and the EU (Weishaupt 2011). The latter have become central stakeholders by funding local policies via programmes such as the ESF (Zimmermann 2019).

Swedish labour market policies—from national to pluralistic spatialism

During the twentieth century, Sweden was a forerunner in developing active labour market policies. As the Social Democratic Party increased their power during the first decades of the twentieth century, the causes of unemployment were politically

reframed from individual flaws of the unemployed to structural and cyclical factors. This reframing was demonstrated in large-scale interventions such as subsidized employment developed and delivered by the *Committee for Unemployment (Arbetslöshetskommisionen)* during the 1920s and 1930s (Axelsson et al. 1987). In 1948 the municipal employment offices, which were already receiving national funding, were nationalized (Olofsson and Wadensjö 2009). The 1950s saw rapid growth of labour market policies in accordance with the Rehn–Meidner model, a political-economic model developed and delivered by the Social Democratic Party. The model sought to combine full employment with controlled inflation and economic growth. The model was realized during the so-called *golden years*, a period with high rates of employment often dated to between the late 1950s and late 1970s (Erixon 2010).

After the golden years, Swedish economy gradually declined. Employment rates remained high during the 1970s and 1980s due to the expansion of the public sector. The private sector did not expand as rapidly however (Weiss 1998; Erixon 2010). In the 1980s, the rates of social assistance begun to rise. Delivered by the Swedish municipalities, social assistance had until then been a marginal phenomenon, with emphasis instead being placed on expanding nationally funded unemployment benefits and social insurance for sickness and disability. Now, lone mothers working part time, young people and people born abroad became three growing groups of social assistance claimants. The growth of the last-mentioned group is partly explained by a change from labour migration to asylum seekers, which increased the proportion of unemployed people born outside of Sweden (Broström 2015). In 1991, a severe economic crisis hit the country, which resulted among other things in a steep rise in social assistance rates. Despite having declined somewhat, social assistance rates continue to be higher than before the crisis (Bergmark and Bäckman 2004, 2007).

In the 1980s, some municipalities began to develop local measures, often referred to as activation programmes. In the recession following the 1991 crisis, this development accelerated. It was a bottom-up process in the sense that the municipalities took the initiative to develop activation programmes. One important motivation for the municipalities was the increasing social assistance burden. Another was that the Public Employment Services offered social assistance claimants poorer services than other unemployed persons, or even denied them services altogether (Bergmark and Lundström 1998; Salonen and Ulmestig 2004). The growth of municipal activation programmes has continued, and today most of Sweden's 290 municipalities have some kind of programme. This development has been stimulated by the national government with both soft-power measures and financial initiatives, for instance funding for collaborative associations (*samordningsförbund*), which are agreements for collaboration between one or several municipalities, a region (which is responsible for health services as well as regional industrial programmes) and local offices of the Public Employment Services and the Social Insurance Agency (Andersson 2016). Swedish municipalities are also eligible for co-funding from the EU. For instance, Sweden's funding from the ESF for the period 2014–2020 amounts to six billion SEK, of which municipalities receive a substantive part (Swedish Agency for Economic and Regional Growth 2016). It is important to emphasize that the trend towards decentralization is not a one-way path. As described by Minas (2011), the national government centralized the Public Employment Services during the 2010s,

transforming it from its previous hybrid government form (nation/region) into a fully nationalized agency. However, when looking at the bigger picture, the growth of municipal labour market policies has clearly created a more decentralized policy space overall from the 1980s onward.

Municipal activation has been studied from several perspectives, both organizationally and at street level (e.g. Nybom 2013; Hjertner Thorén 2008); however, only a few studies have looked at the topic from a sub-national comparative perspective. Studying the issue in relation to multilevel governance, Lundin (2007) found, among other things, that cooperation between municipalities and the Public Employment Services improved the implementation of complex services (further findings are presented in the subsequent section). In a study of 11 municipalities, Panican and Ulmestig (2017) found that even though activation has become an institutionalized part of Swedish labour market policies but that there are large variations between municipalities. Some municipalities emphasize conditionality to such an extent that activation becomes more of a mandatory disciplinary activity for receiving social assistance rather than a means to increase employability. Others are more prone to enhance skills. Bergmark et al. (2017) compared all 290 municipalities quantitatively and identified those that were more successful in reducing social assistance. When following up how municipalities worked, the results indicated that more successful municipalities had more extensive activation programmes, placed emphasis on human resources development, collaborated with the Public Employment Services, and focussed on young adults. However, these municipalities also used sanctions more frequently than less successful municipalities. This makes the image more complex, as activation is not conceptualized as either punitive (with extensive sanctions) or enhancing employability (human resources development). In the study closest to this article, Vikman and Westerberg (2017) utilized data collected from the municipalities on the scale of their local labour market policies and tested for predictors such as population density and unemployment rates. Some of these results are described more thoroughly in the subsequent section. In short, even though they found some patterns in terms of predictors, there are still variations that they were not able to explain.

Research questions

Do municipalities develop in a similar way as neighbouring municipalities?

The first research question concerns a potential neighbourhood effect, i.e. whether municipalities develop and deliver policies in a similar way as neighbouring municipalities. In this section two potential explanations will be presented to justify the research question. The analysis in this article is limited in so far as it cannot securely answer the question of what explanation causes a potential neighbourhood effect. The first possible explanation is that neighbouring municipalities share geographic characteristics that affect unemployment rates, such as proximity to expansive labour markets and efficient transportation. We can call this a regional explanation. It is well known that regions differ in terms of economic development, labour

market structure and other respects. In the case of Sweden, the OECD (2020) shows that much economic development takes place in the regions closest to the three largest metropolitan areas. The other explanation concerns neighbourhood learning. There is an extensive body of political science literature devoted to policy diffusion, i.e. how policies spread across political bodies. A theory that prevailed for several decades is neighbourhood learning, also referred to as regional effects. This theory claims that policies spread between neighbours through learning. The claim has been questioned by critics who argue that policy diffusion is not a simple case of imitating neighbours (Shipan and Volden 2012). However, recent evidence on Swedish municipalities indicates that even if neighbourhood learning is not the only mechanism of policy diffusion, it is still relevant to understanding policy development in Swedish municipalities. Municipalities are gathered in regions (previously labelled county councils) that often serve as central nodes in spreading practices (Ansell et al. 2017a, b; Lundin et al. 2015). Further, municipalities tend to collaborate with neighbours in the collaborative associations described above (Andersson 2016). These are two mechanisms that help to explain why neighbourhood learning is relevant to understanding local labour market policies in Sweden. In the end, the question of neighbourhood learning is empirical rather than theoretical, in the sense that the answer might differ depending on context. Also, neighbourhood learning can be conceptualized as a matter of degree, in which case the question becomes: To what extent does neighbourhood learning take place? To sum up the first question, this article tests *if* there is a neighbourhood effect, i.e. whether neighbouring municipalities develop similarly.

What is the relation between reach of labour market policies and geographic characteristics (area, population size and density)?

The second research question concerns the relation between local labour market policies and geography. In this article, three geographical factors are considered: area, population size, and population density. These factors are related to the issue of rural versus metropolitan areas. Rural areas typically have greater area and lower population density. In general, there are greater challenges to providing public services in rural areas, as distances are longer, the population density is lower, and a critical mass of need for services is often lacking, which makes services more expensive per needy person (OECD 2010). As with all political-administrative borders, the division into municipalities in Sweden has developed over time in arbitrary and complex processes that are not always easy to untangle. This is evident when comparing the Swedish municipalities and the three geographic factors; see Fig. 1. There are two obvious patterns: (i) denser municipalities are smaller in terms of area, and (ii) municipalities with large areas are sparsely populated. However, a majority of municipalities are both sparsely populated and small. 77 percentages of the municipalities have fewer than 2,000 people per square kilometre, fewer than 50,000 inhabitants in total, and are smaller than 5,000 square kilometres. This skew makes it hard to clearly state which municipalities are rural and which metropolitan. Also, as noted by Hedlund (2016), such a binary conceptualization oversimplifies the

Fig. 1 Swedish municipalities plotted by population size, area and population density

sub-national geography. The analysis needed to disentangle these issues is beyond this scope of this article. Instead, the analysis will focus on the three aforementioned variables to test the assumptions made by the OECD (2010) described above. The hypotheses are accordingly as follows: (i) population density is positively correlated with reach of services (the greater the population density, the greater the number of participants), and (ii) geographic size is negatively correlated with reach of services (the greater the geographic size, the smaller the number of participants), and (following the notion of a critical mass posited by OECD 2010) (iii) population size is positively correlated with reach of services (the larger the population, the greater the number of participants).

What is the relation between the development of labour market policies and local political orientation?

The third research question concerns the relation between labour market policies and the political orientation of local government. On a comparative international level, this relation is often discussed in the light of Esping-Andersen's (1990) welfare regime typology, where social-democratic states such as Denmark and Sweden have the highest spending on policies. States also differ in terms of content of labour market policies, which is partly explained by their political-economic institutions. Content refers to how states intervene, for instance in terms of level of intervention (supply- and/or demand side) (Fredriksson 2020). These issues have been studied less on a sub-national level, i.e. regarding the potential influence of municipal or regional governments' political orientation on local labour market policies. For there to be such influence, states must have institutions that grant sub-national political entities some room for manoeuvre.

Kazepov (2010) distinguishes between centrally and regionally framed states, where the latter grant sub-national political bodies more influence over labour market policies. Sweden is centrally framed, but has a relative strong local autonomy, which enables municipalities to shape service delivery. In the case of local labour market policies, there is relatively little national regulation regarding what municipalities may and may not do (cf. Vikman and Westerberg 2017). As mentioned, little research seems to have been done on how the political orientation of local government affects policies. In the Swedish context, Lundin (2007) found that municipalities ruled by socialist parties (the Social Democratic Party and/or the Left Party) had higher spending on active labour market policies in bigger municipalities. In smaller municipalities, there were no such differences, which the author suggests might be explained by a greater need for pragmatism in smaller municipalities. This article will test whether the political orientation of local government is correlated with scope of policies, and whether Lundin's (2007) results are valid for the two programmes, i.e. that municipalities ruled by socialist parties have more extensive labour market policies in larger municipalities, but less extensive ones in smaller municipalities.

Are labour market policies a matter of compensation, or of spatial reinforcement?

The last research question specifies two competing hypotheses. The first is that *municipalities with more severe unemployment arrange labour market policies to compensate for poor local conditions*. For instance, municipalities with poorly educated, unemployed residents are more likely to develop policies for education, according to this compensation hypothesis. The second hypothesis is that *more prosperous municipalities, i.e. those with low unemployment rates, take advantage of their relative surplus to arrange labour market policies to generate even greater prosperity*. This second hypothesis can be understood as a Matthew effect (Merton 1995), where wealthy municipalities develop policies that increase their wealth, while less wealthy municipalities lack the resources to compete, which further limits their growth. In political science, Matthew effects have primarily been studied by comparing states in terms of wealth and democracy (e.g. Lindenfors et al. 2020; Bonitz et al. 1997). Another area is the outcome of policies on the target population, i.e. how policies might reinforce inequalities by helping those individuals who are already better off (Bonoli and Liechti 2018; Pavolini and Van Lancker 2018). On a sub-national level, related mechanisms have been used to study population growth in cities (Perc 2014). There is little evidence, however, concerning policies on the sub-national level, as addressed in the two hypotheses in the research question. When studying Swedish local labour market policies, Vikman and Westerberg (2017) found that the reach of labour market policies was positively correlated with both unemployment rates and social assistance rates, but that these correlations had decreased over time. The authors do not discuss possible explanations of the declining correlation.

Methods and data

Variables and data sources

This article builds on public data gathered from different sources. Among these is *Kolada*, a database managed by the Council for the Promotion of Municipal Analyses (*Rådet för främjande av kommunala analyser*), a collaboration between the Swedish state and the Swedish Association of Local Authorities and Regions (*Sveriges kommuner och regioner*). Data have also been collected from four national agencies: Statistics Sweden (*Statistiska Centralbyrån*), the Public Employment Service (*Arbetsförmedlingen*), the National Board of Health and Welfare (*Socialstyrelsen*) and the Swedish Board of Student Finance (*Centrala Studiestödsnämnden*). The collected data are described more thoroughly in the following section.

Dependent variables

Education entry grants

Education entry grants (EEG) is a national programme that aims to promote education among unemployed people between 25 and 56 years of age. It allows unemployed people to study up to 50 weeks, full-time, at compulsory and upper-secondary level. The grant is not a right, but rather it is the municipalities that assess who to assist. When launched in 2017, the government emphasized the need to lower the threshold for moving from unemployment to education. The Swedish system is relatively generous in terms of grants and loans for education. However, the government argued that unemployed persons hesitate to utilize student loans as they result in debt (Prop. 2016/17:158). This article uses the number of participants per 10,000 inhabitants during 2019. The data is collected from the Swedish Board of Student Finance.

Extra positions

Extra positions were introduced by the socialist-green coalition in 2015. This is a programme that subsidizes employment within the public sector or an NGO for people with long-term unemployment. Hence, the programme is not exclusively used by municipalities. However, according to the Public Employment Services, 91% of the people employed in 2019 worked in a municipality (Arbetsförmedlingen 2020). The numbers analysed in this article concern the number of participants per 10,000 inhabitants during 2019. The data is collected from the Public Employment Services.

Independent variables

Neighbourhood effect

Spatial data where all municipalities are represented as polygons, which enables comparisons between neighbouring municipalities. Neighbouring polygons are

calculated via the *nb2listw* function in the R-package *spdep*. There are five island municipalities, i.e. without any neighbours. Four of them (Ekerö, Lidingö, Tjörn and Öckerö) were assigned neighbours manually, by the author, by adding municipalities surrounding them. For the fifth island municipality, Gotland, no neighbours were added. The reason for this procedure is that the first-mentioned islands are substantially closer to the mainland and that they are part of the same regions as their neighbours. Gotland on the other hand is both more remotely located and has the status of both a municipality and a solitary region. The spatial data is made available by Statistics Sweden.

Geography

Three variables are included: area, population size and population density. Population size is the number of inhabitants in the fourth quarter of 2019. The first two variables are gathered from Statistics Sweden. The third variable is calculated by dividing the population size by the area, to obtain residents per square kilometre.

Spatial reinforcement or the Matthew effect

Four variables are used. The first is rate of unemployment, which is collected from the Public Employment Services (PES) and concerns the average number of people registered as unemployed at the PES per 1000 inhabitants for each month of 2019. The second variable is economic equalization, data for which was collected from Statistics Sweden. Economic equalization is a national system that redistributes money from more to less wealthy municipalities. It is calculated based upon: (i) tax revenues (income equalization), (ii) cost for services (cost equalization), (iii) structural imbalances (structural grants), (iv) a transitional fee for compensating a recent change in calculating the economic equalization (transitional regulations) and (v) a regulation grant/fee that is calculated by comparing the net sum of the other four items with the allocated grants for municipalities. Taken together, these numbers result in either a negative value (municipality pays money) or a positive value (municipality receives money). The numbers are for 2020. The third variable is the number of persons between 20 and 64 (calculated as full-year equivalents) per inhabitant that received social assistance in 2019 (cf. Statistics Sweden n.d.). In six municipalities figures were missing for 2019, and the corresponding figures for 2018 were used. The numbers are collected from Statistics Sweden. The fourth variable is the percentage of low-skilled inhabitants between 20 and 64 years of age. Low-skilled is here defined as nine or fewer years of school (primary and secondary education). The numbers are for 2019 and collected from Statistics Sweden.

Political orientation

Data collected from Kolada by the author, originally collected by the Swedish Association of Local Authorities and Regions. This data concerns the local political municipalities for the period 2018–2022, and is divided into the following: (i) socialist, an orientation that includes the Social Democratic Party and/or the Left

Party; (ii) conservative, which includes one or several of the Centre Party, the Liberal Party, the Moderate Party or the Christian Democrats; (iii) coalition, containing at least one socialist and one conservative party; and (iv) other, an orientation that includes the Swedish Democrats either as single party or together with other parties. The Green Party as well as local parties are not included in the classification. The classification was made by Kolada.

Analysis

The analysis is conducted in three steps. The first step tests for spatial autocorrelation without including any of the independent variables. Moran's I is used to compare to what extent neighbouring municipalities share similar values on the dependent variables (i.e. the reach of labour market policies). Municipalities are treated as polygons and compared with neighbours, obtaining a value between -1 and 1. -1 indicates perfect dispersion. In such a case, the difference between neighbouring municipalities would be at its maximum. 1 indicates that neighbours are similar, i.e. that neighbouring municipalities have similar reach of labour market policies. 0 indicates a random pattern, that there is no spatial dependency among the dependent variables (cf. Haining 2003).

The second step utilizes generalized linear modelling, also referred to as GLM regression (Olsson 2002). The two dependent variables, education entry grants and extra positions, are treated as count data. Since population size is an independent variable, we are interested to know if population predicts higher reach of policies per capita, the dependent variables having been adjusted to represent the number of participants per 10,000 inhabitants. The adjusted values of the dependent variables are rounded to discrete values (i.e. without decimals) to enable GLM regression with a negative binomial distribution. Such a distribution is suitable since both of the two dependent variables include true zeros, i.e. municipalities that did not use a programme. The negative binomial distribution is also preferable to the more well-known Ordinary Least Squares regression (OLS), since both dependent variables are negatively skewed (a majority of municipalities have low values) which also skews the residuals and error terms if an OLS is used. Another option would be a Poisson regression. However, this option was rejected since both dependent variables are over-dispersed (the variance is greater the mean, cf. Hilbe 2011).

To avoid multicollinearity among the independent variables, the Variance Inflation Factor (VIF) was tested for all independent variables. VIF tests for multicollinearity, that is, cases where the correlation between two or several independent variables is so strong that their relative effects on the dependent variable cannot be disentangled. A common rule of thumb is that a VIF above 10 indicates that a change of model is needed (Best 2014). The VIF did not generate any value above 10, and hence all the independent variables were used.

Five different models per dependent variables are tested below. Models 1 to 4 represent research questions two to four. The fifth model included all independent variables, hence it tests for research questions two to four simultaneously. All

five models are assessed by two methods. The first is a common Pseudo- R^2 value described by Hilbe (2011) as:

$$\text{Pseudo-}R^2 = 1 - (L_F/L_1) \quad (1)$$

L_F is the log-likelihood of the full model and L_1 is the log-likelihood for the model with intercept only. As with ordinary R^2 in OLS, the Pseudo- R^2 gives a value between 0 and 1. The higher the value, the more variation is explained. The other method to assess the different regression models is Akaike Information Criterion (AIC) which is calculated:

$$AIC = -2\ln(L) + 2k \quad (2)$$

L is the log-likelihood of the full model and k the number of independent variables. By including the latter, AIC makes a trade-off between the model with highest fit ($-2\ln(L)$) with the fewest number of independent variables ($2k$). The obtained value is used to choose between several models to find the best model — again being with high fit and few independent variables. The lower the AIC, the better model (Hilbe 2011).

In the third step, the best regression model (with the highest Pseudo- R^2 and lowest AIC) is tested for spatial dependency by computing Moran's eigenvectors for the residuals of the regression model. In short, the algorithm calculates vectors that explains geographic patterns which enables an assessment of spatial autocorrelation in (non-spatial) regression models. Phrased differently, the algorithm controls to what extent a regression model has unobserved variation that can be explained by geographic location of studied units (Bivand et al. 2008). The regression models are re-run with eigenvectors, with a significance value above 0.05, as independent variables.

The analysis is brought out with R, an open-source programming language (R Core Team 2014). R utilizes packages which are user-created extensions for different statistical methods. For the regression models, the MASS-package is used (Venables and Ripley 2002). Variance Inflation Factor is tested with the car-package (Fox and Weisberg 2019). The spatial analysis is brought out with the packages spdep and spatialreg (Bivand et al. 2008). Plots and maps are made with the package ggplot2 (Wickham 2016).

Findings

Spatial autocorrelation of dependent variables (programme reach)

Moran's I for both programmes result in a positive but small value (0.22 for education entry grants and 0.23 for extra positions). Both tests are significant below 0.01. The results indicate that the reach of both programmes is spatially autocorrelated, i.e. that there are geographic patterns in programme reach. The reach of the programmes is plotted in Figs. 2 and 3.

Negative binomial regression without spatial autocorrelation

The results from the negative binomial regressions are presented in Table 1 (education entry grants) and Table 2 (extra positions). The tables specify the standardized incidence rate ratios (IRR) which is the exponential logarithmic coefficients. IRR below 1 indicates a lower risk ratio associated with the independent variable. IRR above 1 indicates higher risk ratio associated with the independent variable. By taking $IRR-1$ it is possible to translate the IRR into percentages of decreased/increased risk (Hilbe 2011). For instance, in the first model of Table 1, the IRR for the coefficient for *area* is 0.858. Translated to percentages, the risk decreases by 14.2% per z-score ($0.858-1$).

The second research question, which considers geography, is answered differently between the two programmes. Area is significant for education entry grants, where the larger the area the lower the risk for extensiveness of grants. Population size is

Fig. 2 Education entry grants per 10,000 inhabitants. Moran's $I=0.22$

Fig. 3 Extra positions per 10,000 inhabitants. Moran's $I=0.23$

significant for extra position where less populated municipalities are more likely to have extensive reach of programmes. The third research question concerns political orientation and is displayed in models 2 and 3. Socialist is used as reference category with the other independent variables coded as dummies. For education entry grants, there are no significant differences between political orientation, regardless of whether one includes population size. For extra positions, there is a significant difference, where municipalities ruled by conservative parties are less likely to have higher number of participants in comparison with municipalities ruled by socialist parties. This correlation remains when adjusting for population size in model 3. Looking at the fourth research question, concerning compensation vs. spatial reinforcement, unemployment rate and low-skilled are significant for both programmes when looking at model 4. Economic equalization is significant, however, with a low

Table 1 Education entry grants

Independent variable	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	5.828***	6.605***	6.637***	5.258***	5.319***
Area	0.858**		1.021		0.876*
Population size	1.088				1.016
Population density	0.880				0.916
Coalition (socialist as reference)		1.012	1.007		1.055
Other (socialist as reference)		0.497	0.497		0.439*
Conservative (socialist as reference)		0.782	0.777		0.942
Unemployment rate				1.449***	1.490***
Social assistance				1.050	1.015
Low-skilled				1.142*	1.083
Economic equalization				1.070	1.105

Negative binomial regression with standardized exponential coefficients (IRR)

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.00$

Table 2 Extra positions

Independent variable	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	174.585***	230.895***	223.022***	164.686***	178.6***
Area	1.066		0.871***		1.034
Population size	0.910*				0.914*
Population density	0.921				1.000
Coalition (socialist as reference)		0.798	0.816		0.906
Other (socialist as reference)		0.753	0.751		0.898
Conservative (socialist as reference)		0.676**	0.700**		0.904
Unemployment rate				1.083*	1.111*
Social assistance				1.052	1.062
Low-skilled				1.125**	1.130**
Economic equalization				1.273***	1.207***

Negative binomial regression with standardized exponential coefficients (IRR)

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.00$

IRR, for extra positions. When looking at the full models (model 5 in both tables), area remains significant for education entry grants, while population size remains significant for extra positions. There is a significant IRR for municipalities whose political rule includes the Swedish Democrats (labelled as “other”) and education entry grants, while there are no significant IRRs for political board and extra positions. Unemployment rates remains significant for both programmes. Also, for extra positions the percentages of low-skilled as well as economic equalization remains significant when including all independent variables.

The test statistics are presented in Tables 3 and 4. There is a clear pattern for both programmes where the models including variables associated with research question

Table 3 Education entry grants

	Model 1	Model 2	Model 3	Model 4	Model 5
Pseudo-R ²	0.029	0.027	0.028	0.298	0.337
AIC	1630	1631	1633	1531	1528
Test statistics					

Table 4 Extra positions

	Model 1	Model 2	Model 3	Model 4	Model 5
Pseudo-R ²	0.066	0.038	0.080	0.311	0.330
AIC	3486	3496	3483	3394	3398
Test statistics					

four (compensation vs. Matthew effect), i.e. model 4 and 5, results both in relatively high pseudo-R² and relatively low AIC. In comparison, model 1 to 3, that looks at geographical factors and local political rule, respectively, have lower pseudo-R² and higher AIC. However, the best model was generated by including all variables. Hence the geographic and political variables are not without relevance to understand the reach of the studied labour market policies.

Controlling the negative binomial regression models for spatial autocorrelation

The residuals of the full regression models (model 5) for both programmes generated three eigenvectors, respectively, with significance level below 0.05. When controlling the full models for spatial autocorrelation, by including the eigenvectors as independent variables, the significance levels changes.

For education grants, population density is added as a significant independent variable together with those significant in model 5 (area, “other” as political board and unemployment rate). For extra positions, population size and unemployment rate become insignificant, while the other three independent variables remain significant.

Including adjustment for spatial autocorrelation, i.e. the eigenvectors, did also improve both regression models in terms of test statistics. The models presented in Tables 5 and 6 increases the pseudo-R² as well as decreasing the AIC in comparison with the original models (that did not adjust for spatial autocorrelation) in Figs. 3 and 4. For education entry grants the new pseudo-R² value is 0.391 and for extra positions the new value is 0.396. The AIC decreases to 1506 for education entry grants and to 3371 for extra positions.

Table 5 Education entry grants

Independent variable	
Intercept	5.198***
Area	0.882*
Population size	1.038
Population density	0.855**
Coalition (socialist as reference)	1.057
Other (socialist as reference)	0.472*
Conservative (socialist as reference)	0.937
Unemployment rate	1.458***
Social assistance	1.027
Low-skilled	1.065
Economic equalization	1.084
Model 5 from Table 3 adjusted for spatial autocorrelation	
* $p < 0.05$; ** $p < 0.01$; *** $p < 0.00$	

Table 6 Extra positions

Extra positions	
Independent variable	
Intercept	192.958***
Area	1.026
Population size	0.942
Population density	0.961
Coalition (socialist as reference)	0.83
Other (socialist as reference)	0.77
Conservative (socialist as reference)	0.802*
Unemployment rate	1.068
Social assistance	1.069
Low-skilled	1.138**
Economic equalization	1.163**
Model 5 from Table 4 adjusted for spatial autocorrelation	
* $p < 0.05$; ** $p < 0.01$; *** $p < 0.00$	

Final conclusions

This article has examined efforts made by Swedish municipalities to reduce unemployment, and what characterizes municipalities that develop programmes with greater reach. Among the studied non-spatial factors, economic situation was the most influential. The results of the empirical analysis indicate that the “risk” of reach of labour market policies is higher among municipalities with higher proportions of unemployed and low-skilled inhabitants, as well as receiving economic equalization. These correlations indicate that sub-national labour market policies in the Swedish case is a case of compensation, i.e. that policies counterbalance sub-national differences rather than increase them.

In terms of geography, three hypotheses were discussed initially: area is negatively correlated with reach of policies, population size positively correlated with reach of policies and people density is positively correlated with reach of policies. All hypotheses gained support, but not consistently for both programmes. For education entry grants, higher population size and people density increased the risk for higher number of grants even when adjusting for spatial autocorrelation. For extra positions, larger area was significant in decreasing the risk for number of positions but became insignificant when adjusting for spatial autocorrelation.

The correlation between political orientation and the studied programmes was also mixed. Municipalities ruled by socialist parties had greater reach in comparison with municipalities whose rule includes the Swedish Democrats (categorized as *other*), when looking at education entry grants. When looking at extra positions, municipalities ruled by socialist parties had greater reach in comparison with municipalities ruled by conservative parties. The latter is in line with Lundin's (2007) findings; however, adjusting for area did not change the original correlation as was the case in Lundin's study. The influence of ruling with the Swedish Democrats, when looking at education entry grants, might be explained by the framing of the programme towards improved education among migrants. In the government proposition (Prop. 2016/17:158), it is argued that many migrants lack sufficient education to compete on the Swedish labour market. It is important to stress that this is only a hypothesis. There is still little evidence of political influence in local municipalities deliverance of employment service. Not least is there a lack of more in-depth studies that investigates how such influence take place.

Lastly, concerning neighbourhood effects. When discussing the research questions above, two explanations for neighbourhood effects were described. The first, referred to as regional effect, claims that non-spatial similarities between neighbours explain similarity in reach of policy. For instance, neighbouring municipalities might share an economic situation which predicts the likelihood of bringing out policies. The other explanation, neighbourhood learning, claims that neighbours develop similar by learning from each other. In the best of worlds, the analytic approach (adjusting regression models for spatial autocorrelation) would separate between the two explanations given that the non-spatial variables measure the cause(s) of regional effects. But in practice, measurements errors and unobserved variables are inevitable. The analysis can, however, give an indication to what extent non-spatial variables remain significant when adjusting for spatial autocorrelation. Considering previous findings by Ansell et al. (2017a, b) and Lundin et al. (2015), it is likely that the spatial patterns observed in this article are partly explained by neighbourhood learning.

It is important to emphasize that the studied labour market policies represent only two of many programmes. Swedish municipalities have relatively high discretion in designing policies (cf. Kazepov 2010), and do also develop and deliver programmes which are fully funded by the municipal budget. Programmes that differ in focus (Jacobsson et al. 2017). Hence, there are differences between municipalities in terms of spending and focus, which poses a challenge when aiming for a more robust analysis of these issues (cf. Vikman and Westerbergh 2017). The studied programmes are more robust in the sense that they are clearly defined—the municipality either does

or does not hire people within the subsidized employment programme extra positions. Similarly, the municipality either does or does not grant an education grant. In both cases, the use of the programme is registered at the national agency handling the grants. As such, these programmes can be used as an alternative measure of Swedish municipalities' ambition to develop and deliver labour market policies.

The two studied programmes differ in terms of focus. Education entry grants focus on upskilling, i.e. are based on the assumption that the unemployed need more education. The programme extra positions focuses on work-first, where experience of employment (within the extra positions programme) is assumed to influence future prospects of finding employment. As mentioned, it has been noted by previous scholars that municipalities differ in focus (Jacobsson et al. 2017). But, as is evident in Bergmark et al. (ibid), categorizations such as work-first vs. human investment do not always prove to be valid when tested against empirical data. Municipalities can have programmes with several areas of focus or several programmes with more narrow foci. The correlation coefficient for the two studied programmes is 0.85, which means that most municipalities use both to the same extent (be it with few or many participants). This result is in line with Bergmark et al.'s (ibid.) finding that municipalities have multiple areas of focus rather than one.

Funding Open access funding provided by Örebro University. Partly funded by the municipality of Örebro, Sweden.

Data availability Data for this article is collected from open sources.

Code availability Used R-packages specified in “Methods and data” section.

Declarations

Conflict of interest The author report no potential conflict of interest.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

References

- Andersson J (2016) Locked-in collaboration. Göteborg University, Göteborg
- Ansell C, Lundin M, Öberg PO (2017a) Learning networks among Swedish municipalities: is Sweden a small world? In: Glücker J, Lazega E, Hammer I (eds) Knowledge and networks, vol 11. Knowledge and space. Springer, Berlin, pp 315–336
- Ansell C, Lundin M, Öberg PO (2017b) How learning aggregates: a social network analysis of learning between Swedish municipalities. *Local Gov Stud* 43(6):903–926. <https://doi.org/10.1080/03003930.2017.1342626>

- Arbetsförmedlingen (2020) Personal communication via e-mail 2020-10-19 to 2020-20-20. Contact the author for validation
- Axelsson R, Löfgren K, Nilsson L (1987). Den svenska arbetsmarknadspolitiken under 1900-talet [Swedish Labour Market Policy during the 20th century]. Prisma, Stockholm
- Bergmark Å, Bäckman O (2004) Stuck with welfare? Long-term social assistance reciprocity in Sweden. *Eur Sociol Rev* 20(5):425–443. <https://doi.org/10.1093/esr/jch036>
- Bergmark Å, Bäckman O (2007) Socialbidragstagandets dynamik—varaktighet och utträden från socialbidragstagande under 2000-talet [The dynamics of social assistance reciprocity—duration and exiting from social assistance reciprocity during the 2000s]. *Socialvetenskaplig Tidskrif* 2–3:134–152
- Bergmark Å, Lundström T (1998) Metoder i Socialt Arbete. Om insatser och arbetssätt i socialtjänstens individ- och familjeomsorg [Methods in Social Work. On programmes and ways of working in social services]. *Socialvetenskaplig Tidskrif* 4:291–314
- Bergmark Å, Bäckman O, Minas R (2017) Organizing local social service measures to counteract long-term social assistance receipt. What works? Experiences from Sweden. *Eur J Soc Work* 20(4):548–559
- Best H (2014) The SAGE handbook of regression analysis and causal inference. SAGE, Los Angeles
- Bivand RS, Pebesma EJ, Gómez-Rubio V (2008) Applied spatial data analysis with R. Springer, New York
- Bonitz M, Bruckner E, Scharnhorst A (1997) Characteristics and impact of the Matthew effect for countries. *Scientometrics* 40(3):407–422
- Bonoli G, Liechti F (2018) Good intentions and Matthew effects: access biases in participation in active labour market policies. *J Eur Publ Policy* 25(6):894–911. <https://doi.org/10.1080/13501763.2017.1401105>
- Brenner N (2004) Urban governance and the production of new state spaces in western Europe, 1960–2000. *Rev Int Polit Econ* 11(3):447–488. <https://doi.org/10.1080/0969229042000282864>
- Brodin EZ, Marston G (eds) (2013) Work and the welfare state: street-level organizations and welfare politics. Djøf Publishing, Copenhagen
- Broström L (2015) En Industriell reservarmé i välfärdstaten: arbetslösa socialhjälpstagare 1913–2012 [An industrial reserve army in the welfare state: receivers of social assistance 1913–2012]. Göteborgs universitet, Göteborg
- Eleveld A, Kampen T, Arts J (eds) (2020) Welfare to work in contemporary European welfare states: legal, sociological and philosophical perspectives on justice and domination. Policy Press, Bristol
- Erixon L (2010) The Rehn–Meidner model in Sweden: Its rise, challenges and survival. *J Econ Issues* 44(3):677–715. <https://doi.org/10.2753/JEI0021-3624440306>
- Esping-Andersen G (1990) The three worlds of welfare capitalism. Princeton University Press, Princeton
- Fox J, Weisberg S (2019) An R companion to applied regression. Sage, Thousand Oaks
- Fredriksson D (2020) Reducing unemployment. Examining the interplay between active labour market policies. *Soc Policy Adm*. <https://doi.org/10.1111/spol.12606>
- Haining RP (2003) Spatial data analysis: theory and practice. Cambridge University Press, Cambridge
- Hedlund M (2016) Mapping the socioeconomic landscape of rural sweden: towards a typology of rural areas. *Reg Stud* 50(3):460–474. <https://doi.org/10.1080/00343404.2014.924618>
- Hilbe JM (2011) Negative binomial regression. Cambridge University Press, Cambridge
- Hjertner Thorén K (2008) “Activation policy in action” a street-level study of social assistance in the Swedish welfare state. Växjö University Press, Växjö
- Jacobsson K, Hollertz K, Garsten C (2017) Local worlds of activation: the diverse pathways of three Swedish municipalities. *Nord Soc Work Res* 7(2):86–100. <https://doi.org/10.1080/2156857X.2016.1277255>
- Jessop B (1999) The changing governance of welfare: recent trends in its primary functions, scale and modes of coordination. *Soc Policy Adm* 33(4):348–359. <https://doi.org/10.1111/1467-9515.00157>
- Kazepov Y (2010) Rescaling social policies towards multilevel governance in Europe: some reflections on processes at stake and actors involved. In: Kazepov E (ed) Rescaling social policies: towards multilevel governance in Europe. Ashgate, Farnham, pp 35–72
- Lindénfors P, Wilson M, Lindberg S (2020) The Matthew effect in political science: head start and key reforms important for democratization. *Hum Soc Sci Commun* 7:106. <https://doi.org/10.1057/s41599-020-00596-7>
- Lundin M (2007) The conditions for multi-level governance: implementation, politics, and cooperation in Swedish active labor market policy. Uppsala University, Uppsala
- Lundin M, Öberg P, Josefsson C (2015) Learning from success: are successful governments role models. *Public Adm* 93(3):733–752. <https://doi.org/10.1111/padm.12162>
- Merton RK (1995) The Thomas theorem and the Matthew effect. *Soc Forces* 74(2):379–422. <https://doi.org/10.2307/2580486>

- Minas R (2011) Decentralization and back to centralization: the Swedish Case. In: van Berkel R, Graaf WD, Sirovátka T (eds) *The Governance of active welfare states in Europe*. Palgrave Macmillan, Basingstoke, pp 195–215
- Moreno L, McEwen N (2005) Exploring the territorial politics of welfare. In: McEwen N, Moreno L (eds) *The territorial politics of welfare*. Routledge, London, pp 1–40
- Nybom J (2013) Activation and ‘coercion’ among Swedish social assistance claimants with different work barriers and socio-demographic characteristics: What is the logic? *Int J Soc Welf* 22:45–57. <https://doi.org/10.1111/j.1468-2397.2011.00858.x>
- OECD (2010) Strategies to improve rural service delivery. OECD rural policy reviews. OECD, Paris
- OECD (2020) OECD regions and cities at a glance—country note Sweden. OECD, Paris
- Olofsson J, Wadensjö E (2009) Arbetsmarknadspolitik: förändrade förutsättningar och nya aktörer [Labour market policy. Changed preconditions and new actors]. SNS förlag, Stockholm
- Olsson U (2002) Generalized linear models. An applied approach. Studentlitteratur, Lund
- Panican A, Johansson H (2016) Strategies against poverty in a social democratic local welfare system: still the responsibility of public actors? In: Johansson H, Panican A (eds) *Combating poverty in local welfare systems active inclusion strategies in European cities*. Palgrave Macmillan, London, pp 155–177
- Panican A, Ulmestig R (2017) Lokal arbetsmarknadspolitik—vem gör vad, hur och för vem? [Local labour market policies—who does what, how and for whom?]. Linnaeus University, Växjö
- Pavolini E, Van Lancker W (2018) The Matthew effect in childcare use: a matter of policies or preferences? *J Eur Public Policy* 25(6):878–893. <https://doi.org/10.1080/13501763.2017.1401108>
- Perc M (2014) The Matthew effect in empirical data. *J R Soc Interface*. <https://doi.org/10.1098/rsif.2014.0378>
- Proposition 2016:17:158
- R Core Team (2014) R: a language and environment for statistical computing. R Foundation for Statistical Computing, Vienna. <http://www.R-project.org/>
- Salonen T, Ulmestig R (2004) Nedersta trappsteget. En studie om kommunal aktivering. [The bottom rung of the ladder. A study of municipal activation]. Växjö Universitet, Rapportserie i Social arbete no 001 2004
- Shipan C, Volden C (2012) Policy diffusion: seven lessons for scholars and practitioners. *Public Adm Rev* 72(6):788–796. <https://doi.org/10.1111/j.1540-6210.2012.02610.x>
- Statistics Sweden (n.d.) Household finances general statistics. https://www.scb.se/en/finding-statistics/statistics-by-subject-area/household-finances/general-statistics/household-finances-general-statistics/#_Contact. Accessed 15 Dec 2020
- Swedish Agency for Economic and Regional Growth (2016) Develop Sweden! The EU structural and investment funds in Sweden 2014–2020. Swedish Agency for Economic and Regional Growth, Stockholm
- Tiefelsdorg M, Griffith DA (2007) Semiparametric filtering of spatial autocorrelation: the eigenvector approach. *Environ Plan A* 39:1193–1221. <https://doi.org/10.1068/a37378>
- van Berkel R, Graaf WD, Sirovátka T (2011) The Governance of active welfare states. In: van Berkel R, Graaf WD, Sirovátka T (eds) *The governance of active welfare states in Europe*. Palgrave Macmillan, Basingstoke, pp 1–21
- Venables WN, Ripley BD (2002) *Modern applied statistics with S*. Springer, New York
- Vikman U, Westerberg A (2017) Arbetar kommunerna på samma sätt? Om kommunal variation inom arbetsmarknadspolitikerna [Do the municipalities work in the same way? On municipal variation in labour market policies]. IFAU, Uppsala. Rapport 2017:7
- Weishaupt JT (2011) From the manpower revolution to the activation paradigm: Explaining institutional continuity and change in an integrating Europe. Amsterdam University Press, Amsterdam
- Weiss L (1998) *The myth of the powerless state. Governing the economy in a global era*. Polity Press, Cambridge
- Whitworth A (2020) Spatial creaming and parking? The case of the UK Work programme. *Appl Spat Anal Policy*. <https://doi.org/10.1007/s12061-020-09349-0>
- Wickham H (2016) *ggplot2: elegant graphics for data analysis*. Springer, New York
- Zimmermann K (2019) *Local policies and the European Social Fund: employment policies across Europe*. Policy Press, Bristol