



Understanding Local Variations in Gender Relations Using Gender Contract Theory

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Abstract: Despite Sweden's family policy existing at the national level, usage of these policies can vary substantially across regions and by gender suggesting a need for closer examination of local variance in these usages. The concept of 'gender contract', describes the systematic organization of a gender system that is constructed, controlled and reinforced by relations between men and women and articulated into daily activities such as childcare. This study demonstrates the importance of spatial variation in gender contracts and identifies gender contracts from the gendered use of parental leave in Sweden. Using register data, we create individualized neighbourhoods with fixed population size, based on the location of the residence of individuals. By using a multiscalar approach, we show that local gender contracts vary substantially, and that no dominant regional gender contracts appear instead highlighting local variance of gender contracts. The spatial analyses show the ways in which individuals engage with both structure and society in their daily life. Uncovering gender contracts highlights the ways in which national policies are interpreted locally by users and test the operationalisation of a so far mainly theoretical concept.

Keywords: gender contracts; family policy; parental leave; individualized neighbourhoods; multiscalar approach; Sweden



Introduction

The main interest in this paper is the concept of ‘gender contract’ which describes the systematic ordering of relations between women and men as a gender system that is constructed, controlled and reinforced by a gender-based power structure. This study focuses on the spatiality of gender relations, or the role that space makes to gender inequality. The gendered nature of local context has been neglected in earlier studies but locality is likely to differ by place and also influence the daily life of individuals. Geographical differences in gender contracts are shaped by a combination of the overall structure of gender relations: the way these are arranged within local labour market conditions, in the demographic structure, in history and in cultural traditions. This study attempts to measure the gendered context using the concept local gender contract and an individualized measure of place of all individuals in Sweden using micro-level register data. Our major indicator for gender contracts is the division of childcare, measured by the share of fathers’ parental leave use. Parental leave in Sweden is available on a national level to all parents, but local use may vary. These local variations are illustrated as an indicator of local gender contracts.

Gender contract is originally a theoretical concept, which examines the ways in which power negotiations over work and home practices, in a household, translate into a broader set of gendered societal ‘contracts’. The topic of local gender contracts, where gender contracts are linked to specific places, is not entirely new; it was the main theme of a network on gender inequality in European regions, led by Simon Duncan in the 1990s (Duncan, 1994; 2000; Duncan & Pfau-Effinger, 2000). These studies theorized differences in gender relations and started to examine the regional and local contexts of gender inequality. In general, they stated that the form and degree of gender inequality together with its origins and consequences differ substantially over time and place. Men and women have different opportunities for changing or coping with their position and experiences in different places. Indeed, in countries such as the

United Kingdom (McDowell & Massey, 1984), Finland and West Germany (Pfau-Effinger, 1994), and Sweden (Forsberg, 1998; 2010) it was found that gender relations are associated with both local-historical conditions and national ideologies.

Within Scandinavia, the concept of “gender contracts” is defined as the outcomes of negotiations between men and women on issues like labour, family and power (Hirdman, 1988; 1992; 1993). Gender contracts are a generalized norm of life-work negotiations. Using the concept of gender contract is useful as it can place gender into a specific context. The concept has been advanced to link gender contracts to spaces and places (Amcoff, 2001; Forsberg, 1998; Forsberg et al., 2006). Forsberg (1998) examined gender contracts spatially by comparing municipal census data for the year 1990 and concluded that regional variation is present in gender contracts in Sweden, indicating a north-south divide, with more equal municipalities in the north and more unequal areas in the south. Amcoff (2001) building on Forsberg’s (1998) work, conducted a cluster analysis on data for administrative areas from the 1980s to 2001 and finding quite similar patterns. The studies highlighted the need for further and more detailed analysis at spatial levels such as the neighbourhood.

Many of these studies are outdated with most studies mapping gender contracts with a geographical unit of measurement of indicators that is problematic. While most studies have used administrative units such as municipalities and even larger regions as units of analysis, there is a need for a better measurement of the area that allows for local outcomes of gender inequality thus addressing these contradictory concepts of geography. This quandary, when coupled with gender, highlights that space is constructed at the local level (Massey, 2005), and gender inequality varies between neighbourhoods (Duncan, 2000).

In recent decades, geographically coded data have become increasingly available to researchers allowing for the redefinition of neighbourhoods. Traditionally, neighbourhoods are constructed using administrative borders. When analyses are conducted using such predefined

areas, results may depend on how the borders of the neighbourhoods affect the aggregation of people within them, the so-called Modifiable Area Unit Problem (Openshaw, 1984). To overcome such issues, individualized neighbourhoods have become more common in the literature: based on the individual's nearest neighbours, each individual is appointed or collected into a neighbourhood (Andersson & Malmberg, 2018; Hennerdal & Nielsen, 2017; Wimark, Haandrikman & Nielsen 2019). In this method, each individual has the same number of neighbours, however geographical size of the neighbourhood varies based on population density. An advantage of this method is that social interaction is captured in through neighbourhood/individual relations resulting in a better representation of neighbourhoods (Kwan, 2012; Nielsen & Hennerdal, 2017). Correspondingly gender contracts concern the interaction between partners in conjunction with policy structures at regional and national level, thus methods that use individualized neighbourhoods enables a better connection between individual and structure than previous approaches. Thus, the developments in geocoded big data open up new ways to examine gender contracts with techniques more theoretically aligned with the concept. Finally, using individualized neighbourhoods opens the measurement of different types of indicators on different scales. Given that we do not know at which scale gender contracts are constructed, a multiscalar methodology enables the size of the neighbourhood to vary, which is preferred over uniscalar studies (Fisher, Stockmayer, Stiles & Hout, 2004; Hennerdal & Nielsen, 2017). This helps us to understand the interaction between agency and neighbourhood dynamics better (Clark, Andersson, Östh & Malmberg, 2015).

The aim of this paper is to examine local variations of gender contracts in present-day Sweden to provide us with knowledge about what barriers exist to gender equality and to further examine what characterizes areas where equality is hard to accomplish and where it may be facilitated. In the study we operationalize gender contracts, using fathers' participation in child care, measured by parental leave use, to examine the ways in which a particular form of

gendered negotiation translates into spatial relations. This addresses one of the fundamental challenges to operationalizing gender contracts: identifying specific types of gender contracts and mobilizing them to better support policy makers seeking to address gender inequalities. We show that when operationalized, gender contracts have the potential to guide or create opportunities for local policy measures to be tailored to the specifics of particular areas or localities. The paper offers insights into how gender contract theory and patterns can be implemented to understand contemporary gender relations and innovates gender contract theory to stronger localized understandings of social-economic conditions.

Gender contracts: A theoretical background

The concept gender contract derives from the historian Yvonne Hirdman's (1992; 1993) work examining how gender systems, divided into spheres of female and male, results in patterns of negotiated behaviour, or contracts, within households. Gender contract theory emerged within the context of the Scandinavian universalistic welfare state where governments had committed itself to gender equality and women-friendly reforms and initiatives (Duncan, 1995). Thus, with the rise of strong welfare policies, gendered negotiations should more or less be minimized, however this was not entirely the case as shown by gender contract theory.

A gender contract refers to "social agreements on what men and women are, what they think and expect, and what they do" (Duncan, 1995: 265). The term 'contract' may seem to imply that there is a formalized agreement between equal parties with set outcomes; this was not Hirdman's intention. Instead, she refers to the etymological meaning of the word, which is "pulling two things together" (Hirdman, 1992:10). They have also been defined as "informal understandings and agreements over the way people carry out their daily lives" (Forsberg, Gonäs & Perrons, 2000: 42 based on Åström & Hirdman, 1992). Gender contracts are versions of the larger compromises between men and women regarding divisions of labour, family and

power. Gender contracts, then, include all forms of work, including household work, family relations even scaling up to local politics and decision-making. According to Hirdman, gender contracts are present in all levels of the gender system: metaphysical, institutional and individual level. That is, certain perceptions and expectations about the relationship between men and women (metaphysical level); institutionalized forms of gender differences and divisions of labour (institutional level); and specific contracts between individual men and women (individual level), all contribute to framework of a gender contract. Specific gender contracts develop from a process of conflict, negotiation and renegotiation with newly arising conflicts/negotiations resulting in changes over time (Forsberg, 2010). Changes reflect shifting contracts and fluctuating relations between the three levels which in turn reshape contracts. Thus, gender contracts reveal the ways in which ongoing unequal divisions of labour between men and women are constructed, internalized and shifting norms within gender-based power structures or systems. For policy makers, changing gender contracts can indicate local responses to shifting or newly introduced policies or initiatives. By monitoring gender contracts there is potential for incremental change.

Hirdman stresses while women are structurally or systematically subordinate, they do have agency and are active participants in the construction and maintenance of gender contracts. Thus, changing contracts can suggest the ways in which negotiations are shaped by the relations between different levels of the gender system. However, the mechanisms or operationalization of agency as found in negotiations, in particular the relationship between individual/ household negotiation and larger structures and institutions is undertheorized in gender contract theory (Caretta, 2015). Agency emerges theoretically in the ongoing negotiation, production and reproduction, collective internalization and ongoing modification of gender contracts. However through gender contract studies, it becomes clear that agency in gender contract requires contextualization. Some studies suggest that the local levels highlight the tandem relationships

between the metaphysical, institutional, and individual functioning (Lindeborg, 2012). Subsequently, agency, found in the ability, to negotiate is manifested spatially –or locally– production of gendered contracts (Forsberg, 2001). Studies of localized practices represent an opportunity to advance the theory from the abstract to an applied understanding of how agency operationalized in gender contract give way to gendered practices.

Importantly for this study was the theoretical development within gender contract theory which saw the combination of space and place into gender contracts. This development revealed that gender contracts are shaped by specific localities (spaces and places) and that local context, found in the in three levels of contract construction, is a key driver in how gender contracts emerge (Forsberg, 2001). One of the most obvious and most studied elements of the spatiality of gender is how different gender welfare regimes have led to different positions of men and women in different places (Duncan, 1995). The work of Esping-Andersen (1990) is important in this respect, examining spatial differences in welfare policies and how the different effects of those policies on women and men are understood and analysed. Pfau-Effinger (1994) added that welfare policies are also historically rooted in country-specific cultural norms about gender, work and family life. From an international perspective, Sweden has one of the highest levels of gender equality, as evidenced by for instance Inglehart and Norris (2003) using a gender equality scale. As early as the 1960s, an “equality contract” emerged in Sweden (Duncan, 1995). In contrasting for instance, to southern Europe, the Swedish policy has emphasized the sharing of both political and economic power as well as family responsibilities between men and women (Almqvist, Sandberg & Dahlgren, 2010; Forsberg et al., 2000). Walby’s interpretation of patriarchy (1990; 1994) also provides a point of departure for the spatial differences in gender relations, distinguishing between different patriarchal structures, which play out differently in different contexts and spatially across contexts. Common to these studies is an emphasis on the

need for localized and nuanced understanding of the diversity of gendered relations within a gender system.

Further critiques to gender contract includes an over reliance on normativity and a lack of attention to homosocial practices within gender contract production (Häyrén Weinestål, 2010; Webster & Caretta, 2016). The former critique lies within the assumption of a harmonious gender system based on a binary gender system conceding little diversity within gender spectrum or cultural variances. Moreover, the assumption of heteronormative family structures and so-called homogenous cultural practices is a theoretical challenge not adequately addressed by gender contract theory. Further critique includes the over emphasis of male dominance and the negotiation of male privilege as the primary driver, underscores women's lack of potential agency in the production and reproduction of gender contracts. Implicit in these critiques is the question of how readily gender contract theory can take on rapid social change (Golovina, 2018; Webster & Caretta, 2016). Nonetheless, the gender contract theory provides a necessary link between gendered behaviours and policy. Moreover, studies that seek to operationalize contemporary gender contracts can provide insights to improving these theoretical weaknesses.

While gender contracts are theoretically and methodically challenging, they potentially offer policy makers insights into the processes of inequalities between genders at the regional or local level. Gender contracts present a means to connect the seemingly informal realm of individual choices and actions (a gender contract) to the larger institutional and structural forces that shape outcomes. When coupled with the spatial context – regions or neighbourhoods – the potential to provide geographically nuanced understanding, gender contract theory may give insights to the social-economic factors shaping local responses to policy initiatives.

Data and methods

This study uses individualized neighbourhoods as a solution to previously conceptual and methodological problems regarding imprecise measures of spatial context, and as a way to better approximate the interaction between individuals and larger structures as proposed by gender contract theory. Individualized neighbourhoods were calculated with the software Equipop¹, creating individualized neighbourhoods with fixed population size. Each person has their own bespoke or individualized neighbourhood, consisting of the closest people with certain characteristics, such as the 100 nearest higher educated women, or the 200 nearest fathers who take up parental leave.

We used geocoded register data on the whole Swedish population from 2010, containing a wide range of demographic and socio-economic variables. Its excellent geographic attributes enable a spatial study with much geographical detail, as it has location coordinates of each 100 by 100 meter square for each registered person.

Our basic measure is an indicator for men's share in parental leave uptake, which is a common indicator of gender equality in Sweden often used by government authorities (Swedish Social Insurance Agency 2018). Swedish parental leave for new-born children consists of 8 months leave to each parent but it is common for fathers to transfer part of their days to the mother. In 2010, transfers could be made for all days however two months were reserved for each parent, reservations sometimes referred to as the daddy quota, granted in reality, the legislation is gender neutral. For the largest share of parental leave the benefit reaches approximately 80 percent of the previous income. Moreover there is significant flexibility in how to share and allocate the leave periods. In 2010, the year of study, parental leave could be used anytime up to the child turned 8 years old and it is commonplace to use leave over different periods. Mothers use about three quarters of all leave and there is a considerable part of about twenty percent of fathers not using any leave (Swedish Social Insurance Agency 2013). Still fathers use on average at least 100 days of leave. It is often assumed that an equal division of

parental leave will lead to other changes in the direction of gender equality (Duvander, Ferrarini & Johansson, 2015). For instance reforms to reserve leave days for fathers were introduced in Sweden and Norway in 1995 and 1993 respectively, anticipating that fathers' increased leave would lead to increased gender equality in the labour market and in the homes (Duvander & Johansson, 2012).

We use the measure for fathers' parental leave uptake as an indication of gender contracts, and using it, we attempt to find the most appropriate geographical scale for measuring gender contracts, and also use this scale for the other variables. Scale is measured by varying the numbers of closest neighbours making up the individualized neighbourhoods; using EquiPop, the nearest 12, 25, 50, 100, 200, 400, 800, 1600 and 3200 neighbours were included in the analysis. In addition, and specific to this study, we add the use of temporary parental benefit which is paid at the same level as parental leave. Fathers have 10 days to be home with the new born child during the first months of its life while also the mother is home, often called daddy days. Parents also have extended rights of 120 days per year to take care of their sick children until 12 years of age, a policy often called VAB (Vård Av Barn). These extended parts of the temporary parental benefit are only available to working parents while parental leave is available to all parents in Sweden. In our measure we also include childcare allowance which is available for children with special needs to cover part of these costs. This can be used up to the age of 19 but is minor in number of users and also the benefit level. For an overview of Swedish family policies see Swedish Social Insurance Agency (2018).

Based on previous studies measuring gender contracts in a quantitative way (Amcoff, 2001; Forsberg, 1998; Forsberg et al., 2006), based on Walby's (1991; 1994) dimensions of differentiated patriarchy combined with the availability of data, we operationalized six indicators on three different levels: family, labour and politics. On the level of politics, we measure father's share of parental benefits. As mentioned, the variable includes the income

received from parental leave benefits, temporary parental benefit that can be used if children are ill (VAB) and childcare allowance that can be used by parents caring for sick children over a longer time period. Hereafter, we will refer to the income received from these three sources as “parental benefits”. The daddy index was then operationalized by creating a variable measuring the share of the total income (income including parental leave benefits) that is spent on parental benefits² for fathers with children aged 0-3 years in 2010. The age category was chosen as 80 percent of all fathers takes parental leave within the first two years of their child’s life (Swedish Social Insurance Agency 2013). The frequency distribution of the income share spent on parental benefits showed that the majority (55 percent) of men spends less than 5 percent of their income on parental benefits, with 28 percent not taking any leave in 2010³. For our analysis, we therefore chose a cut-off point of 5 percent, e.g. we defined a dichotomous variable indicating whether fathers had spent more or less than 5 percent of their income on parental benefits⁴. Spending less than 5 percent of one’s income on parental benefits implies that not even the two months earmarked for the father are taken.

On the family level, two indicators were constructed: a ratio of young mothers among young women and a ratio of single and divorced women among all those single or divorced. The first indicator was calculated as the share of women aged 15-24 with children among the number of women aged 15-24. The second measure was measured as the number of divorced and single women divided by the number of divorced and single persons. The idea behind including these two indicators is that lower ages at childbearing are generally associated with more traditional views regarding relationships between men and women (Bernhardt & Goldscheider, 2006), in the light of the Second Demographic Transition (SDT). Areas with higher shares of young mothers might therefore be associated with more traditional views regarding gender equality. On the other hand, areas with a high share of divorced and single women might be a sign of increased gender equality, as women more often drive family dynamics such as divorce and

cohabitation than men (Andersson, Noack, Seierstad & Weedon-Fekjær, 2006; Brandén & Haandrikman, 2018), and as we see an increase of single-person households in the course of the SDT.

Finally, on the level of labour, three additional variables were constructed. First, we examined the share of women aged 25-64 with high income among the population aged 25-64, with high income defined as one standard deviation above the national average for women. Second, the ratio of highly educated women aged 18-64 per the number of higher educated men in the same age group was calculated. Third, an indicator was created measuring the ratio of gainfully employed women per the number of gainfully employed men, with gainful employment measured as earning at least the amount the Swedish Tax Office uses for the amount geared to the price index, 42,400 SEK in 2010. These variables were included as areas with high shares of women with high income, higher education and areas with relatively many gainfully employed women may be seen as areas with a higher gender equality.

Our research approach is to use the daddy index as an indication of gender contracts and run it in EquiPop to obtain patterns of higher parental leave uptake by fathers at different spatial scales. In a second step, a neighbourhood scale level will be selected that best reflects the correct scale for gender contracts. This scale level is then used to map the six indicators of gender contracts. The third step is a cluster analysis based on the six indicators of gender contracts, in order to discover geographical clusters that can indicate local gender contracts.

Results

Geographical distribution of father's uptake of parental leave and other indicators of gender contracts

Figure 1 displays our main variable of interest, the ratio of fathers of young children, whose parental benefits were at least 5 percent of their income in 2010 divided by all fathers of young children for each 100 by 100 metre square in Sweden. The different maps represent nine

different scale levels: they include different population sizes of fathers of young children. The first map takes into account share of father's use of parental leave among the nearest 12 fathers with young children, the second among the nearest 25, and so on.

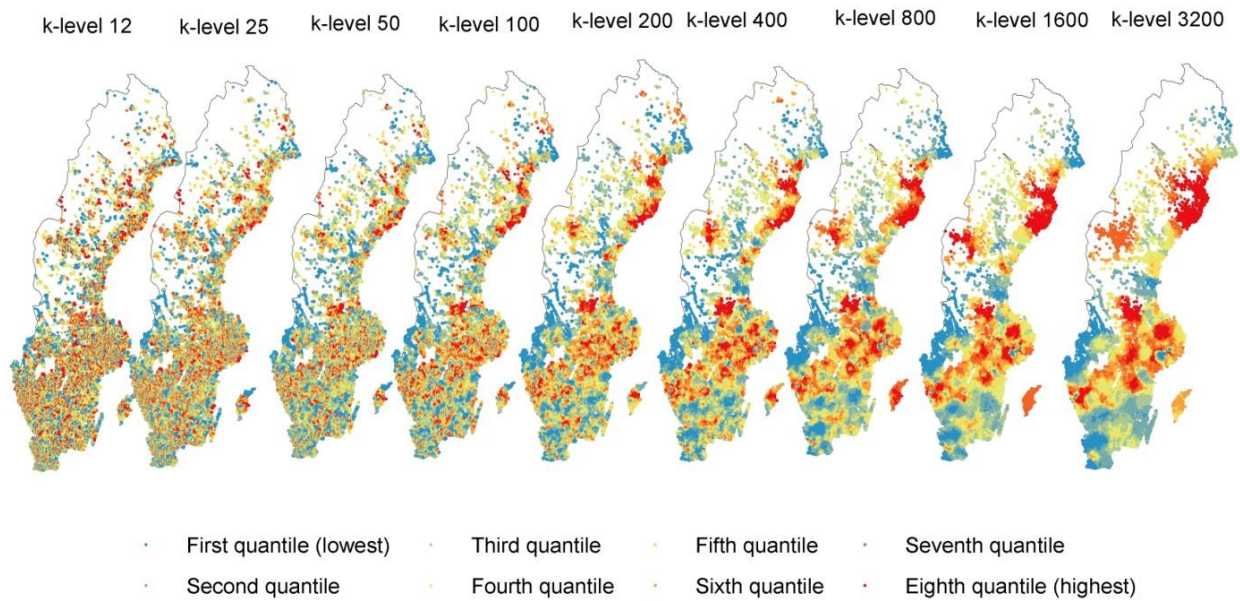


Figure 1. Ratio of fathers of fathers of young children, whose parental benefits were at least 5 percent of their income per all fathers of young children, 2010, for different k-levels

These maps highlight the importance of scale in understanding locality. At small scale levels, there is much local variation in father's parental leave uptake. If we zoom out and include several thousand neighbours in the definition of neighbourhood, there are larger clusters of homogenous patterns of parental leave uptake. In the south and the western part of the country, larger areas of relatively low uptake of father's parental leave appear. The Stockholm and Gothenburg metropolitan areas but also a large area around the cities of Umeå and Skellefteå in the north are characterized by relatively high uptake. This variance is key in theoretically understanding locally embedded gender contracts.

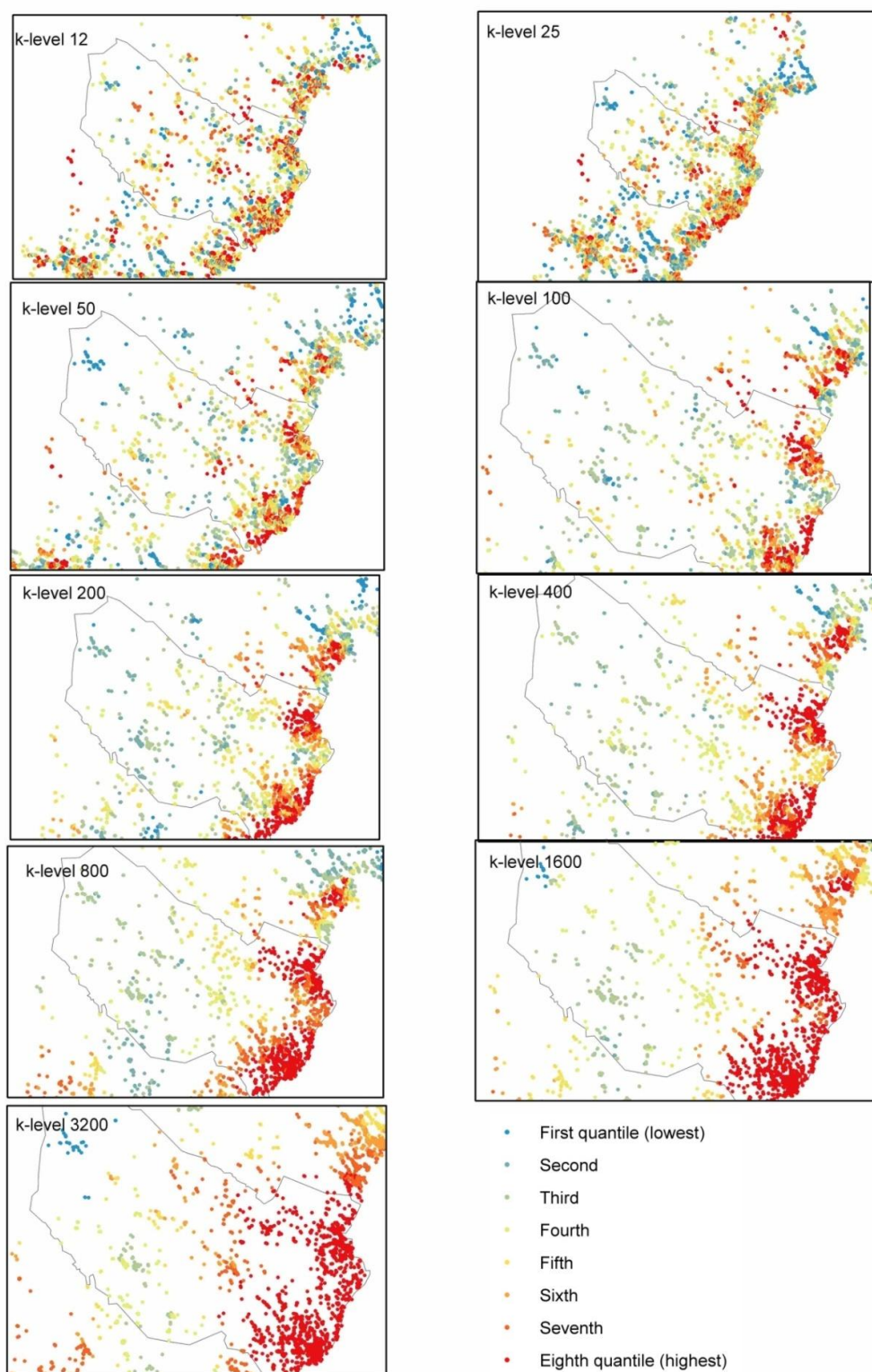


Figure 2. Ratio of fathers of fathers of young children, whose parental benefits were at least 5 percent of their income per all fathers of young children, Västerbotten county 2010, for different k-levels

Figure 2 shows the results of the same analysis for the northern county of Västerbotten. At very high scale levels, the regions are relatively homogeneous. However, at smaller scale levels the maps are very different in that they show much variation. Based on these visual spatial analyses, one may conclude that the scale level adopted in further analyses should not be too high neither too low to avoid either too much local variation or too homogeneous areas that hide local variation.

The choice for the appropriate scale level depends on the research problem at hand. Studies using multiscale approaches argue that different scales, so different sizes of nearest neighbours in an analysis, represent different social roles (Östh, Clark, and Malmberg, 2015). For instance, if one is interested in the relation between neighbourhood unemployment and individual outcomes, it is likely that a relatively large neighbourhood scale would be appropriate, while when examining neighbourhood effects on taking a relatively longer parental leave period as a father may require a smaller scale level; their seeing other fathers with strollers in the local neighbourhood or meeting other fathers with babies in local meeting places may be more important than larger scale influences. Studies on contextual effects have emphasized that spatial flexibility is to be preferred over choosing the “correct” neighbourhood scale (Sampson 2012; Malmberg, Andersson & Bergsten, 2014). Based on a visual analysis of the maps in Figure 1, together with the above reasoning about the appropriate level of examining neighbourhood influences on father’s uptake of parental leave, a scale level of the nearest 200 fathers seems most appropriate and will be used for the remaining analyses.

Figure 3 shows the maps of the six indicators of local gender contracts, using a scale level of 200, so taking into account the 200 nearest neighbours for each individual. Blue levels indicate very low values, while red areas indicate high values. The maps show some spatial similarities between the indicators but also some differences, depending on the indicator for gender contracts. Particularly the indicator for women with high incomes seems to be associated

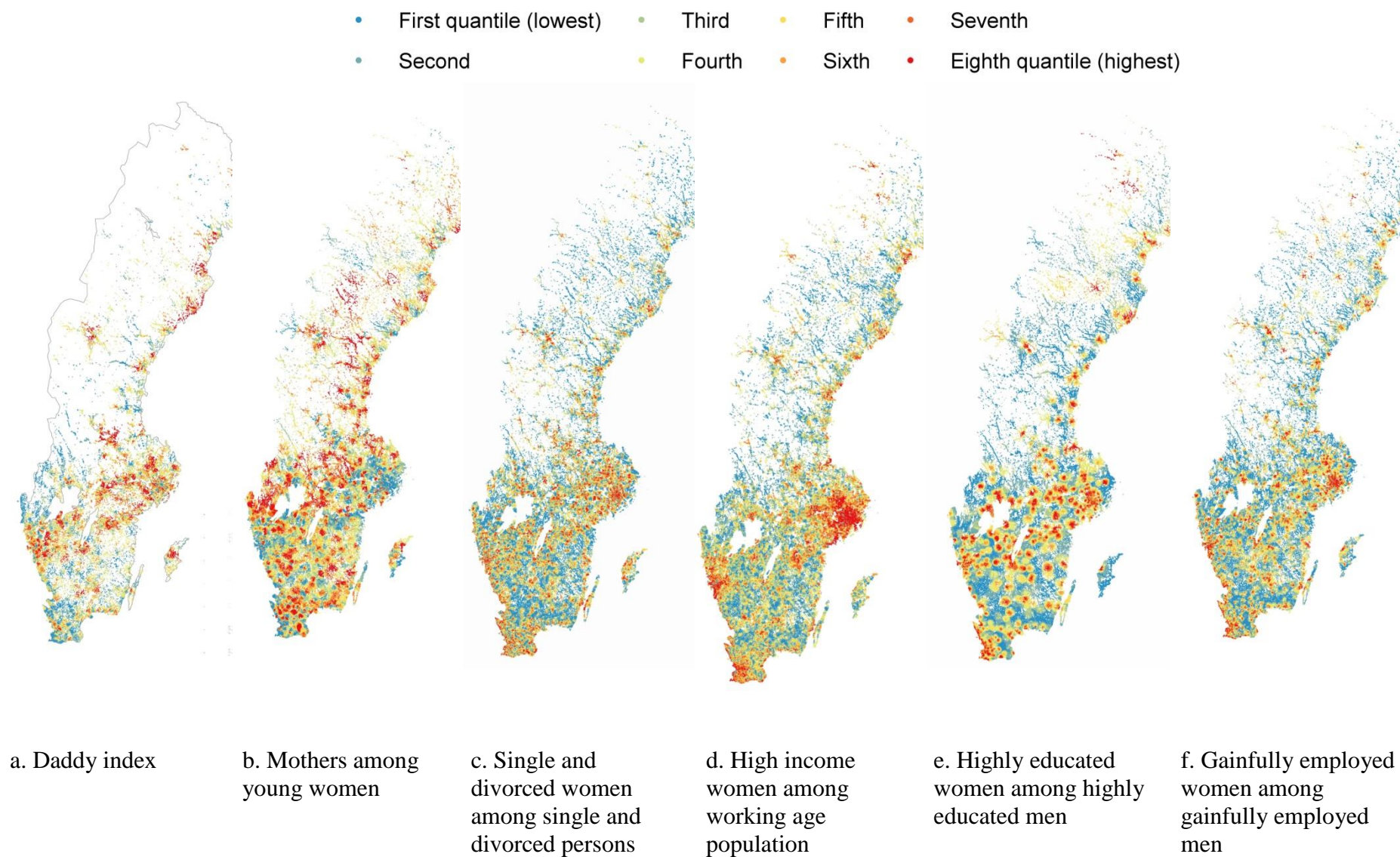


Figure 3. Geographical distribution of indicators of local gender contracts, taking into account the 200 nearest neighbours

to population density, while the geographical distribution of young mothers is more even throughout the country. In general, the patterns for the labour indicators show some similarities. Places with a high share of higher educated women are spread across all populated areas. All of these indicators indicate different aspects of gender relations and gender equality. As we are interested in local variations in gender contracts, we need to combine these variables. Therefore, in the next step, the geographical distributions of these indicators are analysed through a cluster analysis.

Local gender contracts

A cluster analysis was performed using the six indicators of gender contracts in order to reveal possible regional patterns of gender (in)equality and to discover whether geographical clusters on different scales can be identified that indicate local gender contracts. Cluster analysis is useful as it forms clusters of 100 by 100 metre squares that have similar features in the six indicators studied.

Figure 4 shows the five different clusters that resulted from the cluster analysis based on 171,726 populated squares in Sweden. The red areas have been termed areas having a “progressive gender contract” and are characterized by a relatively high parental leave uptake by men, relatively many women being higher educated, many being gainfully employed and having high incomes, and with low shares of young mothers.

In many places, areas characterized by progressive gender contracts are surrounded by purple areas, which have been termed “forerunners gender contracts”. These are similar to progressive gender contract areas, but there are even more women with higher incomes, while the male parental leave uptake is slightly lower.

Legend

- progressive gender contract
- normative gender contract
- forerunners gender contract
- restricted gender contract
- normative rural gender contract

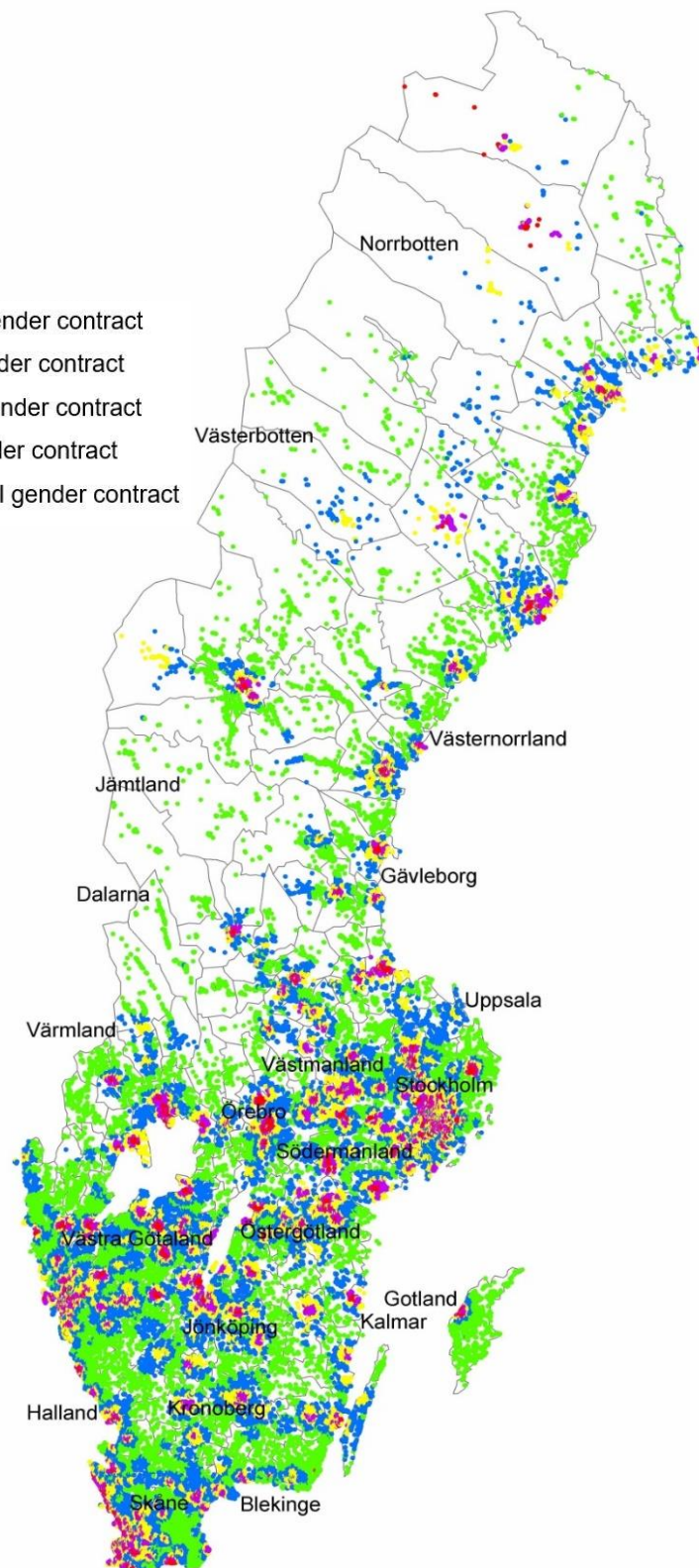


Figure 4.
Gender contract

clusters

Often connected to these areas, are the areas termed “normative suburban gender contracts”, in yellow, where the share of higher educated and employed women is lower, and the share of leave uptake among men is lower. This is the most common gender contract in Sweden.

Next, there is a substantial number of areas that could be termed “restricted” based on how they score on the various indicators. These (green) areas are mostly rural, and women in these places have on average much lower educational levels, lower labour participation rates and lower incomes. In these areas, it is much more common that women become mothers at early ages.

The last contract is the “normative rural” - the blue areas. These areas are often inland, on commuting distance from cities, and have more average male parental leave uptake, slightly lower levels of higher educated women and gainfully employed women, and lower levels of high incomes among women.

Figure 5 zooms in two the geographical pattern of local gender contracts for two different parts of Sweden. The first graph shows a region in Central Sweden, where the big lakes are visible in the middle. These maps show the large variation of gender contracts across space. There is not one dominant contract in any area, but instead, in all places, there are small local clusters. The second map shows the results for the Stockholm area, showing that the forerunners, progressive, and normative suburban gender contracts seem to be the most important local gender contracts, although there also neighbourhoods with more restricted gender contracts.

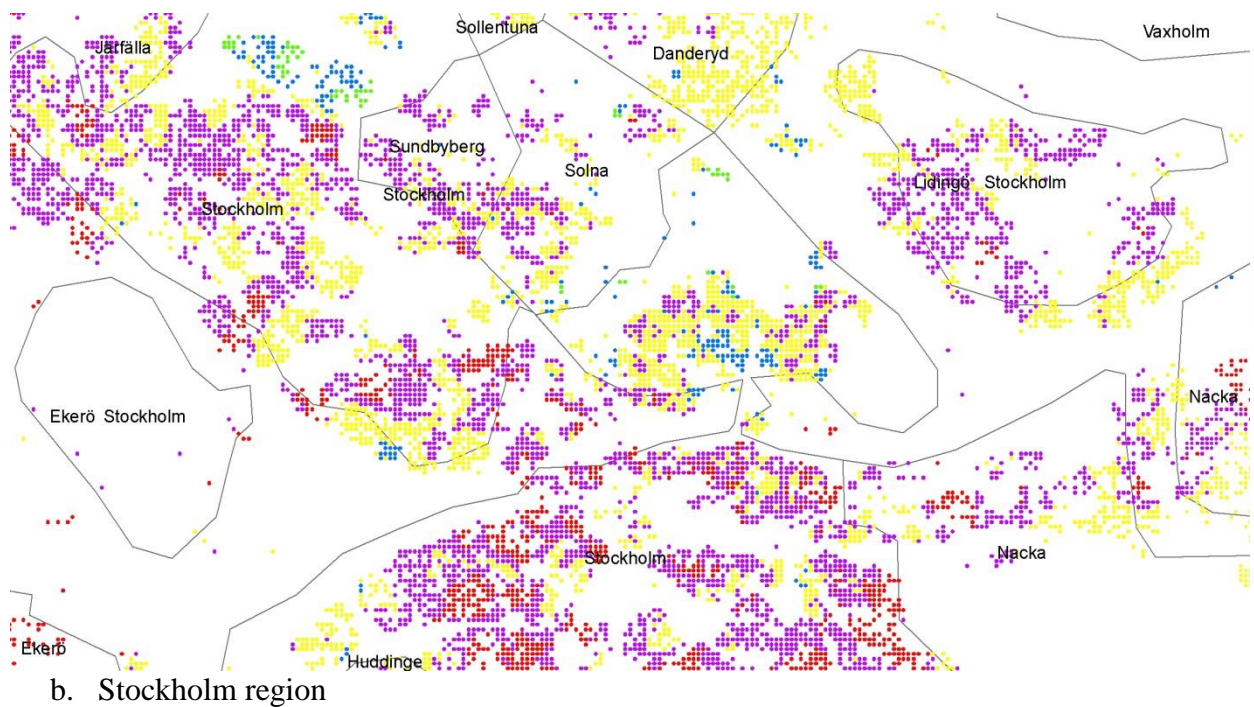
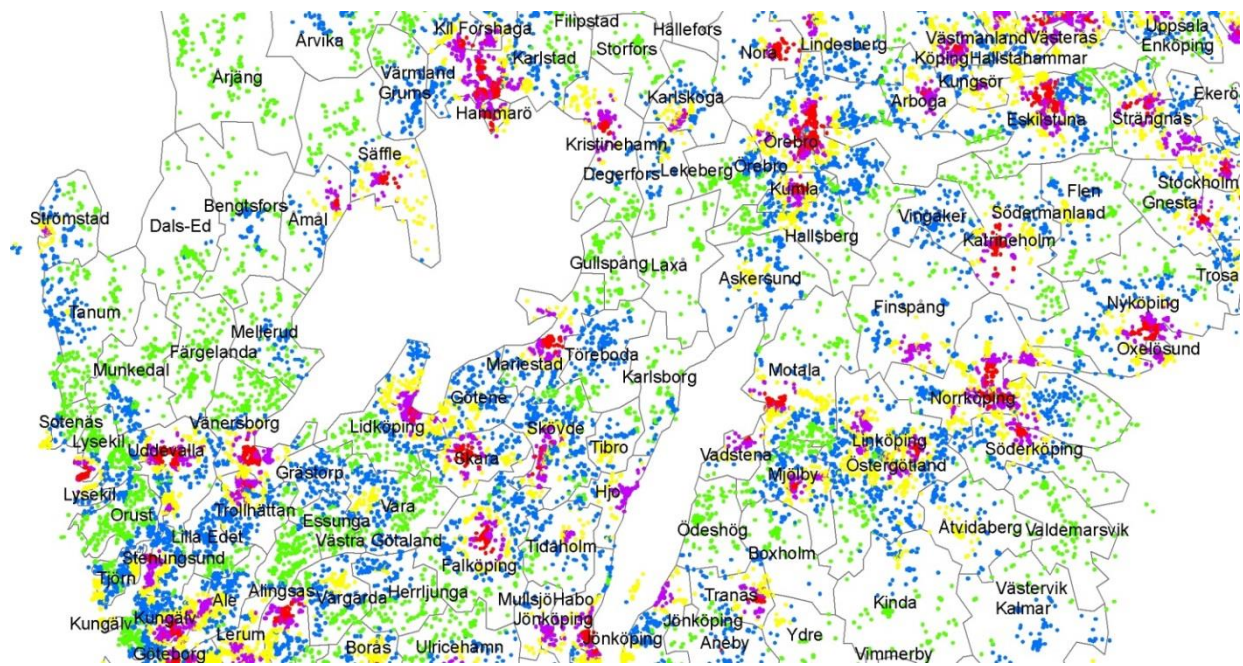


Figure 5. Gender contract clusters zoomed in to two different regions in Sweden'

N.B. For legend see figure 4.

Discussion and conclusions

In this paper, we have mapped different indicators of gender (in)equality using geocoded register data on the complete Swedish population, in an attempt to operationalize the theoretical concept of gender contract and to place gender into spatial context. An improved understanding of localized patterns of gender relations leads to increasing knowledge about how demographic structures, cultural traditions, historical conditions and local labour market conditions work together in creating clustered patterns of gender contracts.

To operationalize gender contracts, we used geocoded register data that has enabled us to examine spatialized patterns of gender contracts for the whole population. The availability of these data combined with the need for more detailed and nuanced analysis (Amcoff, 2001; Duncan, 2000; Forsberg, 1998) prompted us to do the present study. Using individualized neighbourhoods where each individual's nearest neighbours are included to form neighbourhoods, we contribute to a rapidly expanding literature that is better capable of capturing the interaction of individuals with their place of residence and to overcome the many problems related to using administratively defined areas in spatial analyses.

Another improvement compared to previous work in this area that allows us to understand the interaction between individual and neighbourhood in a better way is our multiscale approach, that allows for the measurement of gender (in)equality at different scales at the same time. Shifting the scale of measure makes sense when using gender contract as local context plays a large role in how gender relations are negotiated. This paper has shown that fathers' uptake of parental leave varies substantially depending on the scale of the neighbourhood. There are quite clear regional patterns, with fathers' parental leave uptake being highest in northern and eastern Sweden, but there is also considerable local variation.

The cluster analysis pointed to the existence of regional patterns of gender contracts alongside extensive local variation. No single dominant gender contract appears in each municipality and county, but rather substantial variation of different contracts within short

distances is obvious. Forsberg (2010), based on studies using large administrative units, pointed out that several gender contracts may be in operation in the same region, but that in each region, one dominant gender contract persists. The view of hegemonic regional contract was later challenged by Grimsrud (2011), arguing that several gender contracts may co-exist in space, which is confirmed by our study.

The local variation in gender inequality can be seen as indicators of local gender contracts; the result of negotiations between women and men. They suggest that negotiations are part of local experience and contextualized by both individual household negotiations as well as the broader social context in which that household is situated. This paper advances local gender contract theory by showing its potential for deeper and specific knowledge when operationalized. These findings emphasize the importance of local variance within a gender system thus embedding gender contracts within their geographic context. Our method also adds a deeper understanding to the frameworks in which agency operates with gender contracts. The tangled relations between the metaphysical, institutional and individual components of a gender contract are spatially produced suggesting that agency, or the articulation of agency through negotiation, may be locally contingent. With multiscale patterns of gender contracts we see suggestions that negotiations are locally generated and thus in order to understand gendered relations or practices, considering the scale of gendered practices will yield different understandings.

Even though there are some earlier studies measuring gender contracts locally, it is difficult to compare our results to these previous mapping efforts as the geographical units are different. Obviously, previous results have been aggregates for sometimes very large geographical areas, while we have shown in this paper that within such areas, substantial variation exists. Similarly, to earlier studies on Sweden we note considerable variation within Sweden, a country often considered quite homogenous. We base our measure on the political level on fathers' use of

parental benefits which are part of the national policy which provides same access across the country and to all parents. The character of our measure makes the variation by local gender contracts even more noteworthy.

Using individualized neighbourhoods and applying a multiscalar approach has allowed for a more detailed and nuanced understanding of how individual and structure are related, and how policy and other structural factors work on different scales. These methods have the potential to revitalize the concept of gender contracts by addressing theoretical connections which were previously limited due to the data technologies providing opportunities for more nuanced localized understanding of local gender contracts which may be of interest to policy makers seeking to understand variances within a smaller scale, for example within a region.

In addition could these new indices be a useful resource in planning and also as input in demographic and spatial analyses. By understanding the finer variances of gender contract practices, it is possible to identify neighbours, as well as regions, that are in need of further policy and programme support. One potential positive impact, could be identifying neighbourhoods that oppose stereotypes. For example, neighbours that pass policy makers' radar due to preconceptions or conversely deeper understanding if the equalities in neighbours that are the focus of policy supports.

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Endnotes

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² Parental leave benefits are normally almost 80 percent of the parent's income before the child's birth. There is a maximum to parental leave benefits so that those with high incomes can only receive benefits up to a certain level. In 2010 the income ceiling was 424,000 SEK.

³ Among fathers not taking any leave, a substantial group has very high incomes.

⁴ For fathers with incomes above the income ceiling, the income share was calculated as: $\text{parental leave benefits} / (\text{parental leave benefits} + 424,000) * 100$, using 424,000 SEK instead of their real income.