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Social Capital and Local Growth Within an Urban System

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7.1 Introduction

Existence and establishment of strong social capital is commonly referred to as a significant input to local development, especially in countryside economics. It is without doubt that a rich social capital, as an essential asset for any region, can make a difference between otherwise similar locations with relatively low degree of diversification. However, when the population dynamics of such locations are discussed, the time perspective generally becomes quite narrow; a year, five years, or at the best ten years. As we argued previously in Westin (2006), regional as well as local population development may generally not be understood deeply without a time perspective of at least fifty to hundred years. This is the time perspective necessary to understand the role of a place in the larger urban system.

Given this, it becomes clear that an analysis of the expected future benefits of private or common investments in local social capital has to be made given an understanding of how a location will perform within the slow dynamics of an urban system. Such an analysis should also raise the question if existing historically established social capital is an asset or a burden on current ambitions to develop a location.

An important part of such an, or any, analysis of local population dynamics is to consider the observations made by J. H. Von Thünen in "Der Isolierte Staat" from the middle of the 19th century. With combined empirical and theoretical analyses, as discussed by e.g. Fujita (2000), Von Thünen develops the first approach to spatial equilibrium analysis as well as a discussion of the interplay between agglomerative and centrifugal forces on the location of activities. Currently, this discussion is reinvented and given a more mathematical formulation by researchers within the school of "New Economic Geography". However in reference to our discussion here, the important conclusion is that when population development is a function of the amount of social capital and other assets in a location, the relations and forces between this location and other places in the urban system will also be determinative for the success of an investment in the location.

In order to discuss this impact of the urban system on local development and investments in social capital further, we in this paper initially studies the population dynamics in two counties in Northern Sweden. This emanates in a division of the development in the region into three phases of population-location dynamics. The overall dynamics of the urban system is then analysed within a rank size setting.

Since rank size distributions generally represent structures of unbalanced growth, individual cities and municipalities often change their positions within the urban hierarchy. The impact of existing assets or investments in social capital on the position of a specific location thus becomes dependent on the role of the location in the urban system, its history, and the type of overall development the system passes through. Our analysis of rank size distributions...
give further support to the suggested division of the overall development into an initial phase of agglomeration with growth, a second phase of growth with a tendency to dispersion, and the current period of relative stagnation with a new wave of agglomeration concentration.

The outline of the paper is as follows. In Section 7.2 the development of major cities in relation to each other and the countryside is analysed and three phases of population-location dynamics are suggested. In Section 7.3, the rank size distributions of urban labour markets in Norrland is studied and is found to further improve our understanding of the development among smaller settlements and at the countryside. In Section 7.4 we discuss possible future development patterns and their consequences for the countryside generally, as well as the constraints and possibilities for development in specific parts of the countryside, e.g., in response to investments in social capital. In Section 7.5 we comment on how historically developed social capital may intervene with the current performance of a location in an urban system, while the paper finally is summarised in Section 7.6.

7.2 Three phases of population-location dynamics in North Sweden

As we observed in the introduction, history matters for the understanding of the role of a location in the urban system. In Figure 7.4 below, population numbers for the major municipalities (cities) of the counties Västernorrland and Västerbotten during the years 1810–1990 are represented. The numbers become especially interesting since the spatial extension of each municipality, i.e., the borders of a municipality, is adjusted over the period in accordance with the administrative division of year 1990. Hence, incorporation of neighbouring municipalities, as a response to regional enlargement, will not disturb the representation of the development.

Figure 7.4 illustrates how the colonisation by the Swedes of the region caused a rapid growth of cities in response to export of forest products during the end of the 19th century. Especially the cities Sundsvall, Örnsköldsvik, and Skellefteå experienced a fast urbanisation. However, after 1900 the growth of Sundsvall and Örnsköldsvik are reduced while especially Skellefteå instead continues to grow. This change of spatial focus for the development reflects the new discoveries of ore and establishment of mines, followed by the advance of railways, in the areas above and to the west of Skellefteå. Thanks to that, the export of timber from the inland and the production of agricultural products also could increase. Altogether, the development based on natural resources pushed the spatial focus of the population growth further into the northwest of North Sweden. This second development phase continues into the middle of the 20th century, when a third phase is initiated.

During the third phase, smaller cities start to decline, medium size cities stagnate while the largest city, Sundsvall, once again moves into a track of growth. Also Umeå managed to increase its population at a higher pace. The city Umeå although represents a special case, it was a medium size administrative centre that like its counterpart Härnösand in the south had been growing slowly in response to activities within military services, public administration, education, and energy production. But, after the establishment of a university in the city in the middle of the fifties the city improved its growth and has currently become one of the leading cities in the region.

We will return to the causes behind the development during those three phases in the sequel, but already here suggest that the three phases of local population dynamics in Norrland are characterised by the following properties:
The population-localisation dynamics between 1810 and 1990 in the major municipalities of Västerbotten and Västernorrland. Spatial borders are adjusted to those of year 1990 for each municipality.

Source: 1208, Umeå University.

- 1850–1900; Growth and agglomeration
- 1900–1950; Growth and dispersion
- 1950–2000; Stagnation and agglomeration

The indicated intervals are of course not as exact as suggested by the years, but 1900 and 1950 to some extent represent important dates of reference related to infrastructure construction and introduction of new technologies in the region.

Given this overall development of the cities in Norrland, and making use of the spatial equilibrium and location theory as previously discussed in relation to the work by von Thünen, we may also conclude that the countryside was influenced by this overall dynamics among the cities of the region.

It should thus come as no surprise that the countryside in the inland of Västerbotten developed relatively well until the late fifties. Thereafter, instead the countryside surrounding Umeå and Sundsvall witnessed a more positive development, especially when compared with e.g. the countryside of stagnating cities like Sollefteå, Härnösand, and Vännäs in Västerbotten this pattern may clearly, as in Figure 7.2, be observed as the growth of the population share in the Umeå region compared with the rest of the county.

In Figure 7.2, and thus contrary to the previous Figure 7.1, the spatial borders of the Umeå region are extended from the early 1960 to indicate how other municipalities were integrated into the growing functional urban market (i.e. the common labour market) during the ongoing improvement of roads, cars, and buses.

However, while this relative movement of people from countryside to urban areas continued, Västerbotten as a county showed an overall growth of population. This is in contrast to especially Västernorrland, where the growth in Sundsvall was not enough to compensate for the decline of the other cities in the county. As a result, the Umeå region now contains more than half of the population in Västerbotten. Umeå and its rural surroundings thus is an example of a rather unique growth in an urban area during the post Second World War period. This was indicated earlier in Figure 7.1 and would also be confirmed if a comparison with all Swedish cities was made.

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Continuing with our references to the work by von Thünen, we may here also apply the bid rent theory of von Thünen-Alonso. The theory suggests that land prices in e.g. the Umeå region would increase as a response to population growth. This would imply not only a development of housing nearby the centre of the city but also in the countryside within the extended commuting area. This is also the case, as indicated in Figure 7.3. The figure is adopted from a study of the migration pattern out from the centre of Umeå to the countryside in the Umeå region.

The Figure 7.3 in a nice way illustrates a von Thünen – Alonso pattern of migration that reflects the increasing housing prices in the centre. The figure also in a clear way illustrates how this pattern is distorted by the uneven distribution of nature based amenities, accessibility, and other forms of attractiveness in the region. One would thus expect villages and places in the Umeå area that offer a social capital above the average, such as a local folklore society, to develop more successfully compared with other areas with a similar level of nature based attractiveness. This is also in line with experiences from communication with real estate agents in the Umeå region. However, it is also clear that in a statistically satisfied way, the impact of local social capital on housing prices may be difficult to identify and separate from e.g. accessibility to water, communications, and existing local agglomerations.

7.3 The small settlements in the urban system of North Sweden

In the von Thünen model, as well as in the von Thünen – Alonso model, it is assumed that a centre or town with its countryside and their assets exist but the theory has less to say with respect to the existence and development over time of this town, the relation to other towns and their assets or its relation to the distribution of assets such as social capital in the urban system as a whole. Von Thünen discussed the existence of and reasons behind agglomerations but never had time to present a unified theory of central places such as the one developed by Christaller (1933) or any empirical regularity such as the rank size distribution for cities suggested by Zipf (1932). The contribution of social capital to local growth can not be understood completely if not the constraints and possibilities given by the urban system as such is treated.
In order to introduce this perspective we here extend our analysis of each city over time, as was made in Figure 7.1, into an analysis of the central place structure of the urban system in North Sweden in terms of a rank size analysis. In Figure 7.4, the rank size distributions of municipalities in Norrland are given for five years.

The movement of the distributions upwards over time reflects the overall growth of the population in the region. Given this, three interesting observations may be made while analysing those distributions. First of all, we may observe the rapid growth of the population among the larger cities with a high rank to the left in Figure 7.4 during the period between 1850 and 1900. Previously we characterised this period as the "Growth and agglomeration" period.

Secondly, we may observe how the development between 1900 and 1950 instead is quite even over the whole distribution. This is due to the establishment of smaller cities in response to development of mines, forestry, water power stations, and railways in the west and the north of Norrland. Contrary to the previous period, the relative growth seems to be especially strong among medium sized and smaller cities. This period previously was characterised as a period of "growth and dispersion".

Thirdly, after 1950 this process again is reversed due to mechanisation of agricultural and forest production. Larger cities once more came into the focus of growth, while smaller cities instead fell back to their population levels from the period around 1900. We named this period as the period of "stagnation and agglomeration".

If we summarise this process, one may suggest that the agglomerative development during periods 1850–1900 and 1950–1990 more are in line with the general development within an
Figure 7.4. The rank size distributions of municipalities in Norrland during five years. The spatial extension of each municipality is given by the borders of 1990. Source: LÖH, Umeå University.

Figure 7.5. A characterisation of the dynamic phases given by the population-localisation pattern in Norrland from 1850 to 2000.

A system of an industrialised economy, while the period 1900–1950 represents a less usual case of dispersed growth forced by the recent colonisation of a region without existing larger cities.

Clearly, over time the region has been moving around in three of the four possible fields originating from the four fundamental forces: growth, decline, agglomeration, and dispersion. In Figure 7.5 we have illustrated the dynamics of this process with grey arrows from the initial “growth with agglomeration” (1) over to the second “growth with dispersion” (2) and down to the third “stagnation/decline with agglomeration” (3). We will return to the hypothetical black arrow for the period after year 2000 below.
7.4 Possible futures for localisation in North Sweden

How will then the future pattern of localisation in Norrland realise itself? As always, it is easier to explain a historical process compared with making predictions. Fundamentally, the same forces that were discussed above will continue to characterise the future development. The region will find its new position somewhere in the field of growth/decline and agglomeration/dispersion. Also each city and each part of the countryside will be placed or placed itself somewhere in the field. The position of each location will be dependent on the assets available in the location but also the assets and thus the development in all other integrated locations. This fundamental law of spatial dependence is part of any economic system as suggested by the theory of spatial price equilibrium or the von Thünen model of land use.

In this orientation into the future there are, as we also did previously in the paper, two interlinked questions to discuss. How will the region place itself in the overall picture of Figure 7.5 and, secondly, how will the rank size system of settlements in the region develop? Neither of these may be given a definite answer instead each prediction has to be connected with a subjective probability on its realisation.

If we start with the first question, we would then give a movement to south-east in Figure 7.5 with a combination of stagnation and a dispersed settlement pattern the least probability. This would then be the least possible alternative. It may although be the outcome of a collapse of the urban areas e.g. from a non-sustainable waste handling, traffic jams, destruction of urban social capital or global epidemics. Instead, in a post-industrialised knowledge society that maintains secure public space and offer attractive housing, outcomes with agglomerative tendencies are more probable. A positive development in the countryside is although still possible, especially near larger agglomerations, as a form of regional enlargement, but with changed land use.

Hence, the development in the countryside of Norrland to a large extent will be governed by the overall population development in the region. During the last fifteen years, Norrland has passed through a period of stagnation, where only some mountain areas and the university cities have managed to develop positively. But this was also a period when birth rates in Sweden generally were low. At the same time as, or as an explanation of this, there was an increased enrolment into higher education with increasing migration from sparsely populated areas and smaller cities into the university cities. When, as a response to the increase of educated young people, also knowledge industries and private services started to grow, the small towns in Norrland had little to offer while metropolitan areas in the south were favoured. Today this movement into the metropolitan areas is not as extreme as it was then and also some medium size and natural resource oriented cities in Norrland are growing.

This gives arguments for at least a positive probability for the location-population dynamics in Norrland to move back to the growth and agglomeration corner in Figure 7.5, where the region was in the end of the 19th century. Also the fact that at a global level, population still increases and with some possibility also Norrland may offer locations with such qualities that the region may attract if not a constant share of the world population or even of the Swedish population so at least a share that secure an overall positive population growth. But perhaps more probably the region will move into a zone between growth and stagnation. For the countryside this would generally imply a continuous pressure on the less attractive areas.

The second question that will determine localisation and the pressure on the countryside is related to the development of the urban system in Norrland? As was indicated by inspection of the major municipalities in Figure 7.5, and also become even clearer from the continuous line in Figure 7.6 where the number of employees in functional urban areas are ordered in

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Figure 7.6. The continuos line is the actual rank size distribution in 2002 (in terms of employees) of the urban system (here functional urban areas from commuting-labour markets) in Norrland. The dashed line is a theoretical rank size distribution given the same total employment and if Zip’s law would be followed. The position of each functional urban area may in this theoretical case not follow the actual distribution.

A rank size pattern. The current rank size system of Norrland has a very flat top with four labour markets within a small range, and where Umeå, the fastest growing city is the fourth, indicating a possible development into an even flatter top in the future.

The flat top of the urban system illustrates how Norrland lacks a natural capital. Instead the region consists of four to five relatively independent sub regions and actually is very dependent on the Stockholm area with which each sub region in many respects has a better accessibility and mental connection with, compared with the other sub regions. This is an outcome from the relatively strong county structure in North Sweden.

Previously we found it probable that Norrland would place itself in the filed of stagnating or slowly growing population. Given the urban structure without a natural leader, we could image how the urban system would look like if Norrland instead had developed or will develop into a more internally integrated and independent area with one administrative and leading centre, or if the forces of agglomeration turns one of the cities into such a main city (which would give the same outcome in terms of independence). With the assumption of constant population but adding Zip’s conditions on an urban system, the system in this case seems to go through two major changes, as indicated by the dashed line. First of all, cities with a rank around three to ten would decline in order to give place for the new large urban centre in the region. Secondly, small cities instead would have a tendency to increase in size in response to the deceased penetration from the declining medium sized cities. This would then be advantageous for the smaller settlements and the countryside around those.
Before we conclude this section, two comments are appropriate. This analysis was dependent on the assumption of constant population. However, there is a positive probability that the population in the region will increase. In such a situation, the whole rank size distribution would move upwards again and there is a chance that centrifugal forces such as congestion, property prices, and wages would force activities out into the countryside.

The second remark is although questioning this last possibility. An important condition for this dispersion is that also in the knowledge society, the countryside offers attributes demanded by an increasing number of people. Moreover, those environments may eventually be developed very near existing cities. The cities of Norrland have very low densities, and there is thus a possibility that the rank size distribution of a future knowledge oriented Norrland instead moves into an even steeper direction, as has been the case during the last fifty years and as was indicated by our simulation in Figure 7.6. An increased urban density and an ongoing pressure on the countryside may hence be a possible outcome even if the overall population is growing.

7.5 Understanding the relation between historical social capital and the performance of a location in an urban system

An important conclusion from the previous discussion is that the development in the countryside of North Sweden highly will be dependent on the assets that may be mobilised in each location and made visible internally and externally. Social capital has a role to play here but, as discussed in Westlund (2006), social capital is not a category with a common definition, simple measures, and thus not easy to aggregate and communicate. Independent of this, social capital is an "asset" that may be observed both in civic society, e.g. Putnam (1993a, 2000) and in social networks of firms as Johansson and Westin (1994) suggested. This lack of common definitions limits the analysis of the interaction between social capital, location-population dynamics, and urban systems but does not prevent a discussion of the topic.

We could refer to social capital as the degree of community existing in "a group" based on a common understanding of some mutual interest. In our case, where we have an interest in the interaction between the local area and the urban system of a region it becomes important to discuss the sort of visions and ideas that are common, communicated, and idealised to be in favour for the larger region and its inhabitants.

Norrland was colonised by the Swedes during a rather short time and with a combination of agricultural production, trade, and export of natural resources in a region that initially had limited communication possibilities. As Lundgren (1979) observed, the economy of North Sweden in much has developed in a similar way as the Canadian economies that by W. A. Macintosh and Harold Innies (1930) were identified as "staple economies". In such economies political institutions and power are organised in order to extend the existing export oriented production, e.g. instead of developing new "urbanity" in the region, an urbanity that many of the settlers maybe considered as an unattractive environment. One may although assume that the increased share of "heavy" commodities such as timber and minerals, and later the construction of water power stations, made the new inhabitants positive to manpower saving technological improvements and other forms of new technology. This would then add to the explanation of the rapid introduction of new means of production during the fifties in the region.

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Such a positive attitude towards “modernisation” and a social capital consisting of a strong vision among many leading representatives and common people both inside and outside the region, of North Sweden as an export region for natural resources but less of an urbanised service and knowledge economy, made the transition of the economy into a more urban structure difficult.

The attitudes towards development has although varied over the region. Once again referring to the staple theory, such differences may be sought in differences in the type of commodities dominating the export and thus the scale of production and organisation of work in different parts of the region. One would thus expect disparate political structures to develop over the region that also would be represented by a heterogeneous social capital. Such differences would then later on be extended to the cities at the coast when people moved from the inland to the coast and to some degree also from the south to the north an exploited their social capital in the new urban environments.

7.6 Conclusions

In this paper we have analysed the location dynamics of population in North Sweden during two hundred years. We have made this in order to understand the constraints and possibilities given by the urban system in relation to existing and new investments in social capital. We have identified three phases with different dynamics and characterised those in terms of growth/decline and agglomeration/dispersion. Especially we found the first half of the 20th century to be characterised by population growth and spatial dispersion, in sharp contrast to the previous hundred years. During this period the urban system was positive to and supporting for development in the countryside and in less populated areas. When after the Second World War, the agglomerative forces in Norrland again determined the process both total population entered a phase of stagnation and pressure on the countryside became more intense.

Given the dispersed development in the previous period, the tension such a major switch caused on the existing settlement pattern may be understood. Moreover, as was shown by the presented simulation of a region with a stronger internal urban centre, the future may not only be filled with changes for the countryside but also for the urban areas. This reciprocity, with its constraints and possibilities on development of local assets is typical for the economy of an integrated urban system. If in line with Macintosh and Imrie’s “Staple theory,” the dominating value system and institutional structures had formed a social capital that was negative to a new urbanity this further added to the vulnerability of the region in its response to the emerging service and knowledge economy. Given this, an important task for the region seems to be to invest in a social capital that may be an asset for a region that is capable to combine urbanity with development of natural resources.
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