



Territorial Cohesion in Denmark, Finland, Norway and Sweden 2007 and 2017

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ABSTRACT

To what extent territorial cohesion is achieved or not, due to the EU Cohesion Policy, national regional policies, or globalization forces, is debated. This paper aims at discussing territorial cohesion at a NUTS 3 level in Denmark, Finland, Norway and Sweden for 2007 and 2017 by using the Territorial Cohesion Development Index. The findings indicate a) that bigger cities and highly urbanized regions in Denmark, Finland and Sweden perform very well in the Territorial Cohesion Development Index, while non-core and peripheral regions fell further behind; and b) all Norwegian regions and the Åland Islands have high scores in the Territorial Cohesion Development Index. The findings indicate a need to resuscitate the national regional policies in Denmark, Finland and Sweden to counteract the increasing gap between the capital region and the rest of the regions.

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Introduction

The global financial crisis in 2009 illuminated the fact that crises have an uneven spatial distribution. Not only were some countries hit particularly hard than others but also some regions (Hadjimichalis, 2011). Regions with cities tend to be more resilient against economic and financial crises than regions without major cities (Capello et al., 2015). Empirical findings suggest that some larger cities (usually capitals) play a significant role in their national economies in all periods, while second-rank cities play an important role for certain periods of time (Camagni & Capello, 2015).

Recent studies point at the globalization and the economic integration processes have favoured large urban agglomerations leading to economic expansion and productivity growth. Parallel to this, peripheral, deindustrialized, and remote rural areas have experienced the opposite development. This is a rather global phenomenon (Garcilazo & Oliveira Martins, 2020). In the EU Member States between 2006 and 2016, this can be observed at a NUTS2-level. While regions in Central Europe did benefit from the development, regions in peripheral EU Member States were losing out (Rauhut & Costa, 2020, 2021).

Several studies have raised serious doubts on the effectiveness of development policies and the long-run convergence of European regions (Bachtler et al., 2016; Bakucs et al., 2018; Becker et al., 2018). Other studies have concluded that the wealthiest regions have

benefitted more from the ECP and its funds than those which are less wealthy (Medve-Bálint, 2016; Nagy & Benedek, 2021; Serbanica, 2021), despite the larger concentration of EU funding going to lagging regions. Moreover, the place-based approach adopted following the report by Barca (2009) means that local actors are given increased responsibility for the territorialized economic and social agenda, thus leaving the challenges of peripheries to be addressed in the policy responses of local authorities. Unfortunately, these actors do not have tools to address these challenges (Gruber et al., 2018; Isola et al., 2017; Servillo, 2019; Solly, 2016).

One of the EU's main objectives is to strengthen its economic, social, and territorial cohesion (Sielker et al., 2021). The formal recognition of a territorial policy aspect came when "territorial cohesion" was added to the policy objectives of economic and social cohesion in the Lisbon Treaty of 2009 (Faludi, 2016a; Mendez, 2011). In order to do so, five major funding streams are used in the EU Cohesion and Structural Policies: the European Regional Development Fund (ERDF), the European Social Fund (ESF), the Cohesion Fund (CF), the European Agricultural Fund for Rural Development (EAFRD) and the European Maritime and Fisheries Fund (EMFF). Today, these funding streams provide an overall integrated package for regional development support (McCann & Ortega-Argiles, 2021). Moreover, operating within a unified and coherent framework, the EU Cohesion Policy is the world's largest regional

development policy programme today (McCann, 2015). However, the EU Cohesion Policy has been accompanied by broader developments, such as increasing regional disparities and spatial disintegration, a development which is contradictory to its goals (Evrard & Chilla, 2021; Faludi, 2021; Humer et al., 2021), which highlights the need to measure territorial cohesion.

Several scholars have emphasized the need for a tool with which to measure territorial cohesion (Faludi, 2016b; Hamez, 2005; Hanell, 2015). What is needed is a quantitative measurement, which covers key indicators for territorial cohesion in the EU Member States. However, only a few attempts to measure territorial cohesion has been made. Some have either featured a descriptive benchmarking tool, using a spider chart or radar chart (Zaucha & Böhme, 2019), or have an unclear methodology (Medeiros, 2013). This issue has also been addressed by two commissioned reports that have tried to address this issue (ESPON, 2014; Tillväxtverket, 2016). A more recent attempt to measure territorial cohesion quantitatively at a NUTS2 level in the EU Member States is based on the “Territorial Cohesion Development Index” (Rauhut & Costa, 2020, 2021). However, the NUTS2 scale in the Nordic countries is an awkward scale with no practical relevance.

The aim of this paper is to discuss the development of territorial cohesion at a NUTS 3 level in Denmark, Finland, Norway and Sweden for the period 2007–2017, i.e., before and after the financial crisis, by applying the “Territorial Cohesion Development Index”. The following questions will be answered: (1) What type of NUTS3 regions grew stronger during this period? (2) What type of NUTS3 regions lost out during the same period? (3) How can the changes in territorial cohesion be explained?

Globalization, regional development and regional policies

While globalization has favoured large urban agglomerations, resulting in increased productivity and economic growth, peripheral, deindustrialized, and remote rural areas have experienced the opposite development (Garcilazo & Oliveira Martins, 2020). The shift in ECP after the financial crisis 2009 from cohesion to competition and from weaker regions to cities indicates a stronger policy focus on cities and city agglomerations (Faludi et al., 2015). This has weakened the weak regions even more, coining the term “places that don’t matter” (Rodríguez-Pose, 2018).

Even if the ECP did not shift to favour cities and large-city agglomerations after the financial crises, it would not have helped weak Nordic regions in need of help.

First, there is a discretion problem with the ECP. The tools chosen for the ECP policy implementation are the Open Method of Coordination (OMC) and the soft law (Schmeitz, 2005; Schön, 2005). The effectiveness of OMC relies on a form of peer pressure and naming and shaming as no member state wants to be seen as the worst in a given policy area (Pochet, 2005). In effect, a MS can do *cherry picking* and only implement the ECP policies it likes. There are *no penalties* for laggards or countries that construct ECP paper tigers (Schön, 2009). Social policy is not at the discretion of the EU Commission, but of the MSs (Schiek, 2013), which means that the social dimension of the ECP only can complement initiatives by the MSs.¹ In order to avoid trespassing at the discretion of the MSs, the policy initiatives have to be vague, general, and non-binding.

Second, Denmark, Finland and Sweden have few regions eligible for ECP support and these countries are net contributors to the EU budget (Lindqvist, 2010; Neubauer et al., 2007). Since the Nordic regions are seldom eligible for support, a more active ECP focusing on peripheral, deindustrialized, and remote regions would have been of little help.

Another way to support weak or lagging regions, peripheral and/or remote, would be to use a traditional national regional policy. The analysed countries have used different strategies here, with Sweden and Norway as polar opposites and with Denmark and Finland in between. When Sweden became an EU member in 1995, some of the traditional tools and support strategies used were thus simply not compatible with the EU competition rules (Gruber et al., 2018). A new cross-sectional policy was introduced in 2001, in which regional policy should be included in other policy areas (ITPS, 2005). Cooperation and coordination between government authorities and existing policies were supposed to be more efficient in solving the problems regional policies traditionally aimed at to solve (Näringsdepartementet, 2000). In reality, this did not happen, and the positive effects are still absent. The responsibility for regional development is spread between so many different actors, of which few have discretion to act, that nobody is in charge of regional development issues in Sweden (Gruber et al., 2018).

Norway is not an EU-member but is obliged to adopt EU-regulation in order to gain access to the Inner Market (EFTA, 2020). When it comes to Regional Policy and Cohesion Policy, Norway has participated in the INTERREG programme since 1996 and has a bilateral agreement with the EU interregional programmes under the EU’s Regional Policy (The Mission of Norway to the EU, 2016). As the EEA agreement does not contain any mandatory clauses on the regional policy, Norway

has been able to continue with its traditional regional policy and spiced it with EU policies it found interesting (Europautredningen, 2012; Kommunal og regionaldepartementet, 2013).

Method and data

We will use the Territorial Cohesion Development Index (TCDI) developed by Rauhut and Costa (2020, 2021) for monitoring the development of territorial cohesion. In this index, Rauhut and Costa (2020, 2021) set the minimum and maximum values in order to transform the indicators expressed in different units into indices on a scale of 0 to 1. The component indicators are then standardized (Equation 1a, 1b).

When the minimum and maximum values have been defined, the dimension index for a certain indicator I_x can be calculated (see Equation 1a). For indicators with the goalpost x_{max} , the denominator is replaced by the defined target value.

$$I_x = \frac{X_{actual} - X_{min}}{X_{max} - X_{min}} \quad (1a)$$

For indicators, such as the share of the population aged 65+ years, the share of population at risk of poverty and social exclusion, and the youth unemployment rate, having a high value, is not positive. Hence, the dimension index controls for this by inverting the indicator value as in Equation 1b.

$$I_x = 1 - \frac{X_{actual} - X_{min}}{X_{max} - X_{min}} \quad (1b)$$

The TCDI is the arithmetic mean of the dimensions' indices included:

$$TCDI = \frac{(I_x + I_y + \dots + I_n)}{n} \quad (2)$$

Changes in TCDI over time are calculated as follows:

$$\Delta TCDI = TCDI_{t+1} - TCDI_t \quad (3)$$

The Territorial Cohesion Development Index (TCDI) is built on 10 indicators of which three indicators focus each on the three dimensions of the ECP (Table 1). Aside from these three dimensions, energy sustainability is also given priority from a territorial perspective. Europe 2020 has five explicit targets covering employment, education, poverty, innovation, climate change and energy sustainability (CEC, 2010a). It is, however, difficult to analyse climate change from a territorial cohesion perspective (Dijkstra & Athanoglou, 2015). The chosen indicators are based upon EU policy documents expressing cohesion targets to achieve. The EU targets on employment, education, poverty and energy

Table 1. Cohesion policy dimensions and indicators.

Dimension	Indicator
Economic cohesion	Purchasing power standard (PPS) per inhabitant Employment rate for 20–64 years Share of population 30–34 years with tertiary education
Social cohesion	Share of population 65+ Share of population at risk of poverty and social exclusion Share of unemployed 15–24 years
Territorial cohesion	Km motorway per 1,000 km ² Share of population with access to internet at home Number of medical doctors/100,000 inhabitants
Sustainability	Share of renewable energy production

sustainability are explicit: the employment rate should be at least 75%; at least 40% of the population aged 30–34 years should have a tertiary education; the population at risk of poverty and social exclusion should not exceed 19.5%; the share of renewable energy should reach at least 20% of the total energy production (CEC, 2010a); and at least 50% of all households in the EU should have access to broadband (CEC, 2017).

The remaining five indicators are related to five “territorial keys” proposed to strengthen the territorial dimension of the Europe 2020 agenda and the ECP. These keys are (1) accessibility, (2) services of general economic interest, (3) territorial capacities/endowments/assets, (4) city networking and (5) functional regions. Accessibility, transport, e-connectivity and social services of general interest are focal points derived from these five territorial keys (Böhme et al., 2011; Zaucha et al., 2014). Indicators such as the number of medical doctors per 100,000 inhabitants (social services of general interest/welfare provision), km of motorway per 1000 km² and broadband connection (accessibility, transport, connectivity, city networking), and the share of persons aged 65+ and the share of unemployed aged 15–24 (territorial capacities/endowments/assets and social services of general interest/welfare provision) can be used as “territorial keys” (Rauhut & Costa, 2020, 2021).

The share of the population aged 65+ years is acknowledged as a challenge, and the employment rate must be increased to 75% in order to mitigate the impact of an ageing population (CEC, 2010a). Regions with a youth unemployment rate exceeding 25% receive extra support from the EU to include these young adults in the labour market and reduce the share of “NEETs” (Not in Education, Employment or Training). The target is to lower youth unemployment below a level of 10% (CEC, 2016). Lastly, a possible indicator to identify the economic capacity of a region is GDP per capita in purchasing power standards.²

The 10 indicators used follow the indicators used by Rauhut and Costa (2020, 2021): GDP/cap, employment

Table 2. Data overview.

Indicator	Data	Origin of data
PPS	DK – NUTS3, 2007–2017; FI – NUTS3 2007–2016; NO – NUTS3 2008–2016; SE – NUTS3 2007–2016	Eurostat
EMP	DK – NUTS2 2008–2018; FI – NUTS3 2011–2018; NO – NUTS3 2006–2018 except NO061+ NO062: 2006–2017; SE – NUTS3 2005–2018	Statistics Denmark, Statistics Finland, Statistics Norway, Statistics Sweden
EDU	DK – NUTS 2007–2018; FI – NUTS3 2011–2018; NO – NUTS2 2000–2018; SE – NUTS 3 2005–2018	DK: Eurostat, Statistics Finland, NO: Eurostat; Statistics Sweden
YOU	DK – NUTS2 2008–2018; FI – NUTS3 2007–2018; NO – NUTS2 2000–2018; SE – NUTS3 2008–2018	DK: Eurostat, FI: SOTKANet, NO: Eurostat; SE: Public Employment Service
AGE	DK – NUTS3 2007–2018; FI – NUTS3 2000–2018; NO – NUTS3 2006–2018 except NO061+ NO062: 2006–2017; SE – NUTS3 2000–2018	Statistics Denmark, Statistics Finland, Statistics Norway, Statistics Sweden
PEX	DK – NUTS3 – 2008–2018; FI – NUTS3 2000–2018; NO – NUTS3 2010–2018 except NO061+ NO062: 2010–2017; SE NUTS2 2008–2010, NUTS3 2011–2018	Statistics Denmark, Statistics Finland, NO: NAV, SE 2008–2010: Eurostat, SE 2011–2018: Statistics Sweden
ROA	DK – NUTS2 2007–2018; FI – NUTS2 2000–2018; NO – NUTS2 2004–2017; SE – NUTS2 2000–2017	Eurostat
INT	DK – NUTS2 2008–2018; FI – NUTS2 2006–2018; NO – NUTS2 2006–2018; SE -NUTS2 2009–2012, 2014–2018	Eurostat
MED	DK -NUTS2 2007–2016; FI – NUTS3 2012; NO – NUTS2 2002–2017; SE – NUTS3 2000–2017	DK: Eurostat, FI: SOTKANet, NO: Eurostat, SE: National Board of Health and Welfare
ENE	DK, FI, NO, SE – NUTSO 2004–2017	Eurostat

rate, share of population aged 30–34 with tertiary education, youth unemployment rate, share of 65+ years, share of population at risk of poverty, km of motorway per 1000 km², the number of medical doctors per 100,000 inhabitants, share of households with access to broadband and share of renewable energy.

No index is better than the statistical data that is used: poor data lead to a poor index. In the context of this study, the amount of missing data for the selected indicators for years and entities is surprisingly small. An overwhelming majority of the studies in the literature review above are based on NUTS2 data. However, the data for Denmark, Finland, Norway and Sweden at NUTS3 level are relatively complete (see Table 2) allowing a comparative analysis.

Results

The results of the TCDI for Denmark, Finland, Norway and Sweden 2007 and 2017 are displayed in Figures 1 and 2. A marked result for 2007 is the relatively low scores for Denmark, Finland and Sweden outside the capital regions. The scores for Norway are generally higher than for the other countries and more evenly distributed within Norway. That Norway would score high was expected, and so were the high scores for capital regions in Denmark, Finland, and Sweden (Figure 1).

In 2017, the TCDI shows that, generally, regions with large cities, i.e., cities exceeding 100,000 inhabitants, have increased their TCDI scores. Although the TCDI scores are, generally, lower in 2017 than in 2007, the surveyed countries were relatively unaffected from the financial crisis 2008–2009.

When comparing the scores for the TCDI for the two analysed years, the most interesting results appear (see Figure 3). All but one Danish region displays a negative trend in the TCDI scores and all, but three Swedish regions display a negative trend. However, the four regions with a positive value only display a very modest positive development. Moreover, 15 out of 19 Finnish regions display a negative development in the TCDI score. Three of the regions with a positive development of the TCDI score display a modest increase, while one region boosts its TCDI score. In Norway, however, only nine of 19 regions display a moderate negative development, while six regions display a moderate positive development of the TCDI score. Additional four Norwegian regions display a boosting TCDI score between the two studied years.

At first glance, the dominant negative trend for Denmark, Finland and Sweden was unexpected as was the marked positive trend for Norway. It gives the impression that the gap between the capital areas in Denmark, Finland and Sweden increases, while the gap between the capital region in Norway and the rest of the country appears to be narrowed.

The NUTS3 regions with the highest TCDI score in 2007 are capital regions or regions neighbouring the capital region (Table 3). In 2017, eight of the 10 regions among the top-10 performing regions are the same; the dominance of regions with big cities or being located in the vicinity of the capital region prevails.

When analysing the type of regions that have benefited from the existing policy framework 2007–2017, using the TCDI developed in this paper, these regions display several common characteristics. According to the regional classification by ESPON (2011), six of the ten regions with the highest TCDI scores in 2007 are located

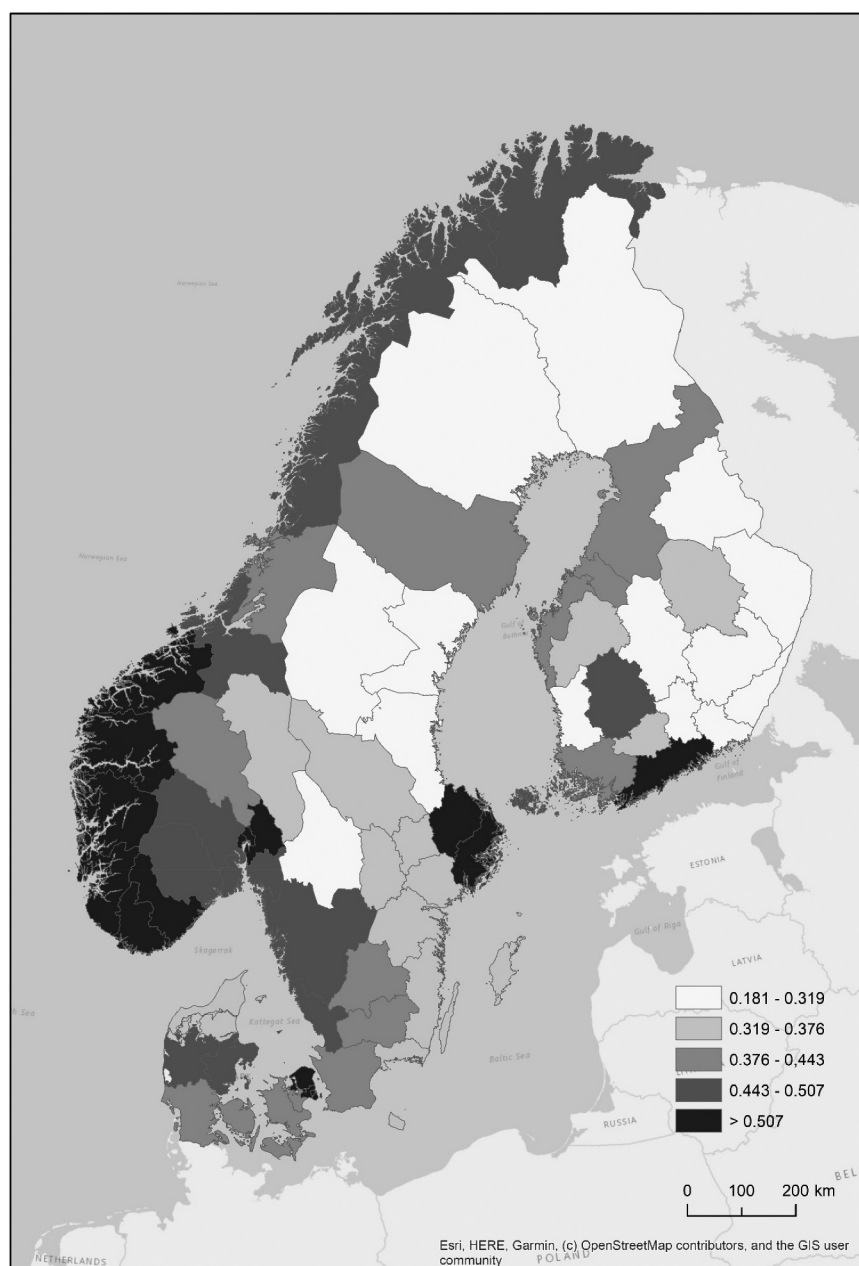


Figure 1. Territorial cohesion development index 2007. Source: Own elaboration.

classified as “predominantly urban region”, and “capital city region” (Oslo, Akershus, Københavns omegn, Byen København, Stockholms län and Helsinki-Uusimaa). Three of the ten regions are classified as “Intermediate region, close to a city” (Rogaland, Hordaland and Vest-Agder), and two of them as “second tier metro region” (Rogaland, and Hordaland). Only one region is classified in a completely different way: “mountainous” and “predominantly rural region, remote” (Møre og Romsdal).

In 2017, the six regions classified as “predominantly urban region” and “capital city region” appear on the same list, and so do the two regions classified as “second tier metro region”. The region Møre og Romsdal has

been replaced by Sogn og Fjordane as “mountainous” and “predominantly rural region, remote”, and Sør-Trøndelag has replaced Vest-Agder as an “Intermediate region, close to a city”. Since Sør-Trøndelag enters the top-10 list of highest TCDI score in 2017, it means that a region with almost 200,000 inhabitants enters the list. In 2007, eight of the ten regions performing the best hosted cities exceeded 100,000 inhabitants; in 2017, it was nine of the ten regions.

When the bottom 10 performing regions in 2007 and 2017 are analysed, it is clear that they can generally be considered as peripheral and sparsely populated regions

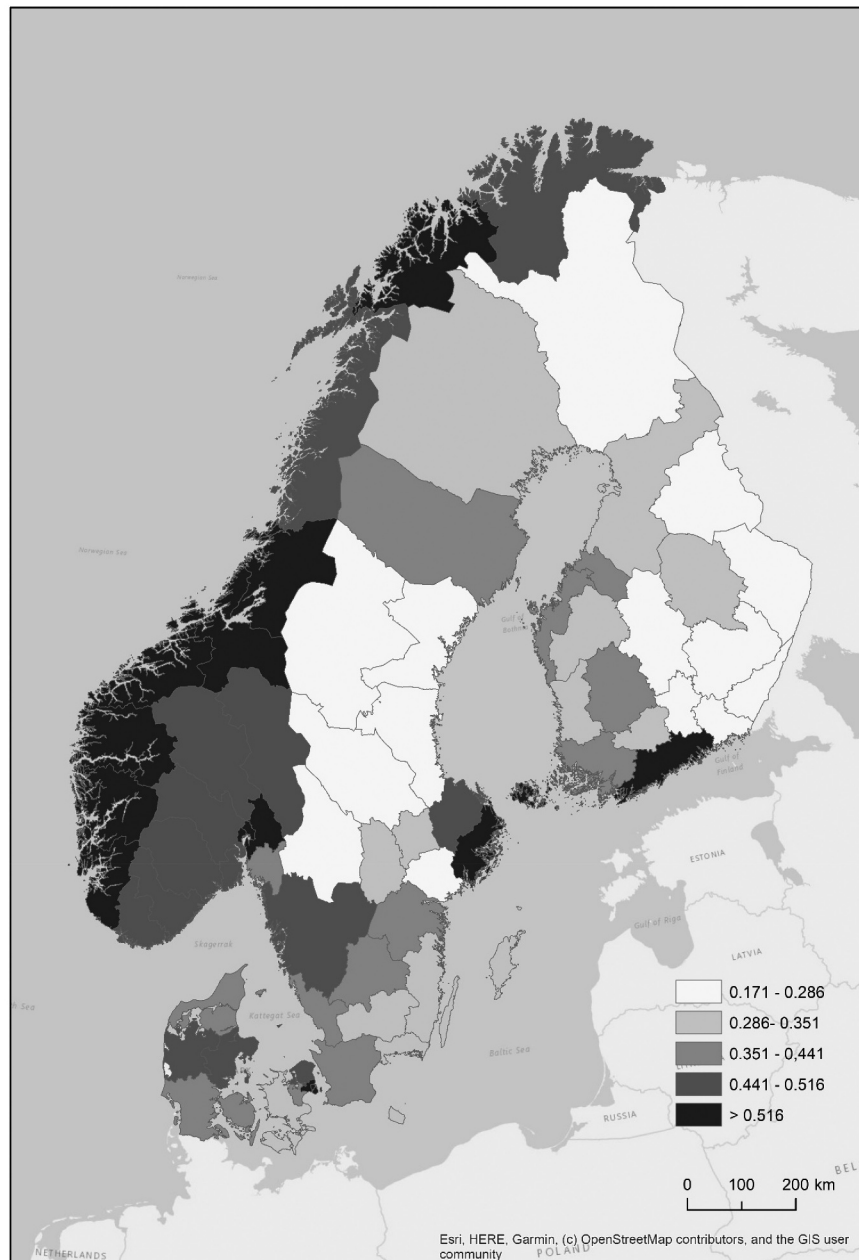


Figure 2. Territorial cohesion development index 2017. Source: Own elaboration.

(Table 4). In 2007, among the bottom-10 performing regions in the TCDI, three were Swedish and seven were Finnish. According to ESPON (2011), seven of them are classified as “intermediate region, remote” (Norrbottens län, Kymenlaakso, Etelä-Karjala, Lappi, Etelä-Savo, Pohjois-Karjala, and Kainuu), one as “intermediate region, close to a city” (Päijät-Häme), one as “predominantly rural region, remote” (Jämtlands län), and one as “predominantly rural region close to city” (Gävleborgs län). Four regions are also classified as “region with industrial branches losing importance” (Gävleborgs län, Päijät-Häme, Kymenlaakso, and Etelä-Karjala). Being remote and having industries losing

importance are the two most common classifications for the regions with the lowest TCDI scores in 2007.

Five of the 10 regions with the lowest TCDI score in 2017 are classified as “intermediate region, remote” (Etelä-Karjala, Etelä-Savo, Kainuu, Kymenlaakso, and Pohjois-Karjala), where two are classified as “predominantly rural region, remote” (Jämtlands län and Västernorrlands län). In total, seven of the bottom-10 regions are “remote”. Moreover, two regions are classified as “predominantly rural region close to city” (Värmlands län and Gävleborgs län) and one as “intermediate region, close to a city” (Päijät-Häme). Five of the bottom-10 regions are classified as a “region with

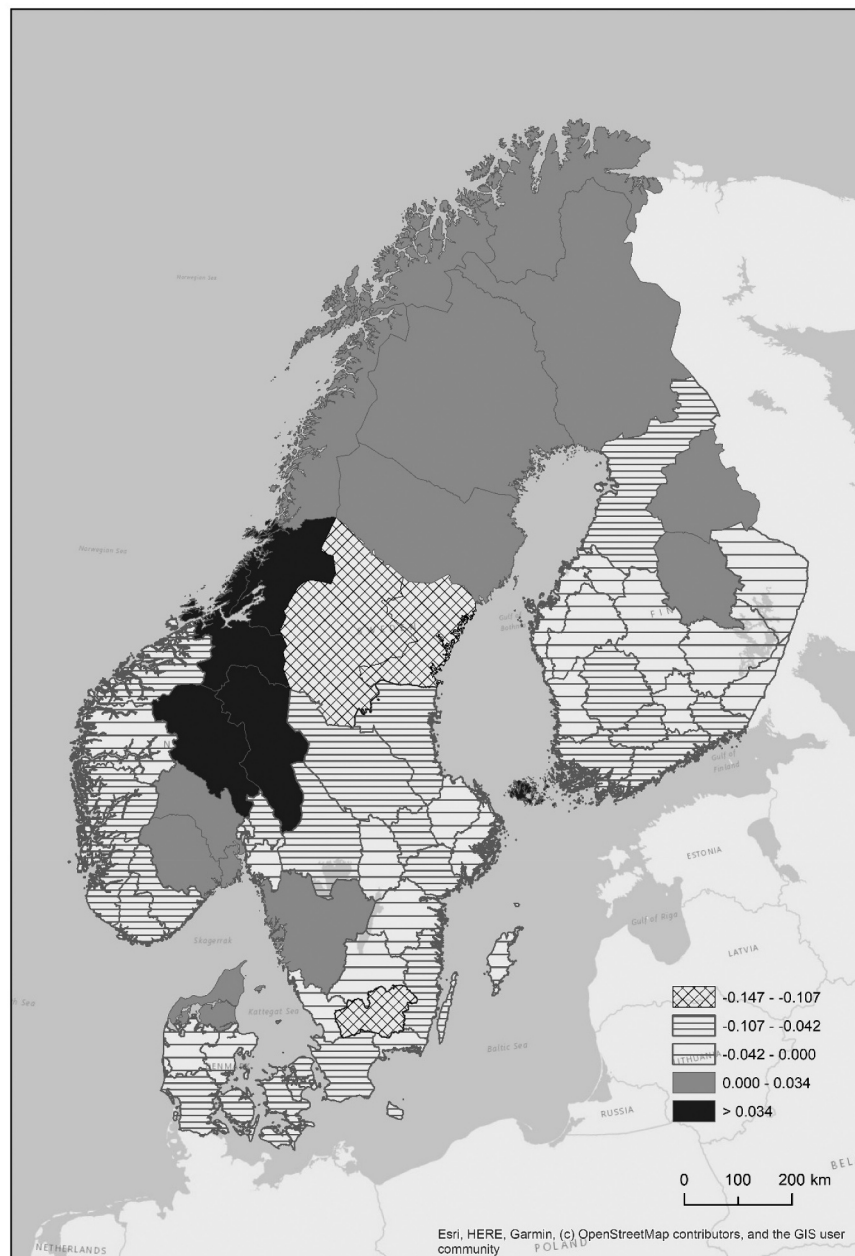


Figure 3. Territorial cohesion development index difference 2007–2017. Source: Own elaboration.

industrial branches losing importance” (Päijät-Häme, Värmlands län, Gävleborgs län, Etelä-Karjala, and Kymenlaakso). In general, the regions with the lowest TCDI score in 2017 can be described as rural, remote and deindustrializing.

Norway has six of the 10 regions displaying the highest positive change in the TCDI score between 2007 and 2017 (Table 5). While four Norwegian regions and one Finnish region have experienced rocketing TCDI scores between the two analysed years, the remaining five regions on the list actually only experienced a modest increase: an increase between 1.7 and 3.4 points can only be considered

rather a modest positive development. Notwithstanding this, four of the five regions displaying a rocketing TCDI score are peripheral regions, with small populations and no big cities; Sør-Trøndelag, number four on the list, hosts one of Norway’s biggest cities (Trondheim). The remaining five regions, displaying only a modest positive development, are all peripheral regions, with small populations and no cities with populations exceeding 100,000 inhabitants. Moreover, all the regions displaying the highest positive change in the TCDI score between 2007 and 2017 except one (Sør-Trøndelag) had relatively low to moderate scores in 2007.

Table 3. Top 10 performing NUTS 3 regions in 2007 and 2017.

2007		2017	
Region	TCDI Score	Region	TCDI Score
NO011 – Oslo	0.795928462	NO011 – Oslo	0.774267053
NO012 – Akershus	0.702043261	DK012 – Københavns omegn	0.662280267
DK012 – Københavns omegn	0.665607949	NO012 – Akershus	0.634059943
DK011 – Byen København	0.649107267	SE110 – Stockholms län	0.620818996
SE110 – Stockholms län	0.634194071	DK011 – Byen København	0.614488126
NO043 – Rogaland	0.632339145	NO043 – Rogaland	0.582228853
FI1B1 – Helsinki-Uusimaa	0.617503507	NO061 – Sør-Trøndelag	0.573130966
NO051 – Hordaland	0.599559304	FI1B1 – Helsinki-Uusimaa	0.56609391
NO053 – Møre og Romsdal	0.568624884	NO051 – Hordaland	0.55778127
NO042 – Vest-Agder	0.565029199	NO052 – Sogn og Fjordane	0.545142082

Table 4. Bottom 10 performing NUTS 3 regions in 2007 and 2017.

2007		2017	
Region	TCDI Score	Region	TCDI Score
SE322 – Jämtlands län	0.298381316	FI1C3 – Päijät-Häme	0.2542553
FI1C3 – Päijät-Häme	0.288821115	SE311 – Värmlands län	0.245844736
SE332 – Norrbottens län	0.282253634	SE313 – Gävleborgs län	0.216728155
SE313 – Gävleborgs län	0.273079207	FI1C5 – Etelä-Karjala	0.216472062
FI1C4 – Kymenlaakso	0.27113833	FI1D1 – Etelä-Savo	0.200484925
FI1C5 – Etelä-Karjala	0.253735397	FI1D8 – Kainuu	0.195279818
FI1D7 – Lappi	0.219865256	FI1C4 – Kymenlaakso	0.192944856
FI1D1 – Etelä-Savo	0.214475024	FI1D3 – Pohjois-Karjala	0.192523711
FI1D3 – Pohjois-Karjala	0.194578132	SE322 – Jämtlands län	0.181994891
FI1D8 – Kainuu	0.181345597	SE321 – Västernorrlands län	0.171994243

Table 5. Highest positive and negative changes for NUTS 3 regions between 2007 and 2017.

Highest positive change		Highest negative change	
Region	TCDI Score	Region	TCDI Score
NO021 – Hedmark	0.112450026	SE311 – Värmlands län	-0.066113838
NO062 – Nord-Trøndelag	0.102528979	NO012 – Akershus	-0.067983318
NO022 – Oppland	0.096183644	DK013 – Nordsjælland	-0.07012917
NO061 – Sør-Trøndelag	0.079134825	SE122 – Södermanlands län	-0.070528344
FI200 – Åland	0.078873176	DK021 – Østsjælland	-0.072582506
FI1D7 – Lappi	0.034454393	FI1C4 – Kymenlaakso	-0.078193474
SE332 – Norrbottens län	0.02765173	SE312 – Dalarnas län	-0.078633614
NO033 – Vestfold	0.023079015	SE212 – Kronobergs län	-0.106791248
NO071 – Nordland	0.017646594	SE322 – Jämtlands län	-0.116386425
SE331 – Västerbottens län	0.017627218	SE321 – Västernorrlands län	-0.147211327

When analysing how the regions with the highest increase in the TCDI score between 2007 and 2017 four of them are classified as “predominantly rural region, remote” (Hedmark, Nord-Trøndelag, Oppland and Nordland), and four as “intermediate region, remote” (Åland, Lappi, Vestfold, and Norrbottens län). One is classified as “predominantly rural region, close to a city” (Västerbottens län), one as “intermediate region, close to a city” (Sør-Trøndelag), one is an island (Åland), and one is a “region with industrial branches losing importance” (Vestfold). In general, five of the regions are classified as rural and eight as remote. Only one region with a big city (Sør-Trøndelag) is among the regions displaying the highest increase in the TCDI score.

Among the 10 regions with the highest decrease in the TCDI score between 2007 and 2017 are five classified as “predominantly rural region, remote” (Värmlands län, Dalarnas län, Kronobergs län, Jämtlands län, and Västernorrlands län), and five as “region with industrial branches losing importance” (Värmlands län, Södermanlands län, Dalarnas län, Kronobergs län, and Kymenlaakso). Three of the regions losing out most are, however, classified as “capital city region” (Akershus, Nordsjælland, and Østsjælland), three as “intermediate region, close to a city” (Södermanlands län, Nordsjælland, and Østsjælland), and one is a “predominantly urban region” (Akershus). In general, the regions displaying the highest decrease in TCDI score between 2007 and

2017 can be placed in two groups: 1) they are located in the hinterland of the capital region, and are a part of the capital city region or 2) they are rural, remote and struggle with deindustrialization.

Six of the 10 regions displaying the highest negative change between 2007 and 2017 are Swedish (Table 5): one is in the hinterland of the capital region of Stockholm (Södermanlands län) and four are peripheral. The Norwegian, Finnish and two Danish regions among the regions with the highest negative change have one thing in common: they are all in the hinterland of the capital region. However, three of the regions losing out most (Akershus, Nordsjælland and Østsjælland) are however classified as “capital city region”. Akershus had the second highest score in 2007 and the third highest score in 2017; Nordsjælland, and Østsjælland had relatively high TCDI scores in 2007 but were scoring relatively well in 2017.

Discussion

How can the development of the TCDI scores, both for regions displaying good and bad scores be explained? Norway has continued with its own regional policy, and as a non-EU member they can do so without violating any treaty (Bjørlo & Lonkemoen, 2016). As the Norwegian regions perform better than the regions in Denmark, Finland and Sweden, it appears to be a beneficial strategy for Norway.

The autonomous Finnish region Åland Islands holds a special legal status in the EU (Government of Åland Island, 2020). Åland Islands has its own operating program under the Cohesion Policy receiving funding from the European Regional Development Fund and the European Social Fund (CEC, 2020a). This enables this region to have tailor-made policies.

Denmark left the traditional regional policy in the early 1990s. Prior to this policy shift, regional policy aimed at national-level measures to promote economic development in regions struggling with problems; after the shift policy measures were decentralized and the private sector was given a role in regional development (Halkier, 2004). The policy shift was related to a Europeanization and an EU adjustment (Dosenrode, 2004). Today, competitiveness is the prioritized aim in the regional development policies, and there is no national strategic planning for regional development and regional growth; the responsibility for development and economic growth is decentralized (OECD, 2019).

Sweden became an EU member in 1995, and regional growth programs were introduced in 1998, so denoting a shift in regional policy from a traditional regional

policy to a growth policy with a bias towards competition (Foss et al., 2004); the traditional regional policy was abolished in 2001 (Näringsdepartementet, 2000). Finland experienced the same policy shift (Hanell et al., 2002). The cornerstones of the “new regional policy” are regional efforts on entrepreneurship, a decentralization of education to stimulate higher (tertiary) education, the introduction of regional growth programmes to stimulate regional economic growth, the coordination of policy measures, and – to a smaller extent – temporary subsidies and allowances to stimulate Social Services of General Interest (Näringsdepartementet, 2000). In reality, the objectives of these cornerstones were never met, and the positive effects are still absent (Tillväxtanalys, 2011; Tillväxtverket, 2015). A similar experience has been made in Finland (Rosenqvist, 2002; Tervo, 2003).

In order to be able to build a structure that fits with EU policies and also structural funding goals, a regional level was introduced, and constituents were able to formulate their own challenges and plan how to overcome them. The increased political influence for regions is combined with the economic resources of the EU, which it is assumed will increase the possibilities to address problems appropriately (Tillväxtanalys, 2013). This has forced the regional governance model to change in the analysed countries (Torfing et al., 2015).

The EU Structural Funds play an important role in the ECP when it comes to planning and funding incentives for regional development in the EU member countries. “During the current programming period 2007–2013 the Nordic countries, and especially the northernmost regions of Finland and Sweden, have seen a significant reduction in funding compared to the previous period 2000–2006. Another important change is that during the current period, large city regions have also become eligible for funding” (Lindqvist, 2010, p. 21). Funding from the EU Structural Funds has been distributed to a lesser extent to the three northernmost MSs for every programming period since 2000 (Hanell et al., 2002; Neubauer et al., 2007). When Finland and Sweden became EU members, the traditional national regional policy was replaced by the ECP and Structural Funds funding, but over time, that funding has decreased without being replaced with national funding.

Economic growth and development in the ECP are assumed to spread from bigger cities, to medium-sized cities, to smaller cities and to towns within polycentric urban regions. Economic growth and development will then “trickle down” to peripheral, remote, and lagging areas. Moreover, it is postulated that the economic growth in the polycentric urban regions will spill over

to the hinterland of these city regions or big cities. It is also postulated that polycentrism will decrease the gap between economically strong and expanding urban regions vis-à-vis the peripheral and lagging regions (Rauhut & Humer, 2020). This has not worked in reality (Medeiros & Rauhut, 2020), most likely because several of the key assumptions of growth poles theory are not met in the new context of post-industrial globalized service economy, which is fundamentally different from its original use (Rauhut & Humer, 2020).

Moreover, in the ECP, it is postulated that polycentrism is good and that a *polycentric* development should be stimulated (Rauhut, 2017). However, the Nordic countries are *monocentric* (Meijers & Sandberg, 2008, 2021), which raises the question on the general applicability of the generalized Cohesion Policy implementation based on polycentrism (Eskelinen & Fritsch, 2015).

As the territorial cohesion appears to be going in the wrong direction for most regions in Denmark, Finland and Sweden, a question to be raised is how this negative development can be mitigated or even counter acted. Norway, still implementing its tailor-made national regional policy, does not share the troublesome experience of its Nordic neighbours. To a large extent, the ECP is ill-fitted to the sparsely populated and monocentric Nordic countries. Besides this nuisance to policy implementation of the ECP in the Nordic regions, few regions are actually eligible for support. Most likely, some sort of regional policy initiatives is needed from the national governments.

In geographical areas where the EU and the ECP are visible and the population can see improvements in their daily life related to the ECP, the inhabitants are more positive towards EU than in geographical areas where the opposite situation exists (Dijkstra & Rodríguez-Pose, 2021). Anti-EU voting is mainly a consequence of local economic and industrial decline in combination with lower employment and a less educated workforce (Dijkstra et al., 2020). Most of the regions scoring poorly in the TCDI struggle with this, and this represents a huge challenge not only for the national governments.

The ECP and other EU programs focus on areas the EU considers prioritized, which does not necessarily be of help for weak regions in Denmark, Finland, and Sweden. Rather, the findings in this study indicate that these countries need to allocate resources to solve issues related to regional inequalities and development. However, this conclusion does not suggest a return to the situation before the EU Cohesion Policy was adopted and the national regional policies were abandoned. One possible solution could be a 'mixed' system where parts of the policy initiatives to promote cohesion and

regional development come from the EU and parts come from the national government, where the latter can focus on specific problems or challenges from a regional perspective while the EU initiatives continue to follow the EU priorities.

Concluding remarks

The aim of this paper is to discuss the territorial cohesion at a NUTS 3 level in Denmark, Finland, Norway, and Sweden for the period 2007–2017, i.e., before and after the financial crisis. Three questions were put forward: (1) Regarding the question as to what type of regions benefitted from the ECP during this period, Norwegian regions have generally performed very well indeed in the TCDI. The capital city regions in all four countries perform very well as do regions with cities exceeding 100,000 inhabitants, both in 2007 and 2017. The high score obtained by the peripheral and population-wise small island region Åland is also worth noting.

(2) The regions that have lost out during the analysed period also display some marked common characteristics. Besides the fact that all Norwegian regions perform well, one such characteristic is that they are all located in the periphery of the three other analysed countries. Generally, they are located intermediate to a city and are rural or suffer from a negative industrial transformation. Many of these regions can be described as – to use the terminology of Rodríguez-Pose (2018) – “places that don't matter”.

(3) How can this development be explained? While large urban agglomerations globally have benefitted from globalization and the economic integration processes, peripheral, deindustrialized, and remote rural areas have lost out (Garcilazo & Oliveira Martins, 2020). Norway and Åland Island have, with their own regional policies, mastered this development relatively better than Denmark, Finland and Sweden. The national regional policies in these countries have been dismantled and instead they rely on the ECP. Outside the capital areas, the TCDI scores indicate that this has not been a successful choice for small and open economies such as Denmark, Finland and Sweden. Moreover, much more fluid global supply chains in a knowledge-intensive and innovation-intensive economy have replaced the regional supply chains of a growth pole in the manufacturing sector. In order to be competitive at a global level, a growth pole may actually have to cut the ties with the hinterland, as suggested by the “agglomeration shadow” argument; that in the shadow of the core city, the small hinterland municipalities cannot flourish (Cardoso & Meijers, 2016). What we can see in the TCDI scores is that the regions

neighbouring the capital city region in the four studied countries experienced this. The findings indicate that national priorities in regional development initiatives are needed.

Some avenues for future research can be identified. The TCDI can be used to analyse performance over time for NUTS3 regions in Denmark, Finland, Norway and Sweden, linking it to a theoretical framework based on spatial justice or special power relations. These countries also have a relatively good situation in terms of data availability. Moreover, it is also possible to discuss similar types of territories (e.g., predominantly urban regions or mountainous regions, or regions in industrial transition) and analyse the TDCI score based on a centre-periphery dimension. In this study, two “snapshots” of the TCDI have been taken for 2007 and 2017. Analysing regions longitudinally since, e.g., the early 1990s would better illuminate the impact of business cycles or structural crises on the TDCI score.

This study shows that capital city regions and neighbouring regions, mainly urban and metropolitan, have benefitted from the current policy frameworks 2007–2017, while remote and peripheral regions have lost out, especially those intermediate to cities that are rural or undergoing an industrial transition. A remarkably high share of the regions in Denmark, Finland and Sweden have lost out between 2007 and 2017, which poses a significant political challenge. This indicates a need to resuscitate the national regional policies in these countries to counteract the increasing gap between the capital region and the rest of the regions. Norway, as a non-EU member, and Åland, an autonomous region with a special status in the EU, display the highest scores in the TCDI, and both have their own national regional policies. The only studied regions really benefitting from the ECP 2007–2017 are the capital city regions in Denmark, Finland and Sweden. The ECP is aimed at closing the gap between the prosperous regions and the less favoured regions, but we can see the opposite development. To break this vicious circle from spinning, resuscitating the national regional policies mixed with an ECP focusing less on cities and competition is needed.

Notes

1. A good illustration of this is the Youth Employment Initiative. This initiative targets among others young people who are not in education, employment, or training (NEETs), including the long-term unemployed or those not registered as jobseekers, but it is just “complementary to other actions undertaken at national level” (CEC, 2020b).

2. In a detailed comment on how “city networking” is defined, Zaucha et al. (2014, p. 256) say “Networking is a product of numerous policies (urban, policy, education, R&D, industrial, regional, national development, etc.) and of the decisions and actions of numerous public and private entities at different geographical scales (multilevel governance)”. In Table 2, Zaucha et al. (2014) list the following four “linking issues” (which is not the same as indicators): Interactions between metropolises at the EU scale; Interactions between the main national growth poles; Territory-bound factors (local milieus, etc.); and accessibility of metropolises and between metropolises. Komornicki and Ciołek (2017) argue that access to functional communications is crucial for city networking. Networking requires connectivity to facilitate different types of economic and social interactions. When we use the indicator km of motorway per 1000 km², we consider it related to the “linking issue” accessibility of metropolises and between metropolises. Hence, the indicator ROAD can be used as a *proxy-variable* for “city networking”.

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