

Smart Growth
Smart Specialization
Europe 2020
Urban-Rural
Place-based

- *In 2010, the European Union adopted the notion 'smart' in its new ten-year growth strategy Europe 2020.*
- *The strategy states that Europe should become a smart, sustainable, and inclusive economy and that smart growth supports sustainable development, which is achieved by promoting research, innovation, and knowledge in order to attain regional economic growth.*
- *What is made less clear is how the concept of smart growth and the related concept smart specialization can be translated to fit a diverse set of rural regions.*
- *Determinants of smart specialization seem to have different impacts on firm performance across the urban-rural range, which calls for place-based policies that are embedded in the regional knowledge-, resource and entrepreneurial base.*

Main topics

- **Knowledge and innovation** are core concepts and underlie the smart growth logic. Smart growth can be achieved by promoting research, innovation, and knowledge with a strong base in regional preconditions. Many of the key ideas behind smart growth and the related term smart specialization can thus be connected to economic theories that highlight the role played by knowledge and innovation for regional growth. A new dimension is a stronger focus on regional preconditions and bottom-up planning processes.
- **Heterogeneous outcomes across urban-rural range.** Determinants of smart specialization have different impacts on its intended goals depending on the size of regions. The underlying logic of smart specialization is able to offer only limited possibilities for regions that are remote or very isolated, due to lack of scale, distance decay effects and socioeconomic pre-conditions. Rural and peripheral regions are argued to have very limited potential to benefit from the Europe 2020 strategy and its *specialization policies*.
- **Place-based policies.** Smart development is not a one-size-fit-all concept and its application in rural contexts needs to be combined with a place-based approach adjusted to fit the specifics of rural contexts and linkages.



Contribution to smart development

Contributes to a deeper understanding of the concept of smart growth and the related concept smart specialization by i) demonstrating what smart development implies for intermediate and rural peripheral regions, ii) arguing that determinants of smart growth can be linked to technological relatedness across and within industries, the presence of agglomeration economies and knowledge interconnections, iii) showing that determinants of smart specialization have different impact on its intended goals depending on the size of regions, iv) arguing that externalities that are not directly related to the smart growth logic can be expected to play a significant role and create different preconditions for regional growth, ii) highlighting the need to specify not only the meaning of space but also the different components that are included in the broad concept of place-specific characteristics and how they can be expected to influence the growth potential for different rural regions. The work package also contributes to smart development by empirically assessments of the smart growth concept using firm-level data and various types of rural regions.

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Methodological approaches

Conceptual study

Outlines a framework to decompose the smart growth concept by linking the Europe 2020 growth strategy and its key components, related to smart growth, to conceptual frameworks regarding the importance of innovation, knowledge and their externalities as endogenous factors in explaining regional economic growth and convergence. Formulates testable hypotheses using a series of economic perspectives linked to factors such as regional size, knowledge base, technological relatedness across and within industries, amenity services and external knowledge links, displayed in Table 1. Demonstrates the need to acknowledge regional context in the interpretation and empirical assessment of smart growth determinants. Demonstrates that the smart specialization logic can be expected well suitable for urban and intermediate regions, but less so for rural and peripheral regions. Identifies and discusses the potential for empirical assessment of the smart growth concept in various types of rural regions. The study also presents indicators of smart rural development and analyses their relevance in future empirical studies (see Table 1).

Determinant	Measure
Urbanization economies	Population density
Industrial specialization	Location quotient
Diversity/unrelated variety	Entropy (or Shannon index) at, e.g., 2-digit level.
Related variety	Entropy (or Shannon index) at, e.g., 5-digit level based on industry codes, educational codes and occupational codes
Amenity services	<ul style="list-style-type: none"> - Access to open space and diversified landscapes. - Access to natural and outdoor amenities. - Built amenities (museums, historic sites, state parks, amusement parks, golf clubs, skiing resorts) - Climate conditions
Creative communities	<ul style="list-style-type: none"> - Access to creative class workers - Local markets (e.g., local festivals) - Presence of cross-industry activities such as tourism, food, drinks, and cultural production
External knowledge links	<ul style="list-style-type: none"> - Access to highly educated individuals - Access to, e.g., KIBS employees, cognitive skill workers - Access to ICT, e.g., high-speed internet - Linkages between corporate boards - Different types of inter-firm collaboration - Globally active firms

Table n° 1. Determinants of Smart Growth

Empirical assessment – firm level

Hypotheses concerning the determinants of smart growth are tested using both firm- and regional level data. One study uses firm-level data across Europe obtained from ORBIS (Bureau Van Dijck). These data hold information on financial and locational characteristics of firms, which are combined with spatial indices that reflect smart specialization, measured both at the neighborhood and regional levels. These indices contain measures of intra- and inter-industry composition to reflect firms access to external knowledge (both related and unrelated) and other determinants of smart growth (see Table 1). The study employs category-wise estimations, based on the EDORA urban-rural typology shown in Figure 1. Having access to micro-level data across Europe allows the study to estimate a nested multilevel model that addresses different types of locally bounded externalities, related to smart specialization, and that account for regional heterogeneity by combining determinants at the firm-, local- and regional level (Nuts 3).

Empirical assessment – Regional level

The second study has a focus on shrinking regions in Europe and the role played by some of the factors that underlie the smart growth concept. The study addresses differing demographic development paths across European regions by focusing on the influence of key underlying demographic factors on population growth. The study employs category-wise estimations, based on the EDORA urban-rural typology shown in Figure 1 and a demographic typology shown in Figure 2. The unit of analysis is Nuts 3 regions and the studied time frame is 2001 – 2012. Data are obtained from EUROSTAT and enclose a set of variables that measure regional characteristics in terms of their knowledge base, population base and other key measures.

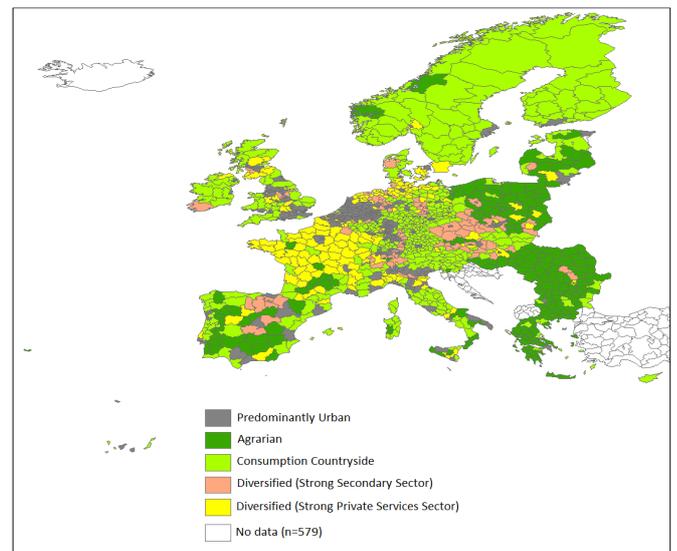


Figure n° 1. EDORA typology

European Nuts 3 regions are classified into five types.

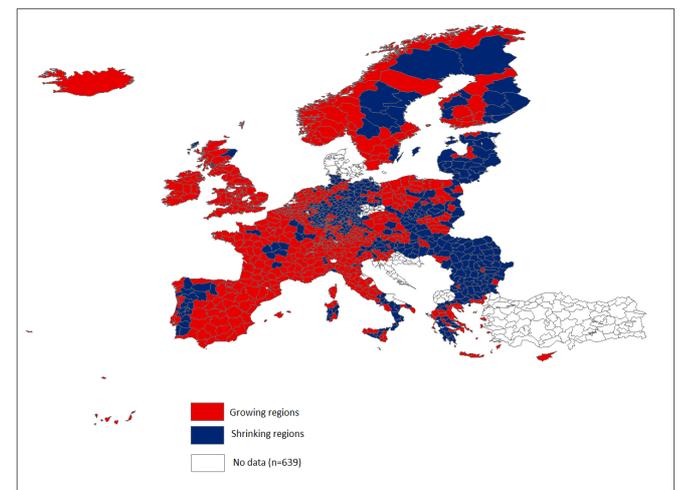


Figure n° 2. Demographic typology

European Nuts 3 regions are classified into growing and shrinking regions.

What is smart rural development?

The study concludes that determinants of smart growth and the related concept smart specialization likely have different impacts on the intended goals depending on regional characteristics. A central argument is that the underlying logic of smart specialization can be expected to offer only limited possibilities for the most rural regions, due to lack of scale arguments and distance decay effects.

The study also presents an overview of the emergence of the concepts of smart growth and smart development from a European perspective. This is based on a theoretical discussion on the related concepts of smart, sustainable, and inclusive growth, how they are mutually formulated to reach the stated policy goals, and how each of these concepts defines growth differently.

The study also addresses the issue of rural areas and what smart development implies for intermediate and rural peripheral regions. A conclusion is that the role played by place-based policies as smart development is not a one-size-fit-all concept and its application needs to be combined with a place-based approach adjusted to fit the specifics of rural regions and their linkages.

The study can be used as a basis for further empirical studies on the smart growth concept as it identifies a set of indicators and determinants that are measurable and applicable based on the availability of data.

An Empirical Assessment of the Smart Specialization Concept in European Urban and Rural Regions

Technological relatedness

Related variety, in industry composition, indicates the influence of technological relatedness of nearby firms. This is shown to be important for firms located in urban regions and for firms in rural regions that have a diversified market sector. No significant association is found between related variety and the performance of firms located in agrarian regions, e.g., see Table 2. This can be put into the perspective of smart specialization strategies, which play a key role in the European Union's regional growth strategy. Industry relatedness, which is emphasized in the strategy, is thus shown to be beneficial for firms in urban and rural diversified regions, and not for firms in Agrarian regions. Hence, for the strategy to support growth in more rural regions may require complementing political measures that address other regional preconditions such as different types of amenity services.

Contextual variation

Results also show some sign of attenuation in geography in that the local effect (technological relatedness) appears significant and positive in urban and diversified rural regions, whereas its regional counterpart is insignificant. This can indicate that spatial spillovers related to the smart growth concept, as indicated by firms access to external knowledge sources, are very much place-based and critical predictors within rather than between regions.

Other sources of external knowledge

Other sources of external knowledge is indicated by firms access to industrial diversity (unrelated variety), High Tech Manufacturing Firms (HTMF) and Knowledge Intensive Business Services (KIBS). Results display a similar relation w.r.t. HTMF and KIBS in that they are important for firms located in urban regions and in diversified rural regions. No significant association is found between firm performance and these external knowledge sources in Agrarian regions, see e.g., Table 2. External knowledge may thus be used in order to spur growth in the more urban parts of Europe, but may have limited possibilities or influences in the more rural and peripheral parts. A line of argument that follow through this research is that smart growth may not a one-size-fit-all concept and its application in rural contexts needs to be combined with a complementary policies adjusted to fit the specifics of rural contexts and linkages.

Demographic and Economic Trends in a Rural Europe in Transition

A central question addressed in this study is whether the relative importance of key determinants of population change varies across European regions defined as either shrinking or expanding. Results show a clear contrast between a growing Western and shrinking Eastern Europe but also in the Northern periphery many regions are shrinking. Large shares of the shrinking regions are both poor and peripheral, circumstances that significantly complicate a turnaround of the development in a smart direction. The fact that they are peripheral makes it harder to connect them to the demand in the distant, growing urban agglomerations. The fact that they are poor makes it harder to make the necessary investments in human and physical capital. Furthermore, investments that aim to spur growth in human capital and innovation may not be efficient in the most peripheral part of Europe since these locations lack the necessary critical mass in a number of key factors.

EDORA typology	1. Urban	2. Rural	3. Rural	4. Rural	5. Rural
Parameter	Predominantly Urban	Agrarian	Consumption countryside	Diversified strong secondary sector	Diversified strong market sector
<i>Local level predictors</i>					
Technological relatedness	0.171* (0.016)	0.099 (0.050)	0.103* (0.014)	0.001 (0.060)	0.061* (0.016)
Industrial diversity	-0.103* (0.009)	-0.027 (0.025)	-0.026* (0.007)	-0.023 (0.035)	-0.019 (0.008)
HTMF, KIBS	0.051* (1.11e-03)	0.001 (0.010)	0.042* (0.001)	0.003 (0.010)	0.002* (1.42e-04)
<i>Regional level predictors</i>					
Technological relatedness	0.075 (0.153)	0.244 (0.210)	0.109 (0.094)	0.003 (0.010)	0.002* (1.42e-04)
Industrial diversity	-0.116 (0.112)	0.257* (0.117)	-0.014 (0.051)	0.123 (0.313)	0.106 (0.115)
Population density	5.48e-06 (9.57e-06)	0.001 (0.0003)	0.001 (0.001)	-0.071 (0.305)	7.33e-04 (0.002)

Table n° 2. Results. The influence of smart growth indicators on firm performance

Results

Demographic and Economic Trends continued.....

- A majority of the analyzed regions show a growing population, but this cannot of course be taken as an indication of possible smart development per se. A relatively large number of the growing regions are also peripheral and comparatively poor. It should also be underlined that even if the NUTS-3 regions can be divided in “predominantly urban” and “predominantly rural”, most regions, with the exception of the largest metropolitan ones, contain both urban centers and rural peripheries, where the urban centers often are growing and the rural peripheries often are declining.
- The peripheral rural regions have obvious problems in connecting to the “smart-growth train”. However, these regions may have varying access to resources and social infrastructure that significantly may affect their growth potential. Some of them might for example have a potential to achieve smart specialization by exploiting local amenities and other resources, to develop creative economies and to build specialized links to urban supply and demand. Externalities that are not directly related to the smart growth logic might thus be expected to play a significant role and create different preconditions for rural growth.



To go further ...

- Nilsson, P. (2016). Are Place-based Amenities Driven by Scale? *Housing Studies* (forthcoming)
- Nilsson, P., and Westlund, H. (ed.) (2016). Report on European Extension and Regional Diversity, WP1, TASTE Project, Sweden, Collection [WP Report](#)
- Wixe, S. (2016). Neighborhood related diversity, human capital, and firm innovation, *Papers in Regional Science* (forthcoming)
- Naldi, L., Nilsson, P., Westlund, H., and Wixe, S. (2015). What is Smart Rural Development? *Journal of Rural Studies*, 40(8), p.90-101.
- Johansson, M., Nilsson, P., and Westlund, H. (2015). Demographic and Rural Trends in Europe. In *Social Capital and Development Trends in Rural Areas*, pp. 129-158. Vol. 10. Eds., Friedrich, M., Westlund and Kobayashi, Y.
- Nilsson, P., Naldi, L., Westlund, H., and Wixe, S. (2015). The Influence of Related and Unrelated Variety on Firm Performance in European Urban and Rural Areas. In *Social Capital and Development Trends in Rural Areas*, pp. 159-178. Vol. 10. Eds., Friedrich, M., Westlund and Kobayashi, Y.

Conclusions

From a more general point of view, the fact that indicators of smart growth seem to have limited impacts on the most rural and peripheral regions calls for complementary growth strategies. Moreover, when investigating the potential for smart rural development, there is a need to decompose not only the meaning of space but also the different components that are included in the broad concept of place-specific characteristics and how they can be expected to influence the growth potential for a diverse set of rural regions. This, in turn, allows us to consider the various linkages and the knowledge spillovers from a broader perspective, which are at the center of smart rural growth.

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