



UNITED NATIONS
UNIVERSITY

UNU-MERIT

Working Paper Series

#2019-050

**Systemising social innovation initiatives and their regional
context in Europe**

René Wintjes, Nordine Es-sadki and Ad Notten

Maastricht Economic and social Research institute on Innovation and Technology (UNU-MERIT)

email: info@merit.unu.edu | website: <http://www.merit.unu.edu>

Boschstraat 24, 6211 AX Maastricht, The Netherlands

Tel: (31) (43) 388 44 00

UNU-MERIT Working Papers
ISSN 1871-9872

Maastricht Economic and social Research Institute on Innovation and Technology
UNU-MERIT

UNU-MERIT Working Papers intend to disseminate preliminary results of research carried out at UNU-MERIT to stimulate discussion on the issues raised.

Systemising Social Innovation Initiatives and their Regional Context in Europe

René Wintjes^{a*}, Nordine Es-sadki^a and Ad Notten^a

^a*UNU-MERIT, Maastricht University, The Netherlands*

*corresponding author: r.wintjes@maastrichtuniversity.nl, P.O. Box 616, 6200 MD Maastricht, The Netherlands; n.es-sadki@maastrichtuniversity.nl ;
notten@merit.unu.edu

Abstract

Social innovation can be seen as new combinations of social, economic and political capital (resources and capabilities)¹. In social innovation initiatives actors with different capabilities cooperate and function as systems of innovation. The various actors (from the social, economic and/or political domain) contribute and benefit in different tangible and intangible ways. As producers and users of solutions for societal problems they co-create value for society. The paper aims for insights in the economic outcomes of social innovation. We argue that social innovation can be seen as an investment, rather than a cost. For 55 social innovation initiatives across Europe we identify economic outcomes for the various actors, and the sustainability of the initiative. Since social innovation is context-dependent, and because the regional situation concerning social innovation differs across the EU, we also systemise the regional context in which the social innovation initiatives have emerged. The results support the idea that social innovation generates economic as well as complementary social benefits. Four types of regional systems of social innovation can be identified. It helps explain why regions as different contexts induce different social innovation initiatives and economic outcomes.

Keywords: social innovation, indicators, outcome, regions, measurement, innovation systems

Subject classification codes: O31, 035, I31

¹ This work has benefitted from funding of the European Commission under Framework Programme 7, Grant Agreement No. 613411

1 Introduction

While social innovation has already become a part of the regional innovation strategies funded by European Structural & Investment Funds (ESIF)², the academic literature has still not agreed on a common definition. Social innovation often has a different meaning to different people. This also applies for the different stakeholders engaged in social innovation initiatives, and for stakeholders in society at the regional level. This paper does not aim to come to a standard definition or theory, but within predefined boundaries of a working definition, and with standardised data, we reduce the heterogeneity and complexity of individual cases and their regional contexts. In this paper we question if it could make sense to invest in social innovation from an economic point of view. Based on the literature (section 2) we describe some of the concepts used, and we suggest systemic indicator requirements. With this explorative analysis we aim to provide preliminary insights, as first steps towards answering a main research question in the future: How can the emergence, outcomes and sustainability of social innovation be explained? We then describe the data and methodology (section 3) that is used to systemise and analyse social innovation at two different levels: social innovation initiatives and the regional context in which they are embedded. While current insights mainly rest on individual case-studies, we construct and analyse two databases. With the first database we systemise the information of 55 case-studies on social innovation initiatives, focussing on several types of outcomes. The second database consists of regional statistical data that relate to social innovation for a broad range of aspects, and for all regions in Europe. We reduce the information in the regional database with factor analysis into a few main factors. We test how the principal component/factor is associated with GDP/capita as the traditional economic output indicator, and with the Human Development Index as a social output indicator. The regional data is also used to construct a regional typology. This typology allows answering the question if certain types of social innovations and outcomes can be associated with certain types of regional contexts.

² <http://s3platform.jrc.ec.europa.eu/esif-viewer>

2 Literature

2.1 Concepts used

Most research on social innovation is qualitative and conceptual and often serves to provide a theoretical contribution to come to a definition and categorisation of social innovation (Pol & Ville 2009; Rueede & Lurtz 2012; Cajaiba-Santana 2014; Edwards-Schachter & Wallace 2015; Tracey & Stott 2017; Howaldt & Schwarz 2017). The fact that a commonly accepted definition does not exist, complicates efforts in measuring and explains the lack of international statistics (Unceta et al. 2016). Caulier-Grice et al. (2012, p.18) define social innovations as *'new solutions (e.g. products, services, models, markets and processes) that simultaneously meet a social need (more effectively than existing solutions) and lead to new or improved capabilities and relationships ...'*. The attention to capabilities and relationships accord with a system approach to innovation. Capabilities refer to what actors are capable of doing, based on tangible and intangible assets that they possess (Dopfer 2011). Interactions in relationships between the different actors of a system are important for system performance (e.g., Mytelka and Smith 2002) and simultaneously lead to improved capabilities ('interactive learning' in Lundvall 1992).

Several definitions of social innovation include not just any social need. Some refer to global societal challenges, while others emphasize that regions differ in what they see locally as the main social problems. Schillo & Robinson (2017) focus on solutions to social and economic exclusion and label it 'inclusive innovation'. In a similar way we limit the social innovation concept to inclusion of vulnerable people. This implies for instance that initiatives which mainly address environmental or climate change problems (vulnerability of the planet) have not been included. The working definition of social innovation that was used at the start of the SIMPACT project this paper is based on, is the following: *'Social Innovation refers to novel combinations of ideas and distinct forms of collaboration that transcend established institutional contexts with the effect of empowering and (re)engaging vulnerable groups either in the process of social innovation or as a result of it'* (Rehfeld et al. 2015, p.6).

This definition guided the selection of social innovation initiatives (and later the selection of regional context variables), as a first criteria. The reference to vulnerable groups in this definition concerns marginalised, excluded people whose needs are not met in their existing institutional contexts (e.g.: the state, market, or family may not meet the need). At the level of social innovation initiatives these needs are met in a new institutional set-up which transcends the established one. A transformation or disruption of the existing institutional set-up is often aimed for, and such 'acts of institutional entrepreneurship that blur the boundary between structure and agency' (Nicholls & Murdock 2012, p.2) can be based on an institutional critique, and not always evolves in a co-operative mode without friction or contestation (Newth 2016).

At the macro-level of countries, the established institutional context refers for instance to the various welfare state regimes (Esping-Andersen 1990) or varieties of capitalism (Hall & Soskice 2003). Coverage of the various welfare state regimes in Europe (Scandinavian, Continental, Liberal Anglo-Saxon, Mediterranean model, and the Eastern European model) was a second criteria used for selecting the case studies on social innovation (Debref et al. 2015; Terstriep et al. 2015; Moghadam Saman & Kaderabkova 2015).

The third criteria involved the ‘field of action’ which refers to certain types of vulnerable groups and their needs (Debref et al. 2015; Terstriep et al. 2015). The selected fields of action include: Employment, Migration, Demographics (both addressing elderly or children), and a horizontal cross-cutting category (Gender, Education, Poverty).

Although several authors place the concept of social innovation within one scientific discipline, one sector, or one field of practice, we take a broadened systemic perspective that links the economic, social and political domain in societies, as is for instance done with the concept of welfare regimes (Rehfeld et al. 2015). In innovation studies the approach has also evolved into a systems perspective (Fagerberg et al. 2013). Although the systems of innovation literature (Lundvall 1992, Freeman 2002, Nelson 1993, Cooke et al. 1997, Carlsson et al. 2002, Malerba 2004) has mainly addressed technological innovation, later approached have also more specifically included: the social aspect (Geels 2004, 2005), in system transformations (Geels & Kemp 2007) and for a broad range of local societal challenges (Turkeli & Wintjes 2014). These approaches that apply evolutionary and institutional ideas (Nelson & Winter 1982; Dosi 1982) to analyse innovation at various meso-levels (Dopfer 2011), allow us to systemise social innovation as new combinations of social, economic and political capital (resources and capabilities) with improved economic and social outcomes.

The idea of complementarity between economic and social outcomes (rather than substitution) is based on the hypothesis that social innovation can be seen as an investment, rather than a cost. As investments in the development of capabilities and relations the outcomes go ‘beyond GDP’ (Jean-Paul & Martine 2018, OECD 2018)³ as the traditional metric for economic performance of a country or region, because in addition social outcomes should be valued.

2.2 Three Indicator Requirements to capture Social Innovation

As Stiglitz et al. (2009, p.144) point out, economists are increasingly confronted with the challenge of measuring ‘intangibles’ in the economic system, because an increasing share of investments and an increasing share of outputs are intangible, and it is difficult to estimate the market value by monetising these intangibles. The economic discussion

³ <https://www.oecd.org/social/beyond-gdp-9789264307292-en.htm>

basically concerns the claim that some expenditures on intangibles should not be seen as costs, but as investments (Corrado et al. 2006), because they increase the ‘productive’ capacity in the future. Not only firms invest. Also citizens and social innovators invest in intangibles which increase the future capabilities of people, organisations and society at large, to pursue what they see as ‘productive’ goals in life. The experience from the case studies has shown that it is very difficult to collect information in terms of market or ‘exchange value’. Information on ‘use value’ (Vargo et al. 2008) includes intangibles such as: capabilities, perceptions on what is important for well-being, trust, relationships, human rights, etc. A first indicator requirement is to include both indicators on exchange value (in Euro’s) as well as more qualitative (intangible, contextual and subjective) indicators on ‘use value’ that may increase the ‘productive’ capacity in the future.

Schumpeter (1912, 1937) referred to the entrepreneurial function of coming to new combinations, which replace old ones (Fagerberg 2014). This entrepreneurial function of coming to new combinations can also be performed by an ‘Entrepreneurial State’ (Mazzucato 2013), or a social enterprise. Social entrepreneurship and innovation can occur in any sector: public, private or third sector, and civil society (Krlev et al. 2014). For measuring social innovation we derive a second requirement that indicators include information from a variety of economic sectors: the private sector, the public sector, and the civil or third sector.

Existing studies on measuring social innovation mostly focus on indicators for the supply-side of social innovation (Hubrich et al. 2012; Anheier et al. 2014; Krlev, Bund and Mildemberger 2014). While technological innovation can to a large extent be explained by a (linear) supply-driven process (starting with inventions), for explaining social innovation it is especially relevant to also consider demand- (or problem-, need-) driven innovation processes. E.g: where and when a societal issue is perceived to becoming problematic, the value of solutions, and the incentive to find them, increases (Unceta et al. 2019). In an innovation systems perspective the value or outcome of social innovations derives from the interaction between the supply and demand for social innovations (mirroring solutions-problems). In the words of Mulgan (2010, p.41): ‘Social value is not an objective fact. Instead, it emerges from the interaction of supply and demand, and therefore may change across time, people, places, and situations’. The interaction between the demand- and supply-side of social innovation is hardly mediated by prices on markets for exchange value. Producers and users of innovations have to engage in interactive learning (Lundvall 1992), which involves communicating tacit knowledge, exchanging insights on local problems and potential solutions, and the co-production of ‘use value’, or ‘value-in-context’ (Vargo et al. 2008). The third requirement is therefore to include both indicators which capture the demand-side of social innovation (info on social needs and problems), as well as indications of the supply-side of social innovation (info on potential to enable solutions).

3 Data and Methodology

3.1 Database with information on social innovation initiatives

The database of social innovation initiatives consists of data from an on-line survey in 2016 among the authors of qualitative case studies that have been written in 2015 as part of the SIMPACT project⁴. To give an impression we describe one example and provide shorter descriptions for a larger set of initiatives in Table 1.

Granny's Finest is a social enterprise set up (originally as a foundation) in 2011 by two Dutch students, who saw an opportunity for creating a new kind of business, and ended up with a fashion brand as a solution to address loneliness of woman over 55 years of age in the Netherlands. Apart from the office in Rotterdam, the main part of the organization consists of knitting clubs managed by volunteers where 'grannies' can get together and knit fashion products, such as scarves and hats from high quality wool to be sold online and in specific shops. The idea is that the people get together socially, and therefore reduce their loneliness, and feel useful and proud by making the fine, marketable products. The buyers can even send an included feedback card to thank the grannies personally. Co-funding is provided by local care providers who want to get in touch with their future clients. Meanwhile, the activities improve the wellbeing of the grannies, reducing their need for more formal care services. The fashion products are designed by young graduate designers, creating them opportunities for positive exposure in their early careers.

Although the population of social innovation initiatives is unknown, those initiated from the public sector are under-represented in our survey. Most social innovators are social enterprises or other third sector organisations, including cooperatives, associations, NGO's, and other legal forms. Although a few cases have been selected that no longer existed in 2015, relatively large and successful initiatives are likely to be over-represented. We were not able to receive a response to our survey for 5 cases.

Nevertheless, the response for 55 cases cover 20 European countries and provide a good coverage of different welfare regimes, and of social innovations by field of action (See Debref et al., 2015; Moghadam Samen & Kaderabkova, 2015). In several instances the social innovation addresses more than one field of action. Employment is the main field of action being addressed with 64% of the 55 cases (partly) addressing this topic, followed by education with 34% and demographics by 25%.

⁴ Full case studies are available at: <http://www.simpact-project.eu/evidence/sicases/index.htm>

Table 1 Brief description for a selection of the 55 social innovation initiatives

<p>Coopaname is a French business and employment cooperative, which provides unemployed people with opportunities to test and realise business projects in any sector, while at the same time retaining their employee status and their social security entitlements.</p> <p>Cooks without Homes is a programme in the Czech Republic that employs homeless women as cooks, providing vegan meals in different locations (e.g. farmer's markets) and empowers them via capacity building activities.</p> <p>De Kringwinkel Antwerpen is a Flemish non-profit organization under the Special Workplace status, employing long-term unemployed to collect, repair and sell used goods.</p> <p>DORV Zentrum is a multifunctional franchising shop located in small villages in Germany aimed at meeting the challenge of rural de-population by offering the most important essential goods and services consolidated in a single location.</p> <p>Libera Terra is a network of profit-generating social cooperatives, employing vulnerable people to produce organic, ethical products on assets confiscated from the mafias in Southern Italy.</p> <p>'O Allos Anthropos' (The Other Human) Social Kitchen is initiated by a group of citizens in Athens who prepare food for the poor and socially excluded in public places, and eat together with them to enhance solidarity and social cohesion.</p> <p>Seniornett is a non-profit foundation established by a group of senior citizens in Oslo, that offers ICT support for the elderly to include them in modern society and narrow the digital divide.</p> <p>Siel Bleu is a French association, employing more than 450 people, aimed at improving the mobility of the elderly population by providing tailored training sessions at residential care facilities.</p> <p>Crossroads, a civil society organisation initiated by the City of Stockholm, developed a new approach in combining information activities with basic needs service in order to prevent social and economic exclusion for EU-migrants.</p> <p>Granny's Finest, a Rotterdam-based social enterprise fashion brand, sells ecologically sustainable products knitted by elder people above 55 years to enhance their social lives.</p> <p>Mothers of Rotterdam, is an initiative of a local public service organisation, that medically and pedagogically supports pregnant women from deprived neighbourhoods and those with children younger than 3 years to reduce stress-related problems and enhance self-sufficiency through empowerment.</p> <p>Roma Support Group is a registered charity organisation of Roma people supporting Roma refugees by enhancing their self-esteem and motivate them to bring their culture to other people to enhance their quality of life through health services, sport activities and education.</p> <p>Social Development Centre SUS, a non-profit organisation, in cooperation with the City of Arhus provide microloans adapted to the Danish context to long-term unemployed developing their own business.</p> <p>Solva et Coagula, an Estonian social enterprise, trains individuals from social risk groups having difficulties in accessing employment (e.g. individuals with mental disorders, health-related disabilities, ex-prisoners) in craftsmanship skills such as woodworks and other handicrafts.</p> <p>Youth Competence Centre run by the Budapest-based Artemisszió Foundation supports Hungarian youth from vulnerable social strata to bridge the gap between education levels and requirements for professional life.</p>
--

The in-depth, qualitative information of the case studies has been analysed by Terstriep et al. (2015). We list 5 of the 39 findings from this qualitative analysis:

- ‘Social innovators use economic resources to support their social target group rather than investing in their own economic capabilities;
- Context specificity and dependency are stronger in social innovation than in other forms of innovation;
- A strong voluntary sector can be considered an enabler of social innovation;
- Social innovations’ obstacles and sources of resistance are very context-specific;
- Social innovation relies on relationships based on belonging, cooperation, trust, solidarity, reciprocity and mutuality’ (Terstriep et al. 2015, p.3).

These qualitative findings have been used to define standardised, closed survey questions, in order to analyse the cases in a more standardised, systematic way. The survey collected information on different types of social innovation, the field of action, the actors involved, type of funders, the objectives, input of resources, obstacles, and outcomes of the social innovation⁵. Applying the three indicator requirements was for instance done by asking questions on outcomes for the social innovator, for the target group as well as for the public sector. Questions on ‘improved income/ less costs’ served to address outcome in terms of ‘exchange value’, outcome referring to ‘use value’ is covered for the various stakeholders in terms of increased capabilities, increased self-confidence, and improved networks.

3.2 Database with information on regional context

In our effort to systemise the heterogenic context for social innovations we use a large set of regional variables which are related to social innovation (as defined above). We based our first selection of variables on a blueprint from Krlev, Bund and Mildemberger (2014) at national level. We subsequently expanded the national measurement framework applying the three indicator requirements (section 2.2) and the insights of the qualitative analysis of the case-studies in the various welfare states (Terstriep et al. 2015; Debref et al. 2015). The resulting national framework covered information on public, private and civil sector and distinguished tangible and intangible assets while dividing these into social innovation potential vs. needs, as a mirror for supply-side and demand-side⁶. Because the qualitative analysis (Terstriep et al. 2015, p.3) showed that specific local context is very important, we selected among the 270 originally retrieved variables, those for which data at the sub-national level of EU regions was available. Variables concerning ‘health’ have been excluded, because it has also been excluded as

⁵ See Wintjes et al. (2016, p.79-83) for a full list of survey questions.

⁶ For a version of this national indicator framework and the respective sources see Wintjes et al. (2016, p.47-49)

a field of action in the selection of case studies. In our practical exploration of regional data we for instance tried to high-light variables which signify ‘use value’ or at the least have a ‘use value’ component, such as:

- trust in government, institutions, third sector initiatives and community actions;
- interest in, and recognition of, the needs of marginalized people;
- capabilities to resolve problems, address needs, and act on emerging conflicts;
- participation in common causes, working for the common good.

Surveys such as the one feeding the OECD Better Life Index⁷, or the European Social Survey⁸ provide relevant variables in this respect. Also more conventional contextual data from standard sources such as the EU Statistics on Income and Living Conditions (SILC) and the EU Labour Force Survey (LFS), as well as a number of other more specific sources (such as the Donors and Foundations Network Europe; DAFNE) have been used in systemising the social innovation ‘landscape’ at regional level. A reduction of variables to include was driven by the three indicator requirements and results of the qualitative analysis (Terstriep et al. 2015, p.3). The final set consists of 69 variables (plus two variables that are used for robustness testing), resulting in a database of 360 regions (NUTS2) and 71 variables.

In Table 2 a sample of these variables are shown. With the first two variables we try to capture the trust related landscape as intangible assets relevant for social innovation. The variable ‘employees who are involved in life-long learning’ refers to on-the-job investments in intangible capabilities (excluding unemployed). As evidenced in several of our cases (e.g. Mothers of Rotterdam) students (variable 4) often serve in initiating or implementing social innovation initiatives. ‘Early school leavers’ (variable 5; source Eurostat) refers to a risk of exclusion and associated needs that are addressed by many of the social innovation initiatives. ‘Government expense’ (variable 7) is a ‘tangible’ example of potential funding of initiatives. ‘Helping or attending local area activities’ is a variable from the European Social Survey referring to the intangible potential/enabler for social innovation in civil society. The inclination for people to donate money (variable 9; source World Giving Index) captures a tangible (exchange value) contribution from citizens. Finally, a number of variables are included which measure the (relative, subjective) needs, in terms of the importance for well-being that citizens attribute to certain aspects in society, such as adequate housing, having a job, etc. Variable 10 ‘safety as part of well-being’ is an example of this.

⁷ <http://www.oecdbetterlifeindex.org/>

⁸ <https://www.europeansocialsurvey.org/>

Table 2 Selection of 10 examples of social innovation context variables in the regional database

	Variable:	Potential/ Need	Tangible/ Intangible	Source
1	Trust in the European Parliament	Need	Intangible	ESS
2	Trust in the legal system	Need	Intangible	ESS
3	Employees who are involved in life-long learning	Potential	Intangible	Eurostat
4	Students leaving compulsory education	Potential	Intangible	Eurostat
5	Early leavers from education and training	Need	Intangible	Eurostat
6	Size of public sector: Employment	Potential	Tangible	Eurostat
7	Size of public sector: Government expense on operating activities and services	Potential	Tangible	World Bank
8	Helping or attending local area activities	Potential	Intangible	ESS
9	World Giving Index	Potential	Tangible	WGI
10	Safety as a part of well-being	Need	Intangible	OECD

3.3 Methodology: factor analysis

Several authors have shown patterns in the way firms innovate by a combination of resources, activities and capabilities. Frenz and Lambert (2012) refer to these innovation modes as ‘mixed modes’, since they indeed refer to certain combinations of innovation capabilities and outputs. There are two methods to come to such a typology: either prescriptive or exploratory. The exploratory methods ‘let the data speak’ by identifying patterns with for instance factor analysis (Srholec and Verspagen 2008; 2012). The explorative methodology is used, because it is especially relevant for developing indicators and typologies in emerging fields of research, outside the mainstream, where standards in concepts, data and categories are still lacking.

For the analysis of the social innovation initiatives we apply factor analysis for two groups of variables, namely those that relate to survey questions on obstacles and outcomes. For the analysis of the regional data we use factor analysis to discover the

regional factors that distinguish regions as contexts for social innovation (Whelan & Maître 2010). As we have a large and diverse set of regional variables we will use an Oblimin rotation method in order to keep the factor loadings as simple as possible.

After discovering the factors underlying our regional dataset we test them in regression analysis, against two dependent variables (regional HDI and regional GDP), showing how the calculated regional factors relate to HDI as an indication of social outcomes at regional level, and to GDP/per capita as the traditional indication of economic outcomes. We then use cluster analysis to classify regions based on their mix of factor-scores as different types of regional systems for social innovation.

At the end of section 4 we will confront the information from the two databases, by putting the initiatives into the regional context in which they are embedded, to see if certain types of social innovation and outcomes are more likely to be found in certain types or regional contexts.

4 Social Innovation Initiatives

4.1 Outcomes of social innovation initiatives

We focus on outcomes, but briefly discuss obstacles. The co-rated importance of organisational and legal obstacles (in the first factor) confirms the observed importance (Terstriep et al. 2015) of the hybrid issue for social innovators concerning the problem to find the appropriate legal form of organisation for their activities. Quite some cases have in fact two forms, e.g. a foundation as well as a company. The joint concentration of social, financial and political obstacles for certain social innovations (in the second factor) seems to serve as an identification of contested social innovations. This type of obstacle is especially high for initiatives to support migrants.

Out of the answers on 20 outcome questions five types of outcomes have been identified with factor analysis (Table 3). Three of these factors have been labelled economic outcome, namely: economic outcome for the innovator, economic outcome for the target group, and economic outcome for governments from discharging public budgets.

Table 3 Types of outcome from social innovation initiatives, pattern matrix of factor analysis

	1 Economic outcome for innovator	2 Economic outcome for target group	3 Social outcome for target group	4 Increased life skills target group	5 Economic outcome from discharge public budgets
Improved financial stability and viable business	.856				
Improved revenues/ less cost for innovator	.841				
Improved management/business capabilities of innovator	.827				
Employment growth at innovator	.817				
Increased marketing capabilities of innovator	.776				
Improved networks of innovator	.691				
Other benefits for private partners	.665				
Generate revenues /sales	.580				
Improved self-confidence of innovator	.534		.468		
Employment target group		.983			
Improved income / less cost target group		.897			
Increased work skills target group		.880			
Improved networks of marginalised			.744	-.310	
Improved self-confidence of marginalised target group			.691		
Other capabilities innovator	.522		.555		
Increased physical capabilities target group				.873	

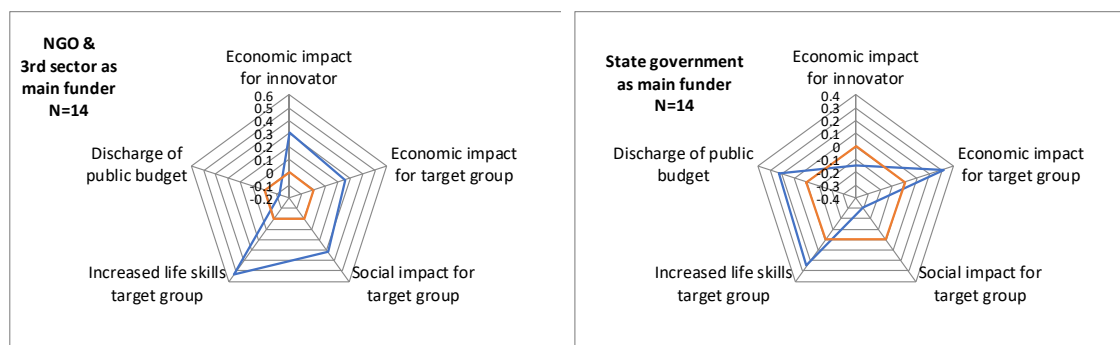
Increased life skills target group		.713	
Other capabilities target group	.331	.430	.400
Reduced public budget costs			.772
Other complements to public policy			.572

Note: Extraction Method: Principal Component Analysis. Rotation Method: Oblimin with Kaiser Normalization. Rotation converged in 40 iterations. High factor loadings emphasized in bold, loadings below 0.3 are suppressed. Total variance explained by 6 factors= 67.0%

4.2 Three Types of Economic outcomes

Figure 1 shows that the social innovation cases which have the state government as main funder, have above average rated outcomes concerning discharge of public budget, and economic outcomes for the target group. On the other hand, initiatives which are mainly funded by Third sector organisations have on average a much lower rated economic outcome for the government, but an above average economic outcome for the social innovator, and social outcome for the target group. The governments seem to outsource public social policy to social innovators, demanding direct economic outcome for the target group, and along with the funding they also transfer their internal logic and governance principle by demanding a full redistribution of the funding to the benefit of the social policy target group. The social innovators are apparently not an innovation policy target group for the governments. Investments in the economic or innovative capabilities of the social innovators seems minimal.

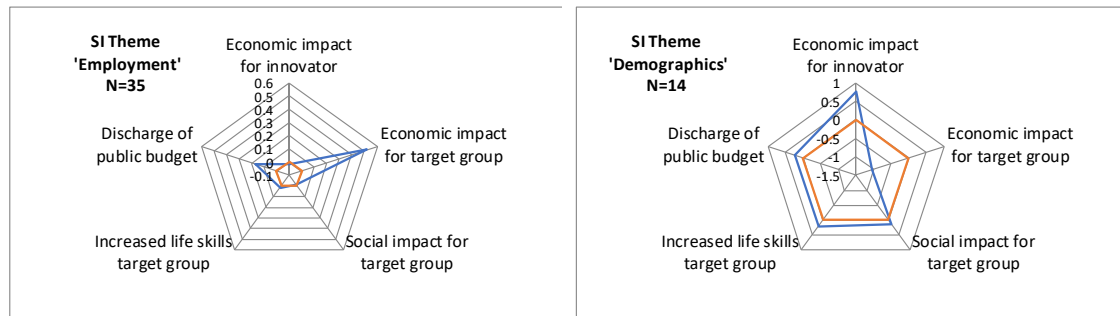
Figure 1 Social innovation outcome profile by main type of funder



Note: The average factor scores of all social innovation cases are 0, indicated by the regular pentagons

Social innovations in the field ‘employment’ are characterised by on average high economic outcomes for the target group, and for the government. For social innovation in the field of ‘demographics’ the average economic outcome for the target group is rated relatively low (see Figure 2), and the social outcomes are relatively high. When the marginalized target group consists for instance of young children or elderly, immediate outcomes in terms of increased employment or work skills are less likely.

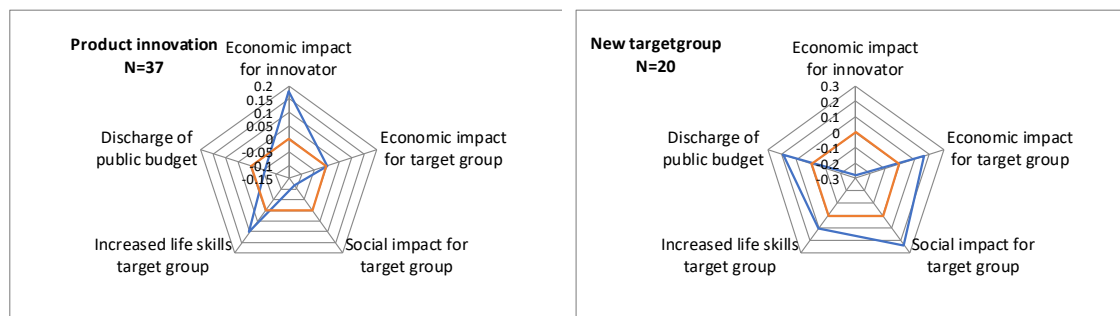
Figure 2 Social innovation outcome profile for initiatives in the field of ‘employment’ and ‘demographics’



Note: The average factor scores of all social innovation cases are 0, indicated by the regular pentagons

On average social innovations that are product/service innovations do well on the economic outcomes for the innovators, while those that address a new target group do very well on all types of outcome, except economic outcomes for the innovator (see Figure 3). Addressing the needs of new target groups generates high economic outcomes, but not for the social innovator.

Figure 3 Outcome profile by type of social innovation: product innovation vs. new target groups



Note: The average factor scores of all social innovation cases are 0, indicated by the regular pentagons, deviation from 0 in standard deviation in blue

Social innovations that have a very positive long-term (LT) perspective, show above average scores on economic outcomes for the innovator, but also perform well on all other outcomes for other stakeholders. Initiatives which long-term outlook has been rated negative, especially lack economic outcomes generated for the innovators. Although they still generate outcomes, without increased tangible and intangible economic capabilities of the innovators these social innovations do not seem to be sustainable.

4.3 Regional Results of Factor Analysis

The information of the regional variables has been reduced to five factors with factor analysis⁹ (Table 4). We have arrived at this number of factors using a scree plot. The decision to use an oblique rotation, is supported by the factor correlation matrix (see annex 1), as there are possible correlations between factors 1 and 5 and factors 2 and 4.

In the first regional factor, which we have labelled ‘Governance vs. Civil’, we see high loadings (negative) for ‘helping a stranger’ and the World Giving Index, together with high loadings for many governance aspects, e.g.: ‘citizens are treated equally in public education’. This factor could refer to a welfare state aspect that citizens have less incentives to engage, when needs are met by the government; and vice-versa, e.g. in case of welfare state reforms (Delsen 2016). Factor two is labelled ‘unemployment’, based on high loadings for youth and female unemployment (but not long-term unemployment). This factor also includes ‘life-long-learning for employees’ and ‘immigration’, but this does not seem to be part of a solution for unemployment. Factor three revolves around trust and cohesion; important intangible social metrics. Based on the first few high loadings we have given factor 3 the label: ‘Trust in the state & new ideas’, but, (with less high loadings) it for instance also includes: ‘Feeling people in local area help each other’ and ‘Helping or attending local area activities’. Factor 4 we have labelled ‘Failing education’, because it loads high on the following variables: ‘Education as a part of well-being’ (negative), ‘Educational attainment: Less than primary and lower secondary’, ‘Early leavers from education and training’, ‘Jobs as a part of well-being’ (negative), and ‘Long term unemployment’. The fifth factor is called: ‘Engagement’ because ‘Civic engagement as part of well-being’ is very high, but this engagement is not of the philanthropic kind. It also goes together with engagement from public and private sector in terms of innovation policy and service innovation.

Table 4 Social innovation context factors based on regional indicators; pattern matrix of principal component analysis

	1 Governance vs. civil	2 Unemployment	3 Trust in state & new ideas	4 Failing Education	5 Engagement
Helping a stranger	-0.899				0.33
World Giving Index	-0.839				
Citizens are treated equally in public education	0.823				
Corruption persists in law enforcement	0.733				
Other citizens use bribery to obtain public services	0.713				
Quality of Government index	0.688				
Share of part time employment in total employment	0.669				
Housing as a part of well-being	0.646				
Quality of law enforcement	0.636				
Most people can be trusted	0.579				

⁹ respectively also referred to as components and principle component analysis

Corruption persists in regional elections	0.572			0.323
Environment as a part of well-being	0.554		0.429	
Quality of public education	0.503			
Share of innovators cooperating with others	0.482			0.344
Female educational attainment: Tertiary education	0.474	0.332		
Most people treat you fair	0.456			
Structural funds allocations on innovation	-0.409			
Independence/Autonomy on RTDI	0.404			
Income as a part of well-being	0.402			0.324
Male educational attainment: Tertiary education	0.398			
Safety as a part of well-being	0.361			
Youth unemployment		0.866		
Total unemployment		0.865		
Female unemployment		0.859		
Employees who are involved in life-long learning		0.850		
Estimated total international immigration		0.842		
Future international migration: Extrapolation for 2020-2030		0.807		
Size of public sector: Employment	0.527		-0.464	
Students leaving compulsory education without a diploma	0.508			
Regional population density	0.317			
Trust in the police		0.866		
It is important to think new ideas and be creative		0.864		
It is important that government is strong		0.829		
Trust in the European Parliament		0.818	0.330	
Trust in the legal system		0.815		
It is important to try new and different things		0.813		
Trust in politicians	0.348	0.693		
Feeling people in local area help each other		0.643		
Helping or attending local area activities	-0.344	0.573		
Feeling close to people in local area		0.447		
Independence/Autonomy in general				
Education as a part of well-being			-0.896	
Educational attainment: Less than primary and lower secondary			0.887	
Early leavers from education and training			0.764	
Jobs as a part of well-being	0.315		-0.676	
Long term unemployment			0.634	
Self-employed persons as part total employment			0.614	
People at risk of poverty			0.579	-0.383
Accessibility to services	0.506		-0.563	
People at risk of poverty or social exclusion			0.502	-0.388
Infrastructure as part of well-being			-0.492	0.301
Internet access	0.398		-0.428	
Net migration plus adjustment	0.302		-0.411	
Annual expenditure of the municipal authority per resident			-0.358	
Size of philanthropic sector: Number of organisations	0.347		-0.369	-0.686
Civic engagement as part of well-being				0.663
Share of innovators receiving public financial support				0.588
Size of public sector: Government expense on operating activities and services			0.339	0.571
Share of companies that introduced a service innovation				0.523
Business sophistication		0.44	-0.371	0.493
Per capita number of small firms				0.464
Health as a part of well-being	0.371		0.341	0.422
Share foreigners in the regional population				0.422

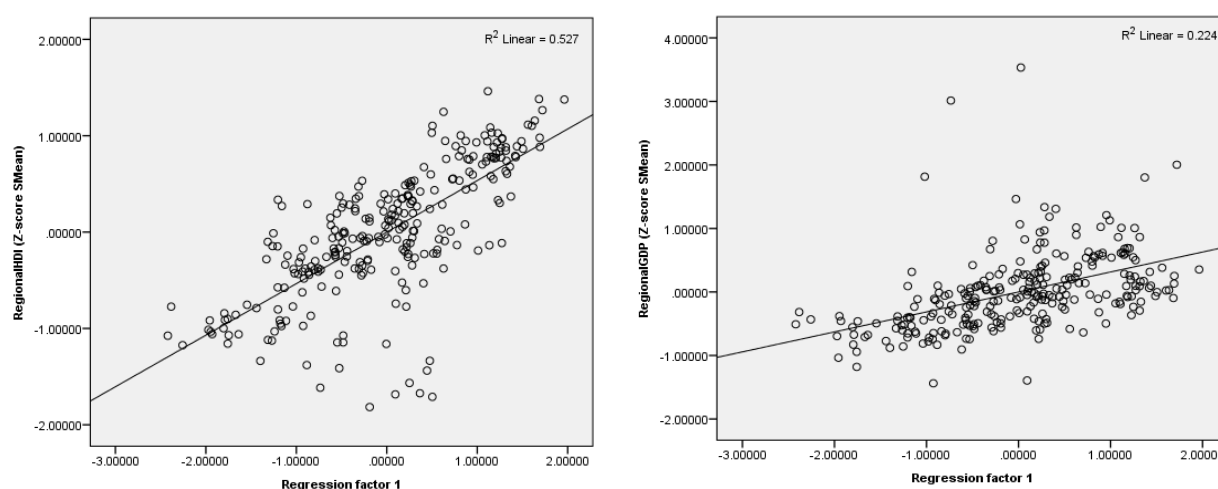
Note: Extraction Method: Principal Component Analysis. Rotation Method: Oblimin with Kaiser Normalization. Rotation converged in 17 iterations. High factor loadings emphasized in bold, loadings below 0.3 are suppressed.

4.4 Regional Social Innovation impact on GDP and Beyond: Regression analysis

After finding 5 regional factors, underlying the data we have collected in relation to social innovation, we test whether our data is robust and fit for a comparison with a P-P plot. We have selected the Regional Human Development Index and Regional GDP/capita as our dependent output variables. Although there is a bit of deviation in both P-P plots (See annex 2), the curves follow a sufficiently linear path for us to be able to state that there is a normal distribution.

Using the factor scores for each of the discovered factors we now test our assumptions concerning the factors and the actual factor's robustness against two dependent variables: Regional GDP/capita and the subnational Human Development Index (Regional HDI) using a regression analysis. The latter can be seen as an indicator to measure the outcome of social innovation beyond GDP.

Figure 4 Impact beyond GDP; regressions for regional social innovation factor 1: 'Governance vs. Civil' with Regional Human Development Index (left) and GDP/capita (right) as dependent variables

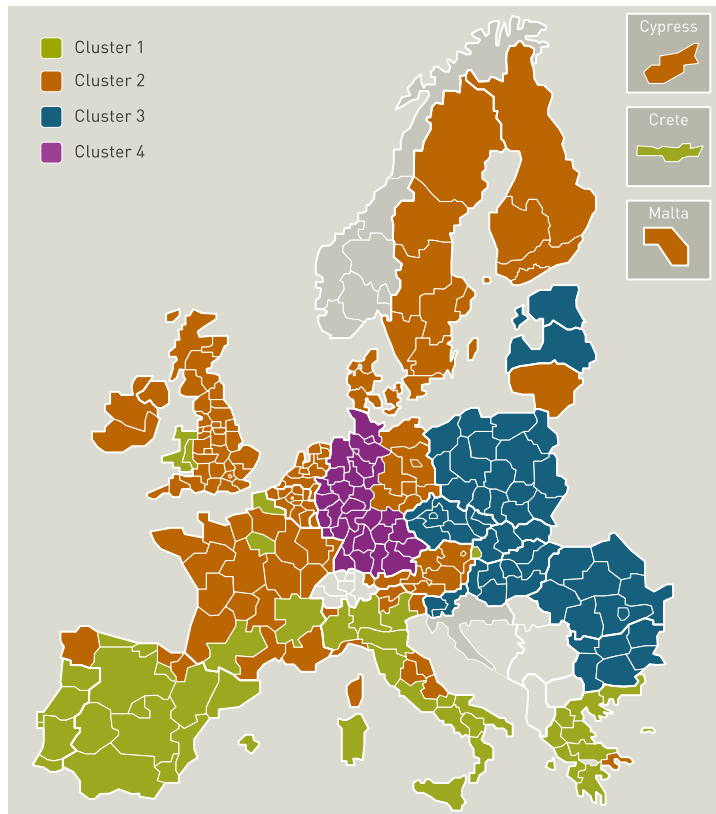


From the comparison of the regressions we can conclude that factor 1 'Governance vs. Civil' is positively related to both HDI as well as GDP per capita (Figure 4). Factor 5 'Engagement' is also positively related to both, while the 4th factor 'Failing education' has a negative effect on both of the output indicators. Factor 2 'Unemployment' and Factor 3 'Trust in State & New ideas' do not seem to have an effect on either one of the output indicators (See annex 3).

4.5 Regional Social Innovation Systems?: Cluster analysis

The next step in our methodology consists in clustering the NUTS2 regions according to their scores on the five social innovation related factors. For this we have used the hierarchical clustering Ward method (minimizing the ‘within-cluster’ variance of the factors). The cluster analysis results in four clusters¹⁰ which translate to four types of regional systems for social innovation (Figure 5)

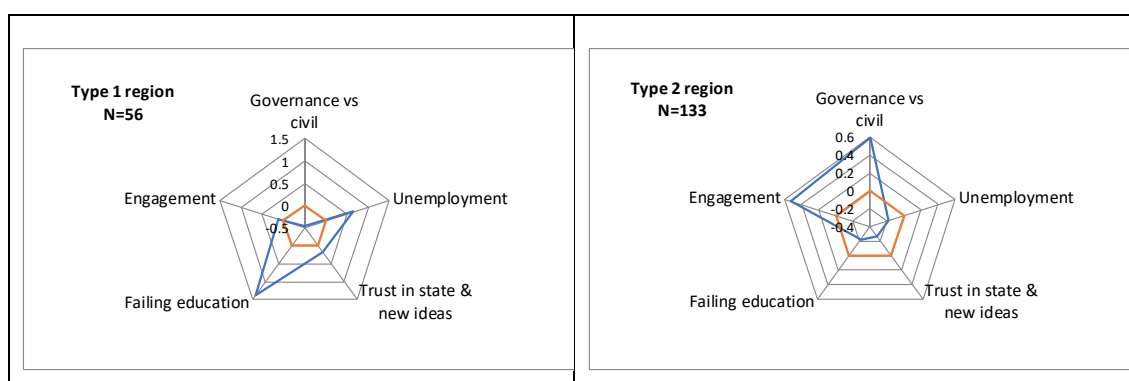
Figure 5 Four types of regional social innovation systems in Europe



The first cluster of regions (mostly located in the south of the EU), is characterised by the high score on the social innovation factors which we have labelled ‘Failing education’, and ‘Unemployment’, and a very low score on the factor ‘Governance vs. civil’ (Figure 6). The second group of regions (including most of North West EU) is characterised by high regional factor scores on: ‘Governance vs. civil’, and ‘Engagement’. The third cluster of regions (located in East EU) scores below average on all the factors, which for instance means that ‘Failing education’ and ‘Unemployment’ is less of a social innovation issue compared to the cluster 1 type of regions in the south. The fourth type of social innovation regions score particularly well on the factor ‘Trust in state & new ideas’.

¹⁰ The cluster solution per NUTS 2 is in annex 4

Figure 6 Social innovation context profiles for two types¹¹ of regional systems



Note: The average factor scores of all social innovation cases are 0, indicated by the regular pentagons, deviation from 0 in standard deviations (blue)

These regional profiles show the contextual differences for social innovation. In explaining social innovation initiatives and their outcomes these differences should be taken into account. E.g. the cases within the field of ‘Employment’ have mostly emerged in regions with a very high score on the regional social innovation factor ‘Unemployment’. The regions where initiatives in field of ‘Demographics’ originate have on average high levels of ‘Governance vs. civil’, and ‘Engagement’.

4.6 Comparing Initiatives in two contrasting Regional Systems of Social Innovation

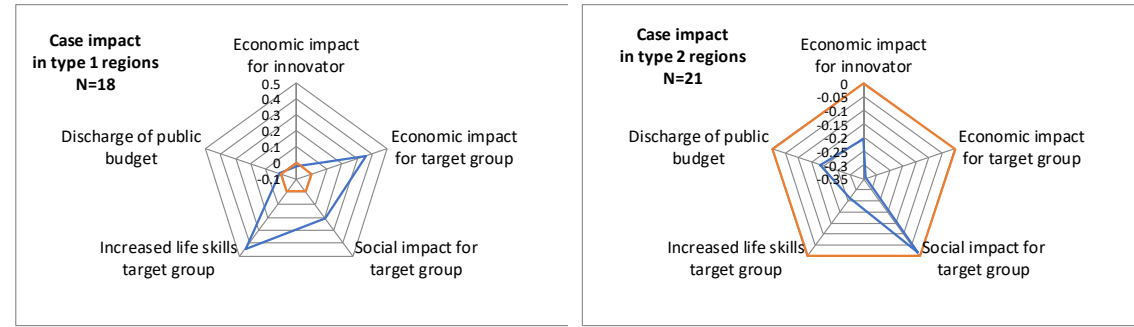
The number of our social innovation cases are quite small for cluster 4 and cluster 3 type of regions. Concerning the outcome profiles of initiatives per type of region, we therefore limit to a descriptive comparison between those initiated in type 1 and type 2 regions.

The initiatives in the first type of region do particularly well on economic outcome for the target group. The cases in the second type of region have rather disappointing economic outcomes, especially in terms of economic outcome for the target group (see Figure 7). A large part of the differences between the cases in cluster 1 and cluster 2 type of regions is based on the difference according to the field of action of the social innovations. In type 1 regions, 15 out of the 18 cases concern social innovation initiatives in the field of ‘Employment’ which seems to be very relevant in their regional context with high factor scores on ‘Unemployment’ and ‘Failing education’. In type 2 regions half of all the cases in the ‘Demographics’ and ‘Migration’ field are concentrated, for which it is more difficult to directly generate economic outcomes, and the generated social outcomes may take some time to materialise into economic effects. The needs addressed with these social innovations seem related to the reduced budgets

¹¹ In annex 5 the social innovation context profiles for type 3 and type 4 regions are provided

for public government services in type 2 regions for the ‘Demographics’ and ‘Migration’ fields of action. Combined with the high potential for engagement, the solutions transcend both those traditionally provided in the institutional context of family, as well as those (formerly) provided by their well-fare state.

Figure 7 Outcome profiles of cases for two types of regional social innovation systems



Note: The average factor scores of all social innovation cases (N=55) are 0, indicated by the regular pentagons, deviation from 0 in standard deviations (blue)

5. Conclusions

In our explorative effort to explain the emergence, outcomes and sustainability of social innovation we have gained insights by systemising social innovation at the organisational and regional level, based on three principle indicator requirements. In this final section we discuss the main conclusions, and mention some limitations of the study.

The analysis of the standardised data from the survey of 55 social innovation initiatives resulted in some specific findings on characteristics of social innovation initiatives that can explain outcomes and sustainability of the initiatives. Several types of outcomes are identified. Some types of outcomes only include intangible (use-value) aspects for the target group (such as increased self-confidence, social capabilities and networks), which are not directly (e.g., in the short term) generating financial economic benefits (exchange-value).

Three distinctive types of outcomes refer to economic outcomes for three types of stakeholders: social innovators, governments and the target group of vulnerable citizens, but also these economic type of outcomes include intangible aspects such as improved capabilities and networks. The results suggest that the type of outcome from social innovation initiatives depends on the type of need addressed, since (compared to social innovations that address 'demographic' needs) those addressing 'employment' appear to generate higher economic outcomes for the target group. Economic outcomes for the target group are also higher when the initiatives address the needs of a new target group.

The economic outcome for the government (related to a discharge of government budgets) is rated high for initiatives which have the national government as main funder. Also initiatives that address the need for employment and needs of new target groups generate high economic outcomes for the government.

Economic outcomes for the social innovator (in terms of revenues and/or capabilities) are high when the initiatives are mainly funded by (other) Third sector organisations. Serving needs of a new target group is associated with less economic outcome for the social innovator.

Long-term sustainability of an initiative can be explained by (tangible & intangible) economic outcomes for the social innovator. Serving needs of a new target group has shown to be risky, since the low economic outcomes, and high social, political and financial obstacles reduce the long-term perspective.

A main policy implication is that to improve the sustainability of social innovation initiatives, and the positive outcomes they generate, policymakers could invest in the tangible and intangible capabilities of social innovators, and reduce obstacles for social innovators in experimenting with serving needs of new target groups. Policymakers, who want to increase the (long-term) economic outcome from social innovation, should not merely focus on direct output in terms of empowerment of the marginalised target

group, but should also invest in the tangible and intangible empowerment of the social innovators.

It has been shown that social innovation, both at the level of initiatives and regions, is a systemic phenomenon. The three indicator requirements have proven to be relevant. Measuring social innovation involves covering a broad range of tangible and intangible factors for a broad range of stake-holding actors, that identify both the supply- and demand-side of social innovation. This also implies that evaluating outcomes of initiatives should in principle be a collective effort. It is for instance not optimal when public or other main funders have a dominant position in outcome evaluations, which enables them to dictate output indicators and targets, without any interaction with other stakeholders.

At the regional level factors have been derived with factor (principal component) analysis from a large set of contextual indicators. The ‘principal component’ (factor that explains the largest share of the variance) seems to have a positive outcome on regional GDP as well as on the Regional Human Development Index, which can be seen as an out-put indicator for ‘Beyond GDP’ outcomes. This result supports the idea that social innovation should not be seen as an economic cost, but as an investment. Four different types of regional systems of social innovation have been identified in Europe. The characteristics of the social innovation initiatives, fit the characteristics of the regional context from which they originate. As different regional contexts, with different co-located social innovation needs and social innovation potential, they induce different social innovation initiatives and outcomes.

The lack of standardised data on social innovation is a major limitation of this study. It not only relates to the limited number of 55 initiatives, but also to the lack of regional statistics on social innovation activities and performing organisations. A systemic shortcoming in applying the indicator requirements at the level of social innovation initiatives is that our survey lacked questions on the intangible outcomes for the government in terms of improved capabilities and networks for policy making, as well as improved awareness and insights on certain unmet social needs. The survey data also lacked information on outcomes for volunteers and commercial companies as stakeholders in initiatives. The coverage of social innovation at the level of initiatives and regions is limited by the selection of fields, which for instance exclude social innovation in the field of health and environment.

When data from larger surveys at the organisational level will become available, the effect of organisational characteristics could be analysed in more advanced ways, for example with multiple regression analysis. Improved classification of regional systems, could then serve as dummies to control for the differences in regional context. Further work on quantifying economic outcomes of social innovation initiatives would benefit from information in Euro that was lacking in our survey, e.g. budget per beneficiary. Integrating insights from detailed impact assessment cases that estimate the monetised value of intangibles, could then further serve quantified estimations.

References

- Anheier, H. K., Krlev, G., Preuss, S., Mildemberger, G. & T. Einarsson (2014). Theory and empirical capturing of the third sector at the macro level. Deliverable 2.1 of the project: 'Impact of the Third sector as Social Innovation' (ITSSOIN), European Commission – 7th Framework Programme.
- Carlsson, B., Jacobsson, S., Holmén, M., & Rickne, A. (2002). Innovation systems: analytical and methodological issues. *Research policy*, 31(2), 233-245.
- Caulier-Grice, J. Davies, A. Patrick, R. Norman, W. (2012) Defining Social Innovation. Deliverable of the project: 'The theoretical, empirical and policy foundations for building social innovation in Europe' (TEPSIE), European Commission –7th Framework Programme.
- Cajaiba-Santana, G. (2014). Social innovation: Moving the field forward. A conceptual framework. *Technological Forecasting and Social Change*, 82, 42-51
- Cooke, P., Uranga, M. G., & Etzebarria, G. (1997). Regional innovation systems: Institutional and organisational dimensions. *Research policy*, 26(4-5), 475-491.
- Corrado, C., C. R. Hulten, & D. E. Sichel (2006). Intangible Capital and Economic Growth. NBER Working Paper No. 11948.
- Debre, R., Alijani S., Thomas L., Boudes M. & Mangalagiu M.(2015). Meta-Analysis of Social Innovation across Europe. Deliverable D3.1 of the project “Boosting the Impact of Social Innovation in Europe through Economic Underpinnings” (SIMPACT), European Commission –7th Framework Programme.
- Delsen, L. (2016) The realisation of the participation society. Welfare state reform in the Netherlands: 2010-2015, IMR Working Paper NICE16-02, Institute for Management Research, Nijmegen: Radboud University.
- Dopfer, K. (2011). Mesoeconomics: a unified approach to systems complexity and evolution. *Handbook on the economic complexity of technological change*, 341.
- Dosi, G. (1982). Technological paradigms and technological trajectories: A suggested interpretation of the determinants and directions of technical change. *Research Policy*, 11(3), 147-162.
- Edwards-Schachter, M. & M. L. Wallace (2015) 'Shaken, but not stirred': six decades defining social innovation. INGENIO Working Paper N° 2015-04
- Esping-Andersen, G., 1990. *The Three Worlds of Welfare Capitalism*. Princeton, NJ: Princeton University Press

- Fagerberg, J. (2014). Schumpeter and the revival of evolutionary economics: an appraisal of the literature. *Journal of Evolutionary Economics*, 13(2), 125-159.
- Fagerberg, J., Martin, B. R., & Andersen, E. S. (Eds.). (2013). *Innovation studies: evolution and future challenges*. OUP Oxford.
- Freeman, C. (2002). Continental, national and sub-national innovation systems—complementarity and economic growth. *Research policy*, 31(2), 191-211.
- Frenz, M. and R. Lambert (2012). “Mixed Modes of Innovation: An Empiric Approach to Capturing Firms' Innovation Behaviour”, OECD Science, Technology and Industry Working Papers, 2012/06, OECD Publishing.
- Geels, F. W. (2004). From sectoral systems of innovation to socio-technical systems: Insights about dynamics and change from sociology and institutional theory. *Research policy*, 33(6-7), 897-920.
- Geels, F. W. (2005). Processes and patterns in transitions and system innovations: refining the co-evolutionary multi-level perspective. *Technological forecasting and social change*, 72(6), 681-696.
- Geels, F. W., & Kemp, R. (2007). Dynamics in socio-technical systems: Typology of change processes and contrasting case studies. *Technology in society*, 29(4), 441-455.
- Hall, P. A., & Soskice, D. (2003). Varieties of capitalism and institutional complementarities. In *Institutional Conflicts and Complementarities* (pp. 43-76). Springer, Boston, MA.
- Hubrich, D.-K., Schmitz, B., Mildenerberger, G. & E. Bund (2012). The Measurement of Social Economies in Europe - a First Step towards an Understanding of Social Innovation. Deliverable of the Project: “The Theoretical, Empirical and Policy Foundations for Building Social Innovation in Europe” (TEPSIE)
- Howaldt, J., & Schwarz, M. (2017). Social Innovation and Human Development—How the Capabilities Approach and Social Innovation Theory Mutually Support Each Other. *Journal of Human Development and Capabilities*, 18(2), 163-180
- Jean-Paul, F., & Martine, D. (2018). *Beyond GDP; Measuring What Counts for Economic and Social Performance*. OECD Publishing.
DOI:<https://doi.org/10.1787/9789264307292-8-en>

- Krlev, G., Bund, E. & G. Mildemberger (2014). Measuring What Matters: Indicators of Social Innovativeness on the National Level. *Information Systems Management*, 31(3), 200–224.
- Lundvall, B. A., ed. (1992). *National Systems of Innovation: Towards a Theory of Innovation and Interactive Learning*. London: Pinter.
- Malerba, F. (Ed.). (2004). *Sectoral systems of innovation: concepts, issues and analyses of six major sectors in Europe*. Cambridge University Press.
- Mazzucato, M. (2013). *The Entrepreneurial State – Debunking Public vs. Private Sector Myths*, Anthem Press.
- Mytelka, L K and K Smith 2002. Policy learning and innovation theory: an interactive and co-evolving process. *Research Policy*, 31(8–9), 1467–1479.
- Moghadam Saman, S. & Kaderabkova, A. (2015): *Social Innovation in New Member States. Part I –Theoretical Investigation on Economic Underpinnings*. SIMPACT Working Paper, 2015(2).Gelsenkirchen: Institute for Work and Technology.
- Mulgan, G. (2010). Measuring Social Value. *Stanford Social Innovation Review*, 8(3): 38-43.
- Nelson, R. R. & S. G. Winter (1982). *An Evolutionary Theory of Economic Change*. Cambridge, Massachusetts: The Belknap Press.
- Nelson, R. R. (1993). *National Innovation Systems: A Comparative Analysis*.
- Newth, J. (2016). Social Enterprise Innovation in Context: Stakeholder Influence through Contestation. *Entrepreneurship Research Journal*. 6. 10.1515/erj-2014-0029.
- Nicholls, A., & Murdock, A. (2012). The nature of social innovation. In *Social innovation* (pp. 1-30). Palgrave Macmillan, London.
- OECD (2018), "Twelve recommendations on the way ahead in measuring well-being", in *Beyond GDP: Measuring What Counts for Economic and Social Performance*, OECD Publishing, Paris, <https://doi.org/10.1787/9789264307292-8-en>.
- Pol, E., & Ville, S. (2009). Social innovation: Buzz word or enduring term?. *The Journal of Socio-Economics*, 38(6), 878-885.
- Rehfeld, D., Terstriep, J., Welschhoff, J. & S. Alijani (2015). *Comparative Report on Social Innovation Framework*. Deliverable D1.1 of the project “Boosting the

- Impact of Social Innovation in Europe through Economic Underpinnings” (SIMPACT), European Commission –7th Framework Programme.
- Rueede, D. and K. Lurtz (2012) Mapping the Various Meanings of Social Innovation: Towards a Differentiated Understanding of an Emerging Concept (July 19, 2012). EBS Business School Research Paper No. 12-03.
- Schillo, R. S., & Robinson, R. M. (2017). Inclusive innovation in developed countries: The who, what, why, and how. *Technology Innovation Management Review*, 7(7).
- Schumpeter, J.A. (1912), *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest and the Business Cycle*, (2008) translated from the German by Redvers Opie, New Brunswick and London: Transaction Publishers.
- Schumpeter, J. A. (1937) “Preface to the Japanese Edition of “*Theorie der Wirtschaftlichen Entwicklung*,” reprinted in Schumpeter, J. A. (1989) *Essays on Entrepreneurs, Innovations, Business Cycles and the Evolutions of Capitalism*, R. V. Clemence (ed.), New Brunswick NJ: Transaction Publishers, 165-168.
- Srholec, M., & B. Verspagen (2012). The Voyage of the Beagle into innovation: explorations on heterogeneity, selection, and sectors. *Industrial and Corporate Change*, 21(5): 1221-1253.
- Stiglitz, J.E.; Sen, A. & Fitoussi, J-P. (2009). *Measuring Economic Performance and Social Progress.*, Paris: Report by the Commission on the Measurement of Economic Performance and Social Progress.
- Terstriep, J., Kleverbeck, M., Deserti, A. & Rizzo, F. (2015). Comparative report on social innovation across Europe. Deliverable D3.2 of the project "Boosting the outcome of social innovation in Europe through economic underpinnings" (SIMPACT), European Commission - 7th Framework Programme.
- Tracey, P. & N. Stott (2017) Social innovation: a window on alternative ways of organizing and innovating, *Innovation*, 19:1, 51-60, DOI: 10.1080/14479338.2016.1268924
- Turkeli, S., & Wintjes, R. J. M. (2014). Towards the societal system of innovation: The case of metropolitan areas in Europe. *UNU-MERIT Working Paper Series*, No. 040.

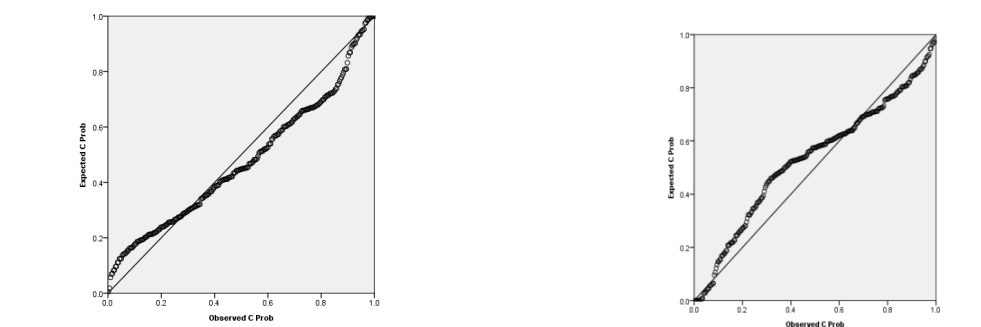
- Unceta, A., Luna, Á., Castro-Spila, J., & Wintjes, R. (2019). Social Innovation Regime: an integrated approach to measure social innovation. *European Planning Studies*, 1-19.
- Unceta, A., Javier Castro-Spila & Javier García Fronti (2016) Social innovation indicators, *Innovation: The European Journal of Social Science Research*, 29:2, 192-204
- Vargo, S.L., Maglio, P. & M. Akaka (2008). On value and value co-creation: A service systems and service logic perspective. *European Management Journal*, 26(3): 145-152.
- Whelan, T. C., & Maître, B. (2010). Welfare regime and social class variation in poverty and economic vulnerability in Europe: An analysis of EU-SILC. *Journal of European Social Policy*, 20(4), 316–332. doi: 10.1177/0958928710374378
- Wintjes, R., Es-Sadki, N., Glott, R., Notten, A. (2016) Improved Measurement of the Economics of Social Innovation. Deliverable D5.1 of the SIMPACT project. http://www.simpact-project.eu/publications/reports/SIMPACT_D51.pdf

Annex 1 Regional context Factor Correlation Matrix

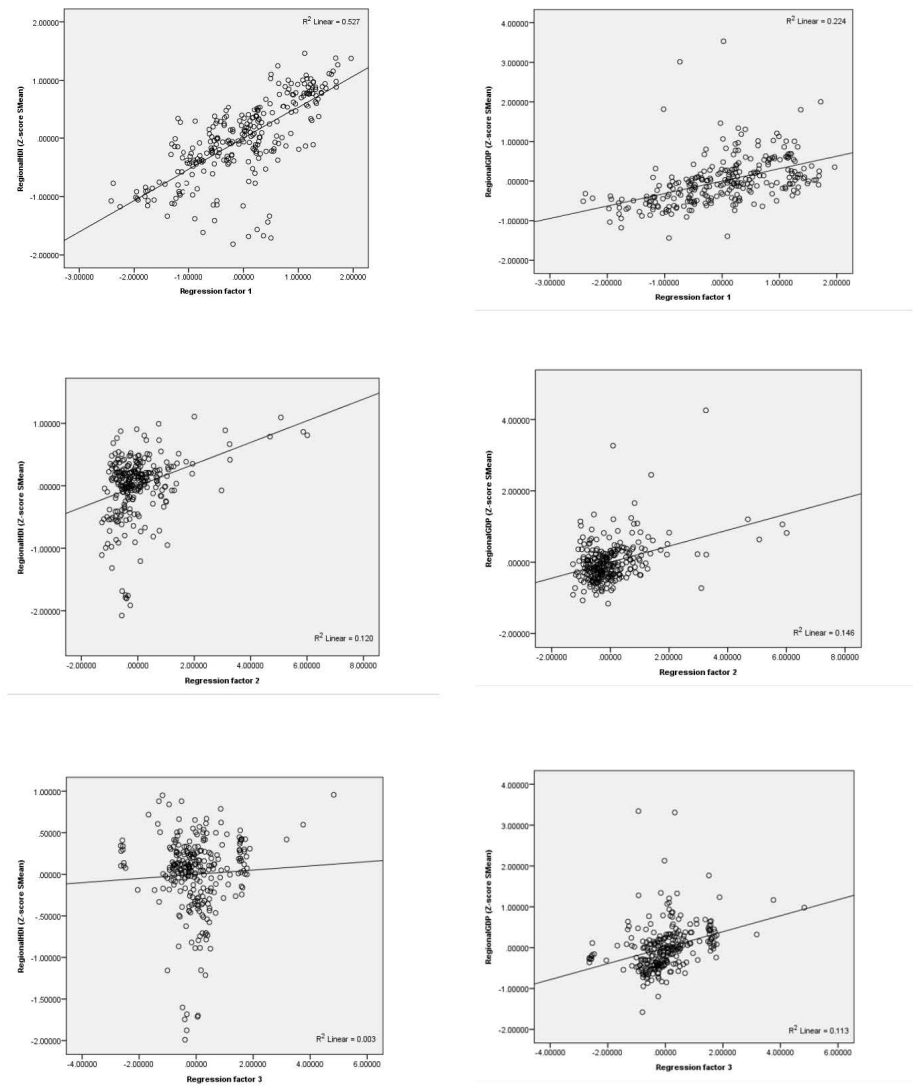
Factor	1	2	3	4	5
1	1.000	.064	-.058	-.037	-.172
2	.064	1.000	.125	.221	.041
3	-.058	.125	1.000	.077	.009
4	-.037	.221	.077	1.000	.019
5	-.172	.041	.009	.019	1.000

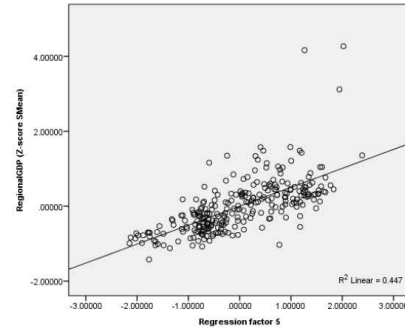
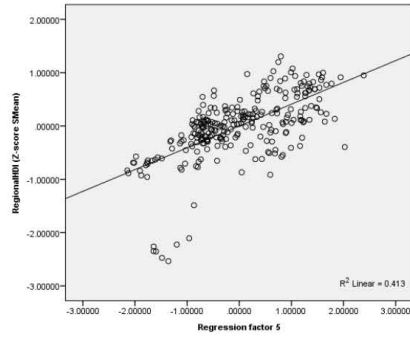
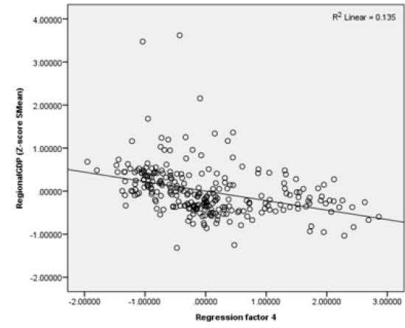
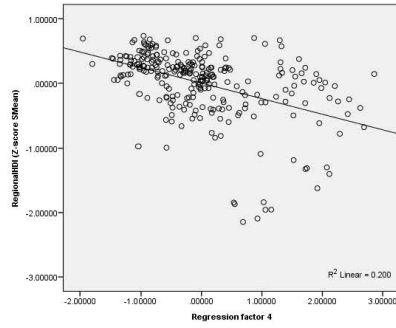
Note: Rotation Method: Oblimin with Kaiser Normalization.

**Annex 2 P-P plots for Regional Human Development Index (left) and GDP/capita
(right)**



Annex 3 Regressions for regional social innovation factors 1-5 with Regional Human Development Index (left) and GDP/capita (right) as dependent variables





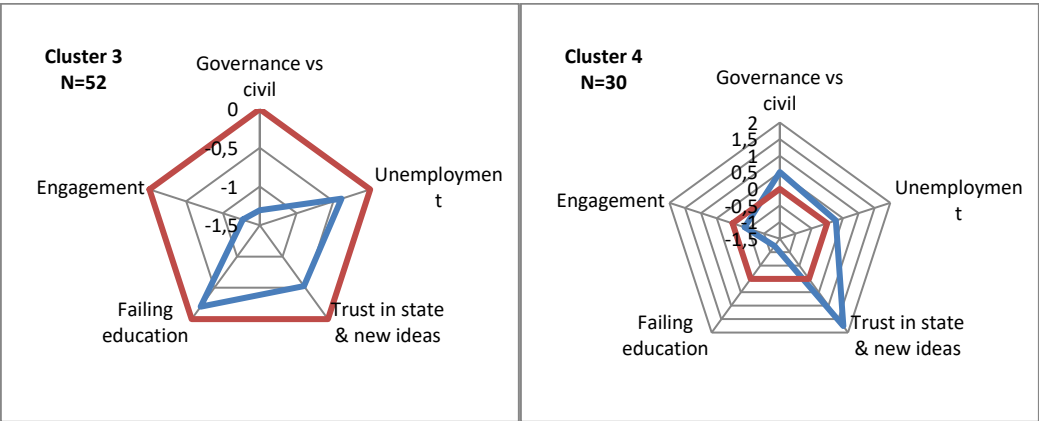
Annex 4 Cluster solution for NUTS2 regions

NUTS2	Cluster	NUTS2	Cluster	NUTS2	Cluster	NUTS2	Cluster
BE1	1	BE21	2	BG31	3	DE11	4
EL11	1	BE22	2	BG32	3	DE12	4
EL12	1	BE23	2	BG33	3	DE13	4
EL13	1	BE24	2	BG34	3	DE14	4
EL14	1	BE25	2	BG41	3	DE21	4
EL21	1	BE31	2	BG42	3	DE22	4
EL22	1	BE32	2	CZ01	3	DE23	4
EL23	1	BE33	2	CZ02	3	DE24	4
EL24	1	BE34	2	CZ03	3	DE25	4
EL25	1	BE35	2	CZ04	3	DE26	4
EL41	1	DK01	2	CZ05	3	DE27	4
EL42	1	DK02	2	CZ06	3	DE5	4
EL43	1	DK03	2	CZ07	3	DE6	4
ES12	1	DK04	2	CZ08	3	DE71	4
ES13	1	DK05	2	EE	3	DE72	4
ES23	1	DE3	2	LV	3	DE73	4
ES24	1	DE41	2	HU1	3	DE91	4
ES3	1	DE42	2	HU21	3	DE92	4
ES41	1	DE8	2	HU22	3	DE93	4
ES42	1	DED1	2	HU23	3	DE94	4
ES43	1	DED2	2	HU31	3	DEA1	4
ES51	1	DED3	2	HU32	3	DEA2	4
ES52	1	DEE	2	HU33	3	DEA3	4
ES53	1	DEG	2	PL11	3	DEA4	4
ES61	1	IE01	2	PL12	3	DEA5	4
ES62	1	IE02	2	PL21	3	DEB1	4
ES63	1	EL3	2	PL22	3	DEB2	4
ES64	1	ES11	2	PL31	3	DEB3	4
ES7	1	ES21	2	PL32	3	DEC	4
FR1	1	ES22	2	PL33	3	DEF	4
FR3	1	FR21	2	PL34	3		
FR71	1	FR22	2	PL41	3		
FR82	1	FR23	2	PL42	3		
ITC1	1	FR24	2	PL43	3		
ITC4	1	FR25	2	PL51	3		
ITH3	1	FR26	2	PL52	3		
ITH5	1	FR41	2	PL61	3		
ITI1	1	FR42	2	PL62	3		
ITI4	1	FR43	2	PL63	3		
ITF2	1	FR51	2	RO11	3		
ITF3	1	FR52	2	RO12	3		
ITF4	1	FR53	2	RO21	3		
ITF5	1	FR61	2	RO22	3		
ITF6	1	FR62	2	RO31	3		
ITG1	1	FR63	2	RO32	3		
ITG2	1	FR72	2	RO41	3		
PT11	1	FR81	2	RO42	3		
PT15	1	FR83	2	SI01	3		
PT16	1	FR91	2	SI02	3		
PT17	1	FR92	2	SK02	3		
PT18	1	FR93	2	SK03	3		
PT2	1	FR94	2	SK04	3		
PT3	1	ITC2	2				
SK01	1	ITC3	2				

UKI1	1	ITH1	2				
UKI2	1	ITH2	2				
		ITH4	2				
		ITI2	2				
		ITI3	2				
		ITF1	2				
		CY	2				
		LT	2				
		LU	2				
		MT	2				
		NL11	2				
		NL12	2				
		NL13	2				
		NL21	2				
		NL22	2				
		NL23	2				
		NL31	2				
		NL32	2				
		NL33	2				
		NL34	2				
		NL41	2				
		NL42	2				
		AT11	2				
		AT12	2				
		AT13	2				
		AT21	2				
		AT22	2				
		AT31	2				
		AT32	2				
		AT33	2				
		AT34	2				
		FI13	2				
		FI18	2				
		FI19	2				
		FI1A	2				
		FI2	2				
		SE11	2				
		SE12	2				
		SE21	2				
		SE22	2				
		SE23	2				
		SE31	2				
		SE32	2				
		SE33	2				
		UKC1	2				
		UKC2	2				
		UKD1	2				
		UKD2	2				
		UKD3	2				
		UKD4	2				
		UKD5	2				
		UKE1	2				
		UKE2	2				
		UKE3	2				
		UKE4	2				
		UKF1	2				
		UKF2	2				

		UKF3	2				
		UKG1	2				
		UKG2	2				
		UKG3	2				
		UKH1	2				
		UKH2	2				
		UKH3	2				
		UKJ1	2				
		UKJ2	2				
		UKJ3	2				
		UKJ4	2				
		UKK1	2				
		UKK2	2				
		UKK3	2				
		UKK4	2				
		UKL1	2				
		UKL2	2				
		UKM2	2				
		UKM3	2				
		UKM5	2				
		UKM6	2				
		UKN	2				

Annex 5 Social innovation context profiles for type 3 and type 4 regions in Europe



Note: The average factor scores of all social innovation cases are 0 (the regular pentagons); deviation from 0 in standard deviations (blue)

The UNU-MERIT WORKING Paper Series

- 2019-01 *From "destructive creation" to "creative destruction": Rethinking Science, Technology and innovation in a global context* by Luc Soete
- 2019-02 *Do young innovative companies create more jobs? Evidence from Pakistani textile firms* by Waqar Wadho, Micheline Goedhuys and Azam Chaudhry
- 2019-03 *What gains and distributional implications result from trade liberalization?* by Maria Bas and Caroline Paunov
- 2019-04 *FDI, multinationals and structural change in developing countries* by André Pineli, Rajneesh Narula and Rene Belderbos
- 2019-05 *The race against the robots and the fallacy of the giant cheesecake: Immediate and imagined impacts of artificial intelligence* Wim Naudé
- 2019-06 *The middle-technology trap: The case of the automotive industry in Turkey* by Ibrahim Semih Akçomak and Serkan Bürken
- 2019-07 *The impact of a mathematics computer-assisted learning platform on students' mathematics test scores* by Marcelo Perera and Diego Aboal
- 2019-08 *Health insurance and self-employment transitions in Vietnam* by Nga Le, Wim Groot, Sonila M. Tomini and Florian Tomini
- 2019-09 *Knowledge economy and economic development in the Arab region* by Samia Mohamed Nour
- 2019-10 *Migration of higher education students from the North Africa region* by Samia Mohamed Nour
- 2019-11 *Job automation risk, economic structure and trade: a European perspective* by Neil Foster-McGregor, Önder Nomaler and Bart Verspagen
- 2019-12 *The breadth of preferential trade agreements and the margins of exports* by Rod Falvey and Neil Foster-McGregor
- 2019-13 *What a firm produces matters: diversification, coherence and performance of Indian manufacturing firms* by Giovanni Dosi, Nanditha Mathew and Emanuele Pugliese
- 2019-14 *Brazilian exporters and the rise of Global Value Chains: an empirical assessment* by Caio Torres Mazzi
- 2019-15 *How has globalisation affected the economic growth, structural change and poverty reduction linkages? Insights from international comparisons* by Aradhna Aggarwal
- 2019-16 *R&D, innovation and productivity* by Pierre Mohnen
- 2019-17 *Domestic intellectual property rights protection and exports: Accessing the credit channel* by Gideon Ndubuisi
- 2019-18 *The role of early-career university prestige stratification on the future academic performance of scholars* by Mario Gonzalez-Sauri and Giulia Rossello
- 2019-19 *The employment impact of product innovations in sub-Saharan Africa: Firm-level evidence* by Elvis Korku Avenyo, Maty Konte and Pierre Mohnen
- 2019-20 *Embodied and disembodied technological change: the sectoral patterns of job-creation and job-destruction* by G. Dosi, M. Piva, M. E. Virgillito and M. Vivarelli
- 2019-21 *Can we have growth when population is stagnant? Testing linear growth rate formulas and their cross-unit cointegration of non-scale endogenous growth models* by Thomas H.W. Ziesemer

- 2019-22 *Technical progress and structural change: a long-term view* by Alessandro Nuvolari and Emanuele Russo
- 2019-23 *No evidence of an oil curse: Natural resource abundance, capital formation and productivity* by Mueid al Raee, Denis Crombrughe and Jo Ritzen
- 2019-24 *Far from random? The role of homophily in student supervision* by Giulia Rossello and Robin Cowan
- 2019-25 *Semi-endogenous growth models with domestic and foreign private and public R&D linked to VECMs* by Thomas H. W. Ziesemer
- 2019-26 *Characterizing growth instability: new evidence on unit roots and structural breaks in long run time series* by Emanuele Russo, Neil Foster-McGregor and Bart Verspagen
- 2019-27 *Measuring attitudes on gender equality and domestic violence in the Arab context: The role of framing, priming and interviewer effects* by Ann-Kristin Reitmann, Micheline Goedhuys, Michael Grimm and Eleonora E. M. Nillesen
- 2019-28 *Imported intermediates, technological capabilities and exports: Evidence from Brazilian firm-level data* by Caio Torres Mazzi and Neil Foster-McGregor
- 2019-29 *Japan's productivity and GDP growth: The role of GBAORD, public and foreign R&D* by Thomas Ziesemer
- 2019-30 *The decline in entrepreneurship in the West: Is complexity ossifying the economy?* by Wim Naudé
- 2019-31 *Modern industrial policy in Latin America: Lessons from cluster development policies* by Carlo Pietrobelli
- 2019-32 *Testing the employment and skill impact of new technologies: A survey and some methodological issues* by Laura Barbieri, Chiara Mussida, Mariacristina Piva and Marco Vivarelli
- 2019-33 *The Potential for innovation in mining value chains. Evidence from Latin America* by Michiko Iizuka, Carlo Pietrobelli and Fernando Vargas
- 2019-34 *Enforcing higher labour standards within developing country value chains: Consequences for MNEs and informal actors in a dual economy* by Rajneesh Narula
- 2019-35 *A comment on the multifaceted relationship between multinational enterprises and within-country inequality* by Rajneesh Narula and Khadija van der Straaten
- 2019-36 *The effects of R&D subsidies and publicly performed R&D on business R&D: A survey* by Thomas H.W. Ziesemer
- 2019-37 *Does it pay to do novel science? The selectivity patterns in science funding* by Charles Ayoubi, Michele Pezzoni and Fabiana Visentin
- 2019-38 *Regulation and innovation under Industry 4.0: Case of medical/healthcare robot, HAL by Cyberdyne* by Michiko Iizuka and Yoko Ikeda
- 2019-39 *The future of work and its implications for social protection and the welfare state* by Franziska Gassmann and Bruno Martorano
- 2019-40 *Return, circular, and onward migration decisions in a knowledge society* by Amelie F. Constant
- 2019-41 *Mining and quality of public services: The role of local governance and decentralisation* by Maty Konte and Rose Camille Vincent
- 2019-42 *Corruption and tax morale in Africa* by Amadou Boly, Maty Konte and Abebe Shimeles
- 2019-43 *Remittances and Bribery in Africa* by Maty Konte and Gideon Ndubuisi

- 2019-44 *Women's Political and Reproductive Health Empowerment in Africa: A literature review* by Maty Konte, Victor Osei Kwadwo and Tatenda Zinyemba
- 2019-45 *The effect of public funding on scientific performance: A comparison between China and the EU* by Lili Wang, Xianwen Wang, Fredrik Niclas Piro and Niels J. Philipsen
- 2019-46 *Credit constraints and trade performance: Does trust-based social capital matter?* By Gideon Ndubuisi and Maty Konte
- 2019-47 *The impact of mission-oriented R&D on domestic and foreign private and public R&D, total factor productivity and GDP* by Thomas H.W. Ziesemer
- 2019-48 *Confronting the challenge of immigrant and refugee student underachievement: Policies and practices from Canada, New Zealand and the European Union* by Özge Bilgili, Louis Volante, Don A. Klinger and Melissa Siegel
- 2019-49 *Structural transformation in general equilibrium* by Alessio Moro and Carlo Valdes
- 2019-50 *Systemising social innovation initiatives and their regional context in Europe* by René Wintjes, Nordine Es-sadki and Ad Notten