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South-Eastern Territorial Patterns

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Poverty and Social Exclusion in the European Union: South-Eastern Territorial Patterns

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Abstract

Despite the ambitious goals of promoting inclusive growth in the Europe 2020 strategy, the number of people at risk of poverty in European Union is still growing. The paper moves from the hypothesis that poverty may show distinctive social patterns, which couple with a given spatial dimension and therefore can be defined as a spatially heterogeneous phenomenon at both national and sub-national level. Using the available data from Eurostat on income and living conditions (EU-SILC) at NUTS2 level, the paper highlights the different territorial patterns in shaping the risk of exclusion across the EU regions. Focusing on the regions of the Southern and Eastern peripheral EU Member States (MSs), the paper outlines the differences emerging from the results achieved by the EU MSs in applying the Europe 2020 Strategy. Moreover, it deepens the analysis of the poverty drivers at the regional level. The paper shows that the peripheral countries of EU are more vulnerable to poverty but different patterns emerge when comparing Mediterranean and Eastern countries, especially with regard to the material deprivation and the drivers influencing poverty and risk of exclusion.

Keywords: Europe 2020, at-risk-of-poverty rate, social exclusion, regional disparities

JEL codes: R58, R11, O18, Q58

1. Introduction

The European Union (EU) addresses poverty and social exclusion through the political framework provided by the Lisbon Objectives (CEC, 2004) and more recently by the Europe 2020 (CEC, 2010). Although it does not have any specific Community policy (Copus *et al.*, 2015), inclusive growth now represents one of the three priorities of the Europe 2020 strategy. The strategy for a more inclusive Europe includes two main targets: increasing the employment rate to 75% for the population aged between 20 and 64 years and lifting 20 million people out of poverty and social exclusion by 2020. In addition, the objective of improving the educational attainment, as one of the main non-income factors affecting poverty (Bertolini *et al.* 2008), has the aim to reduce the number of school drop-out rate below 10% and increasing the rate of tertiary educated people (European Commission 2011 and 2013).

Despite these ambitious goals, the number of people at risk of poverty has soared since 2008, due to the international economic crisis (Duiella and Turrini, 2014). Thus, it is unlikely that the abovementioned targets could be achieved by 2020. In fact, according to latest available data and communications of Eurostat (Eurostat 2015a), in Europe there are still 122 million people at risk of poverty and social exclusion (2014). This figure approximately represents 24.4% of the entire EU population. Therefore, one in four individuals in the EU is considered to be living in poverty. In particular, poverty increase has been expressed mostly in terms of absolute poverty and low work intensity rates. Furthermore, those countries that had been most severely hit by the economic crisis, recorded steep increases in poverty rates, especially starting from 2010 (Duiella and Turrini, 2014).

Given those dynamics, poverty can be defined as a spatially heterogeneous phenomenon (Copus *et al.*, 2015), at both national and sub-national level. Indeed, this work moves from the hypothesis that poverty may show distinctive social patterns, which also couple with a given spatial dimension (Weziak-Bialowolska and Dijkstra, 2014). In particular, we aim to test the existence of a core-periphery pattern at both EU and national level. Moving from the recognition of different European social models (Sapir, 2006) or EU welfare regimes (Esping-Andersen, 1994), the paper analyses the different drivers affecting poverty across European Countries and regions.

Indeed, the paper aims to point out how the European social models move in relation to the poverty indicators of Europe 2020 strategy. Furthermore, moving from the aforementioned core-periphery logic, the paper also aims to point out major differences in the poverty drivers across the periphery of Europe, disentangling Southern regions and Eastern ones. The paper uses the most recent available data (referring to year 2014) from the EU statistics on income and living conditions (EU-SILC), made available at NUTS2 level by Eurostat. Comparisons with 2008 data facilitate analysis of the impact of the economic crisis on the Europe 2020 poverty target.

The present work is organised as follows. Section 2 briefly considers the Eurostat definitions of poverty. Section 3 examines the differences between all Member States and territorial patterns in terms of poverty. Section 4 specifies how poverty is spread among South-East regions. Section 5 highlights how the drivers of poverty differ in Periphery regions. Section 6 concludes the work.

2. Eurostat definitions of poverty and risk of exclusion

When referring to inclusive growth, the main target of the Europe 2020 Strategy is to lift at least 20 million people from the risk of poverty or social exclusion by 2020 (Eurostat, 2004; 2005; 2007; 2012). The definition of poverty at EU level usually includes the idea of social exclusion. In general terms, it is possible to distinguish indirect and direct measures of income poverty. Indicators of income poverty are usually described as indirect indicators. Indeed, income poverty is just measured in terms of disposable income, without considering non-pecuniary issues. Nevertheless, households could be even poorer than their income would lead us to expect (Copus *et al.*, 2015). By contrast, those indicators that directly measure material deprivation are considered as direct measures of poverty (Copus *et al.*, 2015).

To this regard, definitions of direct and indirect poverty may apply to different contexts and countries. In particular, three main definitions are used, distinguishing *Absolute poverty*, *Relative poverty* and *Risk of poverty and social exclusion*. The first concept is linked to deprivation, in respect to a range of basic human needs and it is usually applied to the less developed countries (direct measure of poverty). The *Relative poverty* is usually specified in terms of income below a minimum acceptable level and is specially applied to the developed countries such as the USA or the EU. The *Risk of poverty and social exclusion* is a more complex concept, which includes many multidimensional aspects that at the end influence also poverty, as previously defined (Copus 2014).

According to the common definitions of poverty, the EU2020 Strategy target has been operationalised by means of different indicators (Copus *et al.*, 2015), but to monitor the Strategy poverty target the headline indicator is the At Risk of Poverty or Social Exclusion (AROPE): it is based on a multidimensional concept, which includes monetary and non-monetary elements and describes the situation of people either at risk of income poverty, or severely materially deprived or living in a household with a very low work intensity. In particular, to avoid 'double counting', persons are only considered once even if they fall into more than one of the following sub-indicator categories:

- income poverty rate: the share of individuals whose equivalised disposable income (after social transfers) is less than 60% of the national median of the equalised disposable income after social transfers. A similar indicator may be calculated also before social transfers. Thus, the indicator measures income levels compared to the average national income: this does not necessarily imply a low standard of living in absolute terms (Baldini and Toso, 2009);
- being severely materially deprived: the indicator expresses the inability to afford at least four in nine items considered by most people as necessary to lead an adequate life in the EU¹;
- living in households with very low work intensity: the number of persons living in a household having a yearly work intensity below the threshold of 20% of a possible working full time².

In conclusion, Europe2020 has defined social exclusion as a process whereby certain individuals are marginalised, due to their poverty. Such marginalisation distances them from employment,

¹ Eurostat considers the following nine items: i) to pay their rent, mortgage or utility bills; ii) to keep their home adequately warm; iii) to face unexpected expenses; iv) to eat meat or proteins regularly; v) to go on holiday; vi) to own a television set; vii) to own a washing machine; viii) to own a car; ix) to own a telephone.

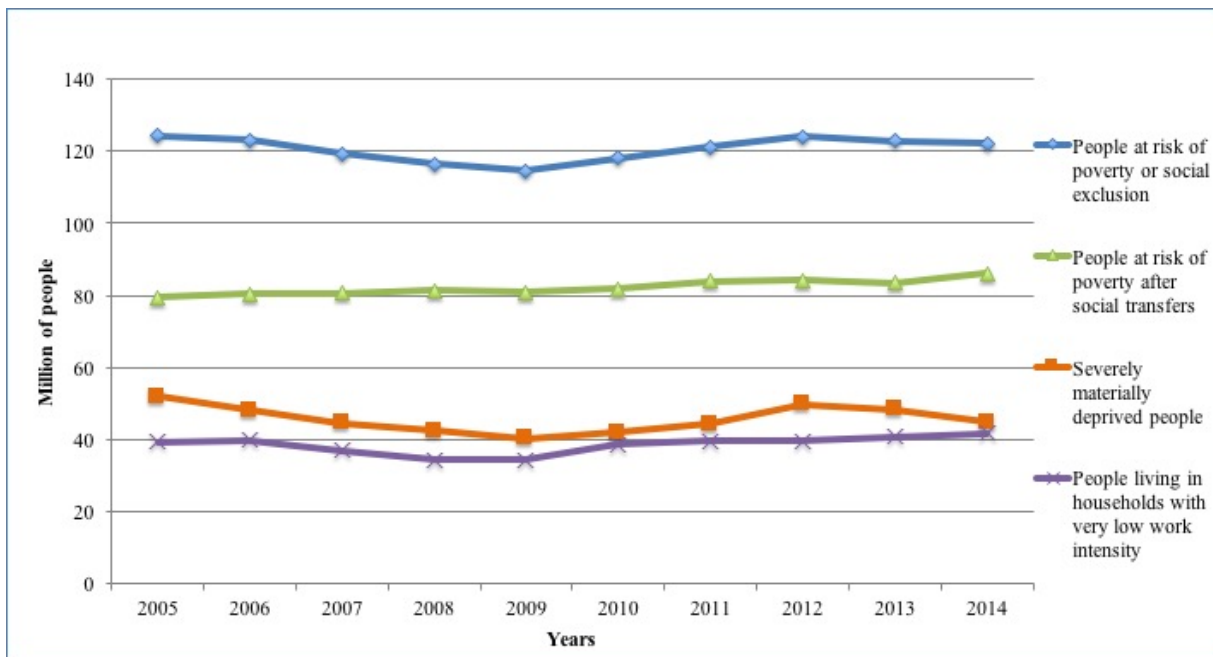
² Eurostat considers any working-age person aged 18-59 years, excluding students in the age 18-24 years.

income and education and training opportunities, as well as social and community networks and activities (Eurostat, 2015).

Figure 1 displays 2005-2014 evolution of the three aforementioned forms of poverty. Since 2005, income poverty has increased marginally; however, while a decrease is observed up to 2008, later on there is a trend inversion with an increase of poverty that brings the indicator back to the 2005 level, because of the negative impact of the international crisis on EU poverty. The same trend is observed in the other indicators of poverty. The number of people affected by severe material deprivation and the number of very low work intensity people have both risen since 2008: the former indicator has experienced a larger increase than the latter one.

Accordingly, Figure 1 shows the ineffectiveness of Europe 2020 with regard headline target for social inclusion – namely, that by 2020 there should be at least 20 million fewer people in the EU who are at risk of poverty or social exclusion. Indeed, the data show that the phenomenon of poverty in EU is persistent and has still a negative evolution as a consequence of the economic crisis. Poverty persistence is particularly critical in Mediterranean countries, such as in Italy (Giarda and Moroni, 2015; Coppola and Di Laura, 2014), Spain and Greece.

Figure 1 – People at risk of poverty or social exclusion and its sub-indicators, EU-27 and EU-28, 2005–13 (million of people)



(*) EU-27 data for years 2005 to 2009.

Source: elaboration on Eurostat data

3. Poverty and risk of social exclusion in the EU

3.1 EU social models

As already observed, poverty shows wide spatial heterogeneity across Europe (Copus *et al.*, 2015): different EU Member States (MSs) show different levels of poverty. To this regard, the paper moves from the recognition of the heterogeneity at national level, across Europe with respect to poverty. It also intends to verify how different performances couple with various social models that characterise the EU.

Here, the reference point is the analysis of André Sapir on European social models developed in 2006: moving from the seminal work of Esping-Andersen (1994), it singled out four different European social models, each of them with its own performance in terms of efficiency and equity (Sapir, 2006).

A model is considered efficient if it provides a sufficient incentive to work and, consequently, if it generates high rates of employment. A model is considered equitable if it keeps the risk of poverty relatively low (Sapir, 2006). Thus, according to a two-dimensional array (in terms of efficiency and equity), it is possible to identify four models, which also cover four different geographic areas: Nordic countries (Denmark, Finland, Sweden and the Netherlands); Anglo-Saxon countries (Ireland and the United Kingdom); Continental countries (Austria, Belgium, France, Germany and Luxembourg); Mediterranean countries (Greece, Italy, Portugal and Spain). Nordic countries ensure both efficiency and equity, while the Mediterraneans live in a social system that offers them neither efficiency nor equity. On the other hand, Anglo-Saxon countries have a social model that is efficient but not equitable, while Continental has more equity but are less efficient (Sapir, 2006). Sapir's analysis does not cover those countries being interested by the latest enlargements across Eastern Europe (together with Cyprus and Malta). Indeed, its analysis was mostly based on the EU-15, ignoring post-socialist countries.

Moving from that analysis, this paper intends to verify how different EU social models face poverty issues, during a crisis period. The work aims to examine whether the models identified by Sapir (2006) have maintained their own characteristics and performance, since the outburst of the international crisis. It also aims to verify the behaviour of the EU Eastern countries. Having as a reference point the analysis of Sapir and his classification, we have examined the behaviour of the different groups of countries to the inclusive targets of Europe 2020. Our analysis supplements the four groups of Sapir with a new group of Countries, namely those in the Eastern Europe, which have joined the EU in 2004 and 2007. Also, we comprise Cyprus and Malta into the Mediterranean model.

3.2 People at-risk-of-poverty and social exclusion: patterns in different social models

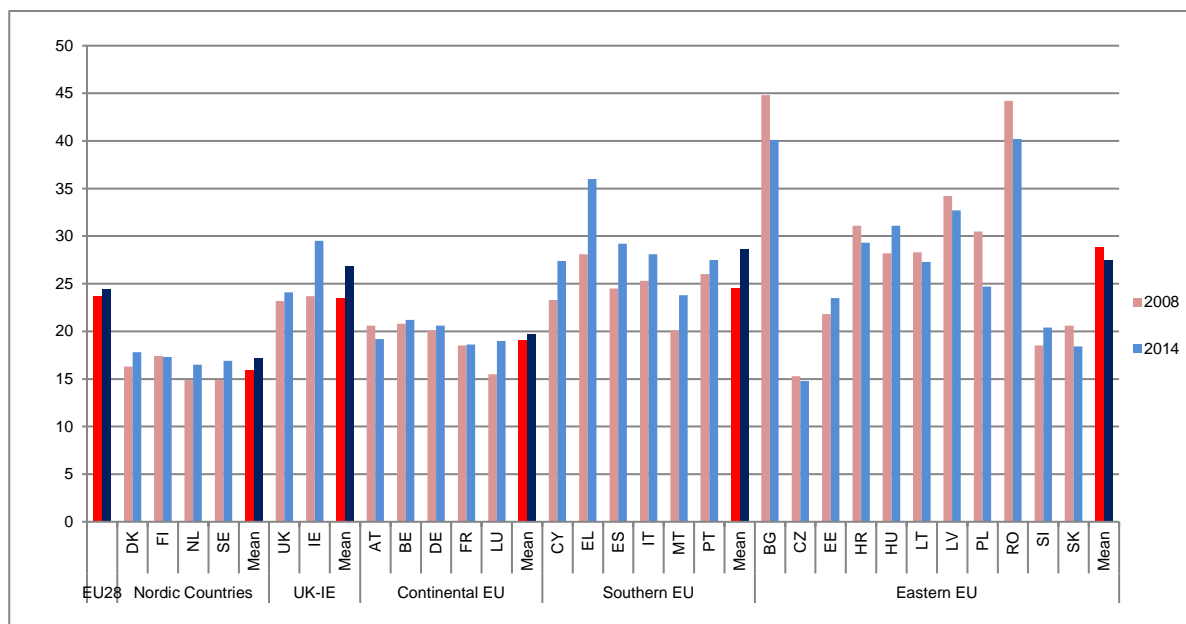
Europe 2020 poverty target is monitored according to the headline indicator "people at risk of poverty or social exclusion" (AROPE).

Since 2008, AROPE rate has steadily grown, reaching a peak in 2012, with about 124 million people at risk, before decreasing marginally in 2013 and 2014 to 122 million. The gap between the number of people at risk of poverty and social exclusion and the reduction target set for 2020 is 25.6 million. Most of EU MSs recorded an increase in people at risk of poverty during the 2008 financial crisis (Figure 2).

Nevertheless, EU average values hide significant differences. For example, in Bulgaria³ almost half population is at risk of poverty, while in the Czech Republic that share is about three times lower. One reason for this difference certainly lies in the diverse impact of the economic crisis across Europe, although other differences in welfare state systems have played a very important role (European Commission, 2012).

Figure 2 classifies countries according to Sapir’s social models (also considering EU Eastern Countries). Among different social models it is possible to see a significative difference in the levels of poverty. Such a divide mostly couples with similar differences, according to almost all the indicators of performance, when considering Europe 2020 Strategy (Bertolini *et al.*, 2015). Focusing on the average values of each area, Northern countries present the lowest rate of people at risk of poverty. The good performance is maintained also in 2014, outlining a better response to the effects of the economic international crisis. In other words, countries with a better performing social model (Sapir, 2006) retain this characteristic even today, proving to be able to reduce the possible negative social impact of the crisis. Central EU countries, whose welfare systems according to Sapir assured equity but not efficiency in 2005, still confirm this aspect today: poverty rate is slightly higher than that observed across the North. At the opposite side, the other groups of countries in 2014 show higher level of poverty rate. The Anglo-Saxon model shows poverty rates that are above the EU average (high levels of inequality within these countries; lower capacity to control the negative social effects of the crisis). Eventually, the Mediterranean area shows the highest levels of people at risk of poverty or social exclusion, showing a performance even worse than that of Eastern European countries in 2014. The last ones show heterogeneous patterns: Bulgaria and Romania still display poverty rates larger than 40% of the total population. By converse, the Czech Republic presents the lowest poverty rate in EU (14.8%) Slovenia and Slovachia show a rate similar to that of Continental EU, while the rates across other Easter MS are fairly similar to the Mediterranean countries.

Figure 2 – People at risk of poverty or social exclusion, by country, 2008 and 2014 (% of population)



Data for Ireland and Estonia: 2013 instead of 2014; data for EU28 and HR: 2010 instead of 2008.

Source: elaboration on Eurostat data

³ A break in time series occurs for BG, so, last data for the country refer to year 2013.

These findings are mostly confirmed by data referring to income poverty after social transfers, material deprivation and low labour intensity households (Table 1). Each indicator outlines a large variability across EU MSs, by generally showing the worst performances across Southern and Eastern countries. Different factors may cause these disparities between MSs, such as differences in living standards, different levels of development and implementation of social policies (Eurostat, 2015).

The low-work intensity indicator suggests that, throughout Europe, this typology of poverty has increased since 2008. It has mostly followed the increase in the levels of unemployment caused by the crisis. In particular, in some countries the amount of people living in households with very low work intensity is increased by an amount similar to the decrease in the employment rate (European Commission, 2013).

In general terms, achieving the Europe 2020 objectives with regard to social inclusion is likely to be particularly difficult and very diversified among the different countries. The achievement of the EU targets has been heavily affected by the recent economic crisis. The commitment of policy makers at various levels has been uneven and in general, national governments still pay too little attention to the social dimension of Europe 2020, as compared to the economic one. Moreover, the existence of different EU social models with a different capacity of reaction against poverty and risk of exclusion may explain those differences.

To this extent, the analysis of the major changes that have affected the main indicator of poverty in the period 2008-2013 may be particularly insightful. Table 1 explicitly disentangles some average values, by referring to the five aforementioned social models. At EU level, each indicator of poverty has degraded over the period 2008-2014. When focusing on people at risk of poverty and social exclusion, the increase of poverty rate has been particularly severe in both the Southern countries and the UK and Ireland, since 2008 (+4.1% and +3.4%, respectively). Nordic countries and Continental Europe have experienced a lower increase, thanks to their welfare social models that assure equity. On the opposite side, the EU Eastern countries have experienced a reduction of poverty rates (-1.4%) in the period under study here, probably thanks to the positive effects of the EU enlargement which occurred in 2004 and 2007.

Income poverty has followed a different pattern: increases have been more homogenous across different social models, with the only exception represented by the UK and Ireland. Here, the reduction in the income poverty rate is mostly driven by a statistical effect: the poverty line has mostly fallen in line with average income decreases (Belfield *et al.*, 2014).

Eventually, both the evolution of the severe material deprivation rate and of the share of people living in households with very low work intensity share similar territorial patterns. In both cases, the Anglo-saxon and the Mediterranean models have performed particularly poorly. Conversely, Nordic countries, Continental ones and Eastern ones have experienced a lower increase in poverty rates and, in some cases, even a decrease.

Table 1 – People at risk of poverty or social exclusion, by EU social model, year 2008, 2014 and 2008-2014 variation (% of population)

	People at risk of poverty or social exclusion			At-risk-of-poverty rate by poverty threshold			Severe material deprivation rate			People living in households with very low work intensity		
	2008	2014	Var. 2008-2014	2008	2014	Var. 2008-2014	2008	2014	Var. 2008-2014	2008	2014	Var. 2008-2014
EU-28	23.7	24.4	0.7	16.4	17.2	0.8	8.4	9.0	0.6	10.2	11.0	0.8
Nordic countries	15.9	17.1	1.3	12.0	12.9	0.8	2.1	2.5	0.4	7.4	9.7	2.3
The UK and Ireland	23.5	26.8	3.4	17.1	15.5	-1.7	5.0	8.6	3.6	12.1	18.1	6.0
Continental EU	19.1	19.7	0.6	14.2	15.2	1.0	4.6	4.2	-0.4	8.9	9.9	1.0
Southern EU	24.6	28.7	4.1	18.2	19.0	0.7	7.6	12.7	5.1	7.2	13.0	5.8
Eastern EU	28.9	27.5	-1.4	17.3	17.6	0.4	16.9	15.4	-1.5	7.8	9.4	1.5

Source: elaboration on Eurostat data

4. Poverty and risk of exclusion among South-East Periphery regions

The aforementioned analysis points out the major differences in poverty rates across Europe at a macro-scale level, mostly confirming main findings from Copus *et al.* (2015). Accordingly, as both the Southern and Eastern EU countries share the highest rates of poverty, we have decided to limit further sub-national analyses to those groups of countries belonging to South-Eastern periphery of Europe. In particular, the Southern periphery comprises following six countries: Cyprus, Greece, Spain, Italy, Malta and Portugal. The Eastern periphery comprises following 11 countries: Bulgaria, the Czech Republic, Estonia, Croatia, Hungary, Latvia, Lithuania, Poland, Romania, Slovenia and Slovakia. With the aim of deepening the analysis of the territorial performance within each MS, the territorial level of the research is mostly based on NUTS 2 level: 59 observations have been considered at this level. However, according to data availability, in some cases higher NUTS levels has been used, i.e. NUTS 1 (19 observations) or NUTS 0 (7 cases)⁴. In its complex, this part of the analysis is based on 85 observations⁵.

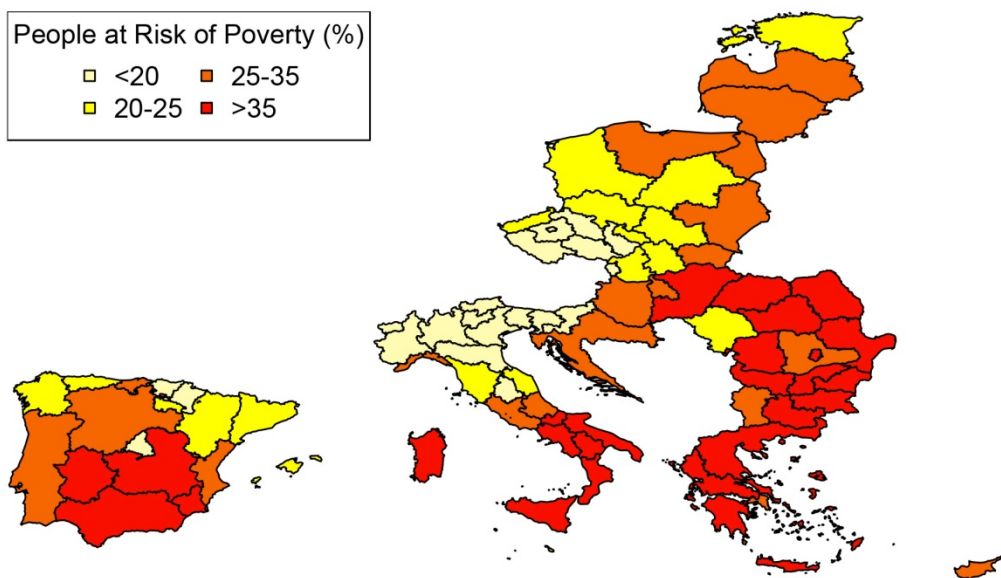
Southern and Eastern MSs presents large heterogeneity at subnational level. In more general terms, a worst situation is observed in their most peripheral regions (Figure 3). There, the issues of poverty and social exclusion show an even larger intensity. For instance, the poorest region in the EU is Sicily, in Southern Italy. Both Southern Italy and Southern Spain areas share the same social issues, related to poverty. Even Greece, which is, in geographical terms, the most peripheral country in Continental Europe, shows large and widespread traits of poverty. There, poverty and social exclusion have been largely amplified by the economic and political crisis

⁴ The following classification is adopted: NUTS 0 territorial level is adopted for Cyprus, Croatia, Estonia, Lithuania, Latvia, Malta and Portugal; Nuts 2 level classification is adopted for Spain, Italy, Romania, Bulgaria and the Czech Republic. NUTS 1 territorial level is adopted for Greece, Hungary, Poland, Slovakia and Slovenia; NUTS 2 territorial level is adopted for the remaining countries.

⁵ For both geographical and statistical reasons, we have not included the Canary Islands and the cities of Ceuta and Melilla.

Across Eastern Europe, poverty rates are fairly heterogeneous. There, better performing regions are those located close by the EU core area. On the opposite side, most of Bulgarian and Romanian regions share the highest levels of poverty and social exclusion. These findings seem suggesting that, even within a same economic social model (e.g. the Mediterranean or the Eastern ones), peripheries and remotest regions show a worse performance than more central regions.

Figure 3 - People at risk of poverty or social exclusion in South-Eastern Europe, by NUTS 2, 2014 (% of population)



(*) 2013 data (instead of 2014) for EE.
Source: elaboration on Eurostat data

Besides this general pattern, Figure 4 compares (a) the share of people at risk of income poverty and (b) the share of materially deprived people. The share of people at risk of income poverty underlines social inequalities related to the national income levels, which differ across countries (ESPON, 2013). Here, territorial income inequalities at sub-national level are particularly wide. Those differences mainly occur throughout Spain and Italy, where a clear North-South divide emerges.

On the opposite side, across Eastern countries, a clear divide characterises those regions containing national capitals, whose poverty rate is usually quite low (e.g., regions containing Sofia, Bucharest, Budapest, Bratislava and Prague) and other more rural regions. Here, core-periphery patterns occur. These findings confirm Copus *et al.* (2015) results: they have already underlined a strong association between poverty and rural areas in both Mediterranean and former socialist countries.

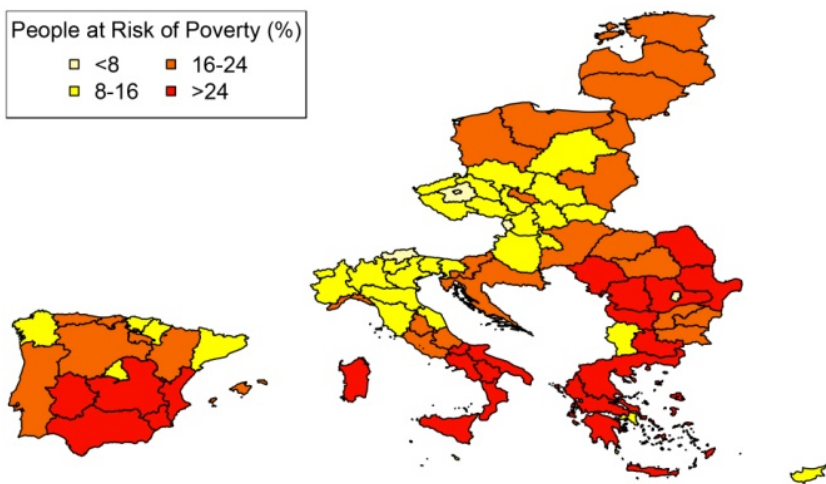
Referring to material deprivation, Eastern regions show the highest levels across Europe: in the Romania and Bulgaria, some regions show a percentage of severely materially deprived people between 25 and 35%. On the opposite side, we can notice that other regions that show high income poverty rates are not equally affected by material deprivation. This is the case of Spain, where a large share of people, although having an income that is below the threshold of 60% of the national median equalised income, is not materially deprived. In these countries, even an income below the at-risk-of-poverty level may still allow to maintain a certain standard of living. While in other regions, even the income above the national average may not be sufficient to maintain a certain stand-

ard of living (ESPON, 2013). Nevertheless, compared to previous indicators, in this case country effect is likely to play a largest role.

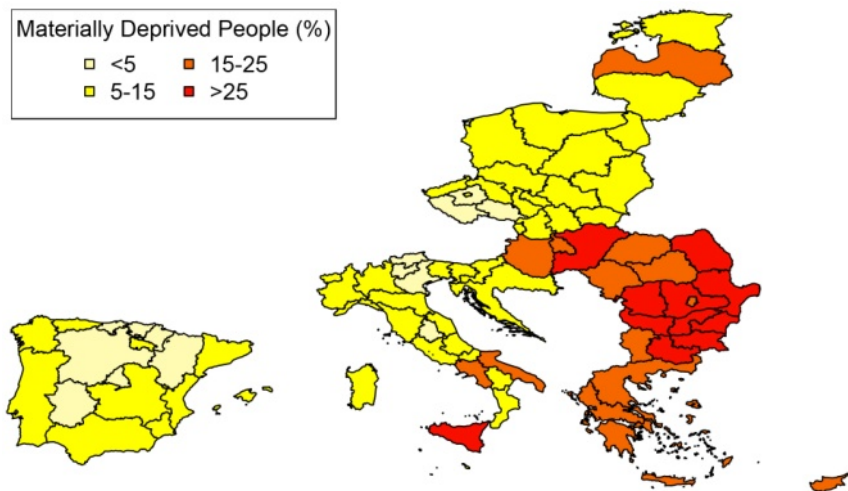
Eventually, Figure 5 points out the share of people living in households with very low work intensity, at regional level. In particular, in Italy and Spain, this value is closely linked to the unemployment rate. Nevertheless, some regions face low work intensity issues, although they are characterized by higher employment rates still (e.g., regions in the Czech Republic and in Poland). A particular concentration of unemployment in given social classes, such as single-person households, could explain this issue (ESPON, 2013). Nevertheless, low-work intensity is likely to affect more heavily regions across Mediterranean countries rather than Eastern ones. On the opposite side, capital cities and other urban areas show better indicators than rural ones.

Figure 4 - People at risk of income poverty in South-Eastern Europe, by NUTS 2, 2014 (% of population)

a. People at risk of income poverty income poverty



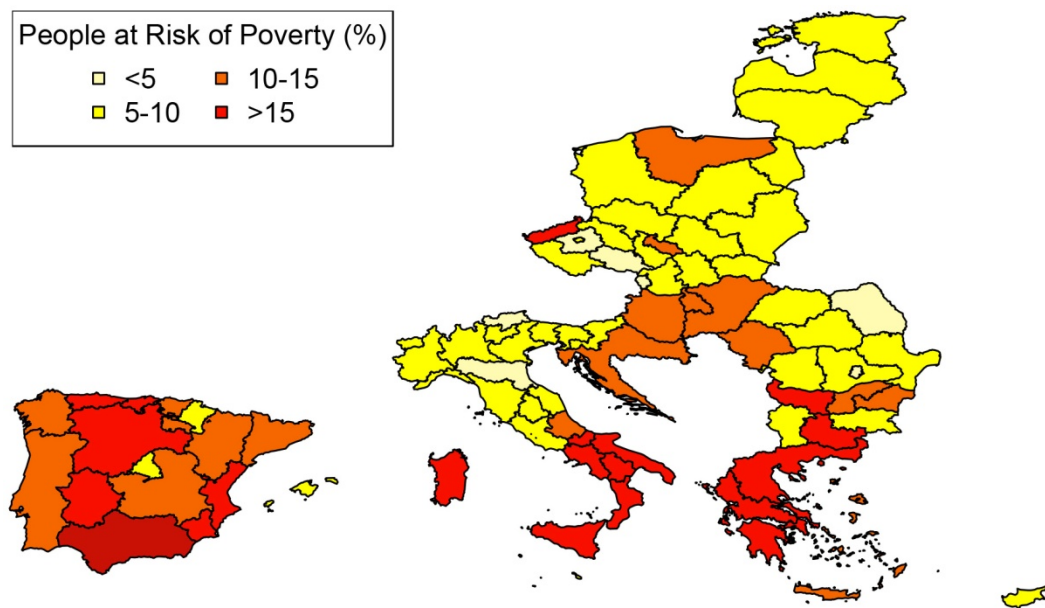
b. Severely materially deprived people



(*) 2013 data (instead of 2014) for EE.

Source: elaboration on Eurostat data

Figure 5 – People living in households with very low work intensity in South-Eastern Europe, by NUTS 2, 2014 (% of population)



(*) 2013 data (instead of 2014) for EE.
Source: elaboration on Eurostat data

According to these findings, clear territorial patterns emerge when considering the inclusive pillar of the Europe 2020 Strategy. Thus, although the Europe 2020 Strategy is intended not to have a territorial dimension, substantial evidence for the need for stronger cohesion policies is returned. Indeed, poverty needs to be tackled by means of territorially targeted (or place-based) policies. In most countries, this issue is particularly challenging for most marginal regions throughout EU periphery.

Place-based policies (as defined in Barca *et al.*, 2012) are likely to be more appropriate for those areas in which multiple processes (such as lack of infrastructure, migration, lack of political voice) overlap. This is particularly true in most parts of South-Eastern Europe (Madanipour and Weck, 2015).

Indeed, most of the Southern part of Italy and Spain is facing high levels of poverty and social exclusion. Despite a significant concentration of the phenomenon of poverty and exclusion in affected areas, MSs have developed limited actions for reducing it. For example, some MSs have defined a target that is not consistent with the overall EU headline target: in some cases, they have set a target even below EU ones (ESPON, 2013). In this regard, the central action developed by the EU to promote the objectives of Europe 2020 is based on the use of the Open Method of Coordination. Thus, despite the ‘orchestration’ of the EU policy (Copus *et al.*, 2015), the principle of subsidiarity fully applies here: each MS decides its own modalities - and the intensity of intervention - in order to achieve the EU objectives.

5. Poverty drivers among South-East Periphery regions: stepwise forward regression

5.1 Data and methodology

Moving from this descriptive analysis, this section is aimed at detecting major drivers of poverty across EU South-Eastern peripheries.

The database collects statistics mostly provided by Eurostat. Variables have been selected according to the main indicators of inclusive growth included in Europe 2020, following main literature about poverty and social exclusion, as well. They refer to different fields: demography, education, economy and territory. Moreover, poverty data come from the EU-SILC (Statistics on Income and Living Conditions) datasets. It represents a major source of data on poverty and social conditions in the EU. Table 2 describes in detail all selected variables.

Almost all variables are expressed in percentage terms, with the only exceptions of dummy variables, per capita GDP and other geographic variables.

In particular, geographical and other territorial variables in Table 2 deserve some additional considerations.

The variable population density is here used to measure the extent of urbanisation of a given region. Indeed, Copus *et al.* (2015) demonstrate the correlation between rurality and poverty intensity in many Southern and Eastern countries. Accordingly, OECD (2006) and Eurostat (2010) referred just to population density as a way to disentangle urban and rural regions, when focusing on NUTS 3 level. Nevertheless, Camaioni *et al.* (2013) have already demonstrated such a measure is too rough to capture increasing urban-rural polymorphism across Europe.

Furthermore, the dummy variable ‘Mediterranean’ is adopted to identify those regions that belongs to Southern Europe countries (i.e. Portugal, Spain, Italy, Malta, Greece and Cyprus). The inclusion of this dummy allows us to calculate the difference between the two geographic areas under study here.

Eventually, both the variable “Brussels” and “Mega 3” are intended to provide a more specific measure of regional remoteness, by explicitly focusing on geographical distance. Indeed, we have computed the distance between each region’s centroid and some given central areas. In the former case, Brussels is considered, thus the variable measures the distance of each region in the sample from the capital of the EU. In the latter case, the distance of each region from the closest MEGA city of level 3 (or of a more important level) is computed⁶. In particular, the following cities have been considered⁷:

- MEGA3 cities: Prague, Warsaw, Budapest, Bratislava, Lisbon, Palma, Bologna, Bilbao, Valencia and Naples;
- MEGA2 cities: Athens, Helsinki and Turin;
- MEGA1 cities: Munchen, Madrid, Milan, Rome, Copenhagen, Berlin, Barcelona, Stockholm and Vienna.

⁶ MEGA (Metropolitan Economic Growth Area) cities are identified as the major urban areas across Europe (ESPON, 2005). In particular, MEGAs are those Functional Urban Areas (FUAs) showing the highest score in terms of population, transport, industry, knowledge and decision-making. In the EU-27, 76 MEGAs have been identified, being disentangled into five different groups, according to their importance: global MEGAs (i.e., Paris and London); MEGA 1; MEGA 2; MEGA 3; MEGA 4.

⁷ Please, notice that the definition of MEGAs suffers from a broad Eurocentric perspective. Just EU cities are considered, whereas other megacities such as Istanbul or Moscow are not considered (Camaioni *et al.*, 2013).

Table 2 – Dataset variables

Variables	Description
Income poverty	People with an equivalent available income below the poverty threshold set at 60% of the national median equivalent disposable income after social transfers, 2014 (%).
Material deprivation	People have living conditions severely constrained by a lack of resources, they experience at least 4 out of 9 following deprivations items: cannot afford i) to pay rent or utility bills, ii) keep home adequately warm, iii) face unexpected expenses, iv) eat meat, fish or a protein equivalent every second day, v) a week holiday away from home, vi) a car, vii) a washing machine, viii) a colour TV, or ix) a telephone, 2014 (%).
GDP per capita	Gross Domestic Product PPP per capita at market prices, 2013 (thousands)
Employment rate	Employment rate of the population aged 20-64, 2014 (%).
Gender differences in the employment rate	The difference between men and woman in the employment rate, 2014 (%).
Long term unemployment rate	Long term unemployment rate (12 months or more), 2014 (% of unemployment rate).
Low level of education	Less than primary, primary and lower secondary education, ISCED levels 0-2, 2014 (%).
Tertiary education	Tertiary education, ISCED levels 5-8, 2014 (%).
From 0 to 14 years	Population aged from 0 to 14 years, 2014 (%).
From 15 to 29 years	Population aged from 15 to 29 years, 2014 (%).
Over 65	Population aged over 65 years, 2014 (%).
Couple with at least one child under 25	Couple (married and in consensual union) with at least one child under 25, 2011 (%).
Lone father with at least one child under 25	Lone father with at least one child under 25, 2011 (%).
Lone mother with at least one child under 25	Lone mother with at least one child under 25, 2011 (%).
Masculinity rate	Ratio between the male and female population, 2014 (%).
Agriculture	Gross value added at basic prices from sector A (Agriculture, forestry and fishing), 2012 (% of total GVA).
Industry	Gross value added at basic prices from sectors B – E (Industry except construction), 2012 (% of total GVA).
Construction	Gross value added at basic prices from sector F (Construction), 2012 (% of total GVA).
Population density	Inhabitants per square kilometre of land area, 2013 (Pop. per km ²).
Mediterranean	Regions member of the Southern Europe, dummy (0;1).
Brussels	Distance between each region and the city of Brussels, (kilometres).
MEGA 3	Distance between each region and the closest MEGA 3 city, (kilometres).

All variables have been retrieved for the whole set of 85 observations shown in section 4.

In order to see the influence of each variable, multiple linear regression analyses (OLS methods) have been performed. In particular, six different models have been computed, each of them exploring a different field. Model 1 just focuses on demographic variables; Model 2 considers education variables; Model 3 focuses on the economic dimension; Model 4 takes into account sectors of economic activities; Model 5 focuses on the territorial dimension. Lastly, Model 6 includes all the aforementioned variables into a single model.

Eventually, a seventh model is computed, by explicitly adopting stepwise forward technique. Through it, we aim to find a model that provides both insightful and significant information. In particular, a stepwise forward approach allows us to restrict the large number of independent variables (in proportion to the number of observations) and to extract just some of them.

Finally, all the models have been replicated according to two different dependent variables: both income poverty rate and material deprivation rate have been considered here. In addition, all

analyses have been disentangled into different geographical areas as well: firstly, we considered the entire sample, secondly, we focused on both Eastern and Southern regions, separately.

5.2 *The stepwise forward regression output*

First of all, income poverty rate is considered as dependent variable (Table 3).

The results obtained with the whole sample (South-East) largely support previous findings in the literature. In fact, children under 14 years and single parent with dependent children are positively related to income poverty ($\beta = 1.085$, p-value <0.05 and $\beta = 3.648$, p-value <0.01). A measure of the gender difference is given by the masculinity rate which is negative. As supported by the literature, the higher proportion of the male population over the female population reduces poverty at regional level ($\beta = -0.342$, p-value <0.05). Referring to education, a low level of education increases the poverty rate ($\beta = 0.256$, p-value <0.01). The increment of the GDP per capita and the employment rate reduces poverty ($\beta = -0.0003$, p-value <0.01 and $\beta = -0.447$, p-value <0.01). For example, an increase of 1,000 Euro reduces poverty rate of 0.3%. Furthermore, the analysis of the economic structure shows that agricultural regions are more at-risk-of-poverty than the industrial one ($\beta = 0.618$, p-value <0.01 and $\beta = -0.180$, p-value <0.01). Our analysis is also aimed at pointing out differences between Southern and Eastern Europe. The Mediterranean dummy shows that the Southern regions are less poor (relatively speaking) than the Eastern, in fact the income poverty decreases by about 3.641% ($\beta = 3.641$, p-value <0.1).

In Eastern Europe, the significant independent variables are four, all in line with the literature. The presence of lone mother with children and the share of population low educated increase the income poverty rate ($\beta = 0.544$, p-value <0.1 ; $\beta = 0.680$, p-value <0.01). Conversely, GDP per capita and industry decrease the income poverty rate ($\beta = -0.0003$, p-value <0.01 ; $\beta = -0.194$, p-value <0.1).

In Southern Europe, poverty drivers are different. First, the percentage of couples with children is positively related to income poverty ($\beta = 0.574$, p-value <0.01). The coefficient for lone fathers with at least one resident child is about five times larger than the same coefficient for lone mothers and both are positively linked with income poverty rate ($\beta = 5.228$, p-value <0.01 and $\beta = 0.678$, p-value <0.05). Among economic variables, GDP per capita and employment rate are both significant ($\beta = -0.0006$, p-value <0.01 and $\beta = 0.464$, p-value <0.01). Lastly, one geographic variable is significant: the increment of the population density reduces the risk of income poverty ($\beta = -0.003$, p-value <0.0).

Turning our attention to material deprivation rate (Table 3), we find that main drivers differ from those seen above. The demographic variables are not in line with the literature. The increment of the percentage of young people reduce material deprivation ($\beta = -1.196$, p-value <0.01), as well as the lone father with at least one child under ($\beta = -3.209$, p-value <0.05). As before, low level of education has a positive effect on deprivation ($\beta = 0.180$, p-value <0.1). In addition, regions with a high share of tertiary education have shown a lower material deprivation ($\beta = -0.182$, p-value <0.05). The most interesting variable is the Mediterranean. According to this dummy, be part of Southern Europe rather than the Eastern one decreases the material deprivation by 14% ($\beta = -14.00$, p-value <0.01). Remoteness as well as population density positively affect material deprivation ($\beta = 0.004$, p-value <0.01 ; $\beta = 0.007$, p-value <0.1 ; $\beta = 0.0124$, p-value <0.05).

In Eastern Europe, material deprivation is mostly induced by two variables: “15-29 years” and “Brussels” ($\beta = -1.811$, p-value <0.01 ; $\beta = 0.0193$, p-value <0.01). In both cases, coefficients meet the expected sign.

In conclusion in the South, tertiary education ($\beta = -0.244$, p-value <0.01) and Mega 3 ($\beta = 0.0174$, p-value <0.01) perform as with the whole sample.

Table 1 - Stepwise forward models

Variables	Y = Income Poverty			Y = Material deprivation		
	South-East	East	South	South-Est	East	South
0 – 14 years	1.085** (0.435)					
15- 29 years				-1.196*** (0.420)	-1.811*** (0.637)	
Over 65						
Couple with at least one child under 25			0.574*** (0.145)			
Lone father with at least one resident child under 25	3.648*** (0.878)		5.228*** (1.405)	-3.209* (1.688)		
Lone mother with at least one resident child under 25		0.544* (0.288)	0.678** (0.288)			
Masculinity rate	-0.342** (0.160)					
Low level of education	0.256*** (0.057)	0.680*** (0.127)		0.180* (0.096)		
Tertiary education				-0.182** (0.083)		-0.244*** (0.088)
GDP per capita	-0.0003*** (0.0001)	-0.0003*** (0.0001)	-0.0006*** (0.0001)			
Employment rate	-0.447*** (0.098)		-0.464*** (0.107)			
Long term unemployment						
Gender differences in the employment rate						
Agriculture	0.618*** (0.224)					
Industry	-0.180*** (0.063)	-0.194* (0.096)				
Mediterranean	-3.641* (1.978)			-14.00*** (3.496)		
Population density			-0.003*** (0.001)	0.004*** (0.0009)		
Brussels				0.007* (0.004)	0.0193*** (0.002)	
MEGA3				0.0124** (0.005)		0.0174*** (0.002)
Constant	61.02*** (14.31)	14.69** (6.93)	28.12*** (9.34)	31.93*** (8.55)	25.03* (12.49)	11.86*** (2.39)
Observations	85	41	44	85	41	44
R-squared	0.831	0.778	0.915	0.640	0.649	0.517
F – Test	45.38	23.40	31.55	35.18	64.08	21.98
AIC	470.648	555.068	231.782	270.293	221.842	281.000
BIC	495.074	577.052	240.350	275.433	234.332	286.352

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

5.3 The main differences between the two patterns (Policy implication)

Our analysis has given us the opportunity to recommend some policy implications for the two territorial patterns.

Referring to monetary poverty, in the East (rather than in the South) we noticed that the low level of education of the population is a key factor that increases this kind of poverty. However, we know that the East pattern has an average value of lower educated people under the EU average. On the other hand, in the East, the industry sector is a potential way to pull out people of poverty. Otherwise, in the South (rather than in the East), the household status significantly affects poverty (couples and lone fathers with children), but, as we know, the real difficulty of Southern Europe is unemployment. In fact, in our model the employment rate is significant just in the South pattern.

Referring to material deprivation, in the South, the tertiary education reduces this kind of poverty. As we know, precisely this territory presents the lowest level of tertiary educated people of the entire Union.

Lastly, as we expected the remoteness measures influence differently the deprivation depending on the territory. In the East, the greatest impact is the distance from Brussels, while in the South the distance from the Mega 3 city.

6. Conclusions

Throughout the present work we examined the Europe 2020 Strategy data and in particular those related to poverty, highlighting the differences between different territorial patterns. The differences emerge from the results achieved by the EU MSs in applying the Europe 2020 Strategy. Moreover, our work is based on the analysis of poverty and social exclusion at the national level but also it deepens the poverty drivers at the regional level.

As shown, we can now answer to the questions that opened this work, trying to draw the appropriate conclusions.

The first research question was: how the European social models move in relation to the poverty indicators of Europe 2020 strategy? The analysis confirms partially the results of Sapir (2006), although the European context has changed with the entry of the Eastern European countries and the economic crisis. Thus, on one hand we have the countries of Central and Northern Europe offering the best performance in terms of equity (and also efficiency); on the contrary we find the South-East countries associated with the worst performance. The Anglo-Saxon countries occupy an intermediate position being (efficient but) unfair.

The second question concerned the existence of a centre-periphery logic of the inclusive dimension of the Europe 2020 Strategy.

The analysis has shown that inclusive growth of the Europe 2020 strategy recognizes a territorial dimension, according to which peripheral countries are more vulnerable to poverty. Within these countries, the regions follow two distinct approaches. In Mediterranean countries, there is a strong difference between North and South, where the northern regions are closer to the EU average while those in the South are less developed. However, in Eastern Europe there is a centre-periphery logic as the regions who containing the capital are those where welfare is much higher than the neighbourhood.

Finally, the third and last question concerned the existence of different poverty drivers in the remote areas of Europe. First of all, regions with high rates of income poverty are not equally affected by material deprivation. Thus, in the countries of the Southern suburbs a high share of the population is below the poverty threshold but this does not necessarily imply material deprivation.

On the contrary, in the East periphery an income above the poverty threshold can not be sufficient to maintain a minimum acceptable standard of living.

In addition, our research found that the determinants of (material and income) poverty are different between the South and the East Europe. In fact, while in the South the incidence of the employment rate is significant to explain the poverty, in the Eastern countries the same variable is not relevant. On the other hand, while in the East the industry sector is significant to explain the poverty, the same does not occur in the South.

7. References

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