

# *Inclusive Society as a Necessary Condition for Knowledge-Based Competitiveness in the European Union*

Anita Pelle

*University of Szeged, Hungary*

*pelle@eco.u-szeged.hu*

Renáta Laczi

*University of Szeged, Hungary*

*lacirenata@hotmail.com*

The latest growth strategy of the European Union, the Europe 2020, represents a new approach towards economic growth. From our point of view the most important innovation of the strategy is that, beside intelligent and sustainable growth, it sets out the establishment of an inclusive society as one of its priorities. We believe that member states' competitiveness is a key factor of their economic growth. For that reason, we included the World Economic Forum's Global Competitiveness Index in our analysis to find the relationship between competitiveness and an inclusive society. We investigate the EU member states' performance on country group level, and then we set up an inclusive indicator based on the main components of the inclusive pillar of the Europe 2020 strategy. Our findings suggest that an inclusive society is one of the necessary conditions for economic prosperity.

*Key Words:* society, education, economy, knowledge

*JEL Classification:* I25, I32, J24

## **Introduction**

In the last 15 years, the European Union has launched two long-term growth strategies with different targets. First, the Lisbon strategy emphasized that the European Union should in 10 years' time become the most competitive, knowledge-based economy in the world with sustainable growth and high level of employment. Then the Europe 2020 strategy has three priorities: it claims that intelligent, inclusive and sustainable growth is desirable in the European Union. This strategy was announced in 2010 when the member states were focusing on fire-fighting the effects of the global economic crisis and were rather concerned about short-term growth. Still, the Europe 2020 strategy is not dealing with crisis management but highlighting the necessary conditions of long-term economic

growth instead. In our paper, we are focusing on the indicators that determine inclusive growth: employment, education, and people living in or at risk of poverty or social exclusion.

In this article, we would like to emphasize the importance of human aspects of competitiveness such as human capital and social inclusion. We claim that the human and social aspects of competitiveness are the basis of a knowledge-based economy. The aim of this paper is to discover the relationship between competitiveness and social inclusion. Our initial hypothesis is that social inclusion is one of the necessary conditions for a competitive economy. Moreover, we assume that there is a core-periphery divide in the performance of the member states.

In our paper, first we overview the related literature, which suggests a correlation between social inclusion and competitiveness and gives a special highlight to the role of knowledge in the economy. Second, we thoroughly present our methodology (country groups, indicators) and the results of the calculations. Finally, we discuss the relationship of competitiveness and social inclusion based on our findings and we draw our conclusions.

### **Interpretations of an Inclusive Growth**

The concept of inclusion is very open and has been the subject of various interpretations. A widely accepted definition of inclusive growth was established by the Commission on Growth and Development: 'output growth that is sustained over decades, is broad-based across economic sectors, creates productive employment opportunities for a great majority of the country's working age population, and reduces poverty' (Samans and Corrigan 2015, 3).

However, the European Union has its own distinctive approach towards inclusive growth. As the European Commission has stated it, there are inclusive challenges (European Commission 2010) that are needed to be met in the framework of the Europe 2020 strategy. Two of these challenges are very similar to the aforementioned, namely employment and the reduction of poverty. What makes the European Union's approach unique is its commitment to territorial cohesion by reducing regional disparities in parallel. The notion of inclusion may also be determined reversely: social exclusion can be viewed as an antidote to inclusion, and it can be the result of different causes such as discrimination based on age, gender, social status, race, disability, etc. (Begg 2011, 2–3). The question is how we can prevent these phenomena from occurring. For sure,

education plays a crucial role in building an inclusive society (Armstrong and Spandagou 2009, 4).

Besides this, we know from theoretical growth literature that education has a significant role in economic well-being as well. This issue is again rather complex and now we are trying to grasp the essence of the importance of education via three simple assumptions. Firstly, education improves human capital that is inherent in labour force and results in higher level of output (Mankiw 1992). Secondly, education also improves the innovative capacity of the economy leading to new products, processes, and technologies that promote growth (Lucas 1988; Romer 1990; Aghion and Howitt 1998). Finally, education facilitates the understanding, the use, and the implementation of new technologies (Nelson and Phelps 1966; Benhabib and Spiegel 1994). Nevertheless, it is important to note that the quality of education strongly matters in successfully reaching such outcomes (Hanushek and Woessmann 2010, 245).

In our paper, we refer to knowledge as an asset, which has a unique nature with special characteristics and a vital role in the production process. Knowledge can be assumed as a global public good (Stiglitz 2006): it does not devalue when it is used by other people; the value of knowledge is in fact higher when it is shared; nobody can be excluded from possessing it, and it cannot be unlearned once it is learned (Witoń 2014). Moreover, knowledge can be understood as a form of capital and, as such, it also requires investment (Schultz 1961) or else it is going through amortization with time (Pelle 2013). On the other hand, knowledge is strongly linked to individuals: it can only be used by them, and it contributes to economic growth only when it is utilized. In this sense, education plays a crucial role in giving individuals skills and cognitive abilities (Hanushek and Woessmann 2008) and investment in education is indirectly an investment in human capital (Schultz 1979).

### **The Importance of Competitiveness in Economic Growth**

The term 'competitiveness' has been long discussed in the history of economic theory. From the classical Ricardian model based on comparative advantages, along with the neoclassical schools emphasizing the role of effectiveness, and new institutional economics pointing out the importance of the quality of institutions to the latest growth models incorporating factors of growth such as governance, human capital, and technological progress, saying that these are not mutually exclusive and can influence a country's productivity jointly (Sala-i-Martin 2004; Ro-

drik 2007; Acemoglu and Robinson 2012). In line with theory, we use the World Economic Forum's definition of competitiveness, according to which competitiveness is 'a set of institutions, policies and factors that determine the level of productivity of a country' (World Economic Forum 2014, 4). The definition implies that the more productive a country, the more competitive it is and the more it is able to generate and provide wealth to the members of its society. At the same time, other competitiveness definitions such as international competitiveness (Durand and Giorno 1987), trade competitiveness (Inter-American Development Bank 2001) and global comparative advantages are based on cost and price differentials. As some authors suggest, the member states of the European Union are developed economies that should not enter the race of cost competitiveness, but rather focus on a knowledge-based competitiveness to enhance aggregate productivity (Di Mauro and Foster 2011).

Furthermore, the quality of individuals and thus the quality of society has a strong effect on countries' economic performance and competitiveness. Without a strong basis of skilled, healthy and active individuals, who are living in a society that is providing equal opportunities for its members, the success of economic performance is hindered. Moreover, the growing number of social groups living in poverty threatens the long-term growth prospects of an economy and, at the same time, appears as a major risk to stability and social progress (Stiglitz 2012).

### **Data and Methodology**

In our analysis, we examine the European Union member states' performance in terms of competitiveness and social inclusion. For this purpose, we rely on data from the World Economic Forum (WEF) and the Eurostat. Based on the European Union member states' performance on the WEF Global Competitiveness Index (table 1), we create six country groups (table 2). These country groups are also aimed to reflect the territorial cohesion problematic in the European Union. Furthermore, although the GCI is comprised of 114 indicators, the components of social inclusion are not included in the index. In case there is a correlation between competitiveness and an inclusive society that is not on the level of data.

In table 3, the countries are grouped according to their performance on the GCI (see also table 1). The order of the country groups follows the group average scores and at the same time each group includes countries with growing from-to ranks. The Northern and Western European countries perform better scores than the EU average. The biggest range

TABLE 1 Ranking and Score on the GCI of the EU Member States

Country	2013-4		2014-5		Country	2013-4		2014-5	
	(1)	(2)	(1)	(2)		(1)	(2)	(1)	(2)
Austria	16	5.15	21	5.16	Italy	49	4.41	49	4.42
Belgium	17	5.13	18	5.18	Latvia	52	4.40	42	4.50
Bulgaria	57	4.31	54	4.37	Lithuania	48	4.41	41	4.51
Croatia	75	4.13	77	4.13	Luxembourg	23	5.09	19	5.17
Cyprus	58	4.30	58	4.31	Malta	41	4.50	47	4.45
Czech Republic	46	4.43	37	4.53	Netherlands	8	5.42	8	5.45
Denmark	15	5.18	13	5.29	Poland	42	4.46	43	4.48
Estonia	32	4.65	29	4.71	Portugal	51	4.40	36	4.54
Finland	3	5.54	4	5.50	Romania	76	4.13	59	4.30
France	25	5.05	23	5.08	Slovakia	78	4.10	75	4.15
Germany	4	5.51	5	5.49	Slovenia	62	4.25	70	4.22
Greece	91	3.93	81	4.04	Spain	35	4.57	35	4.55
Hungary	63	4.25	60	4.28	Sweden	6	5.48	10	5.41
Ireland	28	4.92	25	4.98	United Kingdom	10	5.37	9	5.41

NOTES Column headings are as follows: (1) rank, (2) score.

TABLE 2 Country Groups

Country group	Members
1 Northern Europe	Denmark, Sweden, Finland
2 Western Europe	Austria, Belgium, United Kingdom, France, Netherlands, Ireland, Luxembourg and Germany
3 Baltics	Estonia, Latvia, Lithuania
4 Southern Europe	Cyprus, Malta, Portugal, Spain, Italy
5 Central and Eastern Europe	Czech Republic, Slovakia, Poland, Hungary, Slovenia
6 Balkans	Croatia, Greece, Romania, Bulgaria

in points can be found in the Western European group, mainly because it is the most numerous country group with eight countries. The positions of the EU member states range between 4 and 81 on the GCI index, with the biggest difference in ranks (33) in the group of Central and Eastern European Member States. These rankings already suggest a competitiveness divide within the European Union.

In the following section, we investigate the EU member states' perfor-

TABLE 3 Country Groups According to the Performance on the Global Competitiveness Index, 2014–2015

Country group	Average (score)	Range (points)	Range (rank)
Northern Europe	5.40	0.22	9 (4–13)
Western Europe	5.24	0.51	20 (5–25)
Baltics	4.57	0.22	13 (29–42)
Southern Europe	4.45	0.33	23 (35–58)
Central and Eastern Europe	4.33	0.31	33 (37–70)
Balkans	4.21	0.33	27 (54–81)
EU (total)	4.73	1.47	77 (4–81)

NOTES Adapted from World Economic Forum (2014).

mance along the indicators under the inclusive priority of the Europe 2020 strategy. Nonetheless, we analyze the data on a larger time scale in order to reveal the dynamics of performance and the effects of the 2008 economic crisis. The first such indicator is employment rate (table 4).

When calculating the employment rates ( $e_i^j$ ) for the country groups (CG), we add up the countries' active ( $a_i^j$ ) and inactive ( $ia_i^j$ ) 20–64 year-old population groups, thus receiving the working-age population in each country group. Afterwards, we add up the number of employed persons in all country groups respectively. Then we divide the number of employed persons by the number of people in the working-age population of the country group, for all six groups, and for all five years.

$$j = 1, 2, 3 \dots 6.$$

$$i_j: \quad i_1 = 1, 2, 3, \quad i_2 = 1, 2, 3 \dots 8, \quad i_3 = 1, 2, 3,$$

$$i_4 = 1, 2, 3 \dots 5, \quad i_5 = 1, 2, 3 \dots 5, \quad i_6 = 1, 2, 3, 4, \quad i \in CG_j.$$

$$e_{CGj} = \frac{\sum e_i^j}{\sum a_i^j + \sum ia_i^j}.$$

In terms of employment, we can observe various paths in the country groups. Northern European countries perform the best: before the 2008 economic crisis, employment rate was 78.95%; however, as a result of the crisis, it fall back to 76.11% in 2010 and since then only a modest growth can be observed. The Western European country group seems to be the most resistant to the crisis with a steady performance in employment rate. On the other hand, the deviation is the biggest within this group.

TABLE 4 Employment Rates in the European Union, 2007–2013

Country	2007	2008	2009	2010	2011	2012	2013
EU-28	69.8	70.3	68.9	68.6	68.6	68.4	68.4
Belgium	67.7	68.0	67.1	67.6	67.3	67.2	67.2
Bulgaria	68.4	70.7	68.8	65.4	62.9	63.0	63.5
Czech Republic	72.0	72.4	70.9	70.4	70.9	71.5	72.5
Denmark	79.0	79.7	77.5	75.8	75.7	75.4	75.6
Germany	72.9	74.0	74.2	74.9	76.5	76.9	77.3
Estonia	76.9	77.1	70.0	66.8	70.6	72.2	73.3
Ireland	73.8	72.2	66.9	64.6	63.8	63.7	65.5
Greece	65.8	66.3	65.6	63.8	59.6	55.0	52.9
Spain	69.7	68.5	64.0	62.8	62.0	59.6	58.6
France	69.8	70.4	69.5	69.3	69.3	69.4	69.6
Croatia	63.9	64.9	64.2	62.1	59.8	58.1	57.2
Italy	62.7	62.9	61.6	61.0	61.0	60.9	59.7
Cyprus	76.8	76.5	75.3	75.0	73.4	70.2	67.2
Latvia	75.2	75.4	66.6	64.3	66.3	68.1	69.7
Lithuania	72.7	72.0	67.0	64.3	66.9	68.5	69.9
Luxembourg	69.6	68.8	70.4	70.7	70.1	71.4	71.1
Hungary	62.3	61.5	60.1	59.9	60.4	61.6	63.0
Malta	58.6	59.2	59.0	60.1	61.6	63.1	64.8
Netherlands	77.8	78.9	78.8	76.8	77.0	77.2	76.5
Austria	72.8	73.8	73.4	73.9	74.2	74.4	74.6
Poland	62.7	65.0	64.9	64.3	64.5	64.7	64.9
Portugal	72.5	73.1	71.1	70.3	68.8	66.3	65.4
Romania	64.4	64.4	63.5	64.8	63.8	64.8	64.7
Slovenia	72.4	73.0	71.9	70.3	68.4	68.3	67.2
Slovakia	67.2	68.8	66.4	64.6	65.0	65.1	65.0
Finland	74.8	75.8	73.5	73.0	73.8	74.0	73.3
Sweden	80.1	80.4	78.3	78.1	79.4	79.4	79.8
United Kingdom	75.2	75.2	73.9	73.5	73.5	74.1	74.8

NOTES Based on data from Eurostat (<http://ec.europa.eu/eurostat>).

The employment rate in the Baltic countries was above 74% in 2007 and 2008. In the following year, there was a sharp decline to 67.48%, and it decreased further to 64.81% in 2010. Since then, employment rate here

TABLE 5 Employment Rates in the Country Groups, 2007–2013

Country groups	2007	2008	2009	2010	2011	2012	2013
Northern Europe	78.38	78.95	76.81	76.11	76.88	76.88	76.92
Western Europe	72.90	73.47	72.80	72.78	73.25	73.60	73.95
Baltics	74.33	74.14	67.48	64.81	67.48	69.14	70.53
Southern Europe	66.54	66.16	63.53	62.71	62.24	60.96	59.87
CEEU	64.91	66.31	65.60	64.93	65.15	65.57	65.94
Balkans	65.25	65.78	64.73	63.36	61.51	60.78	60.58
EU total	69.80	70.30	69.00	68.50	68.50	68.40	68.40
Deviation	5.602	5.506	5.214	5.584	6.160	6.617	7.025

NOTES Based on data from Eurostat (<http://ec.europa.eu/eurostat>).

has risen above the EU average with 70.53% in 2013. Southern European countries and the Balkans group experienced the biggest setback in the period between 2007 and 2013: employment rate in their case has gradually decreased (with the exemption of 2007–2008 in the Balkans group) and there are still no signs of improvement. For the Central and Eastern European countries, employment rate declined in the period between 2008 and 2010 while a moderate growth can be examined since 2011. Still, employment rate in this country group is below the EU average.

As it is indicated in the last line of the table, the deviation between the country groups in terms of employment rate has increased, suggesting that there are growing differences in their performance. The situation is the most urging in the Southern European and Balkans country groups as their performance is lagging behind the others. They have not managed to even maintain their employment rates even though its importance is strongly emphasized in the Europe 2020 strategy.

The second indicator is linked to education. In accordance with the Europe 2020 strategy, we examine the ratio of early school leavers and tertiary level education attainment in the country groups. The rate of early school leavers (table 6) refers to the number of population aged 18–24 years with at most secondary education who are not enrolled in further education or training (see <http://ec.europa.eu/eurostat/data/database>). The rate of early school leavers shall be reduced to 10% while tertiary level education attainment shall be increased to 40% by 2020 according to the strategy's respective objectives (table 7). This latter indicator refers to the percentage of population aged 30–34 years who have successfully finished their tertiary studies (see <http://ec.europa.eu/eurostat/data/database>).

TABLE 6 Early School Leavers in the European Union, 2007–2013

Country	2007	2008	2009	2010	2011	2012	2013
EU-28	14.9	14.6	14.2	13.9	13.4	12.6	11.9
Belgium	12.1	12.0	11.1	11.9	12.3	12.0	11.0
Bulgaria	14.9	14.8	14.7	13.9	11.8	12.5	12.5
Czech Republic	5.2	5.6	5.4	4.9	4.9	5.5	5.4
Denmark	12.9	12.5	11.3	11.	9.6	9.1	8.0
Germany	12.5	11.8	11.1	11.9	11.6	10.5	9.8
Estonia	14.4	14.0	13.5	11.0	10.6	10.3	9.7
Ireland	11.8	11.4	11.7	11.5	10.8	9.7	8.4
Greece	14.3	14.4	14.2	13.5	12.9	11.3	10.1
Spain	30.8	31.7	30.9	28.2	26.3	24.7	23.6
France	12.6	11.5	12.2	12.5	11.9	11.5	9.7
Croatia	4.5	4.4	5.2	5.2	5.0	5.1	4.5
Italy	19.5	19.6	19.1	18.6	17.8	17.3	16.8
Cyprus	12.5	13.7	11.7	12.7	11.3	11.4	9.1
Latvia	15.6	15.5	14.3	12.9	11.6	10.6	9.8
Lithuania	7.8	7.5	8.7	7.9	7.4	6.5	6.3
Luxembourg	12.5	13.4	7.7	7.1	6.2	8.1	6.1
Hungary	11.4	11.7	11.5	10.8	11.4	11.8	11.9
Malta	30.2	27.2	25.7	23.8	22.7	21.1	20.5
Netherlands	11.7	11.4	10.9	10.0	9.1	8.8	9.2
Austria	10.8	10.2	8.8	8.3	8.5	7.8	7.5
Poland	5.0	5.0	5.3	5.4	5.6	5.7	5.6
Portugal	36.5	34.9	30.9	28.3	23.0	20.5	18.9
Romania	17.3	15.9	16.6	19.3	18.1	17.8	17.3
Slovenia	4.1	5.1	5.3	5.0	4.2	4.4	3.9
Slovakia	6.5	6.0	4.9	4.7	5.1	5.3	6.4
Finland	9.1	9.8	9.9	10.3	9.8	8.9	9.3
Sweden	8.0	7.9	7.0	6.5	6.6	7.5	7.1
United Kingdom	16.6	17.0	15.7	14.8	14.9	13.4	12.3

NOTES Based on data from Eurostat (<http://ec.europa.eu/eurostat>).

In this case, we follow a three-step calculation method to get the proportion of early school leavers and the proportion of people with tertiary level education attainment. In order to be able to interpret the rates of

TABLE 7 Tertiary Educational Attainment in the European Union, 2007–2013

Country	2007	2008	2009	2010	2011	2012	2013
EU-28	30.1	31.2	32.3	33.8	34.8	36.0	37.1
Belgium	41.5	42.9	42.0	44.4	42.6	43.9	42.7
Bulgaria	26.0	27.1	27.9	27.7	27.3	26.9	29.4
Czech Republic	13.3	15.4	17.5	20.4	23.7	25.6	26.7
Denmark	38.1	39.2	40.7	41.2	41.2	43.0	43.4
Germany	26.5	27.7	29.4	29.8	30.6	31.8	32.9
Estonia	33.5	34.4	36.3	40.2	40.2	39.5	43.7
Ireland	43.3	46.3	48.9	50.1	49.7	51.1	52.6
Greece	26.3	25.7	26.6	28.6	29.1	31.2	34.9
Spain	40.9	41.3	40.7	42.0	41.9	41.5	42.3
France	41.4	41.2	43.2	43.4	43.3	43.5	44.1
Croatia	16.8	18.5	21.3	24.5	23.9	23.1	25.6
Italy	18.6	19.2	19.0	19.9	20.4	21.9	22.5
Cyprus	46.2	47.1	45.0	45.3	46.2	49.9	47.8
Latvia	25.7	26.3	30.5	32.6	35.9	37.2	40.7
Lithuania	36.4	39.9	40.4	43.8	45.7	48.6	51.3
Luxembourg	35.3	39.8	46.6	46.1	48.2	49.6	52.5
Hungary	20.6	22.8	24.0	26.1	28.2	29.8	32.3
Malta	20.8	21.0	21.9	22.1	23.4	24.9	26.0
Netherlands	36.4	40.2	40.5	41.4	41.1	42.2	43.1
Austria	20.9	21.9	23.4	23.4	23.6	26.1	27.1
Poland	27.0	29.7	32.8	34.8	36.5	39.1	40.5
Portugal	19.5	21.6	21.3	24.0	26.7	27.8	30.0
Romania	13.9	16.0	16.8	18.3	20.3	21.7	22.9
Slovenia	31.0	30.9	31.6	34.8	37.9	39.2	40.1
Slovakia	14.8	15.8	17.6	22.1	23.2	23.7	26.9
Finland	47.3	45.7	45.9	45.7	46.0	45.8	45.1
Sweden	41.0	42.0	43.9	45.3	46.8	47.9	48.3
United Kingdom	38.5	39.7	41.4	43.1	45.5	46.9	47.4

NOTES Based on data from Eurostat (<http://ec.europa.eu/eurostat>).

early school leavers in the six country groups, we make the following calculations. Since there are data available only for age categories, first we have to add up the number of people ( $\sum pop18-24_i^j$ ) from ages 18 to 24

years in the period between 2007 and 2013 (1). This way we get the total population aged 18–24 years in the European Union member states and also in the country groups. In the following step, the number of the total population aged 18–24 years ( $pop18-24_i^j$ ) is divided by the percentage of early school leavers ( $esl\%_i^j$ ) of the Eurostat Europe 2020 indicator (2). This way we get the number of population aged 18–24 years not enrolled in education or training ( $esl_i^j$ ). As a final step, the total number of population aged 18–24 year not enrolled in education or training in the country group is divided by the total number of population aged 18–24 years in the same country group. Finally, as a result, we arrive to the percentage of early school leavers in each country group ( $esl_{CGj}$ ).

$$\begin{aligned} \sum pop18-24_i^j = & \sum pop18_i^j + \sum pop19_i^j + \sum pop20_i^j \\ & + \sum pop21_i^j + \sum pop22_i^j + \sum pop23_i^j \\ & + \sum pop24_i^j. \end{aligned} \quad (1)$$

$$\frac{\sum pop18-24_i^j}{esl\%_i^j} = esl_i^j. \quad (2)$$

$$esl_{CGj} = \frac{\sum esl_i^j}{\sum pop18-24_i^j}. \quad (3)$$

Similarly, in the case of tertiary education attainment, the numbers of population from 30 to 34 years are summed up, in order to get the total number of population ( $\sum pop30-34_i^j$ ) in this age group (4). As a next step, this number is divided by the percentage of Europe 2020 tertiary education indicator ( $tea\%_i^j$ ) from the Eurostat, giving the result of the number of population with tertiary education attainment ( $tea_i^j$ ) in the age group of 30–34 years (2). Finally, the total number of population with tertiary level education attainment in the country group is divided by the total number of population aged 30–34 years in the country group. As a result, the percentage of population aged 30–34 years with tertiary level educational attainment ( $tea_{CGj}$ ) in the country groups is calculated (3).

$$\begin{aligned} \sum pop30-34_i^j = & \sum pop30_i^j + \sum pop31_i^j + \sum pop32_i^j \\ & + \sum pop33_i^j + \sum pop34_i^j. \end{aligned} \quad (4)$$

TABLE 8 The Rates of Early School Leavers and Tertiary Educational Attainment, 2007–2013

Country groups	2007	2008	2009	2010	2011	2012	2013
<i>Early School Leavers</i>							
Northern Europe	9.55	9.59	8.87	8.63	8.19	8.27	7.89
Western Europe	15.53	15.12	14.38	14.35	14.16	13.15	11.99
Baltics	11.75	11.51	11.53	10.15	9.40	8.56	8.07
Southern Europe	26.05	26.22	25.15	23.50	21.86	20.64	19.69
CEEU	5.95	6.04	6.06	5.95	6.19	6.41	6.48
Balkans	14.95	14.21	14.52	15.09	14.17	13.83	13.47
<i>Tertiary Educational Attainment</i>							
Northern Europe	41.69	42.13	43.52	44.27	45.07	46.03	46.16
Western Europe	35.09	36.14	37.73	38.49	39.38	40.43	41.11
Baltics	32.31	34.30	36.31	39.42	41.29	42.81	46.06
Southern Europe	28.36	29.23	29.04	30.38	30.92	31.48	32.23
CEEU	22.59	24.87	27.39	29.85	32.08	34.35	36.06
Balkans	19.34	20.63	21.56	23.03	24.22	25.32	27.38

NOTES Based on data from Eurostat (<http://ec.europa.eu/eurostat>).

$$\frac{\sum pop_{30-34}^j}{tea\%_i^j} = tea_i^j. \quad (5)$$

$$tea_{CGj} = \frac{\sum tea_i^j}{\sum pop_{30-34}^j}. \quad (6)$$

The 10% percent target has already been achieved in the Northern European region where the rate of early school leavers is decreasing further. The rate of early school leavers is also under 10% in the Central and Eastern European country group (mainly due to political traditions); however, there has been a growing tendency in the number of early school leavers in the past few years. For the Southern European region, the rate of early school leavers decreased by 6.36%points but it is still the highest among the country groups with 19.69%. In the case of the Baltic countries, the decrease in the rate of early school leavers was relatively the largest. In the Balkans group, the rate of early school leavers was increasing in the period between 2008 and 2010 when it gradually started to decrease.

The rate of tertiary educational attainment shows a growing tendency

in all country groups (the only exception is a slight drop in the Southern European group in year 2009). The greatest progress has been achieved in the Baltic group where the rate of tertiary educational attainment increased by 13.75%points in the period between 2007 and 2013. Similarly, in the Central and Eastern European group, the rate of tertiary education attainment increased by 13.47%points in the same period. The relatively smallest growth was experienced in the Southern European country group, only 3.87%points over the 7 years period.

Overall, the Member States of the European Union are heading towards the education targets of the Europe 2020 strategy. There is a clear progress in these terms but there are evident differences in the performances of the country groups.

The third and final indicator of an inclusive society under the Europe 2020 strategy is poverty. The indicator of people living at risk of poverty or social exclusion is composed of three sub-indicators, namely the people living in low work intensity households, the people living in poverty after social transfers, and the severely materially deprived people. At risk of poverty are the persons with an equivalized disposable income below the risk-of-poverty threshold, which is set at 60% of the national median equivalized disposable income (after social transfers). Material deprivation covers indicators relating to economic strain and durables. Severely materially deprived persons have living conditions severely constrained by a lack of resources, they experience at least 4 out of 9 following deprivations items: cannot afford (1) to pay rent or utility bills, (2) keep home adequately warm, (3) face unexpected expenses, (4) eat meat, fish or a protein equivalent every second day, (5) a week holiday away from home, (6) a car, (7) a washing machine, (8) a colour TV, or (9) a telephone. People living in households with very low work intensity are those aged 0–59 living in households where the adults (aged 18–59) work less than 20% of their total work potential during the past year (see <http://ec.europa.eu/eurostat/data/database>). It is important to note that the people who belong to more than one category are only considered once.

In the case of poverty rates, the number of people living at risk of poverty or social exclusion ( $\sum arope_i^j$ ) is divided by the number of total population ( $\sum population_i^j$ ) in each country group.

$$arope_{CGj} = \frac{\sum arope_i^j}{\sum population_i^j}. \quad (7)$$

TABLE 9 People living at risk of poverty or social exclusion, 2007–2013

Country	2007	2008	2009	2010	2011	2012	2013
EU-28	—	—	—	23.7	24.3	24.7	24.5
Belgium	21.6	20.8	20.2	20.8	21.0	21.6	20.8
Bulgaria	60.7	44.8	46.2	49.2	49.1	49.3	48.0
Czech Republic	15.8	15.3	14.0	14.4	15.3	15.4	14.6
Denmark	16.8	16.3	17.6	18.3	18.9	19.0	18.9
Germany	20.6	20.1	20.0	19.7	19.9	19.6	20.3
Estonia	22.0	21.8	23.4	21.7	23.1	23.4	23.5
Ireland	23.1	23.7	25.7	27.3	29.4	30.0	29.5
Greece	28.3	28.1	27.6	27.7	31.0	34.6	35.7
Spain	23.3	24.5	24.7	26.1	26.7	27.2	27.3
France	19.0	18.5	18.5	19.2	19.3	19.1	18.1
Croatia	—	—	—	31.1	32.6	32.6	29.9
Italy	26.0	25.3	24.7	24.5	28.2	29.9	28.4
Cyprus	25.2	23.3	23.5	24.6	24.6	27.1	27.8
Latvia	35.1	34.2	37.9	38.2	40.1	36.2	35.1
Lithuania	28.7	28.3	29.6	34.0	33.1	32.5	30.8
Luxembourg	15.9	15.5	17.8	17.1	16.8	18.4	19.0
Hungary	29.4	28.2	29.6	29.9	31.0	32.4	33.5
Malta	19.7	20.1	20.3	21.2	22.1	23.1	24.0
Netherlands	15.7	14.9	15.1	15.1	15.7	15.0	15.9
Austria	16.7	20.6	19.1	18.9	19.2	18.5	18.8
Poland	34.4	30.5	27.8	27.8	27.2	26.7	25.8
Portugal	25.0	26.0	24.9	25.3	24.4	25.3	27.5
Romania	45.9	44.2	43.1	41.4	40.3	41.7	40.4
Slovenia	17.1	18.5	17.1	18.3	19.3	19.6	20.4
Slovakia	21.3	20.6	19.6	20.6	20.6	20.5	19.8
Finland	17.4	17.4	16.9	16.9	17.9	17.2	16.0
Sweden	13.9	14.9	15.9	15.0	16.1	15.6	16.4
United Kingdom	22.6	23.2	22.0	23.2	22.7	24.1	24.8

NOTES Based on data from Eurostat (<http://ec.europa.eu/eurostat>).

Now we first analyze the portion of people living at risk of poverty or social exclusion in general, then we present the decomposition of the indicator in order to get a more detailed picture of the poverty problem

TABLE 10 People Living at Risk of Poverty or Social Exclusion, 2007–2013

Country groups	2007	2008	2009	2010	2011	2012	2013
Northern Europe	15.51	15.85	16.46	16.39	17.33	17.06	17.08
Western Europe	19.81	19.75	19.38	19.81	19.86	20.09	20.15
Baltics	29.77	29.05	30.87	32.67	33.13	31.65	30.59
Southern Europe	25.03	25.20	24.77	25.58	27.83	29.04	28.07
CEEU	28.82	26.29	24.58	24.72	24.60	24.68	24.12
Balkans	42.99	39.49	39.12	39.26	39.81	41.35	40.51

NOTES Based on data from Eurostat (<http://ec.europa.eu/eurostat>).

(table 9). Similarly to the previous indicators, we analyze the time period between 2007 and 2013. (Unfortunately, some data were unavailable for Croatia from 2007 to 2009. To solve this problem, we took the median value of the data 2010–2013 and substituted the missing information this way.)

The proportion of people living at risk of poverty or social exclusion shows a growing tendency in the period between 2007 and 2013 in four of the country groups, with the exception of the Central and Eastern European region and the Balkans. However, it is still worrisome that 40.51% of the population in the Balkans region is living at risk of poverty or social exclusion. The largest increase in the portion of such people occurred in the Southern European country group where 28.07% of the population was exposed to this risk in 2013. The growing number of people living at risk of poverty or social exclusion in the Northern and Western European region is signalling a need for policy implications in this field in these rather developed countries as well.

As a following step, we present the decomposition of the people living at risk of poverty or social exclusion indicator, revealing the very nature of the poverty issue.

When focusing on the tendencies in the proportion of people living in low work intensity households, the aftermaths of the 2008 crisis can be traced back. It was the year 2010 when the proportion of people living in low work intensity households grew in five country groups, followed by the increase in the Balkans group one year later, in 2011. By 2013, the Western European and the Baltic countries managed to reduce the proportion of people living in low work intensity households. In the Northern and in the Central and Eastern European country groups there is a year-by-year fluctuation in this respect. The situation is the most worry-

TABLE 11 Decomposition of the Poverty Indicator, 2007–2013

Country groups	2007	2008	2009	2010	2011	2012	2013
<i>People Living in Very Low Work Intensity Households</i>							
Northern Europe	5.92	5.13	5.57	6.01	6.64	6.02	6.69
Western Europe	7.99	7.67	7.90	8.39	8.04	7.82	7.72
Baltics	5.00	4.17	5.36	7.90	9.18	8.32	7.62
Southern Europe	6.52	6.26	6.21	7.81	8.63	8.97	9.77
CEEU	7.74	6.52	5.73	6.20	5.99	6.01	6.11
Balkans	8.05	6.85	6.30	6.24	7.56	8.38	8.72
<i>People Living in Poverty After Social Transfers</i>							
Northern Europe	11.40	12.39	13.22	13.01	13.63	13.72	13.42
Western Europe	14.74	14.73	14.56	14.61	14.70	14.73	14.49
Baltics	20.07	22.08	22.03	19.60	18.68	18.51	19.73
Southern Europe	19.72	19.57	19.13	19.50	20.57	20.47	19.66
CEEU	14.49	14.16	14.19	14.59	15.02	14.80	14.74
Balkans	22.87	22.17	21.70	21.21	22.47	22.85	22.67
<i>Severely Materially Deprived People</i>							
Northern Europe	2.81	2.10	2.07	2.08	2.10	2.14	2.36
Western Europe	4.29	4.84	4.50	4.72	4.94	5.53	5.57
Baltics	17.00	13.27	15.74	20.03	20.58	19.42	16.72
Southern Europe	5.89	6.23	6.27	6.39	8.38	10.67	9.96
CEEU	18.19	15.04	13.62	13.38	12.79	13.57	12.76
Balkans	32.11	27.54	27.26	27.73	27.63	29.07	28.26

NOTES Based on data from Eurostat (<http://ec.europa.eu/eurostat>).

ing in the Southern European and Balkans country groups as the proportion of people living in low work intensity households here was clearly decreasing before the crisis but since then there has been no success in tackling this problem.

The rate of the population living in poverty after social transfers is ranging from 13.42% to 22.67% among the country groups. The deviation between the country groups' performances was decreasing until 2010, implying that up to this point the proportion of such people was also declining. From 2010 onwards, however, the deviation has started to increase, and there are fluctuations in the performance of all the country groups. We can say that the rate of people living in poverty after social transfers is

stably low in the Northern, the Western, and the Central and Eastern European country groups. The respective rate is the highest in the Balkans group, followed by the Baltics and Southern Europe although some tendencies of improvement can be traced in these groups since 2007.

The proportion of people living in severely materially deprived circumstances shows the biggest deviation among the poverty indicators. In the Northern and in the Western European region the rate of these people is relatively low; however, it shows a growing tendency from 2010 onwards. The rate of severely materially deprived people reached its peak in 2011 in the Baltics group with 20.85%. This ratio has decreased by 3.86% points until 2013, which is now lower than before the crisis in 2007. Still, it is the second highest among the country groups. The Central and Eastern European countries are performing well on this indicator: the portion of severely materially deprived people has been decreasing since 2007; their rate is currently 5.43% points lower than it was 7 years ago. On the other hand, the respective rate is constantly growing in the Southern European region. In fact, it has almost doubled since 2007 and by now 9.96% of the population belongs to this group. Although the countries of the Balkans have achieved some improvements, the indicator for this country group is constantly high; 28.26% of the population was affected by the problem in 2013.

### **Competitiveness and an Inclusive Society**

We were keen on finding relations between inclusion and competitiveness. For this purpose, we created a new indicator that summarizes the performance of the EU member states along the four inclusion indicators that have been discussed above in detail (table 12). We named it 'inclusive indicator' and in our calculations we used the Eurostat headline indicators of the Europe 2020 strategy. The inclusive indicator is based on the WEF's methodology used for creating secondary indices, calculated by applying the following formula:

$$\frac{\text{country score} - \text{sample minimum}}{\text{sample maximum} - \text{sample minimum}}. \quad (8)$$

The member states are assigned values between 1 and 0 according to their performance. Obviously, 1 for the best and 0 for the worst performance (in the case of early school leavers and people at risk of poverty or social exclusion, the countries with the lowest values got 1). We apply this formula for all the 28 member states and in the case of all four indicators

TABLE 12 Inclusive Indicator

Country	(1)		(2)		(3)		(4)		(5)	
	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(b)	
Austria	75.5	0.840	7.3	0.827	27.3	0.162	18.8	0.874	0.676	
Belgium	67.2	0.531	11.0	0.639	42.7	0.672	20.8	0.814	0.664	
Bulgaria	63.5	0.394	12.5	0.563	29.4	0.231	48.0	0.000	0.297	
Croatia	57.2	0.159	4.5	0.969	25.6	0.105	29.9	0.541	0.444	
Cyprus	67.2	0.531	9.1	0.736	47.8	0.841	27.8	0.604	0.678	
Czech Republic	72.5	0.728	5.4	0.923	26.7	0.142	14.6	1.000	0.698	
Denmark	75.6	0.843	8.0	0.791	43.4	0.695	18.9	0.871	0.800	
Estonia	73.3	0.758	9.7	0.705	43.7	0.705	23.5	0.733	0.725	
Finland	73.3	0.758	9.3	0.725	45.1	0.751	16.0	0.958	0.798	
France	69.6	0.620	9.7	0.705	44.1	0.718	18.1	0.895	0.735	
Germany	77.3	0.907	9.9	0.695	33.1	0.354	20.3	0.829	0.696	
Greece	52.9	0.0	10.1	0.685	34.9	0.413	35.7	0.368	0.366	
Hungary	63.2	0.382	11.8	0.598	31.9	0.314	33.5	0.434	0.432	
Ireland	65.5	0.468	8.4	0.771	52.6	1.000	29.5	0.553	0.698	
Italy	59.8	0.256	17.0	0.335	22.4	0.000	28.4	0.586	0.294	

Continued on the next page

(employment rate, rate of early school leavers, tertiary educational attainment, and poverty). In the following step, we take the simple average of these four scores that finally give us a value of the inclusive indicator for each individual member state (table 12). This indicator is reflecting the differences in the performance of the member states along the indicators related to the widely agreed criteria of an inclusive society.

Since the latest data available on Eurostat are from 2013, we have decided to use the scores of member states on the 2013–2014 Global Competitiveness Index representing their competitiveness performance. Figure 1 presents the connection between competitiveness and the degree of social inclusion in the EU member states.

As the value of  $R^2 = 0.4741$  suggests, there is a positive and medium strong correlation between competitiveness and social inclusion. Figure 1 visualizes a picture of a divided European Union into three categories, whereas our initial notion was rather a core-periphery divide (Pelle and Végh 2014a; 2014b). Not surprisingly, the Northern European countries are the top performers together with the Western European countries.

TABLE 12 *Continued from the previous page*

Country	(1)		(2)		(3)		(4)		(5)	
	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(b)	
Latvia	69.7	0.624	9.8	0.700	40.7	0.605	35.1	0.386	0.579	
Lithuania	69.9	0.631	6.3	0.878	51.3	0.956	30.8	0.514	0.745	
Luxembourg	71.1	0.676	6.1	0.888	52.5	0.996	19.0	0.868	0.857	
Malta	64.8	0.442	20.8	0.142	26.0	0.119	24.0	0.718	0.355	
Netherlands	76.5	0.877	9.2	0.730	43.1	0.685	15.9	0.961	0.813	
Poland	64.9	0.446	5.6	0.913	40.5	0.599	25.8	0.664	0.655	
Portugal	65.4	0.464	18.9	0.238	30.0	0.251	27.5	0.613	0.392	
Romania	63.9	0.408	17.3	0.319	22.8	0.013	40.4	0.227	0.242	
Slovakia	65.0	0.449	6.4	0.873	26.9	0.149	20.4	0.826	0.574	
Slovenia	67.2	0.531	3.9	1.000	40.1	0.586	19.8	0.844	0.740	
Spain	58.6	0.211	23.6	0.000	42.3	0.658	27.3	0.619	0.372	
Sweden	79.8	1.000	7.1	0.837	48.3	0.857	16.4	0.946	0.910	
United Kingdom	74.8	0.814	12.4	0.568	47.6	0.834	24.8	0.694	0.727	

NOTES Column headings are as follows: (1) employment rate, (2) early school leavers, (3) tertiary education, (4) people at risk of poverty, (5) total, (a) percentage, (b) score. Based on data from Eurostat (<http://ec.europa.eu/eurostat>).

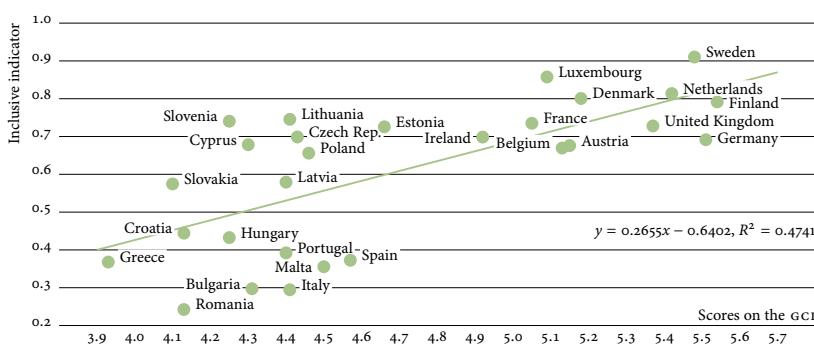


FIGURE 1 The Connection between EU Member States' Competitiveness and Social Inclusion

Interestingly, there are some countries from the Baltics group (Estonia, Lithuania) and from the Central and Eastern European region (Czech Republic, Slovenia) that have similar performance to the Western European countries in terms of inclusiveness; however, their scores on the GCI are significantly lower. Therefore, we assume that an inclusive society is a

necessary but not sufficient condition for a competitive economy. Nevertheless, the cases of the Southern European and the Balkans group support our basic hypothesis. The performance of the countries belonging to these groups shows that the absence of an inclusive society is hindering countries in their exploiting their full potential, thus their competitiveness.

Accordingly, based on the relations between competitiveness and an inclusive society, we can distinguish three country groups: firstly, there are countries with relatively high scores on both the GCI and our inclusive indicator (Northern and Western Europe in our grouping); secondly, countries with moderate scores on the GCI but relatively high scores on our inclusive indicator (Central and Eastern Europe and the Baltic states); thirdly, countries with relatively lower scores both on the GCI and the inclusive indicator (Southern Europe and the Balkans). Regarding the territorial aspects, there are two exceptions: Hungary and Cyprus. Hungary, although a Central and Eastern European country, shows a closer relation to the Southern European and Balkans groups according to its performance (relatively lower scores both on the GCI and the inclusive indicator) while Cyprus' position is more similar to that of the Central and Eastern European countries (moderate scores on the GCI but relatively higher scores on the inclusive indicator). All the other countries' performance is in line with that of the other members in their (territorially organized) country groups. All this suggests that there are fractions in the European Union that threaten not only the territorial cohesion but also the EU's performance as a whole.

### **Conclusion**

The aim of our analysis was to discover and present the components of an inclusive society in the European Union. For this purpose, we analyzed the EU member states' performance along the four indicators of the Europe 2020 strategy targeting inclusive growth. Furthermore, the classification of EU member states into country groups on a geographical basis has enabled us to trace the discrepancies in territorial cohesion as well.

According to our investigations, evident differences in the performance of country groups have been revealed, along all the indicators. Our results further suggest a divide between the core (Northern and Western Europe) and the periphery (all the rest) of the European Union. In most cases, the Northern and the Western European countries outperform the others while the Southern European and Balkans regions are

lagging behind. In the case of employment rates, nevertheless, which has been targeted by both the Lisbon and the Europe 2020 strategies, there is either a moderate growth or a decline in the country groups. The situation is somewhat brighter for the education targets where all member states are making progress; however, this progress is not even. Poverty appears to be the greatest social problem as the proportion of people living at risk of poverty or social exclusion has been increasing since 2007, reaching 40.51% in the Balkans and 28.07% in Southern Europe. Through a deeper analysis of the poverty indicator and its elements, we have shown that the rate of severely materially deprived people is the most diverse among the country groups, and it represents a threat on social inclusion, especially in the Balkans.

Overall, we assume that an inclusive society is a necessary condition for a competitive economy. To prove this assumption, we have established an inclusive indicator and have compared it with the EU member states' scores on the Global Competitiveness Index. We have found that the lack of social inclusion worsens the competitiveness of countries; in addition, differences among the member states can be identified on these dimensions as well. Our results show that there are fractions in the European Union and imply the need for policies in the social field, for competitiveness reasons as well.

### Acknowledgments

The research on which this article is based has been carried out in the framework of the project titled 'Need for a competitiveness union in the EU,' project ID: 553486-EPP-1-2014-1-HU-EPPJMO-CHAIR. All support is gratefully acknowledged. The authors also owe their thanks to Marcell Zoltán Végh for his intellectual support provided in the course of drafting this paper.

### References

- Acemoglu, D., and J. Robinson. 2012. *Why Nations Fail: The Origins of Power, Prosperity and Poverty*. New York: Crown Business.
- Aghion, P., and P. Howitt. 1998. *Endogenous Growth Theory*. Cambridge, MA: MIT Press.
- Armstrong, A., and I. Spandagou. 2009. 'Poverty, Inclusion and Inclusive Education: Exploring the Connections.' Paper presented at the AARE Annual Conference, Canberra, 29 November–3 December.
- Begg, I. 2011. 'Inclusive Growth.' Paper presented at New Atlantic Capitalism, Washington, DC, 3–4 March.

Benhabib, J., and M. Spiegel. 1994. 'The Role of Human Capital in Economic Development: Evidence from Aggregate Cross-Country Data.' *Journal of Monetary Economics* 34 (2): 143–74.

Di Mauro, F., and K. Foster. 2011. 'Competitiveness as a Multi-Dimensional Concept.' In *Recovery and Beyond: Lessons for Trade Adjustment and Competitiveness*, ed. F. di Mauro and B. R. Mandel, 12–9. Frankfurt: European Central Bank.

Durand, M., and C. Giorno 1987. 'Indicators of International Competitiveness: Conceptual Aspects and Evaluation.' *OECD Economic Studies* 9:147–82.

European Commission. 2010. 'Europe 2020: A Strategy for Smart, Sustainable and Inclusive Growth.' COM(2010) 2020, European Commission, Brussels.

Hanushek, E. A., and L. Woessmann. 2008. 'The Role of Cognitive Skills in Economic Development.' *Journal of Economic Literature* 46(3), 607–68.

———. 2010. 'Education and Economic Growth.' In *International Encyclopedia of Education*, ed. P. Peterson, E. Baker and B. McGaw, vol. 2, 245–52. Oxford: Elsevier.

Inter-American Development Bank. 2001. *Competitiveness: The Business of Growth*. Washington, DC: Inter-American Development Bank.

Lucas, R. E. 1988. 'On the Mechanics of Economic Development.' *Journal of Monetary Economics* 22:3–42.

Mankiw, N. G., Romer, D., and D. Weil. 1992. 'A Contribution to the Empirics of Economic Growth.' *Quarterly Journal of Economics* 107 (2): 407–37.

Nelson, R. R., and E. Phelps. 1966. 'Investment in Humans, Technology Diffusion and Economic Growth.' *American Economic Review* 56 (2): 69–75.

Pelle, A. 2013. 'The European Social Market Model in Crisis: At a Cross-roads Or at the End of the Road?' *Social Sciences* 2 (3): 131–46.

Pelle, A., and M. Végh. 2014a. 'A Comparative Analysis of Competition Across the EU Internal Market: Evidence from 11 EU Member States.' Paper presented at the Inaugural WINIR Conference, London, 11–14 September.

———. 2014b. 'Relations between the Common R&D&I Policy and the Competitiveness Divide in the European Union.' Paper presented at the 13th EACES Conference, Budapest, 4–6 September.

Rodrik, D. 2007. *One Economics, Many Recipes: Globalization, Institutions, and Economic Growth*. Princeton, NJ: Princeton University Press.

Romer, P. 1990. 'Endogenous Technological Change.' *Journal of Political Economy* 99 (5, pt. 2): 71–102.

Sala-i-Martin, X. 2010. 'The Economics behind the World Economic Fo-

rum's Global Competitiveness Index.' In *Dimensions of Competitiveness*, ed. by P. De Grauwe, 1–18. Cambridge, MA: MIT Press.

Samans, R., Blanke, J., Corrigan G., and M. Drzeniek. 2015. 'Benchmarking Inclusive Growth and Development.' World Economic Forum Discussion Paper, World Economic Forum, Geneva.

Schultz, T. W. 1961. 'Investment in Human Capital.' *The American Economic Review* 51 (1): 1–17.

———. 1979. 'The Economics of Being Poor.' Lecture to the memory of Alfred Nobel, 8 December. [http://www.nobelprize.org/nobel\\_prizes/economics/laureates/1979/schultz-lecture.html](http://www.nobelprize.org/nobel_prizes/economics/laureates/1979/schultz-lecture.html)

Stiglitz, J. E. 2006. 'Global Public Goods and Global Finance.' In *Advancing Public Goods*, ed. J. Touffut, 149–64. Cheltenham: Edward Elgar.

———. 2012. *The Price of Inequality: How Today's Divided Society Endangers Our Future*. New York: Norton.

World Economic Forum. 2014. *The Global Competitiveness Report 2014–2015*. Geneva: World Economic Forum.

Witoń, A. 2014. Knowledge as a Public Good in the Modern Economy. In *Firm-Level Internationalisation and its Business Environment*, ed. N. Daszkiewicz and K. Wach, 59–9. Gdansk: Gdansk University of Technology.



This paper is published under the terms of the Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0) License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).