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DEVELOPING AN ECONOMIC AND SOCIAL SECURITY INDEX FOR EURO-ATLANTIC AREA COUNTRIES: A PANEL DATA ANALYSIS

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Abstract. The concepts of economic and social security are very complex and dynamic, closely related to many new challenges that characterize today's societies. Our research aims at investigating the economic and social security considering the current vulnerabilities, using an integrated multicriteria approach to this issue, taking into account five pillars (dimensions): demographic, climate, globalization, and ITC adaptation, social, and economic. Based on these dimensions, we developed an Economic and Social Security Index across the Euro-Atlantic countries and we found that the European Union (EU) is better positioned compared to the other country-groups analysed. Furthermore, we estimated the effects of duration of schooling and climate degradation on economic growth, by using the Panel EGLS method over the period 2010–2019, and we compared the results obtained for EU countries to the ones obtained for the other groups of countries in Euro-Atlantic space: EU neighbours and candidate/potential candidate countries and other Eastern EU neighbourhood countries. We found a positive impact of the duration of schooling on the economic growth, which is greater in countries registering high levels of socio-economic security, the effect of the duration of schooling varying depending on the quality of education. In terms of the effects of CO_2 emissions on economic growth, we found a negative impact, considering the one year lag.

Keywords: economic security, social security, economic growth, schooling, environment, demographic.

JEL Classification: C23, C43, Q01, O57.

Introduction

The concepts of economic and social security are particularly complex, dynamic, interrelated, and interdependent concepts. Economic security refers to the ability of countries to adapt to new opportunities and changes in the global economy, to the ability to absorb shocks, and to successfully face the risks associated with the process of economic development, under the need of high economic competitiveness and economic and social performance. Economic

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security goes beyond the purely economic boundaries of growth-based or development-based concepts in the economic security strategies and overlaps with aspects related to social and environmental protection, technological progress, globalization, etc. (Osaulenko et al., 2020).

Social security is considered the primary tool in fighting poverty and reducing vulnerability for individuals, in a world increasingly characterized by uncertainty (Gongcheng & Scholz, 2019). The prominent role of social security in the 2030 Agenda for Sustainable Development highlights the consensus of its imperative, as a cornerstone of well-being and as an investment in socially inclusive growth (United Nations [UN] 2015, 2021; Damon, 2016).

The relationship between economic growth, as a central pillar of economic security, and social security is twofold, the two being mutually reinforcing. Economic growth creates the foundations for social security, while the second contributes to economic stabilization, often stimulating economic growth (Gongcheng & Scholz, 2019). The interactions between the economic and social systems are particularly complex and beyond the high acceptance of the function of economic stabilization of social security, there are theoretical controversies about the economic effects of the various social measures. Under these circumstances, the recognition of the main issues of the interaction between economic growth and social security will create conditions for better coordination of actions adopted by stakeholders and for maximizing economic and social returns.

Our special focus is to provide a comprehensive overview of the economic and social security in the Euro-Atlantic area and to investigate the effects of the economic growth drivers from the perspective of the index. We aim at investigating the economic and social security considering the current vulnerabilities of different states. Based on identifying a set of relevant indicators, we developed a composite index used to evaluate economic and social security in the countries of the Euro-Atlantic area, based on five pillars: economic, social, demographic, globalization and technology, and environment.

The analysis of economic and social security relies on an extensive literature and must be widely addressed in the context of new global challenges. Based on identifying a set of relevant indicators, we developed a composite index used to evaluate economic and social security in the countries of the Euro-Atlantic area, considering the current vulnerabilities of different states.

Under these circumstances, the novelty of our paper consists in 1) the integrated multi-criteria approach to the issue of economic and social security, considering the five pillars (dimensions): economic, social, globalization, demography, and environmental, based on a set of relevant indicators for characterizing the economic and social security in the Euro-Atlantic area, 2) in developing a composite index for assessing the level of economic and social security, and 3) in performing a panel data analysis and drawing specific conclusions regarding the economic growth drivers, based on the socio-economic security level.

The rest of the paper is structured as follows: (i) the review of the relevant literature is covered in the theoretical framework section; (ii) the methods used are presented in the Research methodology section; (iii) our main findings are included in the Results and discussion section; and (iv) the last part presents conclusions of our study and its limitations, as well as future research directions.

1. Theoretical framework

In the recent period, there is an increasing number of new factors related to economic and social security, acting both at national and global levels, that make the role of state and national policies gain new dimensions in the context of new risks, threats, or vulnerabilities, but also of huge opportunities for the countries. The approach to economic and social security must consider the current constraints and find ways to turn them into opportunities. There are new issues that must be considered in the equation of economic and social security in the current context: technological progress and the knowledge society, globalization, demographic ageing, and environmental protection. These must be carefully identified and addressed to successfully face new potential crises, such as the COVID-19 pandemic.

Governments, public, and private organizations are trying to find effective solutions to the problems of economic growth, high unemployment rates, inequalities, but also pollution, climate change, and communion with the environment. Solutions should generate low economic and social opportunity costs for individuals and societies as a whole (Beland et al., 2020), also taking into account demographic characteristics of the population, their ability to adapt to change, their needs and vulnerabilities. Social security should be used as a proactive tool rather than an instrument for cost adjustments in international competition (Gongcheng & Scholz, 2019).

The United Nations emphasizes the goals of economic, social and technological progress in harmony with nature, highlighting the importance of limiting poverty and protecting the planet from degradation (UN, 2015), arguing that environmental approaches must be integrated at an early stage in the development strategy to achieve effective results (Roggeri et al., 2010; Balitskiy et al., 2016; Borowski & Patuk, 2021). The generation and use of theoretical and experimental knowledge enable structural transformation with a positive impact on economic growth, the environment, and social aspects such as employment or inequalities. The objective is to reduce the risk of being left behind for vulnerable populations (as a result of country-specific situation, age, disabilities, education, etc.). Degradation of the environment has negative effects on the goal of achieving sustainable socio-economic advancement (Okewu et al., 2018), and in this sense, the ecological dimension plays an important role along with the social and the economic ones (Osaulenko et al., 2020) in reaching an appropriate level of sustainable development.

The achievement of the Sustainable Development Goals (SDGs) and the Paris Agreement on Climate Change needs urgent action, considering that the window of time within which to act is closing rapidly (UN, 2020b; Borowski & Patuk, 2021). The SDGs established by the 2030 Agenda target both developed and developing countries and promote the cohesion of national and global systems considering economic, social, and environmental aspects (Tomislav, 2018). With fewer people living in poverty, stronger health systems, lower inequalities, a healthier natural environment, quality, inclusive, and equitable education, and more resilient societies, we will be able to respond better and faster to the need for sustainable development (UN, 2020a). Under these circumstances, cooperation is needed at all stages at the global level. The European Union highlighted the need for transatlantic cooperation and convergence of concerns to break the vicious circle of poverty and fragility that affects a large number of countries and regions (European Parliament, 2016; OECD, 2020).

The changes that have affected the economies and societies in recent decades, driven by the intensification of competition generated by globalization, technological advances, and the knowledge economy, have brought to the fore the economic growth and factors on which it is based, the resource allocation, the need of adaptability to changes and to environmental protection, but also the focus on the individuals, by addressing issues related to inequality and social inclusion, human capital being for a long time the engine of growth (Ehrlich & Lui, 1998). The lack of government action toward matching the economic efficiency and social cohesion could trigger economic shocks that endanger both national and global economies (UN, 2020a).

In addition, the development of the digital economy generates higher levels of economic security, even if the risks and threats are inherent in the introduction of innovative technologies (Vlasov, 2021). Some authors even analyse the spillover effects of cybersecurity negative externalities on sustainable economic growth and consider that they are similar to the negative externalities generated by pollutants' emissions (Ahmed, 2021). However overall economic innovation performance is considered to be positively correlated with sustainability innovation performance (Rauter et al., 2019).

The globalization of trade and production, the huge impact of new technologies on labour, society, and individuals, the ageing population, and the persistently high unemployment rates put additional pressure on economic and social structures around the world. Societies are influenced by globalization. There is an increase in inequality both within developed and developing countries (Scholte, 1998), and states have important tasks in maintaining social balances, properly designed to make the process of globalization acceptable for all people and all countries, by effectively managing the components of globalization (e.g., production, markets, finance, information, technology, environment, individuals). The speed of present-world changes and the major adjustments dictated by globalization and technical progress lead to major difficulties in keeping up with the changing environment (Ignatov, 2019). Globalization, as the finality, must lead to economic growth, equity, security, education, rethinking the international institutional framework, transparency, environmental protection, better global governance, ensuring a wider distribution of opportunities, a favourable context for balanced economic growth, and the inclusion of marginalized groups.

In today's society, factors such as technological progress, low transportation costs, and trade liberalization have led to increased trade flows and foreign investment between countries. Liberalization of trade flows and the relocation of industry have led to both polluting effects and social crises, but also to the promotion of new and efficient technologies, job creation in disadvantaged areas, improved living standards for the population, reduced illiteracy, increased life expectancy by eradicating diseases, etc. Research and innovation are the keys to technological change at national and global levels, but technological change is relative and uneven. Some countries are changing technologically and economically faster than others, as different sectors within the same country have different rates of change (Serban et al., 2022). There is a new era in knowledge society and global development based on information and knowledge (Serban & Lytras, 2020).

The rapid rate of change in all areas determines the permanent need to update qualifications, in addition to the accumulation of knowledge and skills. In this sense, all labour market

mechanisms must be in line with economic realities and the need for smart, sustainable, and inclusive growth (European Commission, 2010; Moen et al., 2020; Dias et al., 2020). Furthermore, crises have generated shocks to the labour market and increased the risk of exclusion for already vulnerable groups (International Labor Organization, 2020a, 2020b; European Commission, 2020a; Beland et al., 2020; Dang & Nguyen, 2021). Education plays an important role in economic development in the globalized society, becoming an essential component of advancing toward the knowledge economy, as well as responding to and maintaining the standards it imposes. The labour force should be well trained and increasingly adapted and adaptable, as previous crises have shown. Investment in education and training must be seen as a catalyst for societal change and a solution to the problem of competitiveness, marginalization, and social exclusion (European Commission, 1993).

Analysis of economic and social security also correlates with the demographic trends currently characterized by ageing and declining population in many countries of the Euro-Atlantic area. The ageing population affects many aspects of society (Yenilmez, 2015; European Commission, 2021). Some authors investigate the negative effect of population ageing on economic growth, but highlight also the potential of knowledge spillover to marginalize the adverse consequence mentioned above (Maity & Sinha, 2021; Kotschy & Sunde, 2018). They require solutions to problems related to economic growth or social solidarity between generations, affecting the economy as a whole, both directly (the size, quality and structure of employment, capital / labour ratio, etc.) and indirectly (effects on budgets and public finance) (Carone et al., 2005; Wang, 2020).

Education is an important driving force of growth and haas different impacts on it, depending on the geographical position. In this context, Smolentseva (2012) analysed education systems in Eastern EU neighbourhood countries and found that even if these countries register significant progress in the last years, the educational system is still centralized, static, and provides uncorrelated competences to the ones demanded on the labour market. In addition, Feldmann (2004) concluded that secondary education is not able to provide relevant competences for the labour market in transitional countries, while Hanushek and Wößmann (2007) indicated that cognitive skills (revealing a larger deficit of cognitive skills in developing countries) of the population are more relevant for the educational impact on growth, instead of school attainment. Furthermore, some authors (Bosworth & Collins, 2003) did not succeed in finding a significant relationship between education (measured by years of schooling) and economic growth, while others (Benos & Zotou, 2014) did not find a homogenous relationship between the variables mentioned, the effects varying according to several factors. Benos and Zotou (2014) argued their finding by the fact that years of schooling is a quantitative measure of education, while education quality varies across the world countries, this being the main driving force of growth related to education (Goczek et al., 2021).

Furthermore, the relationship between CO_2 emissions and economic growth has been studied by many authors, but the majority focused their research on the impact of GDP on economic degradation, while we analysed the reverse effect. Considering the impact of CO_2 emissions on GDP, the findings of the economic literature support different hypotheses, some authors confirming a negative effect of CO_2 emissions (Ang, 2008; Zhang & Cheng, 2009; Tiwari, 2011; Saidi & Hammami, 2015; Kasperowicz, 2015 – negative in the long-run, but

positive in the short run), while others argued a positive impact (Shahbaz et al., 2013; Leit, 2014; Azam et al., 2016 – for JPN, CHN and USA).

2. Research methodology

In this section, we described the methodology used to create the index for socio-economic security for the Euro-Atlantic countries and which has been used in our quantitative assessment of the growth determinants, our analysis being focused on growth drivers related to education and environment.

2.1. The socio-economic security index

The index computation process has been initiated using statistical data for 50 states that cover all euro-atlantic countries, as indicated in Table 1.

Table 1. Composition of country-groups (source: own processing using the information provided by the North Atlantic Treaty Organization, 2022)

Country-group	Countries
EU-27 (Group 1)	Austria (AT), Belgium (BE), Bulgaria (BG), Croatia (HR), Cyprus (CY), Denmark (DK), Czechia (CZ), Estonia (EE), Finland (FI), France (FR), Germany (DE), Greece (EL), Hungary (HU), Ireland (IE), Italy (IT), Latvia (LV), Lithuania (LT), Luxembourg (LU), Malta (MT), Netherlands (NL), Poland (PL), Portugal (PT), Romania (RO), Slovakia (SK), Slovenia (SI), Spain (ES), Sweden (SE)
EU neighbouring states and EU candidate countries (Group 2)	Serbia (SRB), Albania (ALB), North Macedonia (MKD), Montenegro (MNE), Turkey (TRK), Bosnia and Herzegovina (BIH), United Kingdom (GBR), Switzerland (CHE), Norway (NOR)
NATO countries from America (Group 3)	United States of America (USA), Canada (CAN)
Other Eastern EU neighbourhood countries (Group 4)	Armenia (ARM), Azerbaijan (AZE), Belarus (BLR), Georgia (GEO), Kazakhstan (KAZ), Kyrgyzstan (KGZ), Moldova (MDA), Russia (RUS), Tajikistan (TJK), Turkmenistan (TKM), Ukraine (UKR), Uzbekistan (UZB)

We followed the approach of the World Economic Forum used within the Global Competitiveness Report 2019 (World Economic Forum [WEF], 2019), taking into account equal shares of the index components and subcomponents. In particular, we used data for 2019/2020 for each indicator that we considered when constructing the index. Due to the low data availability in some cases, we used 2018 or 2017 data. To construct the socio-economic security index, we used five dimensions (demographic, climate, globalization and ITC adaptation, social, economic), and specific indicators for each pillar/dimension (24 in total) – Table 2.

At the level of each indicator, we have used a winsorization process (90% winsorization) by limiting the data to the interval between the 5^{th} percentile and the 95^{th} percentile to reduce

Table 2. Specific indicators for each pillar/dimension (source: own processing)

Dimensions/pillars (20% share each pillar)	Indicators
Demographic (4 indicators, 25% share each)	Fertility rate (births per woman) 2019 (World Bank [WB], 2022) – FER
	Life expectancy at birth (years) 2019 (WB, 2022) – EXP
	Death rate, crude (per 1000 people) 2019 (WB, 2022) – DEA
	Net migration rate (per 1000 people) 2020 (UN, 2022) – MIG
Climate (4 indicators, 25% share each)	Average per capita CO2 emissions, measured in tonnes per year 2019 (Our World in Data Database, 2022) – CO_2
	Energy intensity level of primary energy (megajoules per constant 2017 purchasing power parity GDP) 2018 (UN, 2022) – EINT
	Renewable energy share in the total final energy consumption 2018 (UN, 2022) – RES
	Proportion of population using safely managed drinking water services 2019 (excepting HR – 2007 data) (UN, 2022) – WAT
Globalization and ITC adaptation (6 indicators, 16.66% share each)	Investment freedom index 2019 (Heritage Foundation, 2022) – IFI
	Research and development expenditure (% of GDP) 2018 (excepting ALB – 2019 data, CHE – in this case the 2018 value has been obtained by computing the average of the 2017 and 2019 data, TKM – there are no data available) – (WB, 2022; Eurostat, 2022) – RDEX
	Individuals using the internet (% of population) – 2019 (WB, 2022; Eurostat, 2022; World Data, 2022; Statista, 2022) – INT
	Trade (% of GDP) – 2019 (excepting TKM – 2018 data) (WB, 2022) – TRD
	Mobile cellular subscriptions (per 100 people) – 2019 (excepting TKM and TJK – 2017 data) (WB, 2022) – MOB
	Fixed broadband subscriptions (per 100 people) (excepting TKM and TJK – 2017 data) (WB, 2022) – FBRD
Social (5 indicators, 20% share each)	Domestic general government health expenditure (% of GDP) 2018 (WB, 2022) – HLTE
	Mean years of schooling (years) 2019 (UN, 2022) – SCHL
	Vulnerable employment (% of total employment) 2019 (WB, 2022) – VEMP
	Percentage of people ages 15–24 who are not in employment or in education or training (NEET rate) 2019 (UN, 2022) – NEET
	Pre-tax national income age 20+ (top 10% income share) 2019 (World Inequality Database, 2022) – TOPI
Economic (5 indicators, 20% share each)	Gross domestic product per capita, constant prices (PPP; 2017 international dollar) – 2019 (International Monetary Fund [IMF], 2022) – GDPC
	Cost of business start-up procedures (% of GNI per capita) 2019 (excepting TKM – there are no data available) (WB, 2022) – CBSP
	External balance of goods and services (% of GDP) 2019 (excepting TKM – 2018 data) (WB, 2022) – TBAL
	Inflation, average consumer prices (%) 2019 (IMF, 2022) – INFL
	General government gross debt (% of GDP) 2019 (IMF, 2022) – DEBT

the impact of the extreme values on the indicator scores. In this context, at the level of each indicator examined (*indicator value*$_c$), we set the *worst performance threshold*$_c$ (5th percentile value) and the *best performance threshold*$_c$ (95th percentile value).

We used the following formula to calculate a progress score ranging from 0 (lowest score) to 100 (highest score) for each indicator to re-scale our data:

$$progress\ score_c = \frac{indicator\ value_c - worst\ performance\ threshold_c}{best\ performance\ threshold_c - worst\ performance\ threshold_c}. \quad (1)$$

We used this method to normalize the data, after we previously excluded the extreme values that could distort the indicators. The Min-Max normalises indicators is a method proposed by OECD (2008) and it is also used by the World Economic Forum (2019). As result, each component is normalized on a scale from 0 to 100. In the cases with a negative connotation, we inverted the progress score obtained in Eq. (1), according to the following relation (Eq. (2)):

$$100 - progress\ score_c. \quad (2)$$

The progress scores obtained for each indicator considered for our composite index are included in the Appendix. We presented the scores in a decreasing order, from best performer (100) to lowest performer (0).

Following the calculation of all 24 progress scores, we obtained a subindex for each dimension (demographic, climate, globalization and ITC adaptation, social, economic) taking into account the shares presented above, according to the Eq. (3):

$$dimension\ index_c = indicator 1\ share_c \times indicator 1\ progress\ score_c + \ldots + indicator\ n\ share_c \times indicator\ n\ progress\ score_c. \quad (3)$$

Since the socio-economic security index depends on five dimensions, we took into consideration a 20% share per each dimension examined, as we used equal shares in each stage of the index calculation process, following the approach used by the World Economic Forum when constructing an index for global competitiveness which we have already mentioned above. In this respect, we constructed the final index according to the Eq. (4):

$$socio-economic\ security\ index = dimension 1\ share \times dimension 1\ index + \ldots + dimension 5\ share \times dimension 5\ index. \quad (4)$$

We used the index to support the assessment process of the economic growth driver effects. In particular, we split the European Union into tertiles (high values / mid values / low values of the index), depending on the position of the socio-economic security index, as indicated in Table 3.

In the case of EU neighbouring states and EU candidate countries (Group 2), respectively, in the group of other Eastern EU neighbourhood countries (Group 4), we kept the composition from Table 1 and we compared the results obtained to the ones we get in the case of EU country-groups. We decided to keep groups 2 and 4 in their initial forms, since any adjustment of the structure may affect the comparison process, as the number of countries per group will significantly decrease in the case of a recategorization by tertiles, especially

Table 3. EU country groups (source: own processing using Microsoft Office Excel 2016 and the data presented above)

EU Country-groups	Member States
High values of socio-economic security index (Group 1.1)	SE, DK, LU, IE, AT, DE, NL, MT, FI
Mid values of socio-economic security index (Group 1.2)	SI, BE, FR, CZ, EE, CY, SK, LT, ES
Low values of socio-economic security index (Group 1.3)	LV, PT, HU, IT, HR, PL, EL, BG, RO

taking into consideration that our methodology is based on Panel technique. Regarding the USA and Canada (Group 3), we did not follow the same approach, since the number of countries in this group is significantly lower than that of the EU subgroups. In this context, in the case of USA and Canada, we limited our approach to the examination of the index and its structure.

2.2. Panel data approach

Panel data analysis is widely used in the economic literature to investigate the effects of growth drivers (Cuaresma et al., 2014; Francu et al., 2015; Bhattacharya et al., 2016; Singh et al., 2019; Rahman & Alam, 2021; Zimková et al., 2021) its main advantages consist of providing effective solutions to tackle residuals issues related to autocorrelation, heteroskedasticity, and in increasing the number of observations (Wooldridge, 2010; Baltagi, 2005).

The econometric analysis was based on 2010–2019 (10 years) data to examine how economic growth reacted to changes in years of schooling and greenhouse gas emissions, in each country-group / subgroup, excluding the USA and Canada. In this context, we used the panel technique and we have applied the EGLS method (without effects[1]) weighted by Period SUR option (to ex-ante address the issues related to heteroskedasticity and cross-section dependence) on the following equation (Eq. (5)):

$$GDP\ growth_{it} = \alpha_0 + \alpha_1 GDP\ growth(-1)_{it} + \alpha_2 mean\ years\ of\ schooling(-1)_{it} + \alpha_3 trade_{it} + \alpha_4 CO_2\ average\ per\ cap(-1) + \varepsilon_t, \quad (5)$$

where: α_0, ..., α_4 are the coefficients of the estimators, ε_t is the error term, *GDP growth* is the percentage change of real GDP compared to the previous year (World Bank, 2022), *GDP growth*(–1) represents the autoregressive term, while the other factors are also described above in the structure of the index section, as follows: (i) *mean years of schooling*(–1) – reflects the average number of years of education received by people ages 25 and older lagged by one year; (ii) *trade* – is the sum of exports and imports expressed as a percentage of GDP; (iii) CO_2 *average per cap*(–1) – represents the average per capita CO_2 emissions, measured in tonnes per year, lagged by one year.

[1] Even if the results of the Fixed Effects Test – Likelihood Ratio recommends the use of Fixed Effects Model (FEM), this method does not allow the application of Period SUR weightening option; an appropriate option for FEM to address heteroskedasticity and cross-section dependence issues is Cross-section SUR, but it is not adequate to our data, since the number of observations per cross-section is equal to the number of cross-sections (9 in all cases, excepting Group 4 which contains 10 countries). In this context, we decided to use as an alternative solution – Period SUR, in a model without effects.

Since the results of unit root tests performed (Levin, Lin & Chu t*; Breitung t-stat; Im, Pesaran and Shiw W-stat; ADF-Fisher Chi-square; PP-Fisher Chi-square) indicate that the variables used in the analysis are stationary at level and first difference, we have decided to include the autoregressive term in the model and also other lags for independent variables according to the economic theory, as can be seen in Eq. (5). It also worth mentioning that the lag used in the stationarity assessment has been set according to the Schwarz information criterion.

Next, we tested the accuracy of the model to check whether the coefficients obtained are robust. In this context, we analysed the following hypotheses that need to be confirmed to validate the maximum verisimilitude of the estimators:

- significance of the estimators and the relevance of the model – we checked this hypothesis by analyzing their specific probabilities and the R-squared values.
- statistical model validity – we checked this hypothesis by using Fisher test;
- normal distribution of the residuals – we checked this hypothesis by using the Jarque-Bera test;
- absence of cross-section dependence – we checked this hypothesis by using Breusch-Pagan, Pesaran CD and Pesaran scaled LM tests;
- absence of multicollinearity – we checked this hypothesis by using variance inflation factors test.

3. Results and discussion

3.1. Descriptive statistics on the socio-economic security index

In line with our methodology, we calculated the socio-economic security index which comprises five index components (with equal shares), as follows: demographic, climate, globalization, and ITC adaptation, social and economic.

According to our calculations (Figure 1), the first four rankings (regarding the socio-economic security index) are held by two countries in Group 1 (SE – 81.26; and DK – 80.82) and two countries in Group 2 (CHE – 80.38; and NOR – 77.93), these countries also being

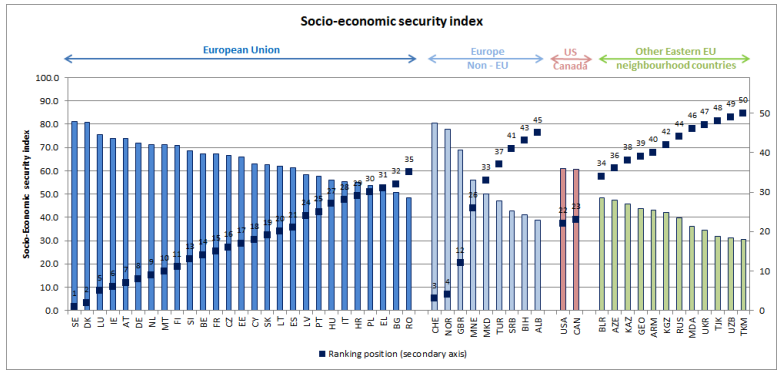

Figure 1. Socio-economic security index (source: own calculations using Microsoft Office Excel, based on the data presented in the methodology section)

known for their welfare / inclusive development model. On the contrary, the countries that register the lowest value of the index are UKR (34.57), TJK (31.81), UZB (31.18) and TKM (30.48), all of which being in the group of other Eastern EU neighbourhood countries.

We found that EU-27 is better positioned than USA and CAN (the average of the EU index is 64.51, while the USA register and index of 60.98 and for CAN we obtained a value of the index of 60.63), but we also identified some EU Member States that, from the perspective of the index value, are closer to the group of the EU candidate countries or the group of other Eastern EU neighbourhood countries than the EU average, such as Romania (48.38 – last place from EU), Bulgaria (50.57) and Greece (51.93). Even if these countries diverge from the EU average, we could not state that these are more similar to Group 2 and Group 4, but it is clear that more could be done in those particular cases in aligning the economic growth model to the EU developed/middle countries. In particular, Romania, Bulgaria, and Greece are also positioned as the last three countries in Group 1.3 (EU countries with the lowest values of socio-economic security index), which we have presented in Table 3, in the methodology section. A good way forward for the EU countries registering low values of the index is to increase the rate of country-specific recommendations (CSRs) implementation to align their policies with the EU developed countries, since in the case of each Member State of Group 1.3 (excepting Greece, which has been subjected to enhanced surveillance process and received its first CSRs in July 2019), the rate of CSRs which have recorded at least substantial progress is lower than the EU average – 23.15% (according to our calculations based on 2020 European Semester – Country Reports – European Commission, 2020b) and without such a policy change, the convergence process in terms of the index we have constructed – could be limited.

Even in the context of the intense efforts at the level of the European Union to speed-up the convergence level and to increase the coordination of the economic policies between Member States, Figure 1 shows that divergence persists and it is not only related to the European Union policy, it being also a consequence of the low capacity of some Member States to implement structural reforms with a long-term positive impact on inclusive growth, and the presence of extractive institutions (as these have been defined by Acemoglu & Robinson, 2012) which affect many fields of the economy. However, EU countries (as average) are at the top of the ranking, these being followed by the USA (22nd place) and CAN (23rd place), countries from Group 2 and finally, by the countries from Group 4.

3.2. Panel data approach

We used the index values to support the assessment process of the economic growth driver effects, by splitting EU countries into tertiles which facilitated a comparison exercise between EU countries with high/mid/low values of the index and EU neighbouring / candidate countries or other Eastern EU neighbourhood countries. As we have mentioned in the methodology, we estimated the effects of CO_2 emissions, trade, and years of schooling on economic growth using the same method in the case of each model (five models in total). Based on the results obtained (Table 4), we concluded that the years of schooling have a greater impact on economic growth in countries with high index levels. In this respect, we found that an increase in the mean years of schooling in the case of Group 1.1 leads to a hike in economic

growth of 1.20 percentage points, which is higher than the impact obtained in the case of Group 1.2 (0.36 pp.) and Group 1.3 (0.27 pp.).

Table 4. Econometric results (source: own calculations using Eviews 9)

Variables (dependent variable - GDP growth)	Model 1 – Group 1.1	Model 2 – Group 1.2	Model 3 – Group 1.3	Model 4 – Group 2	Model 5 – Group 4
	Coefficients / Std. Error	Coefficients / Std. Error	Coefficients / Std. Error	Coefficients / Std. Error	Coefficients / Std. Error
GDP growth (–1)	0.144645* (0.007029)	0.558394* (0.008981)	0.525178* (0.014266)	0.326913* (0.005804)	0.539023* (0.024396)
mean years of schooling (–1)	1.204190* (0.060191)	0.364614* (0.046274)	0.271559* (0.068327)	–0.210463* (0.004242)	–0.601558* (0.139638)
trade	0.023522* (0.023522)	0.002986** (0.001360)	0.010382* (0.002197)	–0.004096* (0.000316)	–0.004360 (0.002944)
CO_2 average per cap(–1)	–0.401628* (0.010933)	–0.045572** (0.019369)	–0.262624* (0.035774)	–0.108283* (0.003556)	–0.068594* (0.023100)
Constant	–12.83785* (0.750707)	–3.388838* (0.488809)	–1.05442** (0.713481)	4.920039* (0.052909)	9.432163* (1.615341)
Models feasibility statistics / tests					
R-squared	0.972692	0.988186	0.964293	0.982440	0.873447
F-statistic (prob.)	0.0000 (p < .05)	0.0000 (p < .05)	0.0000 (p < .05)	0.0000 (p < .05)	0.0000 (p < .05)
Observations	81	81	81	81	108
Cross-section dependence test					
Breusch-Pagan LM (prob.)	1.000 (p > .05)	1.000 (p > .05)	1.000 (p > .05)	0.9998 (p > .05)	0.9980 (p > .05)
Pesaran scaled LM (prob.)	0.0000 (p < .05)	0.0000 (p < .05)	0.0001 (p < .05)	0.0002 (p > .05)	0.0005 (p > .05)
Pesaran CD (prob.)	0.9740 (p > .05)	0.9442 (p > .05)	0.6185 (p > .05)	0.8590 (p > .05)	0.0840 (p > .05)
Normality of the residuals test					
Jarque-Bera (prob.)	0.1023 (p > .05)	0.5393 (p > .05)	0.2801 (p > .05)	0.6869 (p > .05)	0.3481 (p > .05)
Standardized residuals – mean	–0.070342	–0.042589	–0.015636	–0.044562	–0.067620
Multicollinearity test – Variance Inflation Factors – Centered VIF coefficients					
GDP growth (–1)	1.085222	1.389323	1.766600	1.445154	1.170617
mean years of schooling (–1)	3.283316	1.726920	1.877452	1.923324	1.144983
trade	4.665089	1.598047	1.787390	1.864649	1.058866
CO_2 average per cap(–1)	2.742935	1.118060	2.372395	1.564822	1.029394

Note: *significant at 1%, **significant at 5%; standard errors in parentheses.

In the case of EU neighbouring / candidate countries and other Eastern EU neighbourhood countries, the effect seems to be negative, which means that an increase in the mean years of schooling is detrimental to growth in the countries forming these groups. This could be explained by the fact that in EU candidate countries and in other Eastern EU neighbourhood countries, the educational system still does not meet the real needs of the labour market, which also raise additional challenges related to labour shortages. In this sense, the higher the mean years of schooling, the higher the government spending on education, which leads to a lower level of economic growth as a consequence of the fact that the people accessing the labour market are not adequately prepared for labour market conditions and start their activity with a low productivity level.

As our estimation considers a 1 year lag, the interpretation is valid in the short-term. In the case of Model 4 (estimated for Group 2), the negative coefficient is a combination of the effects obtained for EU neighbouring countries and EU candidate countries. In this context, it is necessary to refer to the Pearson correlation coefficient between mean years of schooling and economic growth, which is positive in the case of EU neighbouring countries (CHE, NOR, and GBR), but negative in the case of EU candidate countries (MKD, SRB, MNE, TUR, BIH, and ALB). In this context, our interpretation is applicable to the EU candidate countries part of Group 2, not to the whole countries forming this group.

Regarding the impact of trade (% of GDP) on economic growth, the effects depend on the sign of the balance of goods and services, taking into account the GDP expenditure approach. In this context, we found a positive but low impact of trade on economic growth in the EU (in the case of all three models). This could also be supported by the positive external balance of goods and services in the EU of 3.36% of GPD in 2019. However, we found negative effects in Model 4 and Model 5, which could be explained by the fact that in Group 2, only 3 countries out of 9 register positive trade balances (TRK, CHE, and NOR) in 2019, while in the case of Group 4, we have identified 4 of the 12 countries that registered a trade surplus in 2019 (AZE, KAZ, RUS and TKM – in the case of TKM we analysed 2018 data, since there were no data available for 2019).

Furthermore, we have identified a negative effect of CO_2 emissions on economic growth in all estimated econometric models. In particular, we found that an increase in average per capita CO_2 emissions registered in the previous year by 1 deviation points leads to a decrease in economic growth of 0.40 percentage points in the case of Group 1.1, while the effect is smaller (in absolute terms) in the case of Group 1.3 (–0.26) and significantly smaller (in absolute terms) in the case of Group 1.2 (–0.04). The effect of CO_2 emissions on growth remains negative in the case of Group 2 (0.10) and Group 4 (–0.06), but is closer to the specific one for Group 1.2. The main findings in the economic literature on this field are divided and we confirmed the negative impact hypothesis that we presented within the theoretical framework.

Regarding the impact of the autoregressive term of economic growth, we found that the higher is the socio-economic security index, the lower is the effect mentioned above, due to the limited capacity of economic sentiment to increase GDP level in the case of developed countries. However, the coefficient obtained in the case of Model 4 is mainly influenced by the country-specific circumstances of NOR, CHE and GBR.

Our results are statistically valid, since the probability of the Fisher test is lower than 5% in the case of all models and the coefficients obtained are significant at 1%, except for the effects of the following variables: (i) trade: significant at 5% in the case of Model 2, not significant at 10% in the case of Model 5, but significant at 1% in the remaining cases; (ii) CO_2 average per cap(–1): significant at 5% in the case of Model 2, but significant at 1% in the remaining cases. In addition, we obtained high R-squared values, these being approximately equal to 97–98% in all models, except Model 5, in which we obtained a value of 87.34%. This shows that the independent variables used explain a high percentage of the fluctuation of the dependent variable. Moreover, we found that there is no cross-section dependence (according to the results confirmed by the Breusch-Pagan LM and Pesaran CD), while the residuals are normally distributed – this hypothesis being confirmed by the Jarque-Bera test – with probabilities higher than 5%, which recommended us to accept the null hypothesis specific to the test performed. After we checked the results of the Variance Inflation Factor (VIF) test, we can confirm that there is no multicollinearity in our models (the centered VIF coefficient is lower than 10 in the case of all models), except the presence of a lower level of multicollinearity in the case of Model 1.1. However, this is not a real issue since only one coefficient overpasses the 4 threshold and the gap to this limit is quite low.

Finally, we confirmed the hypothesis of maximum verisimilitude of the estimators, since we obtained appropriate results in the case of all tests performed, which indicates that the calculated impact coefficients are unbiased.

Conclusions

Our study proposes an index for assessment of socio-economic security within Euro-Atlantic area countries. The results confirm that the European Union is better positioned on average than the other country-groups studied (USA and CAN, EU neighbouring/candidate or potential candidate countries, and other Eastern EU neighbourhood countries). Nevertheless, when examining the components of the index, we found cases where USA performs better than EU (globalization and ITC adaptation), and also cases where country-groups compositions are balanced in terms of country-ranking (demographic component). The worst ranked in terms of the index are mostly the countries from the group of other Eastern EU neighbourhood countries, which, seemed to remain static, centralised and exposed to the historical legacy of a low-quality economic system. At the EU level, the worst performances in terms of the index are registered in Bulgaria and Romania, which need to register further convergence progress towards the EU, a good way forward consisting in increasing the country-specific recommendations implementation rate at EU level.

In the quantitative assessment phase, we estimated the impact of mean years of schooling and CO_2 emissions on economic growth in the case of all country-groups (except USA and CAN where we could not follow the same methodology in the context of the low number of cross-sections), and we found a positive impact of the duration of schooling on the economic growth, which is greater in countries registering high levels of socio-economic security, the effect of the duration of schooling varying depending on the quality of education. Regarding the impact of CO_2 emissions on economic growth, we found a negative effect, but our results

should be interpreted according to an effect exercised after one year lag. We have validated the hypothesis of maximum verosimility of the calculated estimators, but we met only one issue that is related to the presence of a lower level of multicollinearity in the case of one model, this being the main limitation of our study. Another limitation of our study consists in the low data availability for Eastern EU neighbourhood countries, but this does not affect too much the index construction process, since the volatility of the data specific to this group of countries is quite low and using the latest data available for these countries proved to be an appropriate way forward to finish the index construction process. Moreover, this approach has been followed by other international actors, such as the World Economic Forum. There is also a need to mention that the interpretation of the results should not be performed at the country level, this being accurate only when refering to the whole area examined, taking into consideration the panel method used.

Countries with low levels of socio-economic security shall make further progress in adjusting their deficitary components. In this context, answers to the challenges of the crisis and globalization, population growth, and ageing must aim at coordinating economic and social policies at national, EU, and global levels, taking into account country-specific conditions and opportunities for adaptation and evolution through the recommendations of EU or international institutions. Previous experience allows us to have an integrative look at current challenges, but also at the opportunities they offer. They can be effective and rewarding if we take the right decision about the conditions that manage our world and societies, our lives, and our work. Well-coordinated action is needed to support social, political, and economic change, which can turn threatening anticipations into constructive realities.

Public policies address both economic and social issues, often focusing on individuals, on ensuring access to education, health, information (and technology), on ensuring decent living standards, reducing inequalities and the risk of poverty or social exclusion, and improving the chances of access on the labour market and the level of health of the population.

National and international institutions play a central role in ensuring and maintaining economic and social security. Without appropriate policies to secure the national economic and social environment, the high degree of interdependence between the world's countries can turn national systems into low resilience economies. National decisions should be able to reduce the vulnerability of states to external shocks by properly managing resources and to increase their capacity to respond to national and international challenges. To ensure economic security, national and global issues must be adequately addressed, as well as the interaction between them, considering the specific circumstances within each country. Under these circumstances and considering the recent COVID-19 crisis, we intend to deliver future research by focusing on the effects of labour market developments on each dimension relevant for the economic and social security. In this respect, we will focus our further research on studying the effects of labour market conditions according to socio-economic security state of play on the following dimensions: (i) social; (ii) economic; (iii) technology and openness; (iv) climate; (v) demographic. Our further research will also explore the existence of a bidirectional causality between labour market indicators and the mentioned dimensions, depending on the level of the socio-economic security.

Author contributions

Authors contributed equally to this work.

Conflict of interest

The authors declare that they have no competing interests.

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APPENDIX

Countries progress score by index component (source: own calculations)

Ind.	Countries progress score
SESI	SE (81.26), DK (80.82), CHE (80.38), NOR (77.93), LU (75.62), IE (74.03), AT (73.77), DE (71.82), NL (71.30), MT (71.06), FI (70.73), GBR (68.81), SI (68.61), BE (67,27), FR (67.11), CZ (66.64), EE (65.94), CY (63.04), SK (62.59), LT (62.10), ES (61.33), USA (60.98), CAN (60.63), LV (58.26), PT (57.66), MNE (56.09), HU (55.87), IT (55.37), HR (54.99), PL (53.76), EL (51.93), BG (50.57), MKD (50.12), BLR (48.48), RO (48.38), AZE (47.39), TUR (46.92), KAZ (45.61), GEO (43.76), ARM (43.16), SRB (42.81), KGZ (42.24), BIH (40.96), RUS (39.93), ALB (38.80), MDA (36.13), UKR (34.57), TJK (31.81), UZB (31.18), TKM (30.48)
DEM	IE (74.23), LU (70.75), CHE (70.63), NOR (70.20), TUR (69.17), SE (67.62), CAN (67.02), AT (64.44), CY (61.85), GBR (61.72), FR (61.19), BE (60.91), KGZ (60.40), UZB (60.17), MT (59.42), USA (59.05), DK (59.05), DE (58.69), KAZ (57.83), TJK (57.15), NL (56.69), ES (54.00), TKM (53.42), FI (53.31), IT (53.02), SI (52.95), CZ (50.41), AZE (47.62), EE (47.10), PT (42.73), SK (42.69), EL (40.39), ALB (39.77), MNE (39.54), ARM (36.41), PL (36.41), MKD (35.38), HR (31.06), HU (29.57), GEO (28.55), BLR (25.92), SRB (25.71), RUS (24.79), RO (23.36), BIH (22.63), BG (22.52), MDA (19.63), LT (17.78), LV (13.66), UKR (12.39)
FER	TJK (100.00), KGZ (100.00), KAZ (100.00), UZB (96.04), TKM (93.24), TUR (50.48), GEO (50.48), FR (38.93), AZE (34.56), RO (32.07), ARM (31.94), MNE (31.32), CZ (28.95), USA (28.63), DK (28.32), IE (28.32), SE (28.32), EE (25.82), GBR (25.20), LV (22.70), LT (22.70), SI (22.70), ALB (21.89), BG (20.83), BE (20.21), NL (20.21), SK (19.58), DE (18.33) NOR (17.71), SRB (17.09), RUS (16.09), HU (15.21), MKD (15.15), CHE (14.59), HR (13.96), CAN (13.86), AT (13.34), PL (10.84), PT (10.84), BLR (8.47), FI (6.47), EL (6.47), LU (5.85), CY (4.66), IT (1.48), MDA (1.42), BIH (0.48), ES (0.00), UKR (0.00), MT (0.00)
EXP	CHE (100.00), ES (100.00), IT (100.00), SE (98.85), NOR (98.40), MT (95.71), FR (95.52), LU (94.37), IE (93.11), CAN (90.89), NL (90.57), EL (89.93), AT (88.65), FI (88.59), BE (88.25), SI (84.17), GBR (83.51), DK (83.49), CY (81.56), DE (81.21), PT (78.95), CZ (65.36), USA (62.37), ALB (60.49), EE (59.83), HR (59.19), PL (54.22), TUR (52.78), SK (50.85), BIH (50.24), MNE (45.72), LT (39.16), HU (38.18), MKD (36.22), SRB (35.24), RO (33.25), LV (31.34), ARM (30.01), BG (28.50), BLR (22.48), GEO (18.46), KAZ (13.33), RUS (12.49), AZE (11.80), MDA (2.14), UKR (1.50), UZB (0.60), KGZ (0.00), TJK (0.00), TKM (0.00)
DEA	UZB (100.00), TJK (100.00), KGZ (100.00), TUR (98.55), AZE (96.86), IE (89.29), LU (82.80), TKM (81.28), CY (80.64), KAZ (79.66), MT (78.47), NOR (75.22), USA (75.22), CHE (71.98), ALB (70.01), SE (64.41), CAN (63.33), NL (62.25), ES (62.25), GBR (60.08), FR (59.00), DK (56.84), AT (55.76), BE (54.67), FI (51.43), SK (51.43), ARM (51.05), SI (50.35), MKD (47.76), CZ (43.86), IT (43.86), MNE (41.14), PL (40.61), BIH (39.78), PT (39.53), DE (35.21), EE (31.96), MDA (30.94), EL (30.88), HR (20.06), GEO (19.08), BLR (18.98), HU (13.57), RUS (13.57), RO (12.49), LT (9.25), LV (0.59), SRB (0.00), UKR (0.00), BG (0.00)

Ind.	Countries progress score
MIG	LU (100.00), AT (100.00), DE (100.00), CAN (100.00), CHE (95.94), NOR (89.45), IE (86.21), BE (80.53), CY (80.53), SE (78.90), GBR (78.09), TUR (74.85), EE (70.79), USA (69.98), DK (67.55), FI (66.73), IT (66.73), CZ (63.49), MT (63.49), RUS (57.00), SI (54.56), NL (53.75), ES (53.75), BLR (53.75), FR (51.32), HU (51.32), SRB (50.51), SK (48.88), UKR (48.07), AZE (47.26), MDA (44.02), UZB (44.02), MKD (42.39), PT (41.58), KGZ (41.58), BG (40.77), PL (39.96), MNE (39.96), TKM (39.15), KAZ (38.34), EL (34.28), ARM (32.66), HR (31.03), TJK (28.60), GEO (26.17), RO (15.62), ALB (6.69), BIH (0.00), LV (0.00), LT (0.00)
CLM	SE (87.52), LV (85.40), DK (85.28), NOR (81.54), AT (79.59), LT (79.54), CHE (79.43), PT (78.64), MNE (77.00), MT (75.36), FI (75.27), ES (74.46), ALB (72.37), IT (72.18), EL (72.12), GBR (72.11), FR (70.60), TUR (70.55), HR (70.41), CY (69.96), SI (69.15), RO (67.91), DE (67.76), IE (67.70), BG (63.86), SK (63.53), HU (63.47), ARM (63.20), NL (60.19), BE (60.15), TJK (59.94), PL (59.76), MKD (59.74), CZ (57.44), EE (57.18), GEO (56.54), BIH (56.38), MDA (56.27), LU (56.06), AZE (52.18), KGZ (47.56), BLR (47.34), SRB (45.43), CAN (41.19), USA (41.16), UKR (40.22), TKM (23.45), UZB (22.31), KAZ (21.04), RUS (14.94)
CO_2	TJK (100.00), MDA (100.00), KGZ (100.00), ALB (99.42), ARM (98.74), GEO (94.80), UZB (89.24), MT (87.88), MKD (85.49), RO (85.37), MNE (85.07), AZE (84.75), SE (82.59), HR (82.09), LV (82.07), CHE (81.69), PT (79.04), TUR (78.29), LT (78.08), FR (77.45), HU (76.74), UKR (76.71), ES (74.31), GBR (73.79), DK (73.21), IT (73.14), BG (70.00), CY (69.27), SK (69.25), SRB (68.33), EL (67.00), SI (65.75), BLR (65.58), FI (58.94), IE (58.41), AT (58.07), NOR (56.33), BIH (55.06), DE (52.60), PL (51.80), BE (50.89), NL (47.89), CZ (45.04), EE (37.63), RUS (30.16), TKM (9.11), CAN (1.87), LU (0.00), USA (0.00), KAZ (0.00)
EINT	MT (100.00), IE (100.00), CHE (100.00), DK (95.54), LU (92.84), GBR (92.33), IT (90.81), ALB (90.13), RO (89.80), TUR (88.78), PT (88.11), ES (85.74), CY (85.57), AT (85.40), DE (84.56), EL (82.53), NL (79.49), HR (79.15), LT (78.31), MKD (77.63), LV (75.77), FR (75.44), MNE (74.42), ARM (74.42), NOR (72.90), PL (70.54), SI (70.37), HU (70.20), BE (68.34), GEO (67.84), SE (67.50), SK (62.26), AZE (60.57), CZ (59.56), USA (53.81), BG (48.58), TJK (48.07), MDA (46.55), SRB (43.00), FI (42.16), EE (37.60), KGZ (33.20), BLR (26.11), BIH (22.39), KAZ (17.83), CAN (16.48), UKR (5.67), RUS (0.00), UZB (0.00), TKM (0.00)
RES	NOR (100.00), SE (100.00), FI (100.00), LV (96.02), MNE (94.45), TJK (91.68), ALB (88.73), BIH (81.74), DK (81.56), AT (77.94), LT (77.10), HR (75.51), EE (65.73), GEO (63.54), PT (62.74), MDA (58.18), CHE (54.41), KGZ (51.99), RO (51.60), CAN (49.48), SRB (46.95), SI (46.61), MKD (46.28), BG (43.00), EL (38.93), ES (37.78), IT (37.01), LU (34.46), DE (33.89), FR (32.57), CZ (31.28), HU (28.37), SK (25.66), CY (24.98), TUR (24.32), PL (22.83), ARM (22.51), GBR (22.30), IE (21.57), BE (21.37), USA (20.01), MT (13.56), NL (13.36), BLR (12.96), UKR (12.20), RUS (3.11), AZE (0.16), KAZ (0.00), UZB (0.00), TKM (0.00)
WAT	BE (100.00), CY (100.00), FI (100.00), DE (100.00), EL (100.00), MT (100.00), NL (100.00), ES (100.00, SE (100.00), GBR (100.00), AT (96.94), FR (96.94), LU (96.94), SK (96.94), NOR (96.94), CAN (96.94), BG (93.87), CZ (93.87), PL (93.87), SI (93.87), DK (90.81), IE (90.81), TUR (90.81), USA (90.81), EE (87.75), IT (87.75), LV (87.75), LT (84.69), PT (84.69), BLR (84.69), TKM (84.69), CHE (81.62), HU (78.56), BIH (66.31), KAZ (66.31), UKR (66.31), AZE (63.25), ARM (57.12), MNE (54.06), HR (44.87), RO (44.87), MKD (29.56), RUS (26.49), SRB (23.43), MDA (20.37), ALB (11.18), KGZ (5.05), GEO (0.00), UZB (0.00), TJK (0.00)

Ind.	Countries progress score
GITC	LU (79.55), DK (79.43), CHE (79.26), NL (78.69), MT (76.64), SE (75.22), BE (72.60), DE (72.01), EE (71.50), AT (68.55), FI (67.06), LT (66.52), USA (66.11), IE (65.02), CZ (64.31), CY (63.52), GBR (62.84), SK (62.17), SI (61.56), NOR (61.11), HU (59.27), FR (58.98), ES (55.54), MNE (55.23), CAN (53.20), PL (52.45), IT (51.37), PT (51.31), LV (50.96), GEO (46.60), HR (46.28), EL (45.56), BG (44.96), BLR (42.79), RUS (41.06), RO (40.74), MKD (38.80), SRB (38.14) BIH (34.74), ARM (33.31), KAZ (32.71), AZE (32.45), TUR (32.12), MDA (25.75), ALB (25.48), UKR (25.15), KGZ (23.37), TKM (16.47), UZB (9.36), TJK (5.02)
IFI	LU (100.00), AT (100.00), DK (100.00), EE (100.00), IE (100.00), NL (100.00), GBR (100.00), BE (92.03), FI (92.03), IT (92.03), LV (92.03), MT (92.03), ES (92.03), SE (92.03), CHE (92.03), USA (92.03), CZ (84.06), DE (84.06), HU (84.06), LT (84.06), PL (84.06), CAN (84.06), GEO (84.06), HR (76.10), CY (76.10), FR (76.10), SK (76.10), MNE (76.10), NOR (76.10), ARM (76.10), BG (68.13), PT (68.13), RO (68.13), SI (68.13), SRB (68.13), ALB (68.13), TUR (68.13), MKD (60.16), AZE (52.19), KGZ (52.19), EL (44.22), MDA (44.22), KAZ (36.25), UKR (12.35), BLR (4.38), RUS (4.38), TJK (0.00), TKM (0.00), UZB (0.00)
RDE	SE (100.00), CHE (100.00), AT (100.00), DE (98.46), DK (97.46), USA (89.95), BE (89.40), FI (87.83), FR (68.80), NL (67.70), NOR (65.48), SI (60.25), CZ (59.79), GBR (52.22), CAN (47.78), HU (47.40), EE (43.10), IT (42.24), PT (41.12), ES (38.86), LU (36.81), PL (36.04), EL (34.88), IE (33.86), TUR (30.00), RUS (28.66), HR (28.17), LT (27.17), SRB (25.68), SK (23.45), BG (21.31), LV (16.75), BLR (16.00), MT (14.89), CY (14.36), RO (12.59), UKR (11.47), MKD (9.10), MNE (9.10), GEO (5.94), MDA (4.29), BIH (2.47), ARM (2.11), AZE (1.96), ALB (1.80), UZB (0.14), KAZ (0.00), KGZ (0.00), TJK (0.00), TKM (0.00)
INT	DK (100.00), NOR (100.00), LU (100.00), SE (97.26), NL (94.92), CHE (94.64), GBR (93.42), CAN (90.47), ES (89.92), BE (89.25), FI (87.76), EE (87.62), DE (84.90), AT (84.15), USA (83.22), LV (81.02), CY (80.88), MT (80.32), IE (77.88), PL (77.87), FR (75.59), SI (75.14), SK (74.64), BLR (74.52), RUS (74.23), MKD (72.98), KAZ (72.74), LT (72.17), CZ (70.78), HU (69.82), AZE (68.71), HR (67.31), SRB (64.08), MDA (61.57), EL (60.68), PT (60.05), IT (58.20), TUR (57.39), RO (56.77), MNE (56.42), BIH (49.56), ALB (48.97), GEO (47.42), BG (45.68), ARM (39.44), UKR (28.08), UZB (15.29), KGZ (0.00), TJK (0.00), TKM (0.00)
TRD	LU (100.00), MT (100.00), IE (100.00), SK (81.24), BE (68.07), HU (67.29), SI (65.61), NL (63.89), LT (59.85), CY (56.87), CZ (55.60), EE (55.02), MKD (53.18), BLR (48.27), BG (44.78), LV (42.37), CHE (41.41), GEO (40.73), SRB (36.72), DK (35.01), MNE (34.53), AT (34.07), PL (33.20), HR (31.85), KGZ (28.90), ARM (26.66), BIH (26.62), SE (23.85), UKR (23.38), DE (21.89), MDA (21.52), PT (21.11), AZE (20.56), RO (20.04), EL (18.10), FI (16.61), ALB (15.04), UZB (12.21), NOR (11.46), ES (8.84), CAN (8.01), KAZ (7.66), FR (7.45), GBR (6.76), TUR (6.32), IT (4.73), TJK (2.23), RUS (0.00), TKM (0.00), USA (0.00)
MOB	MNE (100.00), LT (100.00), RUS (100.00), TKM (98.83), EE (76.95), MT (72.60), CY (72.31), KAZ (65.03), LU (61.02), SK (60.80), GEO (59.57), USA (59.21), KGZ (59.12), IT (54.75), UKR (53.87), FI (51.93), SE (50.88), DE (50.70), PL (49.82), NL (49.20), CHE (47.47), DK (46.70), BLR (43.23), CZ (42.62), ARM (42.31), SI (40.22), GBR (38.89), AT (38.72), ES (36.86), RO (34.96), PT (34.10), BG (33.75), BIH (30.35), EL (29.90), TJK (27.88), FR (25.94), LV (23.21), NOR (21.43), AZE (20.89), HR (20.40), HU (19.61), IE (19.08), UZB (12.82), BE (10.78), TUR (6.73), SRB (60.08), MKD (0.26), CAN (0.00), ALB (0.00), MDA (0.00)

Ind.	Countries progress score
FBRD	CHE (100.00), MT (100.00), FR (100.00), DK (97.38), NL (96.52), NOR (92.16), DE (92.07), CAN (88.89), SE (87.30), BE (86.05), GBR (85.73), EL (85.60), PT (83.37), CY (80.62), LU (79.48), CZ (72.99), USA (72.27), BLR (70.34), ES (68.71), HU (67.41), EE (66.31), FI (66.18), SI (59.99), IE (59.29), SK (56.82), IT (56.29), BG (56.10), LT (55.86), MNE (55.25), AT (54.32), HR (53.86), RO (51.94), LV (50.40), GEO (41.88), BIH (39.26), RUS (39.07), MKD (37.11), PL (33.68), AZE (30.39), SRB (28.14), TUR (24.18), MDA (22.89), UKR (21.74), ALB (18.96), UZB (15.69), KAZ (14.59), ARM (13.25), KGZ (0.00), TKM (0.00), TJK (0.00)
SOC	NOR (95.02), SE (93.07), DK (90.62), DE (90.39), AT (86.38), SI (84.65), CZ (84.48), NL (84.05), FI (82.95), BE (81.93), CHE (80.56), GBR (80.17), FR (79.31), LU (78.13), SK (77.42), EE (75.58), CAN (74.81), LV (73.83), USA (73.04), IE (72.64), LT (70.45), MT (69.88), BLR (69.78), HR (69.78), HU (69.17), PL (65.29), CY (61.75), ES (60.15), MKD (59.68), MNE (57.97), PT (56.45), IT (54.67), UKR (52.52), SRB (49.00), BG (48.87), BIH (47.91), RUS (47.73), KAZ (46.70), RO (45.60), EL (44.96), MDA (38.05), GEO (37.09), KGZ (31.36), AZE (30.87), ARM (26.55), UZB (23.32), TJK (22.10), ALB (19.67), TUR (13.94), TKM (13.91)
HLTE	SE (100.00), DE (100.00), NOR (100.00), USA (99.52), DK (98.60), FR (95.95), CAN (91.28), GBR (90.26), BE (89.72), AT (85.85), FI (79.52), NL (70.69), IT (69.68), CZ (68.55), ES (68.50), BIH (66.98), SI (64.09), PT (60.87), MT (59.58), HR (59.44), SK (54.03), IE (51.50), SRB (50.79), MNE (50.59), EE (48.69), HU (44.57), PL (42.74), LU (42.58), RO (41.72), LT (40.27), BG (38.97), EL (35.75), BLR (35.29), MKD (32.45), MDA (31.81), CHE (31.52), UKR (31.46), LV (31.35), TUR (24.21), RUS (23.78), CY (20.06), ALB (19.26), GEO (18.77), KGZ (18.66), UZB (7.63), TJK (6.76), KAZ (4.21), ARM (0.00), TKM (0.00), AZE (0.00)
SCHL	DE (100.00), CHE (100.00), USA (100.00), CAN (100.00), GBR (94.23), EE (91.34), LT (91.34), GEO (91.34), LV (88.46), MKD (85.57), NOR (85.57), FI (82.68), CZ (79.80), IE (79.80), SK (79.80), SI (79.80), DK (76.91), AT (74.03), PL (74.03), SE (74.03), NL (71.14), LU (68.25), BLR (68.25), CY (65.37), RUS (65.37), BE (62.48), HU (59.60), KAZ (56.71), UZB (53.82), MDA (50.94), MNE (48.05), FR (45.17), BG (42.28), HR (42.28), UKR (42.28), MT (39.39), ARM (39.39), SRB (36.51), RO (33.62), KGZ (33.62), TJK (22.08), EL (19.19), AZE (19.19), IT (13.42), ES (10.53), TKM (10.53), ALB (4.75), BIH (0.00), PT (0.00), TUR (0.00)
VEMP	BLR (100.00), USA (100.00), NOR (100.00), DK (99.75), DE (98.63), LU (98.33), SE (96.23), HU (95.93), EE (95.66), RUS (95.23), BG (93.38), AT (93.13), HR (92.97), LV (92.80), FR (91.74), CHE (89.21), LT (88.45), FI (86.87), SI (85.75), IE (85.40), BE (84.34), CAN (83.68), ES (83.66), MT (83.55), CY (81.32), PT (80.47), SK (80.34), NL (78.40), MNE (76.88), GBR (76.82), CZ (75.71), UKR (74.59), PL (69.66), IT (67.54), MKD (66.42), BIH (61.28), KAZ (53.36), RO (50.34), SRB (46.93), EL (46.50), TUR (39.47), TKM (34.87), TJK (34.46), MDA (29.43), KGZ (28.64), ARM (23.17), UZB (20.36), GEO (0.00), ALB (0.00), AZE (0.00)
NEET	NL (100.00), NOR (100.00), DE (100.00), LU (99.74), CZ (98.35), CHE (96.96), AT (96.03), SE (95.11), SI (93.71), MT (92.32), DK (91.39), PT (88.15), FI (87.22), LV (86.75), LT (85.83), BE (84.90), PL (84.44), IE (78.87), FR (77.94), EE (76.55), KAZ (76.55), CY (75.16), GBR (75.16), BLR (75.16), SK (73.30), HU (71.91), HR (68.20), ES (67.73), CAN (65.41), AZE (64.95), USA (61.24), EL (60.77), RO (57.06), RUS (54.28), MNE (52.42), BG (51.96), SRB (44.07), UKR (44.07), IT (38.04), UZB (32.94), KGZ (30.16), BIH (26.91), TKM (24.12), TJK (18.56), MKD (18.09), TUR (6.03), GEO (5.10), MDA (0.00), ALB (0.00), ARM (0.00)

Ind.	Countries progress score
TOPI	CZ (100.00), SE (100.00), NL (100.00), SI (99.90), SK (99.65), MKD (95.84), NOR (89.51), BE (88.22), DK (86.44), HR (86.01), FR (85.76), CHE (85.09), IT (84.65), BIH (84.41), AT (82.87), LU (81.77), FI (78.45), MDA (78.08), MT (74.57), ALB (84.33), HU (73.84), ES (70.33), ARM (70.21), AZE (70.21), BLR (70.21), GEO (70.21), UKR (70.21), LV (69.78), IE (67.63), CY (66.83), SRB (66.71), EE (65.66), GBR (64.37), EL (52.59), MNE (61.91), PL (55.58), DE (53.31), PT (52.75), LT (46.36), KGZ (45.75), RO (45.25), KAZ (42.67), CAN (33.70), TJK (28.66), BG (17.78), USA (4.44), UZB (1.86), RUS (0.00), TKM (0.00), TUR (0.00)
ECO	LU (93.58), CHE (92.02), IE (90.55), DK (89.72), SE (82.87), NOR (81.81), EE (78.36), NL (76.90), CZ (76.58), LT (76.20), FI (75.05), SI (74.73), MT (74.01), AZE (73.81), BG (72.65), RUS (71.16), DE (70.27), AT (69.87), KAZ (69.76), LV (67.43), GBR (67.20), SK (67.13), CAN (66.94), USA (65.53), FR (65.46), RO (64.30), ES (62.50), BE (60.77), PT (59.15), CY (58.11), HU (57.86), HR (57.44), MKD (57.03), EL (56.59), BLR (56.57), ARM (56.33), SRB (55.78), PL (54.88), MNE (50.69), GEO (50.04), TUR (48.80), KGZ (48.51), IT (45.60), TKM (45.17), BIH (43.16), UKR (42.55), MDA (40.94), UZB (40.75), ALB (36.73), TJK (14.85)
GDPC	LU (100.00), IE (100.00), CHE (100.00), NOR (91.98), USA (90.91), DK (82.88), NL (81.45), AT (80.08), DE (76.03), SE (74.54), BE (72.80), CAN (68.21), FI (67.07), FR (65.26), GBR (63.46), MT (61.59), IT (56.23), CZ (53.68), ES (53.58), CY (52.97), SI (50.73), LT (47.14), EE (46.77), PT (43.34), PL (40.42), HU (39.93), SK (39.61), LV (36.22), RO (34.84), EL (34.30), HR (32.67), TUR (32.34), RUS (30.24), KAZ (28.33), BG (23.45), MNE (20.34), BLR (16.28), SRB (14.70), MKD (11.85), TKM (10.43), BIH (9.10), GEO (9.07), AZE (8.19), ALB (7.30), ARM (6.71), UKR (5.50), MDA (5.49), UZB (0.00), KGZ (0.00), TJK (0.00)
CBSP	SI (100.00), GBR (100.00), IE (100.00), DK (99.53), KAZ (99.53), RO (98.74), CAN (98.74), LT (97.17), SE (97.17), BLR (97.17), UKR (97.17), FI (95.60), FR (95.60), NOR (94.91), ARM (94.81), BG (93.24), EE (93.24), SK (93.24), USA (93.24), RUS (93.24), CZ (92.45), MNE (91.67), AZE (91.67), KGZ (90.09), EL (89.31), LV (89.31), LU (88.52), PT (86.16), GEO (84.59), UZB (83.81), SRB (83.02), CHE (83.02), MKD (76.73), ES (70.44), NL (69.65), MDA (69.65), HU (65.72), AT (64.15), BE (59.43), CY (57.08), TUR (53.93), HR (52.36), DE (50.00), MT (48.43), ALB (16.19), PL (9.91), BIH (0.00), IT (0.00), TJK (0.00), TKM (0.00)
TBAL	LU (100.00), MT (100.00), CHE (100.00), IE (100.00), AZE (99.95), NL (94.70), TKM (93.96), SI (89.12), KAZ (87.88), RUS (86.77), DK (85.98), CZ (82.22), DE (81.58), LT (79.92), PL (78.50), SE (76.91), EE (76.53), AT (74.72), IT (74.47), BG (74.26), ES (73.69), HU (73.13), TUR (73.10), NOR (69.73), BE (66.92), SK (66.31), PT (66.25), FI (65.61), HR (64.47), BLR (63.30), LV (62.80), FR (62.40), CY (62.15), GBR (61.66), CAN (60.65), EL (60.48), USA (57.11), RO (53.46), UKR (42.49), GEI (39.80), SRB (36.91), UZB (31.96), ARM (27.35), ALB (26.17), MKD (24.87), BIH (23.49), MNE (5.39), MDA (0.00), TJK (0.00), KGZ (0.00)
INFL	PT (100.00), CHE (100.00), MNE (100.00), EL (98.88), CY (98.42), BIH (98.31), IT (97.30), ES (96.41), DK (96.02), MKD (95.52), HR (95.44), IE (94.25), KGZ (90.53), FI (90.51), BE (89.00), FR (88.35), DE (87.58), ALB (86.45), ARM (86.38), AT (85.71), MT (85.30), SI (83.90), SE (83.74), LU (83.55), GBR (81.69), USA (81.40), SRB (80.89), CAN (79.55), NOR (76.60), LT (75.60), EE (75.25), PL (74.71), BG (72.70), NL (69.84), AZE (69.26), LV (68.79), SK (68.53), CZ (67.42), HI (60.36), RO (54.24), RUS (45.53), MDA (40.42), GEO (40.37), TKM (37.14), KAZ (35.09), BLR (30.28), TJK (0.69), UKR (0.00), UZB (0.00), TUR (0.00)
DEBT	EE (100.00), RUS (100.00), AZE (100.00), BG (99.59), KAZ (97.97), LU (95.81), MDA (89.14), UZB (87.99), CZ (87.12), BIH (84.90), TUR (84.64), TKM (84.31), DK (84.21), SE (81.98), LT (81.15), RO (80.19), LV (80.03), CHE (77.10), GEO (76.38), MKD (76.17), NOR (75.91), BLR (75.79), MT (74.75), TJK (73.55), PL (70.86), NL (68.84), SK (67.93), UKR (67.61), ARM (66.41), SRB (63.39), KGZ (61.94), IE (58.53), FI (56.48), DE (56.15), HU (50.16), SI (49.88), ALB (47.53), AT (44.70), HR (42.26), MNE (36.05), GBR (29.18), CAN (27.52), CY (19.92), ES (18.37), BE (15.68), FR (15.67), USA (5.01), PT (0.00), IT (0.00), EL (0.00)