



Article

# The Impact of Structural Reforms on Sustainable Development Performance: Evidence from European Union Countries

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Abstract: The European Union (EU) is a unique economic integration organization with standard policies that seek common goals among members, such as convergence and sustainable development. It aims to become a climate neutral economy by 2050. With structural reform implementation, each EU member country can work towards these set goals in accordance with their own welfare. However, a trade-off between the individual welfare goals of a country and the common goals of the EU should be reached. This article analyzes the impact of structural reforms on sustainable development performance in European countries. The article contributes to a gap in the literature because, to date, previous research has examined the effects of structural reforms on economic or environmental measures in groups of nations but has often lacked an adequate sustainable development context. In addition, the clustering of European Union countries according to different social policy regimes requires clarification of the perceptions and knowledge about the influence and usefulness of structural reforms for sustainable development performance. The research uses the panel data of the Heritage Index of Economic Freedom and Sustainable Development Goals agenda from the Eurostat database. The data cover 27 countries of the European Union for a period of 11 years (2010–2020). The research panel includes 297 observations. We found different results regarding the influence of structural reforms on sustainable development performance under different social policy regimes and the regulatory trap for homogeneous sustainable development in the European Union. The paper provides original empirical evidence and specifies the targets of structural reforms in relation to sustainable development. The results provide guidance for policymakers to develop more appropriate and efficient sustainable development policies.

Keywords: economic freedom; structural reforms; welfare state; sustainable development



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## 1. Introduction

The Russian–Ukrainian war, the COVID-19 pandemic, Brexit, and other national and regional shocks have dramatically affected the growing imbalances and stability of the global economy, as well as sustainable development and coherence among countries. In ideological and political terms, nationalism and populism oppose and threaten multilateralism [1]. Various economic and political shocks and military conflicts are growing worldwide, affecting the national awareness and future economic and political strategies of countries. Protectionism and state discrimination have proliferated rapidly and have become the 'new normal' [2] as governments engage in geopolitical conflicts.

The European Union (EU) is a unique economic integration organization with common policies, seeking common goals, such as convergence, sustainable development, and being a climate neutral economy by 2050 among its member countries. Each country, with its implementation of structural reform, can aim to achieve the set goals related to its welfare. However, a trade-off between the individual welfare goals of a country and the common goals of the EU should be achieved. Therefore, understanding the determinants of structural reform in relation to sustainable development is crucial, especially for policy purposes.

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However, the focuses and features of structural reforms are affected by the policy regimes of each country. Traditionally, in the European Union, there have been five types of European social models (ESMs), namely Continental, Nordic, Anglo-Saxon, Mediterranean (or Southern), and Eastern and Central Europe [1,3,4]. From the political side, the ESM is understood as applying to different settings of regulatory policy for a welfare state, social policy, convergence of the EU, and the joint response to external challenges from national and EU sides [5]. From the economic side, it is defined from various aspects of economic agents, including differences in production regime, employment regime, and industrial relations regime [4].

This article raises the question of how to encourage the achievement of the Sustainable Development Goals (SDG) across the EU in the presence of different ESMs. In addition, there is an open debate on the possible ways by which to achieve sustainable development and coherence in the 'new normal'.

Considering this background context, this article investigates the interaction among structural reform, with a focus on economic freedom and sustainable development, under different ESM. The article remedies a gap in the literature because, to date, research has examined the effects of structural reforms on economic and environmental [6,7] or economic and social [8–11] performance with a lacking sustainable development context. In addition, the clustering of European Union countries according to different social policy regimes clarifies the perceptions and knowledge on the influence and usefulness of structural reforms for sustainable development performance.

In this article, we apply an institutional and market liberalization approach to investigate the relationship between economic freedom and the progress towards the SDGs under different ESM. Our research focus is threefold. First, we include an examination of the liberalization level. Economic freedom characterizes the institutional structure and central parts of economic policy directly related to economic development through neoclassical growth theory [12]. The impact assessment of a country's governance is made in relation to the ongoing structural reforms as the economic freedom level varies over time [13,14]. Additionally, we estimate different country groups using the ESM concept, which covers criteria such as welfare, production, employment, industrial relations regimes, and other social policy determinants [4,5]. We also expand on the traditional economic development measurement, mainly described as economic activity level, through various indicators, such as economic growth, employment, and financial soundness indicators. We measure economic development through SDG indicators to evaluate the overall effect, which include the assessment of social, economic, and environmental factors.

This article makes several important contributions. First, it contributes to economic development and policy literature by clarifying the interaction among structural reforms focused on economic freedom, and sustainable development in the European Union, under different ESMs. In addition, our research introduces a new concept, namely the regulatory traps. Second, it provides original empirical evidence and specifies the policy recommendations to encourage the coherence of SDG progress in the EU. Additionally, it provides a relevant understanding of systemically important development issues and the change in development trajectories due to the new SDG agenda.

The paper is organized as follows. Section 1 provides a theoretical analysis of three components within the following relationships: the liberalization process as a structural reform element; the ESM according to which the liberalization structure is established; and the progress towards the SDGs as a goal of the EU. This section also provides the conceptual framework to analyze the relationship of structural reforms, focusing on economic freedom and the progress of sustainable development goals under different ESM. Subsequently, the data and research methodology, and empirical research are presented in the latter chapters. Finally, the article ends with a discussion of the results and conclusions.

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#### 2. Literature Review

Typically, the reform estimation approach is based on the Washington consensus. This estimation empirically refers to reform as a major policy change. Common structural reforms are the liberalization of markets for goods or services and changes in the regulatory environment [14]. The enhancement of structural reforms through economic freedom leads to the resolution of major economic problems in the development of a country [15]. Governments can play a key role in the market regulatory process and are central to economic policy [12]. Existing research favors the idea of free market enhancement; Bittencourt [16] identifies that financial liberalization market reforms raised growth in Latin America, and Berggren [8] identifies how economic freedom relates to a positive and significant effect on inclusive growth. Despite the benefits of free market principles on economic-social factors, protectionism and state discrimination are commonly becoming the 'new normal' [2]. Studies on the environmental approach have demonstrated the adverse effects of economic freedom on corporate environmental responsibility [17]. An optimal level of economic freedom means the best economic and environmental outcomes can be maintained [18]; despite the favorable position of economic freedom, regulations from the governmental perspective must be retained.

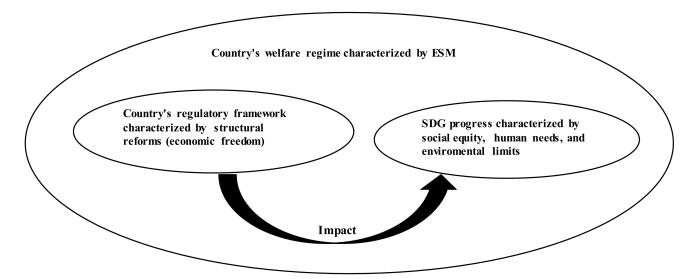
Due to these various contradictory statements in economic freedom analyses in relation to country development, we cannot identify any enhancements in economic freedom. Therefore, we must outline the most important factors corresponding to the economy's welfare regime. During the transition, country reforms related to liberalization boost economic performance; overall, the external liberalization-orientated reforms boost the economy over the short and long term [19]. In relation to country development factors, reforms tend to lead to different results. Other researchers also supplement the position that the effect of reform through liberalization indexes measuring impact on growth lies within the state of the development level, and the country segment is affected differently based on the development criteria [20]. Structural reforms based on liberalization principles and the impact on entrepreneurship are fostered based on several freedom components; however, the effect could be positive and negative and depends directly on the specific component of freedom but not on the overall level [10]. Bergh [21] highlighted different economic performance outcomes in relation to economic freedom based on the welfare state position. Therefore, we can outline that the welfare state is an essential factor that provides a different structure of economic freedom in a country based on its different outcomes. The coherence of the flexicurity strategy following welfare states' generosity is questioned from the point of view of economic efficiency and political economy [22]. Differences in welfare provision between countries show why research that examines economic freedom leads to mixed results. In order to identify the result of economic freedom, assessing the welfare state provision is one of the most important factors.

In light of the difficulties in evaluating economic freedom, we highlight why the welfare state is so important. First, structural reforms tend to be adopted to sustain the welfare state; therefore, different welfare states employ different reforms [23]. The Europe Union combines different varieties of capitalism and welfare state models, which play a significant role in governance, and social, political, and economic development, including adopting structural reforms [3]. The liberal welfare regime, the conservative welfare regime, and the social democratic regime represent three types of welfare state, each with a different focus on the governance structure of the country [5]. Despite coordinated policy mechanisms and the integration-convergence factor within the EU, the ESM type is not homogenous in all countries. Traditional core models include Anglo-Saxon, Scandinavian, Continental, and Southern models [24]. The EU-27 structure can be characterized according to five ESMs: Nordic, Anglo-Saxon, Continental/Central, Southern/Mediterranean, Central, and Eastern Europe [3]. Accounting for the style of the welfare state or implementing separation into country groups in the analysis of structural reforms is significant because the effect of liberalization differs between separate groups of countries according to their economic development level [20,25,26]. We may highlight that despite the relevance of

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the welfare state [5], the ESM also includes factors such as the production regime, employment regime, industrial relations regime, and other significant factors influencing countries' socio-economic development [4]. Therefore, in EU countries, an examination that incorporates types of ESMs provides greater clarity than one that considers the welfare state alone.

In light of this, we propose research focusing on economic freedom effects relating to the welfare state in EU nations characterized according to the type of ESM. As an outcome, we focus on an SDG agenda in sustainable development, which covers economic, social, and environmental factors. Campos, De Grauwe and Ji [9] suggest that a key dimension of any research investigating how structural reforms can impact economic growth must include income distribution factors, as growth alone would provide an inconclusive answer on reform effects at a country level. Therefore, Berggren [11] included equality issues, and Kouton included social factors [8]. A dual approach, considering economic and environmental outcomes, according to previous studies [18,27,28], does not fully capture the overall concept of SDG. Well-known studies analyze structural reform effects through an assessment of liberalization from economic, social, and environmental outcomes in different settings but lack systematic evaluation in relation to SDG. Figure 1 presents the conceptual framework for the relationship of structural reforms, focused on economic freedom, and SDG progress under different ESMs.



**Figure 1.** Conceptual framework for the relationship of structural reforms focused on economic freedom and SDG progress under different ESMs. Source: designed by the authors.

We employ systematic measurement of development based on social, economic, and environmental factors by including SDG. Following Fukuda-Parr [29], we presume that SDG, due to its purpose, concept, and policy on global development, more adequately reflects the complex challenges of the 21st century. Pogge and Sengupta [30] highlight that reform based on an SDG agenda is crucial for progress toward development. The novelty of the conceptual framework lies in the three-fold view of liberalization effects through structural reforms, welfare regimes characterized in the EU as ESM, and SDG progress. As Milton Friedman famously said, 'One of the great mistakes is to judge policies and programs by their intentions rather than their results' [31]. Considering this, we formulate a quantitative policy estimation approach based on the result of structural reforms through a study of liberalization's effects and SDG progress related to the ESM adopted in each countries.

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## 3. Data and Research Methodology

This section presents the data and methodology used to analyze the interaction between the progress of economic freedom and SDG in relation to the country-specific welfare model, namely ESM.

The research covers a period of 11 years, from 2010–2020. The research units are 27 EU countries, grouped according to five ESM concepts (see Table 1) identified by previous research [3,4,32]. The panel data sample is well balanced.

ESM	Countries
Nordic	Denmark; Finland; Sweden.
Continental	Austria; Belgium; Luxembourg; France; Germany; Netherlands.
Southern/Mediterranean	Greece; Italy; Portugal; Spain.
Anglo-Saxon	Ireland; Cyprus; Malta.
Central and Eastern	Bulgaria; Croatia; Czechia; Estonia; Latvia; Lithuania; Hungary; Poland; Romania; Slovakia; Slovenia.

Table 1. Research countries by ESM.

Croatia was not previously analyzed in the context of ESM; we listed this country in the Central and Eastern ESM group since it is the most recent EU member state. Croatia is located in Central and Eastern Europe and, like the majority of Central and Eastern Europe countries, is transitioning from a socialist economy.

The structural reforms in a country are identified by the degree of economic freedom expressed by the Index of Economic Freedom of the Heritage Foundation. The following ten components of economic freedom are used: property rights, government integrity, tax burden, government spending, business freedom, labor freedom, monetary freedom, trade freedom, investment freedom, and financial freedom. Two components—legal effectiveness and fiscal health—were excluded in this work because the computation of these estimates only began in 2017 (descriptive statistics of economic freedom components are included in Appendix A).

Sustainable development is expressed by the SDG progress index (Formula (1)).

SDG progress Index = 
$$(w_i*sdg_01 + w_i*sdg_02 + w_i*sdg_03 + w_i*sdg_04 + w_i*sdg_05 + w_i*sdg_07 + w_i*sdg_08 + w_i*sdg_09 + w_i*sdg_10 + w_i*sdg_11 + w_i*sdg_12 + w_i*sdg_13 + w_i*sdg_16 + w_i*sdg_17)$$
 (1)

where sdg denotes the goal of SDG listed in Appendix B,  $w_i$ - is the weight coefficient; as we use 14 SDGs, the weight is 1/14.

It was noticed that the SDG data quality is characterized by weak data management and different statistical outlooks between countries [33]. Goals 14 and 17 of the SDGs are not included in the United States index due to data availability, jurisdiction, and lack of state-level comparability [34]. Considering such circumstances, the SDG progress index, developed from the Eurostat database, is comparable across state levels and serves as a more reliable tool for cross-country analysis in the EU region. This is also confirmed by previously applied research tracking the progress of SDG policies in the EU and future forecasting [35]. Therefore, due to missing data and poor comparability over the extended research period of 2010–2020, we excluded several goals from the SDG progress estimation, including Goal 6—Clean water and sanitation; Goal 14—Life below water; and Goal 15—Life on land. We excluded some SDG indicators that relate to overall estimates of the EU, as results were only available for a limited time period, or the frequency of estimation was not yearly. The total estimation of the SDGs includes 57 indicators (descriptive statistics of SDG indicators are included in Appendix B).

All indicators in Formula (1) were normalized using the distance from the minimal and maximum value method, which allows all values to be assigned to the [0; 1] interval.

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We used additional estimations for normalized values that show opposite affections—the lower indicator corresponds to a better result (in work and at risk of poverty rate, people at risk of income poverty after social transfers, etc.). The additional computational step for such indicators was performed using the mathematical function abs (normalized value -1). This setting helped us to determine higher values as being better than lower values. All subindices were equally weighted ( $w_i = 1/14$ ) and constructed from at least two indicators representing the corresponding area (see Appendix B). The subindices were calculated as average normalized indicator values.

We used statistical-mathematical analyses based on average growth, proportions, and graphical estimations for data analysis. We applied a panel data regression analysis for relationship estimation and effect evaluation by characterizing the effect as a linear relationship between SDG progress as a dependent variable and economic freedom components as independent variables. We estimated a whole sample and different groups of countries based on the ESM. Panel data were strongly balanced; to comply with stationarity, we tested the data sample for unit roots. Levin–Li –Chu test results suggest that variables in the data sample are stationary. We evaluated the linear specification with the Hausman test. According to the test results, we applied the fixed effect model specification (where the fixed effect model remains unbiased and consistent).

We employ the following research hypotheses based on the research problem:

**Hypothesis 1 (H1).** The economic freedom components that affect SDG progress are homogenous based on the sample of countries clustered by ESM.

**Hypothesis 2 (H2).** The economic freedom components that affect SDG progress are heterogenous based on the sample of countries clustered by ESM.

The hypotheses correspond to the theoretical problem raised in the introduction of this research article. All panel regression models with fixed effects are statistically significant in the overall sample in the different groups of countries using ESM as a classifier. The significance of the variables is presented in Table 2.

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<b>Table 2.</b> Panel regression estimation of SDG progress and economic freedom components.	

Dependent Variable			SDG Progress In	dex		_
Country Sample	Nordic ESM	Continental ESM	Southern/Mediterranean ESM	Anglo-Saxon ESM	Central and Eastern ESM	EU-27
Property rights	0.00142	-0.00204 *	-0.00021	-0.00010	0.00047 *	0.00059 *
Government integrity	-0.00043	-0.00017	0.00162 *	-0.00111 **	0.00111 *	0.00045 *
Tax Burden	0.00179 *	0.00152	-0.00329 *	0.00217	-0.00107 *	-0.00096 **
Government spending	-0.00068 *	0.00014	-0.00041	0.00146 *	-0.00022	0.00042 *
Business freedom	-0.00269 *	-0.0023 *	-0.00176 **	-0.00242 *	-0.00122 *	-0.00227 *
Labor freedom	-0.00070	-0.00088 *	0.00155 *	-0.00072	0.00052 **	0.00058 *
Monetary freedom	-0.00078	-0.00057	0.00411 *	0.00016	0.00226 *	0.00195 *
Trade freedom	-0.00252	-0.00593 **	-0.02391 *	-0.00531 *	-0.01587 *	-0.00498 *
Investment freedom	-0.00006	0.00218 *	0.0024 *	0.00155 **	0.00126 *	0.00174 *
Financial freedom	0.00037	0.00243 *	0.00014	-0.00244 *	0.00125 *	-0.00078 *
Constant	1.03387 *	1.10552 *	2.20922 *	1.06993 *	1.59733 *	0.84038 *
R-sq	78.45%	77.07%	85.18%	90.34%	81.02%	60.23%
Observations.	33	66	44	33	121	297

<sup>\*</sup> Significant at 0.05 percent level \*\* significant at 0.10 percent level.

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#### 4. Results

The empirical analysis is conducted in several parts. The simple statistical analysis of the SDG progress index and the economic freedom components is based on the average, trend, growth analysis, and decomposition of the proportions of the SDG progress index and the structure of the economic freedom index. The second part contains the panel data regression analysis.

## 4.1. Progress in SDGs and the Economic Freedom Index in the Period 2010–2020

Figure 2 presents the state-of-the-art of the SDG progress index, the average economic freedom index, trends, and growth during the research period for different ESM countries (the shade of the color in Figure 2 indicates index values from low values—red color to high values—green color). The highest progress in terms of the SDGs and the economic freedom index is in Nordic ESM countries and the smallest in Southern/Mediterranean countries. However, in other ESM countries, the progress of these factors is varied. The highest SDG progress is in Continental ESM countries; however, the economic freedom index is more significant for the Anglo-Saxon ESM. The Central and Eastern ESM develops similarly to the Anglo-Saxon ESM.

ESM	Average of SDG progress index	Trend of SDG progress index 2010-2020	SDG progress index growth over entire research period	Average of economic freedom	Trend of economic freedom 2010-2020	Economic freedom growth over entire research period
Nordic ESM	0.65		6.2%	73.84	7	-1.2%
Continental ESM	0.57		11.3%	70.79	$\sim$	-0.1%
Southern/Mediterrane an ESM	0.48		16.7%	62.82		-0.4%
Anglo-Saxon ESM	0.52		16.1%	71.69		0.9%
Central and Eastern ESM	0.50		17.6%	68.04	~	5.4%

Figure 2. Average SDG progress index and economic freedom, growth in different time periods.

Here, we outline some important factors that are presented in Figure 2. Even though Nordic ESM has the highest progress index for the SDGs, growth during the research period reached 6.2%; however, the economic freedom index decreased by 1.2%; similar indications can be seen from the plotted trends. The progress of the SDGs indicates continuous growth, whereas the economic freedom index has no constant growth. The Continental ESM has the second highest SDG index rank compared to other groups; growth over the research period reaches 11.3%, while the economic freedom index decreases by 0.1%; furthermore, graphical estimations are similar to the Nordic ESM. Based on the SDG progress index, Southern/Mediterranean ESM countries perform the worst; despite this, these countries maintain a 16.7% growth of SDG progress throughout the research period, and the economic freedom index decreased by 11% in the same period. Anglo-Saxon/Central and Eastern ESM countries achieve similar progress toward the SDGs on average; despite this, the growth in progress towards the SDGs is faster in Eastern and Central ESM countries. Anglo-Saxons maintain a similar economic freedom index and slow growth, while the growth rate of the Eastern and Central ESM economic freedom index reaches 5.4%. From this statistical outlook, we may assume that the overall levels of economic freedom do not explain the exact effect of SDG progress; we also see some divergence as Central and Eastern ESM successfully increase liberal regulations based on economic freedom and increase SDG progress, while other ESMS indicate different positions towards structural

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reform through liberalizations and SDG development (detailed estimates by country are listed in Appendix C).

Figure 3 presents the structure of the economic freedom index according to components, which may characterize how the ESM impacts the composite economic freedom. We outline that the structure of economic freedom components in the Nordic and Continental ESM countries is strictly regulated from the perspective of fiscal policy in case of tax burden and government spending, which is explained by strict fiscal policy management; however, in relation to the free-market principles, these two ESMs have high levels of government integrity, property rights, and financial freedom. The Southern/Mediterranean ESM countries focus on each category similarly except for in trade and monetary freedom. Even though the overall economic freedom index structure is similar to the Anglo-Saxon and Central and Eastern ESMs, this specific ESM shows that a highly regulated market is inefficient in developing the SDGs (detailed overall level represented in Figure 2). Central and Eastern ESM countries maintain similar economic freedom structures to the Anglo-Saxon ESM; however, property rights and government integrity regulations in these countries are quite restrictive, in contrast to the tax burden, which is the highest component of freedom. This fact may also suggest that Central and Eastern ESM countries focus their business environment on low taxes to increase competitiveness at a cross-country level. Anglo-Saxon ESM countries maintain regulatory freedom in all economic freedom categories except for labor freedom and government spending. The EU-27 average essentially shows a clear line that could be a benchmark to reach the best regulatory environment structure (in relation to liberalization effects) in the Nordic and Continental ESMs.

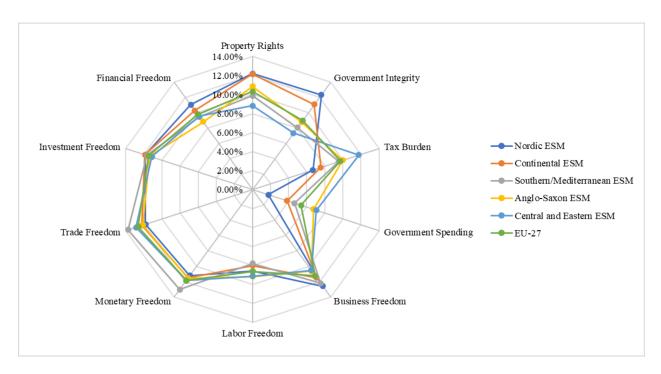
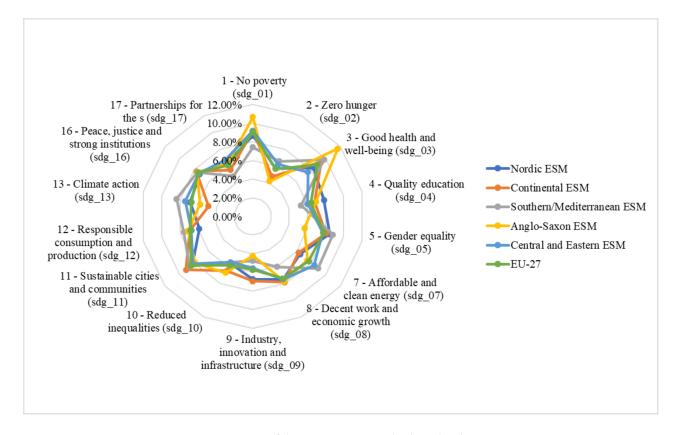


Figure 3. Economic freedom index structure by components.

Figure 4 presents the structure of SDG progress according to each subindex, which shows the focus of each ESM related to the SDGs. The structure of the SDG progress index in Nordic ESM countries focuses on the following goals: no poverty (sdg\_01); gender equality (sdg\_05); good health and well-being (sdg\_03); and sustainable cities and communities (sdg\_11). Altogether, these goals represent 33.77% percent of these countries' overall progress in terms of the SDGs. Continental ESM countries focus on the following goals: good health and well-being (sdg\_03); no poverty (sdg\_01); sustainable cities and communities (sdg\_11); and gender equality (sdg\_05). These goals represent a total of

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35.80% of the progress of the SDGs. Southern/Mediterranean ESM countries focus on the following goals: good health and well-being (sdg\_03); affordable and clean energy (sdg\_07); gender equality (sdg\_05); and sustainable cities and communities (sdg\_11). Taken together, these goals correspond to 36.16% of the overall progress towards the SDGs. Anglo-Saxon ESM countries focus on the following factors: good health and well-being (sdg\_03); no poverty (sdg\_01); sustainable cities and communities (sdg\_11); and decent work and economic conditions (sdg\_08). These goals account for over 38.0% percent of the overall progress towards the SDGs in these countries. Central and Eastern ESM countries focus on the goals of no poverty (sdg\_01), affordable and clean energy (sdg\_07), sustainable cities and communities (sdg\_11), and gender equality (sdg\_05); together, they correspond to 33.47% percent of the overall progress of the SDGs. The EU 27 countries focus on no poverty (sdg\_01), good health and well-being (sdg\_03), sustainable cities and communities (sdg\_11), and gender equality (sdg\_05) and together represent 34.13% percent of the progress towards achieving the SDGs. By comparing different countries' ESMs, we can deduce that Nordic and Continental ESMs correspond to more balanced strategies, while Anglo-Saxon ESM countries show more focused strategies towards specific goals. We also noticed significant differences in industry innovation and infrastructure (sdg\_09) goals, on which the Nordic and Continental models place a large proportion of their focus, which may be related to efficiency in improving the Sustainable Cities and Communities goal (sdg\_11); furthermore, other goals that are related to innovations and infrastructure could receive additional benefits. We also noticed that in Eastern and Central ESM countries, including Southern/Mediterranean ESM countries, the climate action (sdg\_13) goal is highly developed, which may explain why South/Mediterranean countries have better results due to geospatial patterns that relate to a lower need for heating from fossil fuels. Central and Eastern European countries tend to have a high focus on climate action goals due to their low industrial activity compared to more developed ESM countries such as those in the Anglo-Saxon or Continental groups.



**Figure 4.** Structure of the SDG progress index by subindices.

## 4.2. Relationship of the SDG Progress Index with the Economic Freedom Components

This section represents the interrelation estimate of the economic freedom index and the progress of towards the SDGs. We estimate how the economic freedom components as independent indicators relate to the SDG progress index as a dependent variable based on panel regression estimates (we use the fixed estimation approach due to statistical estimates).

Table 2 represents the panel regression estimations of how the overall economic freedom index's specific components relate to the SDGs' progression. Despite the number of differences, we identified some common factors related to SDG progress that are specific to economic liberalization. A decrease in business freedom relates to an increase in SDG progress. Trade freedom follows this same relation except in Nordic ESM countries, where its impact was insignificant. Investment freedom suggests positive affection except in Nordic ESM countries where the indicator is insignificant. This setting allows us to identify those EU countries that constrain SDG progress with protective internal market structures and, simultaneously, adopt a liberal position toward investment freedom to allow the free flow of capital.

As presented in Table 2, at the level of smaller country samples according to the ESM classification, only business freedom is identified as a common factor whose increase would negatively affect the progress towards the SDGs. In accordance with the main research hypotheses, we can confirm H2, which states that economic freedom as a factor of structural reform, fostered by liberalization, has a heterogenous effect on SDG progress in all ESMs of EU countries. In the Nordic ESM countries, only three components of economic freedom have a significant effect; a government spending indicator increase would suggest that a reduction in government expenses would decrease SDG progress, in the same way that business freedom has a negative effect, and lowering tax burden would increase SDG progress. Continental ESM countries tend to be positively affected by the liberalization of investment and financial freedoms; however, other components of the economic freedom regulatory perspective show that restrictions in property rights, labor, business freedom, and trade freedoms increased SDG progress. Southern/Mediterranean ESM countries are in line with the overall results of the country sample; adverse effects on SDG progress include tax burden, business freedom, and trade freedom. Even though the Anglo-Saxon ESM is oriented around a free market, the variables of government integrity, business freedom, trade freedom, and financial freedom negatively affected SDG progress. Central and Eastern ESM countries are positively impacted by most economic freedom components and negatively affected by tax burden, business freedom, and trade freedom. Our results suggest that there is a very different interrelationship between the progress of SDG and regulatory frameworks. These relationships cannot characterize economic freedom as a positive or negative factor; however, a detailed analysis shows which factors are relatively positive and significant in the context of the improvement of the progress towards the SDGs.

### 5. Discussion

The traditional view is that economic freedom is a liberal state factor and strongly affects economic growth and social policy. Following this and according to Rahman [36], we should consider the history of social movements and legislative or regulatory reforms battling for economic opportunity and inclusion. Our approach, including a country-specific model, allows us to include historical regulatory differences and social policies as they directly correspond to ESM characteristics. Our research results indicated some common and unique suggestions among different ESM countries in relation to policy liberalization and sustainable economic growth. Even though the character of the interrelationship between economic freedom and SDG is mainly determined by the welfare regime (in the EU case, the ESM), structural reforms related to increased business freedom and trade freedom hinder SGD progress. Stricter regulation of these economic freedom components should increase SDG in EU countries concerning the internal market structure.

The time series analysis highlighted the regulatory traps overwhelmed by the ESM structure. This means that the ESM itself becomes a trap to developing greater SDG progress (see Table 3).

Table 3. The matrix of interrelations between economic freedom and SDG progress by ESM.

	Low Economic Freedom Index	High Economic Freedom Index
Low SDG progress	Southern/Mediterranean ESM	Anglo-Saxon ESM, Central and Eastern ESM
High SDG progress	-	Nordic ESM, Continental ESM

Only two ESMs, the Nordic and Continental, refer to high economic freedom and SDG progress. The other ESMs maintain inefficient development of the progress of the SDGs. This indicates that increased economic freedom does not translate to greater progress in achieving the SDGs. From a policy implication perspective, the existence of different ESMs in the EU may threaten the coherence of the progress towards the SDGs in the EU. This is due to limited options for countries to quickly move to a more efficient ESM which would place economic freedom components and the promotion of SDG progress on the same track. As stated by Hermann [3], the problem occurs due to the economic independence of the EU members. To elaborate, each country determines its policy regulation according to its welfare state; therefore, the EU, as a central institution, has no power to enforce movement to the more efficient ESMs. The EU governance body can only make recommendations on implementing structural reforms.

A more detailed analysis of the characteristics of the economic freedom components among different ESMs highlights that the focus on liberalization of Nordic and Continental policy lies within fiscal policy control (low scores of tax burden and Government Spending) and generally well-developed government integrity (where the level of corruption is relatively small). Together, such composition among economic freedom components (strategy) indicates that these countries are leaders in SDG progress, despite the fact that their economic freedom index growth is negative and SDG index progress growth is relatively small over the entire analyzed period. Other empirical research has identified the detrimental effects of economic freedom on the environment; however, this effect was seen only in the developing countries of the G-20 (the advanced countries showed different results) [6]. Previous research has identified that economic freedom factors limit positive affection for a sustainable environment and negatively impact environmental factors [7]. In alignment with these studies, we clarify the relationship between economic freedom and SDG progress by stating that ESM determines the effects and characteristics of such a relationship. Research on welfare states, social factors, and liberalization reforms has identified that liberalization increases economic benefits; however, it creates social losses, which are compensated for through a welfare state implementing fiscal policy factors [37]. This is similar to our findings, in which high economic freedom in Nordic and Continental ESMs is followed by governmental fiscal policy control.

As we identified the most effective ESMs in relation to the economic freedom structure which helps achieve the highest SDG progress, we raise the question of why the EU needs five ESMs, and why other countries might seek to transform their current ESM into a more effective model. Despite years of convergence, the existing different ESM structures can be explained by several aspects. The degree of social protection level and affordability in the national economy are significant differences among EU member states. Additionally, there are other significant differences in social services and spending levels, and structure, including the differences in political, economic, and cultural factors [38]. Herman [3] also identified institutional problems in convergence due to the economic independence of countries and limited policy actions resultant of the inability to enforce rules for countries; therefore, the Open Method of Coordination to Economic Governance was founded with the aim to reduce the difference in ESMs. However, complete convergence remains doubtful.

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Other research in the convergence area of sustainability concluded that in EU countries, only partial convergence is determined despite positive sustainability development and similar time series dynamics. In contrast, the difference between groups of countries remains [39]. Empirical evidence clearly shows the differences in economic freedom levels and their components according to different ESMs. Despite the existing convergence policy, other actions must be enhanced to improve SDG progress, as convergence in the EU has become a long-term issue with serious doubts regarding full convergence.

In similar research, institutional traps have been identified, suggesting that lowincome countries would not reach the middle-income or high-income level due to the poor quality of institutions [40]. Following this logic, we conclude that if the ESM itself becomes a regulatory trap for SDG progress, it may also become a challenge for SDG progress convergence in the EU and pose issues in the coordination of achieving common goals and integration policies. Therefore, a new approach to bypass the regulatory trap is needed. The focus should be on economic freedom components (tax burden and government spending) that are directly related to fiscal policy, as our empirical research highlighted that a highly constrained (high tax environment and high government expenditure environment) and balanced fiscal policy helps to achieve high progress towards the SDGs and, in the same way, to cope with government integrity problems. For example, mission-oriented innovation policies, presented by Mazzucato [41], could be the most efficient policy by which to enhance SDG progress without compromising the independence of ESM profiles in the long-term. As the EU considers economic convergence to be a short-term goal [3], the additional policy tool could enhance multidimensional factors on environmental, social, and economic conditions in the long term [42]. These policies would require financial resources and government partnership with private actors, according to which countries would increase innovation and, with additional resources, would be able to improve the progress of SDG development despite the regulatory level and current ESM structure. Additionally, the focus on the goal of industry innovation and infrastructure (sdg\_09) is one of the main differences of the Nordic and Continental models compared to other ESMs, representing goals on which they place more focus and might be related to progress towards other goals. Further analysis of such policy impacts on SDG progress through different ESMs may clarify and expand on such suggestions.

#### 6. Conclusions

In our research, we described the systematic analysis components in development theory evolution in relation to the style of welfare state, more broadly described as ESM in the EU, according to the economic freedom degree and SDGs progress. We contribute to the development of the existing research, which only partly evaluates the effects of structural reforms on sustainable development from the perspective of liberalization. Previous research focused mainly on dualistic analysis with economic–social impact assessment or economic–environmental effect assessment without a systematic analysis. We also include a specific country model corresponding to the welfare state theory of ESM and at the same time include the structure of the model with a broader specification of the country's focus on economic and social development (welfare state, industrial relations regime, production regime, employment regime, and other social policy factors). The different ESM structures divide EU countries into the following five models: Nordic, Continental, Southern/Mediterranean, Anglo-Saxon, Central, and Eastern. The coherence of this conceptual, theoretical mix allows us to estimate the relationship between the progress towards the SDGs and economic freedom in alignment with the implemented ESM.

Our results indicate that economic freedom as a structural reform factor (which is focused on the free market) works in countries with a limited control of fiscal policy and institutional issues related to government integrity and property rights. However, the highest progress peak of the SDG index was observed in ESM countries (Nordic/Continental) where fiscal policy is highly controlled and coordinated but also institutionally prioritized. In alignment with this, convergence in the SDG progress structure would suggest the

adoption of the economic freedom structure according to Nordic and Continental models; however, at the same time, it would change the existing ESM, which is maintained due to the economic independence of the countries. Therefore, the ESM, as a country-specific characteristic, is identified as a regulatory trap, meaning that countries cannot implement further development through structural reforms without disrupting the existing economic-social policy model. At this level, we see a conflict between national interests to maintain economic and political independence and the interests of the EU to maintain integration and convergence policies.

During the preparation of this article, we identified a regulatory trap concept specific to the ESM itself; this is because countries must change their market regulatory structure and, in principle, change their ESM structure to achieve greater development. Due to the conflict between the economic-political independence of countries within the EU and the future challenges of an integrated convergence policy, we propose implementing mission-oriented innovation policies that could improve the progress of the SDG agenda without disrupting the existing ESMs in countries. First, these policies are related to the need for fiscal stimulus, which was identified as a positive factor in improving the progress of the SDGs. Second, mission-oriented policies could increase government integrity from the perspective of clear, focused, and moral policy purposes, which would increase trust in governmental institutions.

There are several limitations to the research presented in this work. First, the results are specific to the selected sample of countries, and is applicable only in the context of the economic analysis of EU countries. As the SDGs have only been in place since 2015, we were only able to analyze results from a short period (11 years) which limited the capturing of long-term effects.

We analyzed the progress towards the SDGs; the best performing countries (namely, Nordic and Continental ESM countries) were comparatively more focused on industrial and innovation goals, which also significantly impacted the other interrelated goals. As our policy implication proposal is partially supported by empirical evidence, further research would include additional modeling with projections based on business-as-usual models and the incorporation of proposed policies by performing additional modeling. Additional country data could supplement the expansion of the field of study to measure the efficiency between EU economic and social policy models and other economies, such as the USA, which has an entirely private market structure, or Japan which is characterized by a protective internal market. Furthermore, incorporating additional countries would allow us to identify the best economic and social policy models at an international level, which would increase the range of the study field. This would be useful as the most significant limitation of this work is our study field which contains only EU economies.

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Appendix A

**Table A1.** Descriptive statistics of the economic freedom index and its components.

Variable	Obs	Mean	Std. Dev.	Min	Max
Economic	Freedon	1 <sup>1</sup>			
Overall score (graded from 0 to 100)	297	68.9	5.3	53.2	81.5
Property Rights (graded from 0 to 100)	297	71.6	16.4	30.0	95.0
Government Integrity (graded from 0 to 100)	297	62.5	17.8	33.0	96.1
Tax burden (graded from 0 to 100)	297	66.7	14.7	35.9	94.0
Government spending (graded from 0 to 100)	297	37.1	18.2	0.0	78.8
Business Freedom (graded from 0 to 100)	297	77.2	9.6	53.6	99.7
Labor Freedom(graded from 0 to 100)	297	59.5	12.7	31.0	93.7
Monetary freedom (graded from 0 to 100)	297	81.2	3.7	67.0	91.7
Trade Freedom (graded from 0 to 100)	297	86.7	1.6	81.0	88.0
Investment Freedom (graded from 0 to 100)	297	79.1	9.7	50.0	95.0
Financial freedom (graded from 0 to 100)	297	67.7	10.8	40.0	90.0

<sup>&</sup>lt;sup>1</sup> The index and its components determine level of economic freedom (political liberalization effects from multiple areas including economic, finance, and juridical elements).

## Appendix B

**Table A2.** Descriptive statistics of SDG indicators.

SDG	Indicator	Obs	Mean	Std. Dev.	Min	Max
	In work at risk-of-poverty rate (sdg_01_41)	297	8.1	3.2	2.7	19.8
1 ,	People at risk of income poverty after social transfers (sdg_01_20)	297	16.6	3.8	8.6	25.4
(546_01)	Housing cost overburden rate by poverty status (sdg_01_50)	297	9.4	6.7	1.1	45.5
	Agricultural factor income per annual work unit (AWU) (source: Eurostat, DG AGRI) (sdg_02_20)	297	116.9	30.1	62.8	248.0
Goal 1—No poverty (sdg_01)  Goal 2—Zero hunger (sdg_02)  Goal 3—Good health and well-being (sdg_03)  Goal 4—Quality education (sdg_04)  Goal 5—Gender equality (sdg_05)	Area under organic farming (sdg_02_40)	297	7.7	5.5	0.1	25.3
O	Government support to agricultural research and development (sdg_02_30)	297	5.6	4.9	0.2	22.7
	Ammonia emissions from agriculture (source: EEA) (sdg_02_60)	297	26.7	3.2 3.8 6.7 9 30.1 5.5 4.9 7 22.5 2.6 7 4.7 3.5 10.0 6 7.7 4.6 9.2 6 0 7 5.9 12.1	6.7	132.6
	Standardised death rate due to tuberculosis, HIV, and hepatitis by type of disease (sdg_03_41)	297	2.9	2.6	0.4	13.1
	Healthy life years at birth by sex (sdg_03_11)	297	61.7	4.7	51.4	73.6
	Self-reported unmet need for medical examination and care by sex (sdg_03_60)	297	3.2	3.5	0.0	16.4
	Share of people with good or very good perceived health by sex (sdg_03_20)	297	66.2	10.0	42.8	84.1
	Adult participation in learning by sex (sdg_04_60)	297	10.5	7.7	0.9	34.3
~ 3	Early leavers from education and training by sex (sdg_04_10)	297	9.9	4.6	2.2	28.3
(8=)	Tertiary educational attainment by sex (sdg_04_20)	297	38.9	9.2	20.7	60.6
	Gender employment gap, by type of employment (sdg_05_30)	icultural factor income per annual work unit (AWU) (source: Eurostat, DG AGRI) (sdg_02_20)  Area under organic farming (sdg_02_40)  vernment support to agricultural research and development (sdg_02_30)  monia emissions from agriculture (source: EEA) (sdg_02_60)  dardised death rate due to tuberculosis, HIV, and hepatitis by type of disease (sdg_03_41)  Healthy life years at birth by sex (sdg_03_11)  reported unmet need for medical examination and care by sex (sdg_03_60)  re of people with good or very good perceived health by sex (sdg_03_20)  Adult participation in learning by sex (sdg_04_60)  rely leavers from education and training by sex (sdg_04_10)  Tertiary educational attainment by sex (sdg_04_20)  Gender pay gap in unadjusted form (sdg_05_20)  Tet held by women in national parliaments and governments	-1.5	36.6		
	Gender pay gap in unadjusted form (sdg_05_20)	297	13.7	5.9	0.7	29.9
1 /	Inactive population due to caring responsibilities by sex (sdg_05_40)	297	23.5	.1     3.2       5.6     3.8       .4     6.7       6.9     30.1       .7     5.5       .6     4.9       5.7     22.5       .9     2.6       1.7     4.7       .2     3.5       5.2     10.0       0.5     7.7       .9     4.6       3.9     9.2       0.4     6.0       3.7     5.9       3.5     12.1	4.3	57.6
, 0- /	Seats held by women in national parliaments and governments (source: EIGE) (sdg_05_50)	297	26.7		8.7	49.6

Table A2. Cont.

SDG	Indicator	Obs	Mean	Std. Dev.	Min	Max
	Energy import dependency by products (sdg_07_50)	297	56.8	24.6	-16.0	104.1
	Energy productivity (sdg_07_30)	297	6.8	3.3		22.6
	Final energy consumption (sdg_07_11)	297	2.4	1.2		8.5
Goal 7—Affordable and clean energy	Final energy consumption in households per capita (sdg_07_20)	297	575.5	194.7	165.0	1084.0
(sdg_07)	Population unable to keep home adequately warm by poverty status (sdg_07_60)	297	10.7	10.4	0.5	66.5
	Primary energy consumption (sdg_07_10)	297	3.2	1.3	1.4	9.1
	Share of renewable energy in gross final energy consumption by sector (sdg_07_40)	297	20.0	11.5	-16.0 2.0 1.1 165.0 0.5 1.4 1.0 -11.3 10.6 5.7 52.5 0.6 0.5 0.4 0.3 0.7 8.1 0.0 0.0 11,100.0 13.2 3.0 16.4 7.7 0.5 4.0 2051.0 82.3 1.2 0.7	60.1
	Real GDP per capita (sdg_08_10)	297	1.4	3.5	-11.3	24.0
Goal 8—Decent work and economic growth (sdg_08)	Investment share of GDP by institutional sectors (sdg_08_11)	297	20.9	4.2	10.6	53.6
and economic growth	young people neither in employment nor in education and training by sex (NEET) (sdg_08_20)	297	13.9	5.1	5.7	28.5
, ,	Employment rate by sex (sdg_08_30)	297	70.1	6.5	52.5	81.8
	Long-term unemployment rate by sex (sdg_08_40)	297	4.2	3.2	0.6	17.5
	Fatal accidents at work per 100 000 workers, by sex (sdg_08_60)	297	2.3	1.2	0.5	6.4
Goal 9—Industry, innovation and infrastructure	Gross domestic expenditure on R&D by sector (sdg_09_10)	297	1.6	0.9	0.4	3.7
	R&D personnel by sector (sdg_09_30)	297	1.2	0.5	0.3	2.2
innovation and	Patent applications to the European Patent Office by applicants'/inventors' country of residence (source: EPO) (sdg_09_40)	297	139.3	184.0	2.0 1.1 165.0 0.5 1.4 1.0 -11.3 10.6 5.7 52.5 0.6 0.5 0.4 0.3 0.7 8.1 0.0 0.0 3 11,100.0 13.2 3.0 16.4 7.7 0.5 4.0 2 2051.0 82.3 1.2 0.7 -4.6	955.3
(sdg_09)	Share of buses and trains in inland passenger transport (sdg_09_50)	297	18.2	184.0 4.5 20.9 0.3	8.1	32.5
	Share of rail and inland waterways in inland freight transport (sdg_09_60)	297	28.5	20.9	0.0	84.2
	Air emission intensity from industry (sdg_09_70)	297	0.3	0.3	1.3       1.4         1.5       1.0         3.5       -11.3         4.2       10.6         5.1       5.7         5.5       52.5         3.2       0.6         1.2       0.5         0.9       0.4         0.5       0.3         34.0       0.7         4.5       8.1         0.9       0.0         0.3       0.0         459.3       11,100.0         5.4       13.2         1.2       3.0         2.2       16.4         5.5       7.7         5.2       0.5         5.5       4.0         2218.2       2051.0         3.2       82.3         6.4       1.2         4.0       0.7	1.9
	Purchasing power adjusted GDP per capita (sdg_10_10)	297	27,910.1	12,459.3	11,100.0	79,600.0
Goal 10—Reduced	Relative median at-risk-of-poverty gap (sdg_10_30)	297	22.5	5.4	13.2	38.2
inequalities (sdg_10)	Income distribution (sdg_10_41)	297	4.9	1.2	3.0	8.3
	Income share of the bottom 40% of the population (sdg_10_50)	297	21.5	2.2	16.4	26.2
Goal 11—Sustainable	Population living in households considering that they suffer from noise, by poverty status (sdg_11_20)	297	16.8	5.5	7.7	31.6
cities and communities (sdg_11)	Severe housing deprivation rate by poverty status (sdg_11_11)	297	5.5	5.2	0.5	25.3
	Recycling rate of municipal waste (sdg_11_60)	297	34.6	15.5	1.4 1.0 -11.3 10.6 5.7 52.5 0.6 0.5 0.4 0.3 0.7 8.1 0.0 0.0 11,100.0 13.2 3.0 16.4 7.7 0.5 4.0 2051.0 82.3 1.2 0.7 -4.6	67.2
	Raw material consumption (RMC) (sdg_12_21)	297	246,934.2	306,218.2	2051.0	1,363,598.0
Goal 12—Responsible consumption and production (sdg_12)	Average CO2 emissions per km from new passenger cars (source: EEA, DG CLIMA) (sdg_12_30)	297	125.6	13.2	82.3	162.0
production (sug_12)	Circular material use rate (sdg_12_41)	297	8.7	6.4	0.5  1.4  1.0  -11.3  10.6  5.7  52.5  0.6  0.5  0.4  0.3  0.7  8.1  0.0  0.0  11,100.0  13.2  3.0  16.4  7.7  0.5  4.0  2051.0  82.3  1.2  0.7  -4.6	30.9
	Net greenhouse gas emissions (source: EEA) (sdg_13_10)	297	8.6	4.0	0.7	26.5
Goal 13—Climate action (sdg_13)	Net greenhouse gas emissions of the Land use, Land use change and Forestry (LULUCF) sector (sdg_13_21)	297	-0.9	1.2	-4.6	1.7
action (5ug_13)	Population covered by the Covenant of Mayors for Climate & Energy signatories (source: Covenant of Mayors) (sdg_13_60)	297	35.6	19.4	0.1	92.7

Table A2. Cont.

SDG	Indicator	Obs	Mean	Std. Dev.	Min	Max
	Standardised death rate due to homicide by sex (sdg_16_10)	297	1.2	1.2	0.2	7.0
Goal 16—Peace, justice and strong	Population reporting occurrence of crime, violence or vandalism in their area by poverty status (sdg_16_20)	297	11.5	4.8	2.4	27.7
institutions (sdg_16)	General government total expenditure on law courts (sdg_16_30)	297	79.6	40.1	21.0	239.9
	Population with confidence in EU institutions by institution (source: DG COMM) (sdg_16_60)	297	50.3	10.4	23.0	79.0
Goal	Official development assistance as share of gross national income (source: DG INTPA, OECD) (sdg_17_10)	297	0.3	0.3	0.1	1.4
17—Partnerships for the goals (sdg_17)	General government gross debt (sdg_17_40)	297	68.3	38.2	6.2	206.3
	Share of environmental taxes in total tax revenues (sdg_17_50)	297	7.4	1.8	3.6	11.8

# Appendix C

ESM	Country	Average of SDG progress index	Trend of SDG progress index 2010-2020	SDG progress index growth over entire research period	Average of economic freedom	Trend of economic freedom 2010-2020	E conomic freedom growth over entire research period
Nordic ESM	Denmark	0.64	1	5.5%	75.85		-2.9%
Nordic ESM	Finland	0.63		6%	73.26		-0.2%
Nordic ESM	Sweden	0.67		6.9%	72.41		-0.4%
Nordic ESM		0.65		6.2%	73.84		-1.2%
Continental ESM	Austria	0.57		14%	71.26		0.4%
Continental ESM	Belgjum	0.58		15.5%	68.77		-2%
Continental ESM	France	0.55		8.8%	63.59	~~/	1.9%
Continental ESM	Germany	0.53		14%	72.27		0.7%
Continental ESM	Luxembourg	0.57	//	8.3%	74.24	~	-2.4%
Continental ESM	Netherlands	0.62		7.7%	74.62		0.9%
Continental ESM		0.57		11.3%	70.79		-0.1%
Southern/Mediterranean ES	Greece	0.43	~	17%	56.60	\	-5.9%
Southern/Mediterranean ES	Italy	0.49		21.6%	61.63	\	2.6%
Southern/Mediterranean ES	Portugal	0.48		19.6%	64.46	~_/-/	3.1%
Southern/Mediterranean ES	Spain	0.50		9.2%	68.57		-1.1%
Southern/Mediterranean	E SM	0.48		16.7%	62.82	\	-0.4%
Anglo-Saxon ESM	Cyprus	0.50		12%	69.54		0.2%
Anglo-Saxon ESM	Ireland	0.58		17.9%	78.54		0.2%
Anglo-Saxon ESM	Malta	0.48		18.4%	67.00	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	2.4%
Anglo-Saxon E SM		0.52		16.1%	71.69		0.9%
Central and Eastern ESM	Bulgaria	0.48		14.6%	66.45		11.9%
Central and Eastern ESM	Croatia	0.50		19.9%	60.75	/~~~	4.4%
Central and Eastern ESM	Czechia	0.54		10.6%	72.26		7.5%
Central and Eastern ESM	Estonia	0.52		14.6%	75.58	~~~	1.6%
Central and Eastern ESM	Hungary	0.51		15.5%	66.42	/	1%
Central and Eastern ESM	Latvia	0.47		30.1%	69.19		8.1%
Central and Eastern ESM	Lithuania	0.51		21.9%	73.34		8.2%
Central and Eastern ESM	Poland	0.49		15.5%	67.01		9.8%
Central and Eastern ESM	Romania	0.42		24.3%	66.42		8.1%
Central and Eastern ESM	Slovakia	0.52		16.8%	67.29		-4.3%
Central and Eastern ESM	Slovenia	0.58		14%	63.71	~~_	4.2%
Central and Eastern ESM	4	0.50		17.6%	68.04		5.4%

**Figure A1.** Average of the SDGs progress index and the economic freedom and growth over different time periods by country (the shade of the color in Figure A1 indicates index values from low values—red color to high values—green color).

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