

Challenges to the sustainable development of the Portuguese economy

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Abstract

Currently, sustainable development of a country refers to targeted economic growth that does not harm the environment (or, better yet, is integrated into natural cycles or a circular economy) and also contributes to solving social problems. Thus, a balance is maintained between the territory's economic, environmental, and social development, which has accelerated and continues to form its own set of tools for promoting sustainable development, most often integrated into global directions.

The purpose of the study is to identify and analyze the main problems of sustainable development of the economy of Portugal as one of the EU countries, including those related to natural factors, labor resources, sociocultural characteristics, the development of modern technologies, infrastructure, economics, political and legislative features. The study used comparative descriptive and analytical methods, as well as an analysis of modern statistics, literature, and Internet resources. The paper identifies, classifies, and analyzes the most critical barriers and challenges for the country's economy in the present and the future, as well as the possible consequences of these challenges.

Keywords: economic structure; depopulation; efficiency and innovativeness; barriers and challenges; risks; sustainable development.

1 Introduction

Since the purpose of the study is to identify, classify, and analyze the main challenges for the modern Portuguese economy (as the economy of one of the EU countries), based on the tasks of sustainable development, we consider the structure of the contemporary Portuguese economy, the main trends in its development, we identify the main barriers to the development of this, we analyze them. This allows us to formulate and classify the main challenges for the development of the economy in the present and future, as well as their features in connection with the concept of sustainable development of the region. Challenge research is critical in creating and developing a circular economy essential for sustainable economic development.

Currently, Portugal's GDP is \$252.2 billion (42nd place), per capita \$42.08 thousand (39th place), an increase in real GDP - 6.7%, the labor force - 5.22 million people, unemployment - 6.0% (World competitiveness ranking – 2022, 2023; World economic outlook database – 2023, 2023).

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If, in the 1970s, the share of agriculture in the country's economy was up to 30% of GDP, then at present, only a little more than 2% of GDP accounts for this. The most contribution to GDP is made by the service sector (tourism, banking, and insurance services, etc.), about 65%; the most dynamic development also characterizes it. At the same time, over the past 25 years, there has been a sharp increase in the share of GDP in the service sector. Still, the last recession that occurred in 2020-2021 (associated with COVID-19) was very significant and influenced the country's entire economy. The industry accounts for about 20% of the GDP, and construction, transport, etc., account for about 13% (Portugal's GDP comes from industrial production, agriculture, infrastructure, and transport, 2023).

The vivid specialty of the modern economy of Portugal also predominates small and medium-sized enterprises - 99.9% of the total number of enterprises. They also use 76.0% of the labor force; they account for 67.7% of the value added and 82.8% of investments (Financing for SMEs and Entrepreneurs – 2022, 2023).

On the other hand, six standard sustainable development goals are relevant for modern Portugal (No. 4, 5, 9, 10, 13, 14), while four of them are highly relevant to the European Union (Environmental implementation review – 2019, 2020; 2022, 2023):

- tasks related to quality education, training, and self-learning;
- gender equality, expansion of the rights and capabilities of women;
- creation and support of a stable infrastructure of territories, sustainable industrialization, and promotion of innovation;
- constant reduction of inequality, including between regions, primarily social;
- tasks related to climate change and the consequences of this;
- rational use of oceans, seas, and adjacent territories.

The study used modern statistics and analyzed the barriers that are relevant today and challenges for the Portuguese economy, as well as the prospects for developing the Portuguese economy in the context of the desire for sustainable development.

2 Materials and methods. Main barriers and challengers.

At the current stage of development, civilization faces a combination of problems that need to be solved, which is more important than ever. Economics is a part of human activity but is closely related to the security of existence and development of the world, the functioning of ecosystems and the environment, social and cultural values, etc.

Problems and barriers can lead to threats and actual risks to economic development. Identifying such barriers is extremely important for the full functioning of the country's economy, forecasting, preventing real threats and dangers, developing programs for the medium- and long-term development of territories, and so on. Along with specific barriers within the country, we can talk about global challenges that, interacting with each other, form the region's unique characteristics. It should be noted that the leading international trends in the development of the modern economy are greening, digitalization, and increasing human capital.

The historical barriers and challenges for the Portuguese economy are analyzed based on modern statistics, scientific publications, and Internet resources. Conventionally, the main obstacles to economic development can be divided into global, regional, local, external, and internal in the financial sphere.

Thus, five main groups of barriers to the sustainable development of the modern Portuguese economy can be identified (Table 1):

- Barriers related to natural resources and environmental factors;
- Barriers related to labor resources, as well as social and cultural factors;
- Barriers associated with the development of technological factors;
- Economic and infrastructural barriers;
- Political and legislative barriers.

Table 1. Main barriers and challenges for the modern Portuguese economy.

№	Type	Description
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1.	Natural resources and environmental factors	Depletion of resources, increase in extreme natural events, the number of natural-anthropogenic fires, sea level, changes in the regime of water bodies, depletion of soil, reduction in biodiversity, and so on.
2.	Labor force, social, and cultural factors	Uneven distribution of labor resources, reduction of people of working age, increase in the average of the population, emigration, brain drain, cultural and historical diversity between some regions, Portugal and EU, and so on.
3.	Technological factors	Digital skills of the population, ease of starting a high-tech business, high-tech research and production, use of big data and analytics, etc.
4.	Economic and infrastructural factors	Changes in the economy's structure, GDP indicators, inflation dynamics, foreign investment, transport support, etc.
5.	Political and legislative	Compliance with the legislative framework of Portugal and the EU, structural barriers, etc.

Source: the author

The wide spread of SMEs in the region also creates several specific challenges for the country's economy:

- The presence of a wide range of enterprises and an abundance of family-owned businesses.
- Some 'closedness' of enterprises (or their 'internal focus') leads to difficulties in assessing and analyzing the situation, including in environmental development.
- Significant regulation of SME management, based on control, curbing the introduction of new technologies and their insufficient development and difficulties with environmental certification.
- The gap between universities (as knowledge bearers) and SMEs, the difficulties of adapting the experience of large enterprises to SMEs, the widespread idea of the 'unprofitability' of investments in R&D, environmental technologies, and environmental development (Lopes et al., 2021), based on respect for the traditional approach to doing business.
- A complex communication system between management, employees, and clients based on personal relationships.
- Disagreements are resolved gently so as not to damage personal relationships, which can lead to avoidance of 'truth' as a cultural value (Hugh-Jones, 2016), leading to the development of less successful management forms, including environmental management.

3 Results

3.1. Natural resources and environmental challenges

Natural factors and challenges are critical because they underlie the economy of any country; ecosystems are the environment for the formation of human and their sociocultural characteristics. First, the leading natural challenges include significant elevation changes in a relatively small area located in a zone of high seismic activity. In addition to the fact that this determines the diversity of ecosystems, this requires a variety of economic management methods and, consequently, high costs, especially in light of the sustainable development of the territory.

Another essential feature is the depletion of the natural resource base due to the long-term exploitation of deposits, which leads to increased costs for modern production.

Portugal is one of the countries most affected by climate change. According to one of many scenarios, by 2100, the average temperature will increase by 4.3°C, maximum summer and autumn temperatures in Portugal will grow by eight °C, and maximum spring and winter temperatures by four °C (Carvalho et al., 2014). At the same time, annual precipitation will decrease by 30% in the south and about 15% in the north. The frequency of extreme precipitation events (winter-spring) will increase too.

Severe heat waves, hurricanes, and droughts have already affected Portugal, and their frequency and intensity are predicted to increase. All this will affect the frequency of natural-anthropogenic fires, the regime of reservoirs (used for water intake, for the needs of agriculture, industry, etc.), sea level rise (increased risks for the economy of coastal areas, Schleussner et al., 2020).

Thus, risks associated with natural conditions will cause a decrease in the quality of life (socio-economic challenges), a decrease in biodiversity, and a simplification of the structure of the environment (natural challenges), creating problems for human health, causing disruption in the functioning of systems (natural, economic, infrastructural, etc.), food supply chains (Santos et al., 2019) and so on.

Thus, the current and projected consequences of climate change are already having an impact and will affect both the economy as a whole (for example, a reduction in projected GDP), the workforce (for example, due to reduced working hours in the summer), tourism and, of course, agriculture.

3.2. Labor force, social and cultural challenges

Portugal is linguistically and religiously largely homogeneous, with the Portuguese making up 95% of the population (Pereira et al., 2015). From an administrative point of view, mainland Portugal is divided into three levels: 18 regions, including 278 districts and 4,050 parishes. Population density is much higher in the coastal area from the north of Setubal district and on the southern coast of Faro district. The highest population densities are found in the country's two largest cities: Lisbon and Porto.

The main challenges in this group can be considered the following:

- Uneven distribution of population density and labor resources (Almeida, 2018).
- In recent years, a decline in population (as well as in the labor force) has been observed despite some migration growth. According to one of the forecast options, by 2050, Portugal's population will decrease by more than 1 million people (at the same time, the sales market for products will also decrease). The average age will increase from 46.2 years to 52.2 years. However, migration growth will also increase. Population density will decrease, and the share of the urban population will increase to 78.5% (Table 2), leading to an even greater disproportion between the labor resources of the country's regions.

Table 2. Portugal population forecast.

Year	Population	Yearly, % change	Migrants, net	Median age	Fertility rate	Density, P / km ²	Urban pop. %	Country share of world, % pop
1960	8 844 645	+0.50	-65311	27.9	3.12	97	35.2	0.29
2020	10196 709	-0.33	-6000	46.2	1.29	111	66,5	0.13
2025	10 060 418	-0.27	+8000	48.1	1.29	110	68.8	0.12
2030	9 912 679	-0.30	+10000	49.8	1.29	108	71.1	0.12
2035	9 747 506	-0.34	+10000	51.0	1.29	106	73.2	0.11
2040	9 558 265	-0.39	+10000	51.6	1.29	104	75.1	0.10
2045	9 338 123	-0.46	+10000	51.9	1.29	102	76.9	0.10
2050	9 084 576	-0.55	+10000	52.2	1.29	99	78.5	0.09

Source: Portugal population 2022, 2023

- Compared to the demographics 1960, the labor market is now significantly smaller, but people have become considerably more skilled and educated.
- The workforce quality can be assessed using the Global Talent Competitiveness Index (Table 3), which also shows its weaknesses and problems. First of all, there is a lack of internships, training and retraining of employees, attraction and talent retention, motivation of employees, observed brain drain, problems with the financial skills of the population, transfer of international experience, etc.

Table 3. Some of the most important factors in the Global Talent Competitiveness Index - ranking factors and the 'weaknesses' of the rating- are highlighted in the dark.

Factor	Score	Rank	Factor	Score	Rank
Pupil-teacher ratio (primary education) ratio	12,07	13	Brain drain, 0-10	2,87	56
Pupil-teacher ratio (secondary education) ratio	8,84	4	Collected personal income tax, %	7,00	41
Apprenticeships, 0-10	4,74	45	Justice, 0-10	2,65	57
Employee training, 0-10	4,48	61	Graduates in sciences, % in science	27,82	17
Female labor force, %	49,70	3	Finance skills, 0-10	5,38	45
Attracting and retaining talents, 0-10	5,97	51	International experience, 0-10	4,94	48
Worker motivation, 0-10	4,94	53	Language skills, 0-10	8,39	8

Source: The global talent competitiveness index – 2022, 2023

- Through the challenges of recent times, the country's demographic policy was formed, the main directions of which are the following: reducing emigration from Portugal, overcoming the difference between the standard of living on the coast and in the interior of the country, taking care of the country's young population (and, accordingly, for the present and future labor resources), measures promoting the movement of the permanent population inland to work and live, and so on.
- In connection with the challenges of sustainable development, it is essential to note the cultural and historical features of the country despite globalization and migration processes, which, of course, have significantly enriched the region's culture. The country's cultural identity is essential here and is diverse among the European Union countries and its neighboring countries. Thus, according to Hofstede's cultural indices (Hofstede cultural dimensions, 2023), Portuguese society is characterized by a high power distance index (63), which is one of the highest in Europe, as well as an exceptionally high level (99) of uncertainty avoidance, a tendency to make conservative decisions, which directly or indirectly affects the style of doing business and responding to challenges for the country's economy.
- According to the cultural parameters of E. Meyer (Meyer, 2023), Portuguese society is characterized by high conservatism, which is also a challenge for the modern world and influences, for example, the introduction of new technologies and innovations, which is especially important when striving for sustainable development.

3.3. Technological, economic, and infrastructure challenges.

Technology plays a leading role in the country's economic development, especially in connection with the sustainable development of the region's economy. Digitalization and the introduction of 'smart strategies' contribute to the improvement of the production process, logistics, cost optimization, increased production efficiency, the introduction of green technologies, the preservation of ecosystems, and the sustainable development of territories.

Thus, the direct or indirect impact of technological challenges on the sustainable development of the country's economy is noticeable (Table 4). Evident weaknesses for the Portuguese economy are, for example:

- Poor development of broadband Internet;
- Reduced number of Internet users;
- Poor smartphone skills;
- Insufficient use of big data technologies;
- Lack of information security;
- Great entrepreneurial fear of failure;
- Low flexibility of companies and so on.

Table 4. Some indicators of the development of technologies (including digital) in Portugal and their assessment, such as the 'weaknesses' of the rating, are highlighted in the dark.

Factor	Rank	Factor	Rank	Factor	Rank
Digital (Tech) skills	20	Intellectual property rights	29	Opportunities & treats	52
Total expenditure on R&D, %	25	Funding for tech development	42	Attitudes toward globalization	22
R&D productivity by publication	29	Communications technology	08	Use of big data & analytics	61
Scientific and technical employment	26	Mobile broadband subscribers	58	Entrepreneurial fear of failure	44
High-tech patent grants	35	Wireless broadband	52	Agility of companies	59
Starting a business	31	Internet users	47	Knowledge transfer	41
Enforcing contracts	29	High-tech exports	51	World robots distribution	31
Immigration laws	02	E-participation	34	Cyber security	50
Development & application of tech	29	Internet retailing	35	Government cyber security capacity	16
Scientific research legislation	28	Smartphone possession	51	Privacy protection by law content	01

Source: World competitiveness ranking - 2022, 2023

Portugal's eco-innovation index is slightly lower than the EU average (especially eco-innovation input, output, and resource efficiency). Portugal also faces significant challenges and investment needs in financing technology development. The 'Portuguese Competitiveness Landscape' has several weaknesses (World Competitiveness

ranking – 2022, 2023). The problems with management practices, the labor market, productivity and efficiency, tax policy, public finances, and internal markets are evident.

However, these are challenges and directions for economic development because a successful transition to a circular economy requires social and technological innovation. The full potential of the circular economy can be realized if it is created across all product value chains.

According to the 2022 report (World Competitiveness Ranking – 2022, 2023), from a list of 15 indicators, several Portuguese business leaders were asked to select five critical factors for the attractiveness of the Portuguese economy. According to the study, the challenges posing problems for the economy are the following: weak R&D culture, declining quality of corporate governance, poor tax regime, legal environment, declining economic dynamism, and government competence.

As stated in another report (The global risks report – 2023, 2023), there are currently five main risks identified for the Portuguese economy:

- Rapid and/or sustained inflation (economic risk).
- Cost-of-living crisis (social risk).
- Debt crises (economic risk).
- Severe commodity price shocks (economic risk).
- Prolonged economic stagnation (economic risk).

Access to finance remains a challenge for SMEs, mainly in terms of circulation of capital; there is a problem with delinquencies (SME performance review – 2022, 2023). To support on-lending to SMEs, a bank credit line was activated, managed by the Financial Institution of Devolvement (IFD) in partnership with some banks. At the same time, the period for reducing SME loans is up to 12 years with a four-year grace period. Before this (2019), the economy had no such instruments.

3.4. Political and legislative challenges.

One of the critical challenges for the Portuguese economy is problems with the legal environment, particularly the harmonization of the legal environment of the EU and Portugal and the integration of Portugal into global trends. This is especially relevant for the environmental sphere in connection with sustainable development. The main barrier here is bringing the different rules into uniformity across EU countries. For example, the timing of the publication of environmental reports and, accordingly, the provision of publicly available reporting (across the EU countries) varies greatly. If this is an annual report in Portugal, then Hungary, Finland, or Poland, for example, are different periods.

The next group of problems concerns Portugal directly – they require solutions at the state level (Environmental implementation review – 2022, 2023); these include:

- The imperfection of the waste management system of enterprises and the development of the potential of a circular economy;
- Weak effectiveness in protecting nature from the impact of enterprises;
- Insufficient monitoring of the implementation of maritime strategies. Since Portugal's naval border is 1,793 km long and the country's economic activities are often closely linked to the marine environment, this financial challenge is significant;
- Lack of a unified platform for the development of environmental management of enterprises, especially SMEs;
- Weak standardization and adaptation of successful management systems, etc.

4 Conclusion

Studying the barriers and challenges for the country's economy in the context of its sustainable development is extremely important; this allows us to prevent the emergence of real economic risks and serious consequences associated with their implementation. At the same time, due to their complexity, modern challenges to the sustainable development of the country's economy require studies both in space and time. Thus, the most significant barriers to the development of the Portuguese economy in the context of sustainable development are:

- Structural barriers that limit competition between enterprises. For example, restrictions associated with highly regulated professions and onerous licensing requirements. These challenges will be mitigated by the Recovery and Resilience Plan (RRP) Economic Justice and Business Environment.
- The digitalization index of the Economy and Society shows that the level of basic digital skills of the population remains at a reduced level of 52%, which is below the European Union average (56%). In addition, the share of Portuguese SMEs with core digital intensity is 51%, lower than the European Union average of

60%. The national digital initiative (INCoDe.2030) was revised to improve digital skills, and the Eu Sou Digital program (European innovation scoreboard - 2022, 2023) was launched.

- Portugal is a moderate innovator, with low scores for company investment and the share of small and medium-sized enterprises engaged in innovation (European innovation scoreboard - 2022, 2023). This is reflected in the small number of patent applications, i.e., low patent activity, low innovation costs per employee, and reduced innovation in business processes, often in SMEs.
- Access to finance remains a challenge for Portuguese SMEs, as well as lower (relative to the European average) performance of Portuguese SMEs (SME performance review 2022/2023, 2023).
- Significant technological problems, such as relatively weak environmental technologies in enterprises, especially SMEs. The predominance of SMEs in the structure of enterprises in the region determines the implementation of green practices and environmental management as more informal and spontaneous, which makes it difficult to measure, analyze, and forecast. They differ significantly from enterprise to enterprise (Rodrigues, Franco, 2023).
- The lack of natural and labor resources leads to the emergence of specific resource-saving measures (which fit well with the culture of 'saving thinking'), the forced introduction of new technologies, and several demographic policy measures described above.
- Sustainable economic development presupposes a connection between socio-economic processes and natural ones. However, if the first factors have their own clear state (administrative) boundaries, the boundaries of natural processes most often do not coincide with them, and decisions are needed at the regional and global levels (interstate and transboundary).

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