QUALITY OF THE ENVIRONMENT - A FACTOR OF SUSTAINABLE GROWTH

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Abstract

In this article, the authors undertake a study of the environment in the Member States of the European Union in its complexity, as well as in each individual Member State. Attention is paid to the way in which the use of the environment and earth on the surface of the globe is related to the need to protect them. The authors highlight a number of issues related to the land used by the 27 member countries of the European Union (not mentioned in the 28th country that is theoretically in Brexit). Then, taking into account that the land can be used for agriculture, services, recreation and residential space, it is occupied by forests, is mined or used for transport or any other use. In this context, a study is made on how the land is used and the consequences that the unreasonable use has on it. Of course, the emission of gas in industrial activity and peasant households is another element to which the authors pay attention, in order to highlight the high polluting level of both industrial activity and peasant farming activity. Starting from the fact that in the economic activity, in the economic and industrial processes carbon dioxide emission is an obviously polluting and harmful element of the life of the population, the existing situation and the measures to be taken to rationalize the effects of these economic activities, very useful and beneficial to the economy, but in a special way it is polluting. A comparative study is being carried out on Member States highlighting countries with particular advances in reducing the effects of carbon dioxide emissions and others with the necessary emphasis on undertaking measures to avoid carbon dioxide emissions. The study is well presented, accompanied by graphs and series of data that clearly certify the conclusions that we can draw from the published data.

Keywords: *environment, land, gas emissions, natural resources, productive resources*

JEL Classification: O13, Q24

Introduction

In the European Union system, the environment is an important element that ensures the economic development of a country, the conditions of growth, but at the same time we have to find that there is a fairly serious interdependence between the environment and the economy. This correlation between the environment and the economy includes the impact the economy has on environmental conservation, but at the same time it also represents the environmental impact on the economy. Consequently, the analysis of the role of the environment must be achieved by considering how the economy is organized in such a way as to ensure the protection of the environment. The economic environment can be analyzed and correlated so as to eliminate polluting activities, ensure the use of natural resources, create the conditions for the government and households to carry out environmental protection activities. It is also another element that relates to the costs involved in protecting the environment and hence how effective economic progress is, given that an important element must be protecting the environment. In other news, the correlation between the environment and the economy can also be reduced to how important and important the production and consumption of natural resources and energy is, so that environmental protection is achieved.

Literature review

Anghelache and Anghel (2017) carried out an analysis of the size and evolution of the population, total of the European Union as well as of each individual Member State, and especially the extent to which evolution represents a guarantee of labor resources. Anghelache, Anghel et al. (2017) studied the European Union's strategy for industry, construction and services, based on the principle of supporting a business-friendly environment. Leea and Brahmasreneb (2013) examines the long-term equilibrium relationship between tourism, CO2 emissions, growth and foreign direct investment (FDI). Strand (2017) performs an analytically coherent analysis of factors that affect the value of marginal forest losses, focusing on tropical forests. Angelsen (2010) refers to policies to effectively reduce deforestation, stating that a spatial distribution of the remaining forests and intensive production areas should contribute to the reconciliation of conservation and production objectives in the future. Helsley and Strange (2007) consider that many changes in economic and social circumstances have an impact on cities and clusters in industry, as cluster is a substitute for vertical integration. Kahn and Mansur (2013) analyze the industrial production sectors that differ according to their energy intensity, the labor-to-pollution ratio. Quamrul and Michalopoulos (2015) examine the climatic origin of the dissemination of Neolithic agriculture between countries

and archaeological sites. Steen-Olsen (2012) uses a multi-region input-output model to assess three types of environmental footprint for EU Member States. Seppala et al. (2011) have created a model that can be used to analyze the relationship between material flows, environmental impact and the economy. Wilting and Vringer (2009) present a global picture, comparing the results for CO2 or greenhouse gas emissions and land use for 12 areas of the world, including 87 countries and regions. Bringezu et al. (2009) quantify the total area of land needed to meet the German consumption of agricultural products for food and non-food consumption and estimates the associated greenhouse gas emissions, especially those caused by changes in land use in tropical countries.

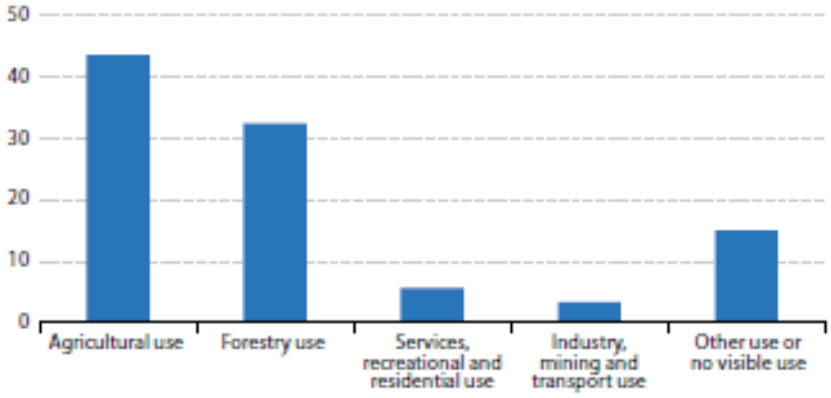
Research methodology, data, results and discussions

1. The use of the environment, of the earth existing on the surface of the globe or in the European Union

The land, the earth is the most important biological and human element of the planet. The population lives on the land and the land provides the conditions for the survival of humanity. Agriculture, forests, industry, transport, construction, housing and any other service can not be carried out without the use of land and economic resources. The land is also an integral part of the ecosystem and is difficult to separate in the context of biodiversity and harmful emissions. When talking about the earth, we can consider two concepts. A first concept is that the Earth refers to the biophysical coverage of the planet. The second concept is that the land indicates the socio-economic conditions for its use for agriculture, forests, recreation, residence, and so on. Forests and areas occupied with vegetation account for about 37.1% of the total land area, referring to the total in the European Union. Areas covered with forests are much better represented in the northern part of the continent and we meet countries with more than 60% forest-covered areas such as Finland, Sweden or Slovenia. Denmark, Hungary and other countries in the area are states that account for about 50% of the total forest area. Natural vegetation and agriculture dominate in many countries, such as Ireland over 63%, the UK over 43%, and Malta and Belarus have approximately 32.6% covered areas. The largest area in the European Union is used for agriculture. This represented about 43.5% of the total area. Areas covered by forests cover about 32%, while for services, residential buildings or leisure activities, 5.7% are used. Figure 1 graphically represents, in percentage terms, the way in which the land use categories are divided on the total area of the European Union member countries.

Main land use by land use type, EU-27, 2012 % of total area)

Figure 1

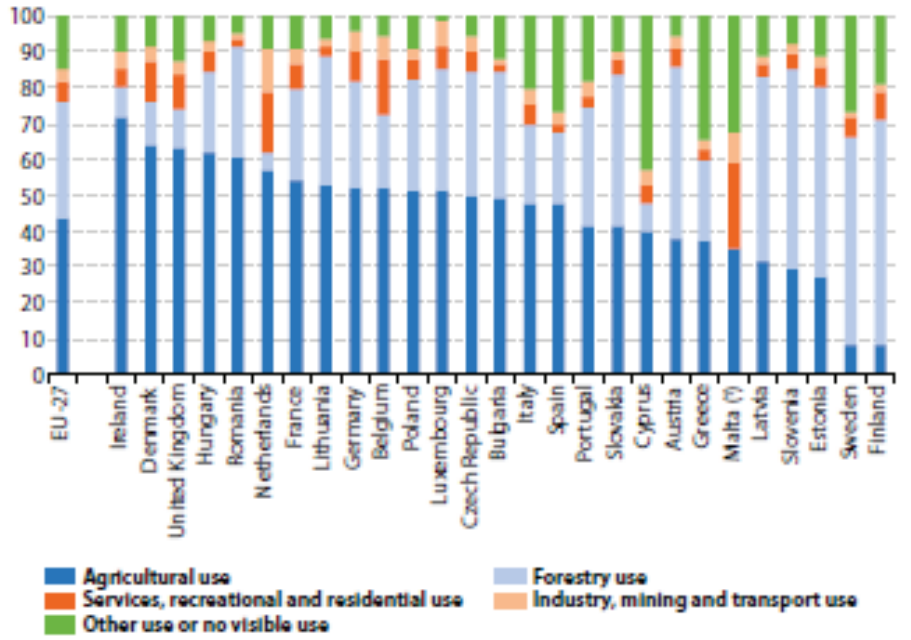


Source: Eurostat - Key figures on Europe 2016, p. 153

It is found that over 75% of the total land is used for agriculture and for the forestry system. 13 states in the 28 EU Member States have more than half of the land covered by agricultural land. In Ireland over 71% of the area is for agriculture in Denmark, Great Britain, Hungary, Romania over 60%, while Latvia, Lithuania, Estonia, Finland, Sweden and many other states covered the area with 50% agriculture. Small areas were for residential, recreation, mining, transportation and other activities across countries. Figure 2 shows graphically the primary use of land by types of use.

Primary land use by land use type, 2012 % of total area)

Figure 2



Source: Eurostat - Key figures on Europe 2016, p. 154

In the case of Romania, we find that over 60% is destined for agriculture, almost 30% of the forestry activity, and other services, recreational activities, residential construction, mining, transport network and others covered the difference of almost 9%. The Interpretation of the Graph illustrates the way land is used in the 28 Member States of the European Union. It is noted that in Finland and Sweden for agriculture, very little land is used, about 9 percent, the largest share being for forestry activity, hence land covered with forests.

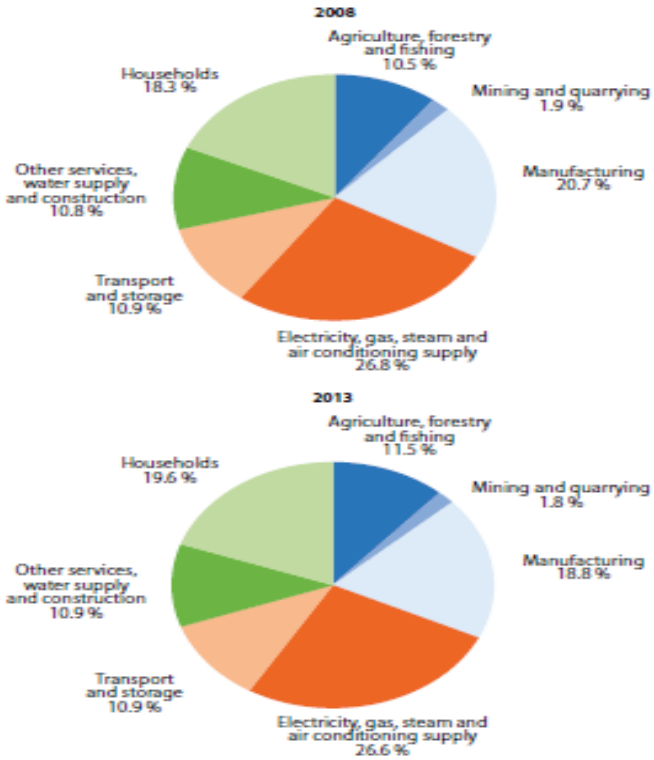
2. Effect of gas emissions from industrial activity and peasant farms

In general, the issue of gas involves three aspects. The gas emissions from industry and households with the highest share. These gases are carbon dioxide, nitrogen oxide or methane. The gas emission generated by industry and households over the period 2013-2016 was 4.61 billion tons of carbon dioxide equivalent. At the same time, electricity, gas exploitation, conditioning of other activities had a very wide sphere of gas emissions, which was over 26% of the total gas emissions. There are groups of activities that are accompanied by the

emission of pollutants that have a particularly polluting effect and need to be controlled, must be limited and reduced in order to ensure the best possible protection of the environment. Of course, transport activities are also polluting, especially those using fossil fuels, producing a number of negative effects on the quality of the environment. Also, the issue is to take measures to capture, neutralize, cancel these polluting emissions. Figure 3 presents graphically for the 2 years, 2008 and 2013, the emission of gases determined by the economic activities, showing the percentage of the emission of polluting gases by the activities carried out. It is found that the most polluting is the production of electricity, natural gas, steam and air conditioning production, which was 28.6% in 2008 and 26.6% in 2013. Manufacturing output is ranked second in 2008 (20, 7%) and household activity in 2013 (19.6%).

Emissions of greenhouse gases by economic activity (% of total emissions, in CO2 equivalent)

Figure 3

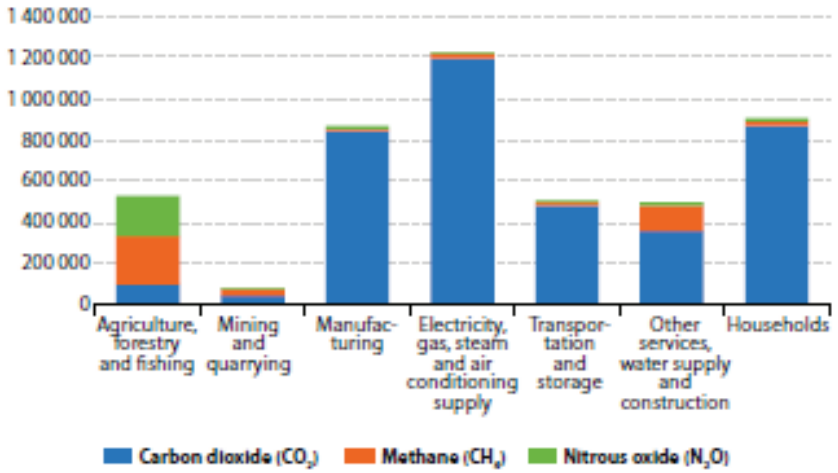


Source: Eurostat - Key figures on Europe 2016, p. 156

Other activities and pollution are shown in the chart, but this is a percentage of total gas emissions. It is important that the environmental protection measures achieve a reduction in total gas emissions. Green certificates, which create resources to ensure a reduction in greenhouse gas emissions, protect the environment, thereby preserving the living and health conditions of the population, are also used in this respect. Figure 4 shows the share of gas emissions from polluting economic activities.

Emissions of greenhouse gases by economic activity and after pollutant, EU-28, 2013 (in thousands of tonnes of CO2 equivalent)

Figure 4



Source: Eurostat - Key figures on Europe 2016, p. 157

It is also from this graphical representation that carbon dioxide emitted mainly from activities related to electricity, gas, vapor and air conditioning, then to individual households, to the manufacturing activity, as well as to the transport network . In agriculture, the emission of gases in the three categories, carbon dioxide, methane and nitrogen oxide, methane is found to be the most common, followed by nitrogen oxide and finally carbon dioxide that is attenuated by the photosynthesis process of plants.

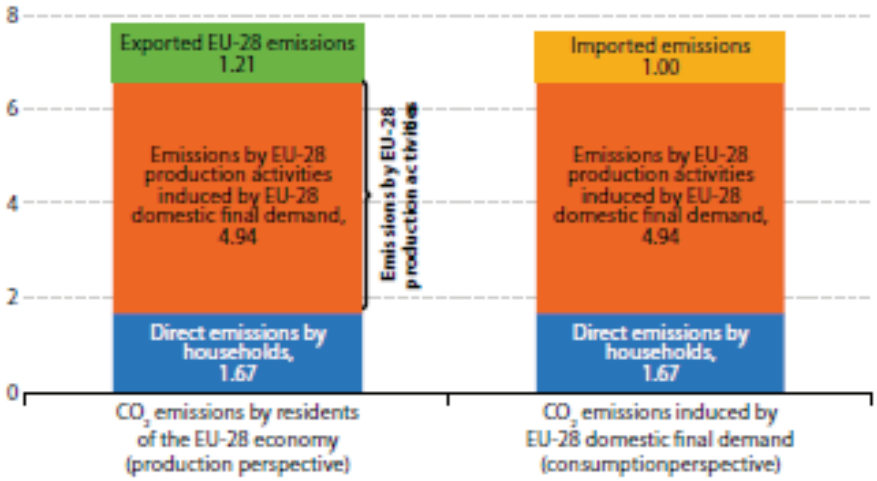
3. Analysis of the effect of carbon dioxide emissions on production activity

Carbon dioxide is the most common gas as emanation, being the one to be controlled and steps taken to ensure that these emanations are reduced as much as possible. In any economic activity it is excluded to meet

low emissions, because chemical, natural or production processes have the effect of producing carbon dioxide. In the investment activities, whether it is civil engineering or the construction of factories and factories, the use of installations, vehicles and others, carbon dioxide is omnipresent, and therefore the EU program foresees a series of technological measures can provide a reduction of these emanations and especially their neutralization. Carbon dioxide emissions can also be analyzed from the point of view of the evolution of the economy, meaning that no matter how many measures are taken, they ultimately have the effect of emitting polluting gases. Of course, there are a number of specifications and a series of data that can analyze what is carbon dioxide production per person, the data being correctly highlighted in Figure 5, where we find the gas quantities per person expressed in tons per person.

CO2 emissions - from production and consumption perspective, EU-28, 2012

Figure 5



Source: Eurostat - Key figures on Europe 2016, p. 158

Thus, in the production activity in the European Union, the carbon dioxide emission is 4.94 tons / person. Direct emissions from individual households, 1.67 tons / person, and exports, green certificates, 1.91 tons / person. On the other hand, the issue of gas is also presented in terms of the import that is made in consumption, ie the consumption is from imports, from domestic households or domestic activities, which are made in each country in the total of the Union European. Table 1 summarizes the production and

imports of gas produced by producers on various economic activities. Thus, the pollutant gases in final consumption, internal or imported consumption, the gross domestic or imported capital formation and the total economy in total economy, both in absolute figures expressed in kg CO2 per person and as a percentage of total structure of all significant activities , selected and analyzed.

Domestic and imported CO2 emissions induced by final use of products, EU-28, 2012

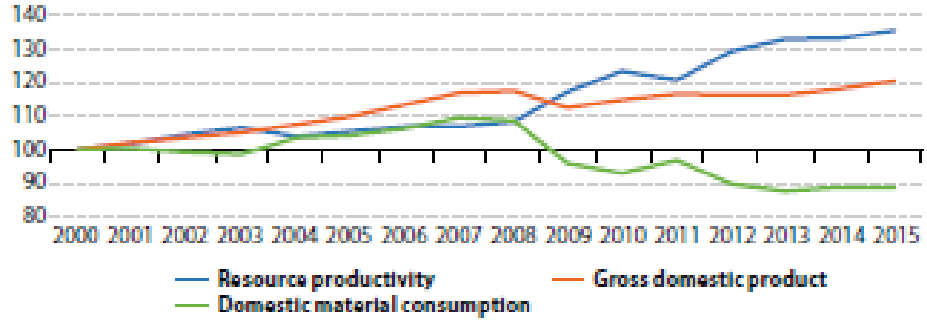
Table 1

CPA product	Final consumption expenditure		Gross capital formation		Domestic final use, total	
	Domestic emissions	Imported emissions	Domestic emissions	Imported emissions	Global emissions	
	(kg of CO_2 per inhabitant)					(%)
Electricity, gas, steam and air-conditioning	928	42	3	0	973	12.8
Constructions and construction works	29	4	565	84	682	9.0
Food products, beverages and tobacco products	329	60	4	1	394	5.2
Coke and refined petroleum products	139	118	8	7	271	3.6
Retail trade services, except of motor vehicles and motorcycles	194	23	8	1	225	3.0
Accommodation and food services	196	27	0	0	223	2.9
Public administration and defence services; compulsory social security services	185	26	1	0	212	2.8
Wholesale trade services, except of motor vehicles and motorcycles	151	25	31	5	212	2.8
Land transport services and transport services via pipelines	187	17	5	0	210	2.8
Real estate services (excl. imputed rents)	170	21	4	1	197	2.6
Human health services	159	27	0	0	186	2.4
Motor vehicles, trailers and semi-trailers	84	23	44	12	163	2.1
Air transport services	127	32	0	0	160	2.1
Education services	99	9	0	0	108	1.4
Products of agriculture, hunting and related services	77	19	7	2	104	1.4
Machinery and equipment n.e.c.	2	1	68	32	103	1.4
Scientific research and development services	10	2	66	16	94	1.2
Textiles, wearing apparel and leather products	38	50	1	2	91	1.2
Other products	822	205	205	108	1339	17.6
Total	3925	730	1019	271	5945	78.1
Direct emissions by private households	1666	0	0	0	1666	21.9
All CPA products plus direct emissions by private households	5592	730	1019	271	7612	100.0

Source: Eurostat - Key figures on Europe 2016, p. 159

4. Use of materials and resources to increase labor productivity

Qualifying resources that ensure labor productivity is a relationship between economic activity and consumption of natural resources so that the use of these resources is made as efficient as possible. Natural resources include biomass, metal ores, non-metallic ores, energy materials, etc. Energy resources are those that ensure productivity, which is found through the consumption of materials, recorded in the concrete results of each country's gross domestic product. In the European Union, the increase in productive resources was from 1.48 euro / kg in 2000, reaching 2 euro / kg in 2015

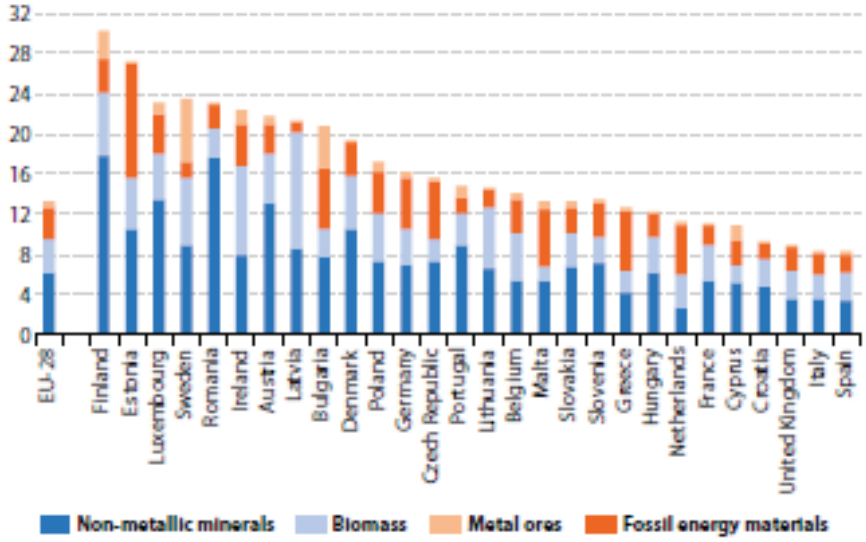


Source: Eurostat - Key figures on Europe 2016, p. 160

We find that the most significant increase was recorded in the resource utilization productivity, which grew by about 36% from 2000 to 2015, then the increase in gross domestic product, which increased over the same period by about 20 percent, and the reduction in material consumption which, with some fluctuations in the period 2003-2009, started to decline, being a depreciation in 2015 compared to 2000, of about -17 percent. Graph 7 summarizes the production values expressed in tonnes per capita by material consumption categories..

Domestic material consumption by main material category, 2015 (tonnes per capita)

Figura 7



Source: Eurostat - Key figures on Europe 2016, p. 161

In Finland, the share is the highest, almost 30%, followed by Estonia, Luxembourg, and so on. Romania having a consumption of non-metallic minerals of about 18%, then biomass of about 5%, and metal ores or fossil energetic materials in fairly reasonable quantities. Interpretation can also be done for the other states that we have in this graph.

Conclusion

The correlation between the environment and the economy can also be reduced to the relationship between how important and great is the production and consumption of natural resources and energy so as to achieve environmental protection. Environmental protection programs at European Union level have been established since 1970. Environmental protection programs refer to the measures contained in the European Parliament and Council Decision 1386 of 2013 establishing conditions under which, according to the title of the program, we can survive well within the limits of protecting the planet. Environmental programs are to be extended by 2020 and these include the existing guidelines in the strategic initiatives so far, namely environmental efficiency, biodiversity strategy and the need to reduce carbon emissions.

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