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Covid-19 and sustainable development in Europe: a temporal comparison

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INTRODUCTION

The recent Covid-19 pandemic has shown the profound criticalities of the globalization phenomenon. In fact, the increasing interdependence caused by globalization has fostered both positive and negative effects. The most disastrous effects can be seen at the economic and environmental levels. Indeed, at the economic level, growing interdependence has fostered the development and proliferation of economic crises around the world with devastating effects on small economies. While, on the environmental side, globalization has led to an increase in CO_2 emissions resulting in rising temperatures and loss of biodiversity.

To solve these critical issues, the concept of sustainable development has developed over the past century. This phenomenon, in fact, aims to reconcile economic and social development with environmental protection, social equity and the rights of future generations. Since the theorization of this concept at the institutional level in 1987 with the famous Brundtland Report, numerous international measures have been taken over the years. The latest of these is the 2030 Agenda, which through 17 goals, the so-called Sustainable Development Goals (SDGs), aims to achieve certain targets both nationally and internationally by 2030. Implementing these goals turns out to be crucial because the current phenomenon of globalization cannot be considered sustainable. In fact, globalization, in addition to causing increased inequality due to the inability of state welfare systems, has greatly increased environmental degradation through the exponential increase in the production and consumption of unsustainable food products. In addition, globalization by encouraging industrialization has fostered the emergence of two phenomena: deforestation and desertification.

The aim for this paper is to investigate the economic, social and environmental impacts of the Covid-19 pandemic on the sustainable development levels that some countries on the European continent have achieved. For doing so, tendencies that have occurred since 2015, the year of promulgation of the 2030 Agenda, and 2020, the year of the pandemic's emergence, will be studied. Additionally, this study seeks to provide an overview of country-level measures taken by governments and to provide an identification of what might be critical to achieving effective and efficient levels of sustainable development. Therefore, this study does hope to be considered in the implementation of sustainable effective policies.

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THEORETICAL BACKGROUND

The increased interconnectedness fostered by globalization has increased and facilitated the spread of infectious diseases such as Covid-19. For this reason, a few months after its discovery, Covid-19 disease was declared a global health emergency.

This pandemic caused numerous disastrous economic and social effects. First and foremost, the social distancing strategies adopted by almost all countries caused a decrease in production, consumption, employment, and the entire supply chain. The two groups most affected by this crisis have been women and young people. The former, in fact, being predominantly employed in the third sector have found themselves unable to do their work remotely. In addition, forced domestic confinement has increased the likelihood of domestic violence. While as for the second category, young people, they were greatly affected by the forced digitization of the school system. In fact, as many as 1/3 of students found themselves excluded from education because they did not have the technological tools or an internet connection.

At the health level, the pandemic by severely overburdening hospital facilities has greatly diverted attention from other diseases by reducing funding for research and prevention programs. At the environmental level, on the other hand, the pandemic has had both positive and negative effects. Indeed, on the one hand there has been a decrease in CO_2 levels, yet on the other hand there has been a general increase in energy consumption and a slowdown in infrastructure construction.

Methodology

In this paper, 17 indicators were selected from the Eurostat database, taken for three different years: 2015, 2018 and 2020. The Adjusted Mazziotta Pareto Index (AMPI) method was chosen to aggregate these indicators. The first step to follow in constructing the index is to standardize the variables:

$$r_{ij} = \frac{(x_{ij} - Min_{xj})}{(Max_{ij} - Min_{xj})} 60 + 70$$

At this point it is possible to proceed with the calculation of the reference goalposts:

$$\begin{cases} Min_{x_j} = Rif_{x_j} - \Delta_{x_j} \\ Max_{x_j} = Rif_{x_j} + \Delta_{x_j} \end{cases} \quad \text{where:} \quad \begin{cases} \Delta_{1x_j} = Sup_{x_j} - Rif_{x_j} \\ \Delta_{2x_j} = Rif_{x_j} - Inf_{x_j} \\ \Delta_{x_j} = (\Delta_{1x_j} - \Delta_{2x_j})/2 \end{cases}$$

The values will be roughly in the range (70;130).

Finally, we proceed with the calculation of the index:

$$AMPI_i^{+/-} = M_{r_i} \pm S_{r_i} cv_i$$

The +/- sign indicates the sign of the relationship between the j-th indicator and the phenomenon to be measured.

Cluster analysis will also be used to construct a cartogram. It is a tool used in various research fields that enables the classification of large amounts of information into manageable sets. In this study we will make use of the so-called Ward's method one of the hierarchical clustering techniques.

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Results and Discussion

The European country to achieve the highest level of sustainable development in 2020 is Sweden due to the Swedish government's increasing focus on sustainable issues. In fact, Sweden was the first country to enact a law for environmental protection in 1967. Moreover, in recent years this country has set very ambitious goals such as eliminating fossil fuels by 2045. To do this it has established a special governmental body.

The other countries that placed in the top 5 are France, the Netherlands, Germany and Finland. All of these countries, like Sweden, have implemented numerous measures and ad hoc bodies to implement national sustainable development levels. Moreover, these countries' high attention to sustainable issues is evident from the fact that they tend to confirm their European ranking positions over the years. In the last positions, however, are Greece, Lithuania, Latvia, Bulgaria and Romania.

Spain is the country to have shown the highest variability between 2015 and 2020. This deterioration could be due to two reasons: the phenomenon of desertification and Spain's socioeconomic conditions before and after Covid-19. In fact, Spain is the country at greatest risk of desertification in Europe. This is due to three different reasons: excessive urbanization, excessive construction of transportation infrastructure, and unsustainable water use. In addition, the phenomenon of desertification in Spain has worsened significantly since 2000 until now due to global warming and the territorial imbalance present between rural/urban and inland/coastal areas. Regarding the effects caused by the pandemic, Spain has been one of the European countries most affected by the pandemic. In fact, the economic crisis caused by the pandemic constitutes the most severe recession in 80 years and the worst in Europe. This was aggravated by Spain's unstable political condition: from 2015 to 2020, in fact, the Iberian Peninsula had as many as 3 different governments.

In second position are Hungary, Luxembourg, and Slovakia. However, the most emblematic case is that of Italy. In fact, Italy despite having a similar economic and political situation to Spain, improved by one position between 2018 and 2020. This could have two possible explanations:

- The effects of measures taken over the years are beginning to be seen;
- The full devastating effects of Covid-19 are not yet visible in the short term.

Regarding the first reason, the Italian government has implemented several measures over the years, including the Plan for the South 2030. This measure aims to bridge the strong territorial gap present through five priority missions: 1) a youth-focused South; 2) a connected and inclusive South; 3) a South for the ecological turnaround; 4) an innovation frontier South; and 5) a South open to the world in the Mediterranean. Regarding, however, the second explanation, Italy, in the context of the Next Generation EU, has adjusted the so-called National Recovery and Resilience Plan (PNRR) to try to curb the economic, social and environmental effects for the medium to long term of the pandemic. Thus, the Covid-19 pandemic has caused a severe economic and social crisis and a general deterioration in sustainable development levels. For this reason, countries on the European continent belonging to the European Union have issued national plans to try to cope with all the harmful effects of the pandemic. All these national plans have been included in the larger and more ambitious European project: the Next Generation EU (NGEU). This instrument consists of a series of temporary allocations worth 800 billion euros. These funds are aimed at a greener, digital, resilient Europe prepared for both past and future challenges.

Conclusion

The study demonstrated the presence of different territorial specificities and highlighted the presence of countries (Croatia, Estonia, Greece, Poland, and Romania) that have not improved their levels of sustainable development over the years. Therefore, the study highlighted the need for intervention and targeted actions to achieve adequate levels of sustainable development.

The study has both strengths and weaknesses. The strength lies in the fact that the chosen method allows for an absolute time comparison. However, this method aggregates indicators with different variability.

Finally, this study provides numerous insights for future studies. First and foremost, it can be replicated at the national level. In addition, one approach to follow in future studies could be partial correlations.