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**Towards Sustainable Development in the European Labour
Market by Suppressing Corruption**

Simona Roxana PĂTĂRLĂGEANU¹,
Marius CONSTANTIN^{2*}, Mihai DINU³

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Abstract

The 2030 Agenda for Sustainable Development adopted by the United Nations includes one specific goal referring to decent work and economic growth, more specifically: the eighth goal. Among others, this goal calls for opportunities for full employment and decent work for everyone, promotion of equal labour rights and eradicating discrimination. Considering the need to pursue this sustainable development goal, the progress made towards this regard can be measured using the following indicator: young people neither in employment nor in education and training. Given that corruption negatively affects schooling years and causes difficulties in the labour market, the main objective of this research paper is to quantify the impact that the corruption perception index has on achieving the eighth sustainable development goal in the European Union, more specifically on the indicator that measures the progress made in this regard: the share of young people aged 15-29 who are not in the education system and who are unemployed out of all the young people aged 15-29. In this study, the previously mentioned indicator represents the dependent variable in the designed econometric model, based on cross-sectional data, while the corruption perception index represents the independent indicator. The main findings of this research include: taking 2019 as the reference year at the level of all the 28 states of the European Union, young women encounter difficulties in finding a job or remaining in the education system due to corruption (57.53%), while young men (18.87%) do not encounter difficulties in this respect as much as women do. In order to combat gender discrimination and to ensure progress towards the eighth sustainable development goal, the European Union should fight corruption by establishing e-government solutions, fostering international cooperation, improving transparency in the fight against corruption and strengthening the civil society engagement in the field of corruption suppression.

Keywords: sustainable development, corruption, European labour market, gender discrimination

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¹ Bucharest University of Economic Studies, Bucharest, Romania, rpatarlageanu@eam.ase.ro.

² Bucharest University of Economic Studies, Bucharest, Romania, constantinmarius15@stud.ase.ro.

³ Bucharest University of Economic Studies, Bucharest, Romania, mihai.dinu@eam.ase.ro.

* Corresponding author.

1. Introduction

Corruption represents a complex issue, being present in almost all sectors and causing serious damage to the individual, the economy, as well as to humanity as a whole (Frolova et al., 2019). Corruption poses a threat to all the countries around the world, since it contributes to governmental instability, it erodes trust and threatens the economy by undermining fair competition and, even worse, it discourages investments and trade (Rose-Ackerman and Palifka, 2016). Owusu, Chan and Hosseini (2019) consider that the lack of knowledge and political barriers have a strong impact on the administrative anti-corruption measures.

2. Problem Statement

Rose-Ackerman and Søreide (2011) demonstrated the importance of studying corruption and corruption perceptions in conjunction with sustainable development, claiming that corruption has the potential to undermine sustainable development in many ways. It has been demonstrated that high-income countries are more strongly and negatively affected by the corruption phenomenon than low-income countries, as far as the sustainable development goals and the economy are concerned (Hoinaru et al., 2020). Sustainable development can be improved through various methods, including: fostering digitization via increasing tax compliance (Fanea-Ivanovici et al., 2019); consolidating er people's and especially the entrepreneurs' trust in public officials and in the business legislation (Popescu, Davidescu and Huidumac, 2018). Unfortunately, corruption is correlated with employment in the sense that high levels of corruption imply high levels of unemployment (Beltrán, 2015). Youth unemployment is considered to be specific to countries with high public debt, as a consequence of corruption (Tomić, 2018).

The United Nations (2015) claims that the 2030 Agenda for Sustainable Development represents an action plan that seeks to strengthen universal peace and eradicate poverty in all its forms. The 8th goal on the 2030 Agenda for Sustainable Development is called "Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all" and, among others, it refers to achieving full employment and decent work for all women and men, including for young people and persons with disabilities, along with equal pay for work of equal value. Moreover, this objective also mentions the need to substantially reduce the proportion of youth not in employment, education or training. Considering this context, an emerging issue in the field of sustainable development refers to the impact of corruption and corruption perceptions on achieving sustainable development.

The novelty factor of this research paper is ensured by the fact that a quantitative research method was used in order to study the implications of corruption on specific indicators, which measure the progress made towards a more sustainable future in the European Union, according to principles within the 2030 Agenda for Sustainable Development.

3. Research Questions/Aims of the research

Each state of the European Union must contribute and quantify its effort made towards meeting specific values of SDGs indicators, as described in the 2030 Agenda for Sustainable Development (Firoiu, 2019).

In this case, the research questions are the following: Is the perception of corruption correlated with unemployment in the European Union, from the perspective of a sustainable development indicator that quantifies the progress made in this direction: “young people neither in employment nor in education and training” (abbreviated: SDG_08_20)? Is the corruption perceptions index able to successfully predict young people neither in employment nor in education and training, in the case of the European Union members?

The objective of this research paper is to quantify the impact of the corruption perceptions index on the young people neither in employment nor in education and training, filtered by gender, at European Union level, in 2019.

Considering the literature review, the hypothesis is that SDG_08_20 is positively correlated with the corruption perceptions index in 2019, when analysing the indicators for the 28 European Union members.

4. Research Methods

The statistical data used in this research were obtained from two database sources: Eurostat and Transparency International. The indicators analysed in this paper are the following: SDG_08_20: young people neither in employment nor in education and training, per gender (Eurostat, 2020) and the corruption perceptions index (Transparency International, 2020). The data were downloaded from the official databases in May 2020 and later processed, based on the EViews requirements. EViews is a software that provides access to powerful statistical, forecasting, and modelling tools.

SDG_08_20 represents one of the key indicators that quantify the progress made towards achieving the 8th sustainable development goal (European Commission, 2020). The corruption perceptions index scores countries and territories based on the degree of corruption of a country’s public sector, as perceived by experts and business executives. Transparency International defines this indicator as a composite index, based on a combination of 13 surveys and assessments of corruption, collected by a variety of reputable institutions.

The research method is quantitative – linear regression with cross-sectional data. This type of method specific to econometrics (Frees, 1995) facilitates the study of multiple observations (in this case: all the European Union Member States) at a certain moment in time (in this case: the year 2019), focusing on a single phenomenon (each indicator included in the study). In the designed econometric models (split per gender), the corruption perceptions index (abbreviated: IPC) represents the independent/exogenous variable, while SDG_08_20 represents the dependent/endogenous variable (Arellano, 2003). Based on gender, SDG_08_20 is split in: SDG_08_20_F♀ (meaning young women

neither in employment nor in education and training) and SDG_08_20_M♂ (representing young men neither in employment nor in education and training).

5. Findings

The descriptive statistics analysis of the two indicators (three if we consider the split by gender) included in the designed econometric models allow us to point out certain characteristics of the European Union members.

Table 1. Descriptive statistics regarding the analysed indicators at European Union level (based on cross-sectional data), reference year – 2019

	IPC	SDG_08_20_F♀	SDG_08_20_M♂
Mean	64.3214	13.5107	9.6964
Median	61.0000	12.8000	9.6000
Maximum	87.0000	24.3000	20.2000
Minimum	43.0000	5.8000	4.0000
Standard Deviation	14.1606	4.8324	3.6237
Skewness	0.1033	0.379	0.8937
Kurtosis	1.6826	2.4409	3.8517
Jarque–Bera	2.0743	1.0349	4.5742
Observations	28	28	28

Source: own conceptualization in EViews

In 2019, in the 28 EU Member States, the IPC average was 64.3214, with a standard or deviation of 14.1606 (22% of the mean), which indicates that the EU members are characterized by the existence of corruption, or at least there is the perception that corruption exists. The average of SDG_08_20_F♀ is 13.51%; with a standard deviation from this value of 4.83 percentage points (i.e. 36% of the mean). This is important when compared to SDG_08_20_B♂, considering that the SDG_08_20_F♀ average is with is by 3.82 percentage points greater than that of SDG_08_20_B♂, which indicates that young women encounter more difficulties than young men in terms of getting a job or finding training.

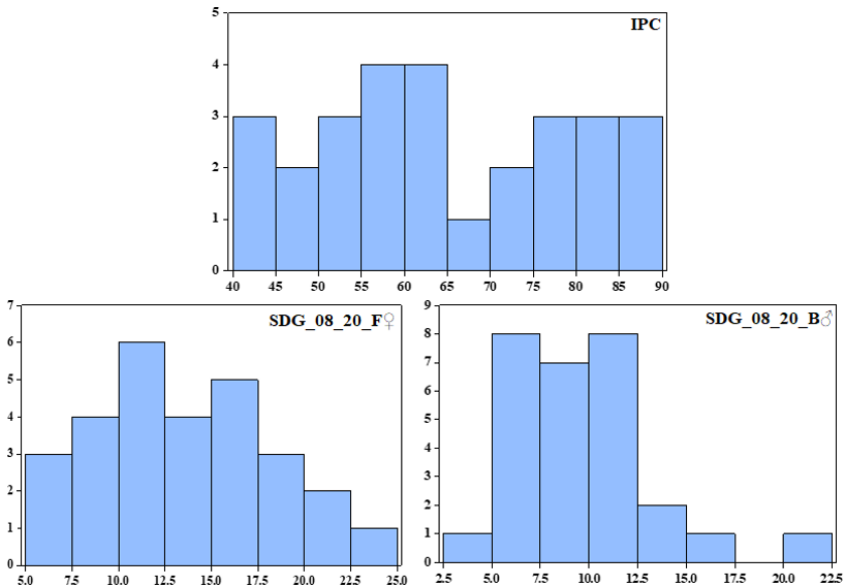


Figure 1. The histograms of the analyzed indicators (reference year: 2019)
 Source: own conceptualization in EViews

The IPC distribution is normal, considering the Skewness value of 0.1033 and that the value of an ideal distribution should be as close as possible to zero (Startz, 2019). This observation is important because it demonstrates that, at the level of the 28 EU Member States, corruption is highly perceived in some of them and slightly in others. The IPC values range from 0 to 100, where 0 represents the highest level of corruption perception and 100 represents a level with no corruption perceived.

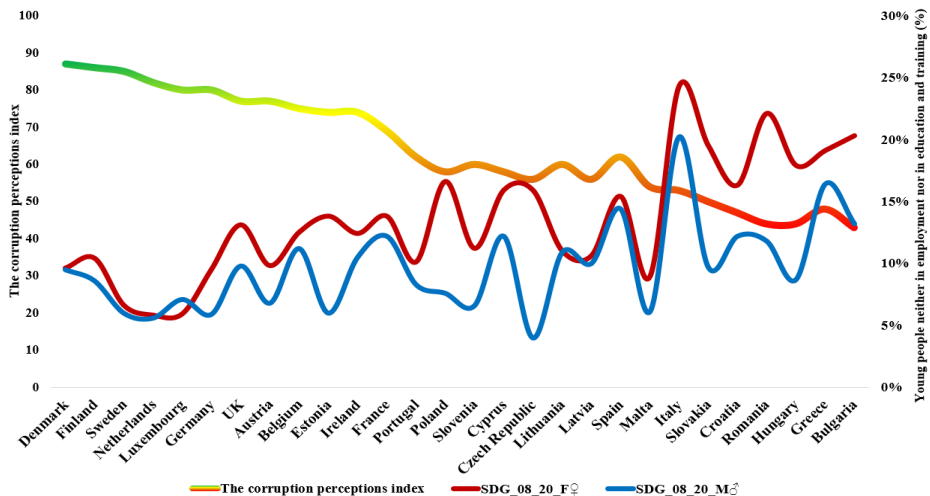


Figure 2. The corruption perceptions index and SDG_08_20 in all the European Union Member States
 Source: own conceptualization

In terms of the Skewness value, $SDG_08_20_F♀$ is closer to normal distribution than $SDG_08_20_B♂$ (0.379 vs 0.8937), in which case the distribution has a long right tail. Kurtosis measures the peakedness or flatness of the distribution and has an associated value of three in the case of a normal distribution. From this perspective, IPC is highly platykurtic (distribution is flat) due to the 1.6826 value, which indicates that there are not that many EU members with IPC values around the mean of 64.3214. $SDG_08_20_F♀$ is closer to a normal distribution in terms of Kurtosis (2.4409), while $SDG_08_20_B♂$ (3.8517) is slightly leptokurtic (distribution is peaked). This comparison regarding the Kurtosis value split per gender highlights the fact that, in the European Union, in 2019, young men are less likely to encounter issues in finding jobs or training / education, compared to young women.

In order to respond to the research questions, two econometric models were designed, based on the cross-sectional data; the method used being that of the linear regression, least squares. The models are split per gender.

Table 2. The parameters of the econometric models and their equations

Formula of the method		
LS	$SDG_08_20_F♀$	C IPC
LS	$SDG_08_20_B♂$	C IPC
Formula of the equation of the model		
	$SDG_08_20_F♀$	$= C(1) + C(2) \times IPC$
	$SDG_08_20_B♂$	$= C(1) + C(2) \times IPC$
Equation of the model and coefficients obtained		
	$SDG_08_20_F♀$	$= 30.16096 - 0.258860 \times IPC$
	$SDG_08_20_B♂$	$= 16.84801 - 0.111185 \times IPC$
	$SDG_08_20_F♀$	$SDG_08_20_M♂$
R²	0.5753	0.1887
Adjusted R²	0.559	0.1575
S.E. of regression	3.2089	3.326
Sum squared resid	267.7353	287.6198
Log likelihood	-71.3394	-72.3423
F-statistic	35.231	6.0502
Prob (F-statistic)	0.0000	0.0208
Mean dependent var	13.5107	9.6964
S.D. dependent var	4.8324	3.6237
Akaike info criterion	5.2385	5.3101
Schwarz criterion	5.3336	5.4053
Hannan-Quinn criter.	5.2676	5.3392
Durbin-Watson stat	2.2999	2.777

Source: own conceptualization in EViews

The t-student values of the parameters are important, considering that if the probabilities associated to those are less than 0.05, the null hypotheses are rejected (the parameters of the variables differ significantly from 0). In these econometric models, the corresponding probabilities are below 0.05, so that the null hypotheses are rejected and the alternative hypotheses are accepted. The coefficients differ significantly from 0, which validates the designed models.

The coefficient of determination has acceptable values, but only in the case of one model out of two. In 2019, in the European Union, the percentage of young women neither in employment nor in education and training out of the total young women is explained in a proportion of 57.53% by the exogenous variable (the corruption perceptions index). In order to counter the mechanical increase of the coefficient of determination in case more variables were introduced in this econometric model, the Adjusted R² indicator confirms its validity, due to the 55.90% value, which is similar to the coefficient of determination (57.53%). Unlike the situation of young women, the corruption perceptions index cannot successfully predict the percentage of young men neither in employment nor in education and training out of the total young men, due to the low value of the coefficient of determination (R²): 18.87%.

At the same time, the first model passes the error autocorrection test, according to the Durbin–Watson indicator, which identifies the correlation between the errors of the model. A value of two indicates that the errors are not correlated and that the model would be valid (in our case, the value is 2.29).

Based on the processed data, taking 2019 as the reference year and taking all the 28 EU Member States into consideration, any IPC score of 70 (favourable situation, indicating a good score of corruption perceptions) implies a value of 12.05% associated to SDG_08_20_F♀ (calculated as follows: $30.1609 + (-0.2588 \times 70)$). Should IPC be smaller than 70 (unfavourable situation, marking a high perception of corruption), 40 for example, then SDG_08_20_F♀ increases from 12.05 to 19.81% (calculated as follows: $30.1609 + (-0.2588 \times 40)$). This evidence proves that if corruption is highly perceived (which means small values in terms of IPC), then the percentage of young women neither in employment nor in education and training out of the total young women is greater compared to that of a EU country where corruption is not perceived as much (large values when quantified by the IPC).

Table 3. The White Test for Homoscedasticity of the Residuals

Test for Homoscedasticity of the Residuals			
F–statistic	0.9795	Prob. F (2,25)	0.3894
Obs × R ²	2.0347	Prob. χ^2 (2)	0.3615
Scaled explained SS	2.0322	Prob. χ^2 (2)	0.3620

Source: own conceptualization in EViews

The testing of the model continued with the White test performed on the residuals of the cross-sectional linear regression model, specific to young women. This test confirmed the desirable homoskedastic character (errors have a constant dispersion) induced by the F-statistic 0.9795 and Prob.F 0.3894 (greater than the 0.05 value, which is required in order to accept homoscedasticity). The median of the residuals is zero, which also proves the validity of the model.

6. Conclusions

Corruption limits the progress made towards sustainable development. Judging from the perspective of the European Labour Market, corruption in the European Union has direct implications on the unemployment rate.

The 8th goal on the 2030 Agenda for Sustainable Development is endangered by corruption. Achieving full employment and decent work for all women and men, including for young people and persons with disabilities, along with equal pay for work of equal value represent aims that can be achieved by suppressing corruption. In order to substantially reduce the proportion of youth not in employment, education or training, the European Union must actively fight corruption and ensure the necessary levers for the civil society to report any act or intentions of corruption.

The objective of this research paper is met and the hypothesis is partially validated. In 2019, when analysing the indicators in the case of the 28 EU Member States, the percentage of young women neither in employment nor in education and training out of the total young women is positively correlated with the corruption perceptions index. If corruption is perceived as high in any of the analysed countries, then the percentage of young women neither in employment nor in education / training out of the total young women is bigger compared to that of a EU Member State where corruption is not perceived as much.

The main limitation of this research is represented by the cross-section character of the analysed data. The point of reference used in this research is the year 2019. Similarly, this research can be extended by analysing other geographical locations besides Europe (in particular, the European Union in this paper). Moreover, the econometric models can be upgraded by including more indicators specific to the 2030 sustainable development goals.

With the intention of combating gender discrimination and ensuring that progress is made towards achieving the eighth sustainable development goal, the European Union can fight corruption by establishing e-government solutions, fostering international cooperation, improving transparency in the fight against corruption and by strengthening the civil society engagement in the field of corruption suppression.

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