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EXPLORING RISING INCOME INEQUALITY IN THE EUROPEAN UNION - A PUBLIC CHOICE APPROACH*

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Abstract: *This paper aims to analyze the extent to which European Union (EU) member states succeed in diminishing income disparities using their quality of governance in the context of rising income inequality. By using the Data Envelopment Analysis (DEA) nonparametric method, the link between each country's efforts regarding their governance quality and the impact of these efforts on countering growing inequality was uncovered. The data used in this study were collected for the year 2020, for all the 27 member states of the European Union. The main findings point out that, on average, EU countries are relatively inefficient, with only three countries achieving high levels of government performance, whose financial policies are reflected in reducing income inequalities, namely: Luxembourg, Cyprus, and Bulgaria. Furthermore, it was concluded that EU veteran states are relatively more effective than those that joined after 2004 in terms of eliminating income disparities through effective governance.*

Key words: *Income inequality, Governance quality, Efficiency, Data Envelopment Analysis.*

1. Introduction

Income inequality, a growing phenomenon in the current economic context, has attracted the attention of researchers across the global economy. Thus, in recent decades, numerous studies have turned their attention to the impact and evolution of this social phenomenon, arguing that both increased income inequality and the lack of development opportunities lead to significant economic and social imbalances (Piketty, 2014). Thus, the issue of income distribution and the implications it has on the economic sphere can be said to be a challenge for governments around the world.

The purpose of this research is to determine the extent to which the EU Member States manage, with the help of the quality of governance (considered in this study as input variables), to solve the problem of income inequality (output), through the Data

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Envelopment Analysis nonparametric method (DEA). The novelty of the paper lies in the methodological approach in the analysis of government efforts to reduce income disparities, framing variables that capture institutional quality as resource elements of the Member States.

The current paper is organized as follows: section two is dedicated to literature review; section three is focused on materials and methods; results are presented in section four; section five is focused on discussions, whilst conclusions are presented in the last section.

2. Literature Review

Public choice theory is the response of neoliberal thinkers to the need to analyze government action as well as public institutions, dominated by political influences, through an economic lens, which also represents the novelty of the doctrine. Thus, the theory of public choice addresses issues concerning the failures and inefficiency of the public system, as well as rent-seeking phenomena, bribery, corruption, excessive bureaucracy and its implications, the true extent of government intervention and its impact on public efficiency, rising income inequalities, the state as a captive of interest groups, governance efficiency and quality, the voting system as the foundation of democracy, as well as the concept of maximizing one's individual utility, even in the public sector (Buchanan and Tullock, 1965; Butler, 2012).

The concept of governance, together with the notion and implications of a good governance, viewed as an important element of the public choice doctrine, has been widely discussed in the research literature in this domain, with established authors looking at the phenomenon from different perspectives and giving it different valences (UNDP, 1997; World Bank, 1994; Katsamunska, 2016; Rotberg, 2014; Fukuyama, 2013). Moreover, governance quality was also analyzed in terms of its relationship and correlation with economic growth, quality of life, and population wellbeing.

Farkas (2019) classifies EU states based on the quality of governance, while Jianu et al. (2020) categorizes the EU member states into clusters considering the concepts of inclusive and exclusive institutions, concluding that inequality remains a real problem in states with extractive institutions, which are real, specific examples of public choice theory, which operate on the basis of logrolling and rent-seeking, without involving voters in the decisions made. These disparities highlighted by the aforementioned studies pose a long-term challenge to the European Union's convergence and integration, considering the need for improvement of both institutions' quality as well as public policy development and implementation.

Helliwell et al. (2018) reinforce the ideas presented in the literature and confirm that improvements in governance quality can have a significant impact on populations' overall wellbeing, notwithstanding the fact that action takes time. Furthermore, Angelini et al. (2020), also considering the link between governance efficiency and population wellbeing, examined how different types of governance impact the degree of well-being in each society.

According to the authors Filauro and Fischer (2021), inequality at the EU level is the aggregate of inequality within and between its member states. As the authors argue, this remark is important in determining the optimal level of government to address union-wide income disparities. If intra-country inequality is the primary cause of inequality, national institutions are responsible for coordinating and implementing efficient policies that target diminishing intra-country income disparities. On the other hand, to minimize between-state inequality, the EU structure's primary responsibility is to strengthen convergence policies through cohesion programs.

The paper of Kouadio and Gakpa (2022) points out that improvements in governance quality, more precisely in the judicial system, higher control of corruption, and higher levels of bureaucratic competence are required for economic development to considerably reduce income disparity, emphasizing the impact of institutional quality when considering the West African region. The authors' reform proposals are complemented by the study of D'Hombres et al. (2012), which captures the relevance of these improvements to the EU structure as well. D'Hombres et al. (2012) review the literature on income inequality in the EU structure, drawing attention to the fact that income inequality manifests a negative impact upon voter turnout, population happiness, and social capital, as well as a positive impact on rising criminality.

3. Data and Methodology

The analysis of the effectiveness of government quality in the European Union on income inequality was conducted using the DEA multifactor mathematical model. The analysis was carried out for all 27 EU Member States, for the year 2020, the most recent year in which there was no issue of non-publication of data by statistical institutions. Thus, through the DEA framework, for each decision-making unit (DMU), represented by an EU member country, an efficiency score was determined by processing the input and output data. At the same time, the database under consideration consists of 27 DMUs, each with 3 inputs and 2 outputs. In this analysis, DEA represents the link between each country's efforts on the quality of governance and the results these efforts have on income distribution and the fight against growing inequalities.

The analysis of governance quality and income inequality is based on the model constructed by Debnath and Shankar (2014), who analyze the link between high governance quality and happiness. Inspired by the model constructed by Helliwell and Huang (2006), as well as by Kaufmann et al. (2008), and Ott (2010), the authors divided government quality into two variables, namely the democratic quality of governance and the technical quality of governance.

Thus, starting from the model constructed by Debnath and Shankar (2014) and adapting it to capture the effectiveness of the quality of government policies on the phenomenon of growing income inequality from the perspective of public choice, the variables considered in the model are as follows:

Input variables:

1. Technical quality of governance (points). This variable includes government effectiveness, quality of the regulatory framework, rule of law, and control of

corruption, indicators provided by the World Bank, thus capturing the quality of government policy formulation, the quality of regulation that promotes economic development in both the public and private sectors, and the prevention of crime and violence, along with the fight against corruption;
2. The democratic quality of governance (points). Encompasses the variables of voice and accountability, political stability, and the absence of violence within a state, capturing the freedom of the press, freedom of expression, and economic freedom of individuals, as well as the absence of violence, protest, and abuse;
3. Government expenditure (% GDP). This variable captures the level of resources allocated by EU governments to national economies.

Output variables:
1. The median income (Euro) captures the reference level around which most incomes within a country are grouped, being the level that divides income into two equal measures. The median value is statistically more significant compared to the mean, better indicating the central tendency within a sample, as outliers (i.e., maximum and minimum values) affect the median less than they affect the mean.
2. Income equality (inverse of the Gini coefficient). The Gini coefficient is the main variable capturing the level of income inequality in both parametric and non-parametric models in the literature. In the case of this coefficient, the higher the value, the more unequally the income of the population is distributed. However, given the DEA methodology, the outputs should reflect the desired outcomes (Afonso and Aubyn, 2006). Thus, taking Poveda's (2011) study as a reference model in which the inverse of the Gini coefficient is used as an output variable, as a measure of equality in income distribution. In the present analysis, the inverse of the Gini coefficient, or the rescaled Gini coefficient, is determined as 1- Gini coefficient. Thus, a higher value of this coefficient signals high income equality.

The main sources of data are the World Bank, together with Eurostat's database. Regarding the size of the database used to perform the DEA analysis, we can mention that both the conditions stated by Sarkis (2007) and Bowlin (1998) as well as Dyson et al. (2001) were met, with the model aimed at analyzing 27 DMUs, significantly higher compared to the minimum number of decision units of 3 × (3 input variables + 2 output variables), i.e. 15 units in Sarkins (2007) and Bowlin's (1998) perception, a scenario that also applies to Dyson et al.'s observation (2001), where the number of decision units should be double the total number of inputs and outputs, 2 × (3 input variables + 2 output variables), i.e. 10 units, in order to perform properly.

4. Results

The determination of government quality efficiency scores and its impact on reducing income inequality within the EU Member States was carried out using the DEA mathematical model, as mentioned above, both through the input-oriented model and the output-oriented model, by applying mathematical criteria specific to the DEA BCC model with variable returns to scale (VRS).

Moreover, the study of the effectiveness of governance on the reduction of income inequality is highlighted both through the optics of the 3 input and 2 output analysis, as well as in the 1 input 1 output scenario, where the variables are homogenized into a single input variable and a single output variable.

Analyzing the standardized values of both the input and the output variables, the most significant deviation from the mean is found in the input variable "Technical governance quality", which records a value of 0.5626 points, capturing the heterogeneity of EU Member States in terms of the technical dimension of governance. The countries with the index furthest away from the EU average in terms of this variable are Finland (1.9215), Denmark (1.8560), and Luxemburg (1.7908), while at the opposite pole we find Croatia (0.3247), Romania (0.1194), and Bulgaria (0.0207), recording the lowest technical governance scores in the EU27 structure for the year 2020, alongside Greece and Hungary. Denmark and Finland are also registering the highest levels of democratic quality of governance, with respectively 1.3905 points and 1.4450 points, together with Luxembourg and Sweden. A significant standard deviation is also found for the output variable “Median income” of 0.5414 euro. The EU27 countries with the highest median incomes are Luxembourg (2.2803), Denmark (1.8487), and Austria (1.6001), while the Netherlands and Belgium also record a high level of median household wage. At the other end of the sample, with low median incomes in comparison to the EU27 average, are situated countries such as Bulgaria, Romania, and Hungary, which also rank at the bottom of the EU on both dimensions of governance quality.

The smallest standard deviation is found for the output variable “Inverse of the Gini coefficient” (0.0578). This is due to the relatively uniform character of European countries, where we do not find the wide discrepancies in income inequality between countries that we find in countries outside the European continent. The highest income equality levels in the European Union in 2020 are found in Slovakia (1.1222), Slovenia (1.0853), and the Czech Republic (1.0754). Countries in western and central Europe, such as Croatia, Cyprus, France, Hungary, and Ireland, are situated around the European average, while income equality levels are below average in all countries in southern and south-eastern Europe. The most significant income inequalities are recorded in countries such as Bulgaria (0.8512), Latvia (0.9293), and Lithuania (0.9208). In terms of government expenditure, countries such as Romania (0.8510) and Bulgaria (0.8429) report low levels of government expenditure, with the lowest value being recorded in the recent year by Ireland, with an index of 0.5525, contrasting with countries such as Belgium (1.1938), Finland (1.1555) and France (1.2422), whose governments allocated the most resources in 2020.

According to the average standardized values obtained by grouping the 27 countries according to the time of accession to the European Union structure, the average of the countries that joined before 2004 registers values above the average of 1 for all variables, while the new Member States show lower levels compared to the EU average, both for input and output variables, highlighting the differences between countries in terms of the quality of government, public expenditure, and in terms of population income and its distribution.

Using the standardized input and output variables, a single standardized input index and a single standardized output index were determined by aggregating the variables, assuming that they have an equal weight in the final index. The input index, as well as the output index, will contribute to determining government effectiveness on increasing income inequality in the EU under the 1 input/1 output hypothesis of the analysis. Furthermore, these indices are used to determine the efficiency frontier, as illustrated in Figure 1 presented below:

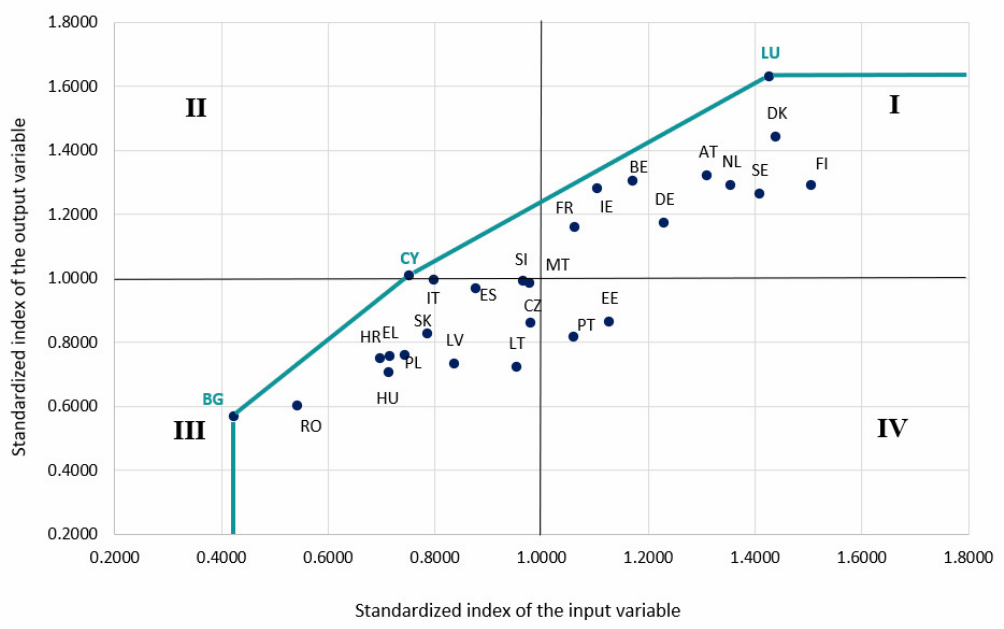

Fig. 1. *The distribution of EU27 countries in relation to the efficiency frontier*
Source: author's processing, based on Eurostat and World Bank data

Figure 1 depicts the countries' distribution based on the standardized value of the input and output variables. According to the methodology, countries on the efficiency frontier are seen to be completely efficient, achieving the highest efficiency score of 1, whilst the others are thought to be inefficient in terms of government quality on growing income inequality, in accordance with their distance from the efficiency border. According to the current research, Bulgaria, Cyprus, and Luxembourg are the states that are situated on the efficiency border.

Furthermore, the classification of these countries into four quadrants is important in the analysis, given the characteristics of each quadrant in terms of resources and performance.

On the efficiency frontier, within the first quadrant, we find Luxembourg (1.4289; 1.6282). This quadrant is specific to the countries that allocate the most resources to improving the quality of government, with the highest quality in terms of governance, but also record the best results in terms of government efficiency impact on reducing rising income inequality. Luxembourg is the EU country with the highest income equality output, analyzed in terms of a much higher median income compared to the EU

average, and is also the country with the highest democratic quality of governance in the EU27 structure, with one of the highest average input scores of 1.4289, just behind the standardized input scores of the Nordic countries such as Denmark, Finland, and Sweden. Also situated in the first quadrant, Ireland is the country closest to the efficiency frontier, which stands out for its low share of government expenditure in 2020, which is however weighted with high values for government quality, so it falls into the category of countries whose high inputs have a positive impact on reducing income inequality. Among the remaining countries in the first quadrant are Denmark, Sweden, and Finland, which have the highest input values that generate important results on income equality. However, this result has been expected given the high living conditions in the Nordic countries and the low disparities as a result of their welfare economies. Alongside these countries, we also find states from the veteran EU group, such as France, Belgium, Germany, Austria, and the Netherlands, which have both high government quality and low inequality.

Next on the frontier of efficiency is Cyprus (0.7540; 1.0048), the only country in the second quadrant, which is remarkably close to the border with the third quadrant. According to the methodology, this secondary quadrant contains the best performing countries, that have achieved significant output with considerably low input. Thus, in the case of Cyprus, the effectiveness of government quality in reducing income inequality is shown by the fact that the relatively low efforts of the government of Cyprus in terms of efficient public administration are translated into notable outcomes. A similar situation is found in the case of the Italian state and Slovenia, both situated on the border between the second and third quadrants.

Bulgaria is illustrated on the diagram by the coordinate pair (0.4257; 0.5646). In terms of resources, considered in this analysis as government quality as well as government expenditure, it has the lowest value of the input index, which is also reflected on the graph, being the country closest to the OY axis. Having the lowest score in terms of the technical quality of governance, as well as ranking in the last place in the EU27 in terms of the democratic quality of governance and among the last three countries with the lowest public expenditure of the EU states, which in nominal terms are interpreted as significant disadvantages on economic development and income inequality, in this analysis, looking from a mathematical approach, leads to efficient results. Other Member States in quadrant III, in particular Spain, Malta, Slovakia, and Slovenia, enjoy efficiency advantages in the true sense of the word, as they manage to achieve income equality outcomes very close to the EU average with significantly lower resources than the EU average.

In the fourth quadrant are situated the countries that allocate a high level of government resources but do not succeed in achieving results in terms of reducing income inequality in comparison to the other countries in the considered sample. Estonia and Portugal are relevant examples for this quadrant; however, they are also very closely situated to quadrants III and I, respectively.

Efficiency scores of the EU27 countries Table 1

Year 2020	VRS Efficiency scores [points]			
	3 input/2 output		1 input/1 output	
	Input oriented	Output oriented	Input oriented	Output oriented
EU27 average	0.9277	0.9686	0.7932	0.8212
Max	1	1	1	1
Min	0.7365	0.8320	0.5676	0.6051
Std. dev.	0.0824	0.0473	0.1243	0.1116
Old EU States	0.9179	0.9744	0.8227	0.8563
New EU States	0.9382	0.9624	0.7614	0.7834

Source: author's processing

The summary of the efficiency scores of the EU Member States is reported in Table 1, presented above. Following the analysis of the 27 Member States, in the hypothesis with 3 inputs and 2 outputs, 11 countries were found to have efficient governance considering as output the alleviation of income inequality in the input-oriented model, and 12 countries in the output-oriented model. Moreover, inefficient countries score higher in the output-oriented model. Of the countries identified as efficient by applying the 3 input/2 output model, only 3 countries are considered efficient under the 1 input/1 output model in terms of government quality correlated with low-income inequality. The countries identified as efficient were already discussed above, also highlighted in Figure 1. The average efficiency score in the input-oriented model in the 3 input/2 output scenario is 0.9277, while in the 1 input/1 output variant, the EU average efficiency score is 0.7932. In the output-oriented model, the efficiency score decreased from an average of 0.9686 in the 3 input/2 output model to an average of 0.8212 in the 1 input/1 output model.

5. Discussions

Based on the results summarized in the previous section, it can be stated that the same results could be achieved on average with 7.23% fewer resources in the EU under the 3 input/2 output scenario. In the 1 input/1 output analysis, the same results could have been obtained with 20.68% fewer resources. For the output-oriented model, in the 2-output variant, the efficiency score is the highest, at 96.86% of the maximum efficiency. In other words, a higher output value could have been achieved by only 3.14% while maintaining the same level of government quality. Similarly, for the variant with only one output variable, the effect on income equality could have been increased by 17.88%, given the current governance.

An important debate can thus target the orientation of the model, considering that the current study is aimed at analyzing how much income equality can increase under current governance efforts, as also stated by Debnath and Shakar (2014) in their study regarding happiness. Of course, following the interpretations, from an applied perspective, the output-oriented model is more relevant and meaningful, given that, in practice, it is not desirable to decrease the quality of government just to pursue a higher

efficiency score. Furthermore, another possible discussion on the nature of the model can possibly be carried around the input variable capturing the level of government expenditure within a state, which can be reduced or resized to increase efficiency.

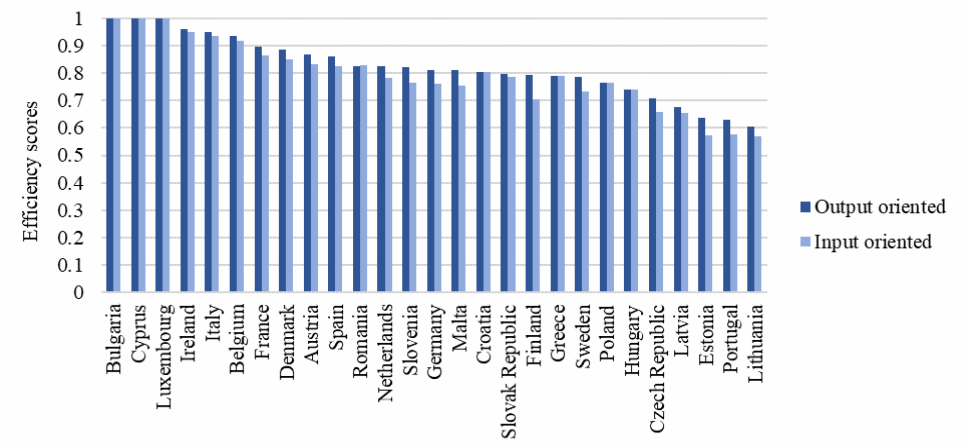

Fig. 2. *Efficiency scores following the input-oriented and output-oriented BCC models under the assumption of 1 input/1 output, for the year 2020*
Source: author's processing, based on Eurostat and World Bank data

Figure 2 illustrates the ranking of the EU countries according to their efficiency scores obtained in the 1 input/1 output scenarios, both in the input and output orientation. The EU Member State with the lowest score for government quality efficiency in the 3 input/2 output scenario of the input-oriented model is Portugal (0.7365), while in the 1 input/1 output scenario, Lithuania occupies the last place in the considered EU sample (0.5676). This can be explained in terms of the government's quality scores and the public expenditure that the Portuguese government allocates but which is not translated into results in terms of reducing the income gap through financial policies. The analysis conducted shows that the same result on inequality reduction for Portugal could have been achieved with 26.35% fewer resources or 43.24% fewer resources, respectively.

Lithuania also records the lowest efficiency score in the output-oriented analysis both in the 3 input/2 output scenario (0.8320) and in the 1 input/1 output variant (0.6051), with high income inequality given the rather high level of governance conditions in Lithuania.

Analyzing the countries according to their time of accession to the European structure, it has been shown that the time of accession has an influence on efficiency scores. The average old member states' scores are higher than the EU average in all the analyzed hypotheses except the input-oriented 3input/2output. The fact that this group of countries demonstrated higher government efficiency scores may also be due to the fact that these countries have a strong history of democracy, a well-defined constitutional regulatory framework, and a more politically and socially educated population that has greater trust in governing bodies, as also concluded by Blagojevic and Damijan (2012),

and Bakowski and Varonova (2017). In comparison, the new European states, with a relatively recent history of totalitarian, leftist policy regimes, have yet to review their regulatory quality in terms of high-level corruption and rent-seeking phenomena. Moreover, Ropret et al. (2018) point to significant differences between the new and the veteran member states in terms of governance quality, with the old member states being more concerned with the concept of institutional quality, the rule of law, and their links to the concepts and areas of public efficiency.

6. Conclusions

Taking all the above into account, the quality of government and its effectiveness on the growing issue of income inequality, as revealed by the efficiency scores determined by the performed DEA analysis, emphasize the fact that, on average, EU countries are relatively ineffective, with only 3 countries recording high levels of effective governance from a mathematical point of view, whose policies also demonstrate efforts and achievements in addressing income inequality. Moreover, depending on the time of EU structure accession, it was concluded that the EU's veteran member states are relatively more efficient than those that joined the European structure after 2004, except for the 3 input/2 output hypothesis in the input-oriented model. Given everything stated previously, the study's findings emphasize that government efficiency reflects governments' ability to foster inclusion and reduce income inequality not only through sound, corruption-free governance, and a commitment to economic development, but also through governance that seeks to promote opportunities for the sustainable development of their population with the goal of improving living conditions. Governance, with all that implies, plays more than just an important role in the current context of rising social disparities faced by all economies, so that the EU Member States must continuously seek to improve the quality of governance in order to eliminate the negative externalities of income inequality and continuously adapt to the challenges of the crossed time periods, by shaping a legislative framework that fosters sustainable economic empowerment of the population it represents, which will ultimately be reflected in the economic performance of the state as a whole.

References

Afonso, A. and St Aubyn, M., 2006. Relative efficiency of health provision: A DEA approach with non-discretionary inputs. *ISEG-UTL economics working paper*, (33), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=952629

Angelini, F., Candela, G. and Castellani, M., 2020. Governance efficiency with and without government. *Social Choice and Welfare*, *54*(1), pp.183-200 https://doi.org/10.1007/s00355-019-01217-2

Bakowski P., Varonova S., 2017. *Corruption in the European Union: Prevalence of corruption, and anti-corruption efforts in selected EU Member States*, p.p. 10, available at https://www.europarl.europa.eu/RegData/etudes/STUD/2017/608687/EPRS_STU(2017)608687_EN.pdf.

Blagojevic, S. and Damijan, J.P., 2012. Impact of private incidence of corruption and firm ownership on performance of firms in Central and Eastern Europe. *Katholieke Universiteit Leuven, LICOS Discussion Paper*, (310), available at https://www.econstor.eu/bitstream/10419/74836/1/dp310.pdf

Bowlin, W.F., 1998. Measuring performance: An introduction to data envelopment analysis (DEA). *The journal of cost analysis*, *15*(2), pp.3-27., available at https://www.tandfonline.com/doi/abs/10.1080/08823871.1998.10462318

Buchanan, J.M. and Tullock, G., 1965. *The calculus of consent: Logical foundations of constitutional democracy* (Vol. 100). University of Michigan press, available at http://www.civiljusticenj.org/wp-content/uploads/2014/05/Buchanan_TheCalculusOfConsent_Ch19.pdf

Butler, E., 2012. Public choice-a primer. *Institute of Economic Affairs Occasional Paper*, *147*, available at https://www.ccs.in/sites/all/books/com_books/public-choice-a-primer.pdf

d'Hombres, B., Weber, A. and Elia, L., 2012. Literature review on income inequality and the effects on social outcomes. *JRC Scientific and Policy Reports*, available at https://core.ac.uk/download/pdf/38625367.pdf

Debnath, R.M. and Shankar, R., 2014. Does good governance enhance happiness: a cross nation study. *Social indicators research*, *116*(1), pp.235-253. https://doi.org/10.1007/s11205-013-0275-1

Dyson, R.G., Allen, R., Camanho, A.S., Podinovski, V.V., Sarrico, C.S. and Shale, E.A., 2001. Pitfalls and protocols in DEA. *European Journal of operational research*, *132*(2), pp.245-259, available at https://www.sciencedirect.com/science/article/abs/pii/S0377221700001491

Farkas, B., 2019. Quality of governance and varieties of capitalism in the European Union: core and periphery division?. *Post-Communist Economies*, *31*(5), pp.563-578. https://doi.org/10.1080/14631377.2018.1537740

Filauro, S. and Fischer, G., 2021. Income inequality in the EU: General trends and policy implications, a*vailable at: https://voxeu.org/article/income-inequality-eu-trends-and-policy-implications (accessed 20 October 2021)*.

Fukuyama, F., 2013. What is governance? *Governance*, *26*(3), pp.347-368. https://doi.org/10.1111/gove.12035

Helliwell, J.F. and Huang, H., 2006. How's your government? International evidence linking good government and well-being. *British journal of political science*, *38*(4), pp.595-619., available at https://www.nber.org/papers/w11988

Helliwell, J.F., Huang, H., Grover, S. and Wang, S., 2018. Empirical linkages between good governance and national well-being. *Journal of Comparative Economics*, *46*(4), pp.1332-1346. https://doi.org/10.1016/j.jce.2018.01.004

Jianu, I., Dobre, I., Bodislav, D.A., Radulescu, C.V. and Burlacu, S., 2020. The implications of institutional specificities on the income inequalities drivers in European Union. *arXiv preprint arXiv:2007.11436.*, available at https://arxiv.org/ftp/arxiv/papers/2007/2007.11436.pdf

Katsamunska, P., 2016. The concept of governance and public governance theories. *Economic alternatives*, *2*(1), pp.133-141, available at https://www.unwe.bg/uploads/Alternatives/Polya_1_br2_2016_en.pdf

Kaufmann, D., Kraay, A. and Mastruzzi, M., 2008. Governance matters VII: Aggregate and individual governance indicators, 1996-2007. *World Bank policy research working paper*, (4654), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1148386

Kouadio, H.K. and Gakpa, L.L., 2022. Do economic growth and institutional quality reduce poverty and inequality in West Africa?. *Journal of Policy Modeling*, *44*(1), pp.41-63., https://doi.org/10.1016/j.jpolmod.2021.09.010

Ott, J.C., 2010. Good governance and happiness in nations: Technical quality precedes democracy and quality beats size. *Journal of Happiness Studies*, *11*(3), pp.353-368, available at https://link.springer.com/content/pdf/10.1007/s10902-009-9144-7.pdf?ic=1

Piketty, T., 2014. Capital in the twenty-first century. *Capital in the twenty-first century*. Harvard University Press., available at https://www.degruyter.com/document/doi/10.4159/9780674982918/html

Poveda, A.C., 2011. Economic development and growth in Colombia: An empirical analysis with super-efficiency DEA and panel data models. *Socio-Economic Planning Sciences*, *45*(4), pp.154-164., available at la https://www.sciencedirect.com/science/article/abs/pii/S0038012111000358

Ropret, M., Aristovnik, A. and Kovač, P., 2018. A Content analysis of the rule of law within public governance models: old vs. new EU member states. *Network of Institutes and Schools of Public Administration in Central and Eastern Europe. the NISPAcee Journal of Public Administration and Policy*, *11*(2), pp.129-152., available at https://www.proquest.com/openview/b4d75e0d0eb553b5c0fc18bc3a212067/1?pq-origsite=gscholar&cbl=2026589

Rotberg, R.I., 2014. Good governance means performance and results. *Governance*, *27*(3), pp. 511-518. https://doi.org/10.1111/gove.12084

Sarkis, J., 2007. Preparing your data for DEA. In *Modeling data irregularities and structural complexities in data envelopment analysis* (pp. 305-320). Springer, Boston, MA., available at https://link.springer.com/chapter/10.1007/978-0-387-71607-7_17

UNDP, 1997. *Governance for Sustainable Human Development, A Policy Document*, United Nations Development Programme. New York, NY. available at: https://digitallibrary.un.org/record/3831662?ln=en (accessed march 2022).

World Bank, 1994. *Governance: the World Bank's experience*. The World Bank., available at https://documents1.worldbank.org/curated/en/711471468765285964/pdf/multi0page.pdf