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Alternative Analysis of the Economic Outlook: Social-Oriented and Individual-Oriented Political Economy Approach

Ekonomik Görünümün Alternatif Analizi: Toplum Merkezli ve Birey Merkezli Politik Ekonomi Yaklaşımı

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Abstract

How should the macroeconomic outlook be interpreted for individuals and the population?This study is developing an alternative macroeconomic performance measurement approach by proportioning the selected macroeconomic indicators to the population.This provides data on the individual-oriented cumulative outcome of economic management's decision-making and implementation processes.Also, it would show the gains/costs faced by individuals depending on the economic outlook.The crises encountered in the 21st century bring up debates on change/transformation in the roles/functions of states and public authorities at national/global scales. The second aim is to compare the macroeconomic performances measured based on both GDP and per capita macroeconomic indicators of countries. In accordance, the macroeconomic performances of 33 developed and developing countries for the 2000-2021 period were examined with the MOORA.The performance of the countries analyzed is based on both GDP and population-proportioned indicators (per capita). Thus, the similarities and/or differences between both macroeconomic performance measures are determined. In addition to emphasizing the individual-centered performance approach by dividing the population, the study also provides the indirect addition of an external indicator. The measurement style of the indicator of the GDP scores is called the Social-Centred Welfare Index and the indicator of the scores per capita is called the Individual-Centred Welfare Index.

Keywords: *Per-Capita Indicators, MOORA, comparative political economy, economic outlook, macroeconomic performance*

Öz

Makroekonomik görünüm bireyler ve nüfus açısından nasıl yorumlanmalıdır? Bu çalışmanın ilk amacı, seçilen makroekonomik göstergeleri nüfusa oranlayarak alternatif bir makroekonomik performans ölçüm yaklaşımı geliştirmektir. Böyle bir yaklaşım, ekonomi yönetiminin karar alma ve uygulama süreçlerinin bireysel odaklı kümülatif çıktıları hakkında veri sağlayacaktır. Değerlendirme, ekonomik duruma bağlı olarak bireylerin karşılaştıkları kazançlarını/maliyetlerini gösterebilecektir. 21. yüzyılın ilk ve ikinci on yıllarında yaşanan krizler, ulusal ve küresel ölçekte devletlerin ve kamu otoritelerinin rol ve fonksiyonlarındaki değişim ve dönüşüm tartışmalarını gündeme getirmektedir. Çalışmanın ikinci amacı ise hem GSYH hem de kişi başına düşen makroekonomik göstergeler bazında ölçülen makroekonomik performansların ülkeler bazında karşılaştırılmasıdır. Çalışmanın amaçları doğrultusunda seçilen 33 gelişmiş ve gelişmekte olan ülkenin 2000-2021 dönemi makroekonomik performansları MOORA ile incelenecektir. Ülkelerin performansı, hem GSYH hem de nüfusa oranlı göstergeler (kişi başına olarak tanımlanır) temelinde analiz edilecektir. Böylece her iki makroekonomik performans ölçümü arasındaki benzerlikler ve/veya farklılıklar belirlenebilecektir. Çalışma, verileri nüfusa oranlayarak birey merkezli performans anlayışını vurgulamanın yanı sıra, makroekonomik performansta yer almayan bir dış göstergenin dolaylı olarak ölçüm sistemine eklenmesini de sağlamaktadır. Bu çalışmanın ölçüm biçimi Sosyal Merkezli Refah Endeksi olarak adlandırılan GSYH skorlarının göstergesi iken, kişi başına düşen skorların göstergesi Birey Merkezli Refah Endeksi olarak adlandırılmaktadır.

Anahtar Kelimeler: *Kişi başına düşen göstergeler, MOORA, karşılaştırmalı ekonomi politik, ekonomik görünüm, makroekonomik performans*

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Introduction

While economic affairs and transactions seem easy to continue in their own course, it is necessary to reveal the data pattern and present meaningful information correctly in order to interpret what is happening in the background sufficiently. Understanding whether the transactions that continue on their own path are "really" going sufficiency depends on the high capacity of the data to reflect what is expected and realized. Although GDP is still accepted as the most popular welfare macro indicator for many researchers, this subject is still an ongoing discussion for the rest of them. Can GDP really count as an indicator of welfare on its own? It should be noted that if GDP itself is made up of missing data or components whose existence has been overlooked and may cause deviations, there are points that may miss in reflecting welfare.

Actually, each macroeconomic indicator reflects a headline value. Otherwise, it may be overlooked that each indicator moves under the influence of another dynamic. In the literature, comparative studies of countries are generally based on the ratio of indicators to GDP due to showing portion of total economic activity. Such an approach causes errors to calculate macro indicators by dividing them into a cumulative value, but it moves away from the human-oriented approach and makes it difficult to detect fragile areas. When misperception is made in interpreting the headline values, irrationality arises, so deviations occur from what should be. Therefore, changing the way we analyse data and information offers alternatives to macroeconomic performance analyses to avoid this kind of fallacy. Thus, the ability to understand reinterpretation and perception of the general view of the economy is gained.

In simple terms, calculating GDP per capita shows how wealth is distributed among the people living in a country. Considering that there may be deficiencies in the calculation of GDP, how this indicator will yield results when proportioned by per capita becomes an even more critical issue. Clearly, such indicators are those that shape the future of people and have the capacity to determine the direction of the future. In other words, there is a necessity to reshape the indicators used in performance measurement in order to have the opportunity to show the burdens and gains that people will carry in the future. The macroeconomic performance of a state cannot be considered independently of the people living in that country. Considering that the awareness of the priority position acquired by the individual in the 21st-century world, the capacity of reflecting the performance shown to the individuals needs to be detailed. The process of measuring the quality, efficiency and sustainability of the path followed by the economy, using various economic indicators can be described as macroeconomic performance. Assuming that the key role in the creation of macroeconomic performance is in individuals and all parts of the economy will fail without them, it is critical to reveal the effect of the individual on macro-performance and the visa-versa.

In this study, with a new alternative method has been contributed to the macroeconomic performance measurement methods and the macroeconomic performance of 33 countries has been ranked according to per capita indicators. In this context, macroeconomic performance indicators include general government gross debt, general government revenue, general government total expenditure, general structural balance, total reserves (includes gold), gross fixed capital formation, gross domestic savings, final consumption expenditure, exports of goods and services and imports of goods and services. These 10 indicators are equally weighted and the relevant macroeconomic indicator of the relevant country is proportioned to its both GDP and population. After that the countries' performance ranking is made by using the MOORA method.

The crises encountered in the 21st century have led to debates on the roles and functions of states and public authorities at the national and global scales, and this study aims to contribute to this discussion by providing an alternative macroeconomic performance measurement approach. Overall, this approach appears to be focused on better understanding the impact of economic management decisions and implementation processes on individual citizens, rather than just the overall health and growth of the economy.

1. Literature Review

The fact that the rapidly increasing population in the last century does not take place in economic performance evaluations means, ignoring the potential gains or losses that may arise due to population differences between countries. Especially when individuals are accepted as one of the key actors of the economy, it is very important to determine what will be the legacy or burden that countries will leave to future generations.

Armstrong, Kervenoael, Li, and Read (1998) compared the micro-scale and larger countries by calculating the GNP and GDP ratios and these indicators per capita while evaluating the economic performances. According to the findings of the study, globalization is progressing at a weak pace in micro-scale countries, regional economic relations are relatively more preferred, and convergence to developed countries occurs rather slowly. In the recent past, sustainable development has been prioritized for the countries and it is expected to show an acceleration of development within the framework of these targets. In this sense, Adrangi and Kerr (2022) evaluated the relationship between sustainable development goals and

GDP by using regression analysis. According to the findings of the study, only three of the eight sustainable development goals are directly related to GDP. The study also emphasizes that using GDP as an indicator of social welfare may be an incorrect assumption. It will be inevitable that such a mistake will lead to erroneous results based on policies that can be produced. While the benefits of economic growth are listed, the costs of growth can be overlooked. Islam and Clarke (2002) examined adjusted GDP and unadjusted GDP for Thailand by performing a cost and benefit analysis and proved that there are dramatic differences.

Economic performance evaluations in the literature, generally the ratio of the variables to GDP is considered (Angus, 1983; Armstrong, De Kervenoael, Li, & Read, 1998). Especially when making comparisons between countries, the ratio of values such as debt, investment and savings to GDP allows the data to be evaluated in a standardized structure (Leão, 2013; Zou, 2006; Mehrara & Maysam, 2013; Estefania-Flores, Furceri, Kothari, & Ostry, 2023). Although the determination of the ratio of economic performance to GDP on the basis of variables provides a standardization, the evaluation of the GDP reflecting the general output by dividing it into its components also causes misconceptions. Some of the articles' using GDP per capita as a variable of developing (Saviotti & Frenken, 2008).

There are many studies in the literature that refer about the economic importance of the population. For example, Adam Smith (1976) expressed population growth as both a result and a cause of economic progress. Increasing in population will result in a good balance of the division of labour, so that, more productivity is likely to emerge. This productivity, along with an enlarged wage fund, leads to higher income and stocks, increasing the supply of labour and changing economic conditions (Hansen, 1939). Kelley (1998) examined the economic consequences of population change and tried to determine the role of the population in the economy through price movements and the saving rate.

When the studies that deal with the economy and demography together are examined, the ways in which the literature affects the economy positively/negatively are discussed. Considering the role of the population in the expansion and deepening process, it becomes necessary to make an analysis together with other factors. Therefore, an in-depth study of the structure of the population should have a particular importance. Because different age groups have different needs and production capacities, the economic characteristics of a country will likely change as its population ages. In this context, studies in which the economic consequences of population aging are discussed are frequently encountered in the literature (Lee & Mason, 2011), (Banister, Bloom, & Rosenberg, 2012), (Acemoğlu & Restrepo, 2017). It is emphasized that the links between population aging and macroeconomic performance are mediated by the institutional context. With increasing life expectancy and a cumulative aging population, pension policies and health care financing, the efficiency of labour and capital markets, and the structure of both regional and global economic systems will change to accommodate changes in population.

Some of the studies econometric analyses are used, especially with data proportioned per capita ((Shamsuddin, 1994; Creedy & Moslehi, 2009; Narayan & Smyth, 2008). Shamsuddin (1994) examined the determinants of attracting foreign direct investments by using the Least Squares method of the 1983 cross-sectional data of 36 developing countries. As a result of the study, the most important economic determinants of FDI are respectively, it has been determined that it depends on factors such as GDP per capita, labour cost, debt per capita, public expenditure per capita and volatility in prices.

Creedy and Moslehi (2009) used cross-sectional regression to determine the relationship between the ratio of transfer payments to public expenditures per capita and voting behaviour of 24 democratic countries using cross-sectional data. According to the findings, it has been proven that a more balanced distribution of wages is more dependent on the balance in transfer payments, while an increase in tax rates increases transfer payments, but increases in tax rates cause lower transfers.

Van den Bergh (2022) discussed the necessity of the GDP indicator being insufficient on its own and the necessity of deriving new alternatives and revealing the paradigms that interact with growth. The study explains that growth-related goals and subjective information should be highlighted, multiple indicators should be evaluated, and alternative units to monetary units should be considered through a panel to be formed in the future. This study is very valuable in terms of literature as it provides a theoretical framework for making evaluations beyond GDP. On the other hand, Oswald (1997) underlines that economic performance may not indicate the happiness of individuals. This study underlines that the extra contribution of economic well-being to the sense of satisfaction in individuals may be limited. The study differs from the literature in terms of having different indicators among the criteria of economic performance.

Evaluating economies with a people-oriented approach will enable to capture a number of variables that people care about, from income and health to housing and social connections, and can influence the policies that public authority can implement. Therefore, it is clearly seen that an alternative set of indicators per capita obtained by dividing the indicators by the total population has an important place in revising the economic policies. For this reason, in the study, the change in the performance of the countries was obtained by ratio of both GDP and population, and the changes were compared.

2. Data and Methodology

In the study, MOORA (Multi Objective and Optimisation on the basis of Ratio Analysis) method was used to determine the economic performance of countries. Brauers and Zavadskas (2006) proposed this method for the first time. There are two types of methods under the MOORA method as the ratio system and the reference point approaches (Brauers, 2013).The steps of the Ratio System of MOORA used in this study can be summarized as follows (Brauers & Zavadskas, 2006):

1. The first step of the MOORA method is forming the decision matrix of the problem. The matrix typically has the alternatives listed in rows and the criteria listed in columns, with performance scores assigned to each alternative for each criterion. This helps to evaluate and rank the alternatives based on their overall performance.

$$X = [x_{ij}]_{mxn} = \begin{bmatrix} x_{11} & \cdots & x_{1n} \\ \vdots & \ddots & \vdots \\ x_{m1} & \cdots & x_{mn} \end{bmatrix}$$

x_{ij} represents the performance value of ith alternative on jth criterion. The values of i range from 1 to m, which is the number of alternatives being compared, while the values of j range from 1 to n, which is the number of criteria being considered. So the decision matrix has m rows and n columns, with each row representing an alternative and each column representing a criterion.

2. Each performance value of an alternative on a criterion against the other alternative performances on that criterion is calculated as:

$$x_{ij}^{*} = \frac{x_{ij}}{\sqrt{\sum_{i=1}^{m} x_{ij}^{2}}} \quad i = 1,2,\dots\dots,m\ j = 1,2,\dots\dots n$$

x_{ij}^{*} is a dimensionless number between [0,1] and the normalized performance of the ith alternative on the jth criterion.

3. Normalized performance values of beneficial criteria and cost criteria are summed up individually. Then, the sums for cost criteria are subtracted from the sums for beneficial criteria. The consequence is the general performance score of each alternative (y_i^{*}).

$$y_i^{*} = \sum_{j=1}^{g} x_{ij}^{*} - \sum_{j=g+1}^{n} x_{ij}^{*}$$

In this formula, g and (n − g) are the number of criteria to be maximized and minimized, respectively. The MOORA method allows the variables to be evaluated over their benefit and cost effects. As can be seen in Table 1, right column and left column shows the effects of the indicators to determine the macroeconomic performance handled in two different ways so the results were obtained in considering alternative scenarios. Sustainability and manageability are assumed to be high in the 1st table, and it is assumed that the sustainability and manageability of the indicators discussed in the 2nd table may be low. Due to the differentiation of the countries' borrowing/debt use/debt management experiences, debts may become unmanageable and this may have the potential to adversely affect their macroeconomic performance. Likewise, it is possible that the alternative cost paid in return for the failure to manage the expenditures and the deterioration of the budget balance may not have the expected effect. Also, that there are dilemmas regarding the sustainability of growing economies based on consumption.

Table 1. Determining the Direction of Indicators to Affect Economic Performance

Definition		**Direction**			
Indicators	**Code**	**Model 1-Model 3**		**Model 2-Model 4**	
Model Variables		**Sign**			
General government gross debt (national currency)	GGD	Max	+	Min	-
General government revenue (national currency)	GGR	Max	+	Max	+
General government total expenditure (national currency)	GGE	Max	+	Min	-
General government structural balance (national currency)	GSB	Max	+	Max	+
Total reserves (includes gold, current US$)	TRS	Max	+	Max	+

Gross fixed capital formation (current US$)	GFCF	Max	+	Max	+
Gross domestic savings (current US$)	GDS	Max	+	Max	+
Final consumption expenditure (current US$)	FCE	Max	+	Min	-
Exports of goods and services (current US$)	EXP	Max	+	Max	+
Imports of goods and services (current US$)	IMP	Min	-	Min	-
		Standardization Variables			
GDP (current $ or national currency)	GDP	Neutral			
Population	PPL	Neutral			

While the measurement style of this study is the indicator of the GDP scores, which is called the Social-Centred Welfare Index, an indicator of the scores per capita is called the Individual-Centred Welfare Index. As seen in the below formulas of the models are:

Model 1:

$$y_1^* = \left(\frac{GGD}{GDP} + \frac{GGR}{GDP} + \frac{GGE}{GDP} + \frac{GSB}{GDP} + \frac{TRS}{GDP} + \frac{GFCF}{GDP} + \frac{GDS}{GDP} + \frac{FCE}{GDP} + \frac{EXP}{GDP}\right) - \left(\frac{IMP}{GDP}\right)$$

Model 2:

$$y_2^* = \left(\frac{GGR}{GDP} + \frac{TRS}{GDP} + \frac{GFCF}{GDP} + \frac{GDS}{GDP} + \frac{EXP}{GDP} + \frac{GSB}{GDP}\right) - \left(\frac{GGD}{GDP} + \frac{IMP}{GDP} + \frac{GGE}{GDP} + \frac{FCE}{GDP}\right)$$

Model 3:

$$y_3^* = \left(\frac{GGD}{PPL} + \frac{GGR}{PPL} + \frac{GGE}{PPL} + \frac{GSB}{PPL} + \frac{TRS}{PPL} + \frac{GFCF}{PPL} + \frac{GDS}{PPL} + \frac{FCE}{PPL} + \frac{EXP}{PPL}\right) - \left(\frac{IMP}{PPL}\right)$$

Model 4:

$$y_4^* = \left(\frac{GGR}{PPL} + \frac{TRS}{PPL} + \frac{GFCF}{PPL} + \frac{GDS}{PPL} + \frac{EXP}{PPL} + + \frac{GSB}{PPL}\right) - \left(\frac{GGD}{PPL} + \frac{IMP}{PPL} + \frac{GGE}{PPL} + \frac{FCE}{PPL}\right)$$

If there is a lack of information about the usage areas when the debt increases, the effect of the existence of debt on the economy is negative in the short run. According to the suitability of the usage area, debt and expenditures can be converted into an investment in the long term, making it easier to pay and creating added value. In total expenditures, it can be assumed that it has a positive effect on the economy when the characteristics of the expenditure are not considered, but this situation changes according to the type of expenditure. Expenditure performances in efficient and inefficient areas affect negatively. In addition, since the usage areas of savings are not known, public surplus does not create an externality effect. Therefore, the characteristics of both expenditures and debts should be known, and the analysis of the sub-categories should be doneIn the study, MOORA (Multi Objective and Optimisation on the basis of Ratio Analysis) method was used to determine the economic performance of countries. Brauers and Zavadskas (2006) proposed this method for the first time. There are two types of methods under the MOORA method as the ratio system and the reference point approaches (Brauers, 2013).The steps of the Ratio System of MOORA used in this study can be summarized as follows (Brauers & Zavadskas, The MOORA method and its application to privatization in a transition economy, 2006):

3. Model Specification and Results

Table 2 and Table 3 are listed according to the indicators GDP and per capita by dividing 33 countries into three groups between 2000 and 2021, with reference to the impact direction stated in Table 1. In the table, it is seen that some of the countries with high macroeconomic performance per capita whereas being behind in GDP ratio performance. Undoubtedly, it means that the countries where have high per-capita rankings reflects to individuals better.

Table 2. Ranking by GDP and Per-Capita Indicators (Model 1 - Model 3)[4]

	Country	2000-2004		2005-2009		2010-2014		2015-2019		COVID-19 (2020-2021)	
		Model 1	Model 3	Model 1	Model 3	Model 1	Model 3	Model 1	Model 3	Model 1	Model 3
Group I	South Korea	9.6	1	11.2	1	9.6	1	10	1	9	1
	Israel	8.4	8	11	12.4	13.6	8.4	13.4	5.4	8.5	2.5
	Japan	12.4	2	4.6	2.4	5.2	2	1.4	2	1	2.5
	Indonesia	16	3.8	21.4	4	23.8	4.6	25.8	3.8	28.5	4
	U.A.E.	31.6	3.2	26.2	3.8	18.6	5.2	15	3.4	30.5	5.5
	Australia	17.2	10.4	19.4	5.6	24.6	4.2	20.4	5.8	23	6
	U.S.A.	23.4	5.2	26.4	9.2	25.6	10.4	24	7	26	6.5
	Germany	16	7	11.2	8	6.4	8.6	6.6	9	8	8
	Canada	7	7.8	10	7.4	14	7	11.8	10.6	13.5	9.5
	Czechia	9.6	14	17.4	14.2	7.8	15	2.2	11.4	2	9.5
	France	12.6	8.6	15.6	9.4	9.8	11	7.6	12	5	11.5
Group II	Hungary	13.2	13.6	19.6	17.8	3	11.8	8.8	12.4	7	12
	Saudi Arabia	7.8	14.4	1.2	5	1	4	2.6	7.8	13	12.5
	United Kingdom	25	9.6	30.8	11.2	24.4	13.4	19.8	13.4	13.5	14
	Italy	12.2	11.4	11.6	12	5.6	13.4	5.4	15	3	15
	Poland	20.8	18.6	20	18	20.2	18	14.2	17	14	16.5
	Russia	3	21	6	16.6	13.6	16	12	17.2	8.5	17
	China	13.8	28.2	4.6	26.2	2.4	21	10.8	17.8	11.5	17.5
	Bulgaria	5.2	23.4	10.4	22.8	17.8	25.6	9.6	21	8	19
	Romania	28.6	26.6	24	19.2	15.6	22.4	23.2	21.8	23	20
	Malaysia	5.2	16	5.2	16	10.2	17	17.2	18	19	21
	Argentina	13	20.6	10.8	22.6	25	22.4	27.8	22.6	18.5	22.5
Group III	Thailand	10.6	20.8	6.6	24.8	7.6	25.2	5.8	23.4	11	22.5
	Türkiye	3.2	19.8	12.8	19.6	16.4	20	19.8	22	18.5	24
	Mexico	23.4	17.2	25.8	21.4	28.6	23.6	23.6	24.2	21	25
	Peru	22.2	26.4	14.4	26.6	15.4	27.2	21.8	26.8	23.5	26
	Brazil	19.8	24.2	19.8	24.4	22.8	19.8	29	26.2	20.5	27
	South Africa	28.4	24	25.6	25	30.2	27.8	29.2	28	25	28
	Philippines	24.6	29	22	28.8	21.2	29	23	29	29.5	29
	Bangladesh	30.8	33	30.4	33	28.6	32.6	25.4	31.2	29	30.5
	India	28.6	31.8	24	31.2	27.4	31	29.6	30.8	24	30.5
	Egypt	31.2	29.2	30	30	33	30	33	31	33	32
	Pakistan	26.6	31.2	31	31.4	32	32.4	31.2	33	32	33

The ranking made in Table 2 is obtained by assuming that countries have high sustainability capacity in terms of economy. While the rankings under the Model 1 column are made by dividing the indicators to GDP, the rankings under the Model 3 column are obtained by dividing the indicators by the population.

In the five-year period, South Korea's performance divided to GDP was at the bottom of Group I, and it dominated the first place in the per capita ranking between 2000-2021. Likewise, Japan, Indonesia, the United States, France, and Germany performed better in terms of indicators to population, although they were at the level of Group II countries in macroeconomic performance indicators to GDP ratio. In particular, the United Arab Emirates was the country with the lowest performance according to Model 1 between 2000-2004, while it was one of the three countries with the best performance according to Model 2.

On the other hand, although the performances of Russia, Türkiye, Malaysia, Bulgaria, Thailand and China are high in terms of GDP ratio, their per capita ratio performances are quite low. While Russia, China and Thailand have higher performance on the Model 3, their performance on the Model 1 has declined over the years. Among the countries in Group III, there is no country that has experienced a major change, except Thailand and Mexico. Even if the macroeconomic performance of countries is low, the distribution of performance by population is still balanced. The performance of South Korea, Japan, Israel, Czechia, France, Hungary, Italy, Russia, China, Poland, Argentina, Thailand, Türkiye, Mexico, Peru, Brazil and South Africa in the COVID-19 period compared to the past periods has risen in Model 1. Among these countries, except for South Korea, Israel, USA, Czechia, France, Hungary, Poland, Russia, China, Argentina, Thailand, Peru and Brazil could not show their improved macroeconomic performance in per capita ratio.

Although the GDP performance of the countries is low, it can be stated that those with high per capita performance distribute the welfare more evenly. The COVID-19 period (although the crisis started in some countries in 2019, it affected the last quarter of the relevant year) not only expresses the health crisis, but also shows that the preferences and priorities

[4] The average rankings for the years are calculated with the $r_i = \frac{\sum_{t=1}^{k} v_t}{n}$ formula.

of public authorities have changed. As this period reflects the process in which the social state understanding has been brought to the fore by increasing the expenditures and debts of public authorities in general, it has caused changes in the performance rankings. Therefore, despite the decrease in GDP performances, it has become more likely to expect an increase in population-based performances.

In terms of macroeconomic performance, although developing countries can rank high in the GDP ratio, it seems possible that their rankings will be lower when it comes to these per capita indicators. It can be said that despite the increasing probability of convergence of developing countries to developed countries, they are at the beginning of the road they need to take in terms of reflecting the welfare they will achieve to individuals. On the other hand, the fact that developed countries underperform in a coordinated manner both in terms of GDP ratio and per capita ratio may interpreted to show a balanced outlook in terms of distribution. However, it can also be interpreted that the facilities and resources of the relevant countries do not use the expected capacity.

Table 3. Ranking by GDP and Per-Capita Indicators (Model 2 – Model 4) [5]

	Country	2000-2004		2005-2009		2010-2014		2015-2019		COVID-19 (2020-2021)	
		Model 2	Model 4	Model 2	Model 4	Model 2	Model 4	Model 2	Model 4	Model 2	Model 4
Group I	Israel	23.2	3	20.2	7.2	18	4.6	17.2	4	12	1.5
	U.A.E.	11.2	1.8	12.8	6.6	5.8	2	6	1	16	1.5
	Czechia	6.8	9.4	11	6.4	9.4	7.2	2.2	4.2	2	3
	Saudi Arabia	12	8.2	1.6	1.8	1	1	1.6	2.2	5.5	4
	Australia	7.4	5	9.8	3.8	18.4	3.4	19.2	5.6	22.5	5.5
	Germany	22.6	4.8	19.8	5.6	18.2	5.6	13	6.4	16	5.5
	Canada	15.2	4.6	17.6	6	23.2	7	21	8.4	27	8
	France	22.2	7	25.8	8.4	27.4	10.4	23	8.4	26	8
	China	2.4	21	2.4	15.4	2	10.8	6.8	9	6.5	8.5
	Italy	29.8	10	29.2	11	28.4	12.6	26.6	13	28.5	10
	U.S.A	26	10.8	29	13.6	30.8	17	30.2	11.8	32.5	11
Group II	Russia	3.6	16.2	3.2	11	6.8	10.4	6.2	13.2	3	11.5
	Bulgaria	10	18.8	7.2	17	11	18.8	6.8	15.8	4.5	13.5
	Poland	23.8	15.8	25	18.4	22.4	15.8	16.6	16	16	13.5
	Malaysia	2.6	10.4	6	10.4	7.8	9	10.4	12	11.5	15
	Thailand	5	16	4.4	18.6	4.4	15.6	3.2	16	5.5	16
	United Kingdom	21.8	13.2	30	19	30.4	24.2	27.2	18.8	25.5	17.5
	Romania	23.4	24	22.8	19.8	14.4	16.4	18	19.8	19.5	18.5
	Türkiye	8.8	17.4	12.6	16.8	12	17.4	13.8	18.2	11	18.5
	Japan	31.6	32.2	31	31.4	32.4	32	30	24.6	31	20.5
	Peru	13.8	22.2	13.4	24.4	5.8	19	11.2	21.2	9	20.5
	Mexico	14.8	16	18	21.2	21	22.2	20.2	22.4	15.5	22.5
	Brazil	26.4	23.6	23.6	22.6	24.6	19.8	31.6	23.4	24.5	23.5
Group III	South Africa	18	24.8	16	25.6	23.2	25.2	24.4	24.8	23	24.5
	Bangladesh	19.2	29.8	18.2	28	15.2	28.8	12.8	28	10	26
	Korea	1.8	3	4.6	3.2	4	7.2	4.6	6.4	2.5	26.5
	Argentina	19.6	18.8	12.4	18.8	22.8	23.4	29.8	27.2	23.5	27
	India	30.4	28	24	27	23.8	27.8	25	28.8	22.5	27.5
	Philippines	21.8	27.2	17.6	27	13.8	26.4	15.6	26	23	27.5
	Hungary	20.8	29.6	26	32	14.2	27.2	16.6	29.4	15	29.5
	Egypt	33	26	31.2	25.4	32.2	29.8	33	30.6	32.5	31
	Pakistan	22.2	29.6	24.8	29.4	26.8	30	27	31.4	28.5	31
	Indonesia	9.8	32.8	9.8	28.2	9.4	33	10.2	33	9.5	33

The ranking in Table 3 is obtained by assuming that the sustainability capacity of the countries is low in terms of economy. In this context, the rankings under the Model 2 column were obtained by dividing the variables by GDP, while the rankings under the Model 4 column were obtained by dividing the variables by the population. As seen in Table 1, indicators are assumed to be negative effect in terms of consumption and expenditure in Model 1 and Model 4.

Even though Israel, United Arab Emirates, Australia, Germany, Canada, France, Italy, USA, Poland, United Kingdom, Brazil and India have lower GDP ratio performances in the respective years, their per capita ratio performance is relatively better. It is seen that Israel's macroeconomic development over the years has been successful in its distribution to the population.

[5] The average rankings for the years are calculated with the $r_i = \frac{\sum_{t=1}^{k} v_t}{n}$ formula.

Among the developed countries, Israel, Australia, France, Italy, the USA and the United Kingdom have a relatively lower success rate in terms of GDP ratio performance. However, it is seen that these countries achieve very good rankings in terms of per capita ratio whereas low performance achievements with GDP ratios. Even if these countries have achieved a performance with a GDP ratio that is below their potential, it can be said that the effect that spreads to the population is better. While most of the countries in Group I are behind Model 2, they have higher performance compared to Model 4. While only the United Kingdom and Japan are in the developed country category in Group II, there is not a developed country listed in Group III.

On the other hand, Czechia, Saudi Arabia, China, Russia, Bulgaria, Malaysia, Thailand, Romania, Türkiye, Japan, Peru, Mexico, South Africa, Bangladesh, South Korea, Argentina, Philippines, Hungary, Egypt, Pakistan and Indonesia showed good performance in GDP ratio however, their performance per capita is low. For example, if South Korea was ranked according to GDP, it would be in Group I countries, but in the per capita ranking, it is seen that the opposite is came true. Even though the United Arab Emirates and Saudi Arabia are similar countries in terms of commodities, it is seen that the United Arab Emirates has a much better performance in per capita ratio. Although the USA ranks in Group III by GDP ratio, it is in Group II in terms of per capita ratio.

When both tables are compared, it is seen that the European Union member countries are generally in Group I and Group II in the ranking according to Model 3 and Model 4. Although the development experiences and economic cultures of the member countries of the European Union are different from each other, it is seen that their performances are similar to each other. Likewise, it is seen that the developed countries of East Asia rank high in Models 1,2,3 and 4. The performances of the European Union and East Asian countries should be addressed in future studies as evidence that development is more balanced in collective cultures. Comparing the countries that are richer in terms of commodities, it is seen that the per capita performance of the United Arab Emirates has a more successful ranking in each model.

It is seen that even though the rankings of the emerging markets countries in terms of GDP are good, their per capita rankings are quite low, and most of them are in the middle ranks of Group II countries. The low per capita performance of these countries, which are in the process of development, shows that they have moved away from the perspective of developed countries where the individual perspective is centred. Likewise, while developed countries had a lower level of performance for per capita ratio between 2000-2004 and 2005-2009, this phenomenon turned into better per capita ratio performances over time, and an individual-centred development process has started to follow. In the period of 2005-2009, when the Global Financial Crisis was experienced, the best performance belongs to Saudi Arabia, which is rich in commodities. In addition, it is seen that the member countries of the European Union increased their performance per capita ratio both in the Global Financial Crisis and the COVID-19 Crisis.

It examined whether the scores obtained from the data created by dividing GDP and per capita contain a statistically significant difference according to the periods. For this reason, in order to determine the test to be used, whether the scores are normally distributed or not was examined with the Kolmogorov Smirnov test. If the null hypothesis is not rejected for the normally distributed data set, it means that the data set is consistent with the assumption of normality. However, if the null hypothesis is rejected for the remaining three data sets that are not normally distributed, it means that these data sets do not follow a normal distribution, and their distributions may be skewed, leptokurtic, or otherwise non-normal. As expected, the null hypothesis is not rejected for the normally distributed data, but is rejected for the remaining three data sets that are not normally distributed. As a result of the test, it was determined that the scores were not normally distributed ($p<0.05$). In this case, the non-parametric equivalent of the t-test for dependent groups was the Wilcoxon Signed Ranks test. Wilcoxon Signed Ranks Test is usually applied to the comparison of locations of two dependent samples. The null hypothesis in the Wilcoxon signed-rank test is that the set of pairwise differences has a probability distribution centred at zero. A key assumption is that the differences arise from a continuous, symmetric distribution (Wilcoxon, 1945).

Table 4. Paired Samples Statistics

	Period		Descriptive Statistic		Kolmogorov-Smirnov Test		Wilcoxon Signed Ranks Test	
			N	Mean	Test Statistic	Asymp. Sig.	Z	Asymp. Sig.
Model 1- Model 3	2000-2004	$\bar{y}_1^*$	33	1.030	0.153	0.049	-3.100	0.002
		$\bar{y}_3^*$	33	0.625	0.211	0.001		
	2005-2009	$\bar{y}_1^*$	33	1.002	0.215	0.000	-3.225	0.001
		$\bar{y}_3^*$	33	0.647	0.182	0.007		
	2010-2014	$\bar{y}_1^*$	33	0.979	0.209	0.001	-3.672	0.000
		$\bar{y}_3^*$	33	0.630	0.174	0.012		

	2015-2019	$\bar{y}_1^*$	33	0.998	0.188	0.005	-3.797	0.000
		$\bar{y}_3^*$	33	0.644	0.215	0.000		
	COVID-19 (2020-2021)	$\bar{y}_1^*$	33	0.978	0.180	0.008	-3.654	0.000
		$\bar{y}_3^*$	33	0.626	0.198	0.002		
Model 2- Model 4	2000-2004	$\bar{y}_2^*$	33	0.049	0.214	0.001	-2.082	0.037
		$\bar{y}_4^*$	33	0.163	0.211	0.001		
	2005-2009	$\bar{y}_2^*$	33	0.070	0.196	0.003	-1.867	0.062
		$\bar{y}_4^*$	33	0.162	0.193	0.003		
	2010-2014	$\bar{y}_2^*$	33	0.018	0.193	0.003	-2.475	0.013
		$\bar{y}_4^*$	33	0.147	0.266	0.000		
	2015-2019	$\bar{y}_2^*$	33	0.031	0.198	0.002	-2.814	0.005
		$\bar{y}_4^*$	33	0.161	0.299	0.000		
	COVID-19 (2020-2021)	$\bar{y}_2^*$	33	0.002	0.195	0.003	-2.886	0.004
		$\bar{y}_4^*$	33	0.144	0.321	0.000		

It has been determined that there is a statistically significant difference between the mean of y_1^*, y_2^* y_3^* and y_4^* scores calculated for the periods according to the Wilcoxon Signed Ranks Test result. When the Model 1 – Model 3 average score were examined, it was determined that the score averages created by dividing GDP were higher than the average score per capita ratio.

On the other hand, when the Model 2 – Model 4 average score were examined, it was determined that the score scales formed by dividing GDP were lower than the average scores per capita ratio.

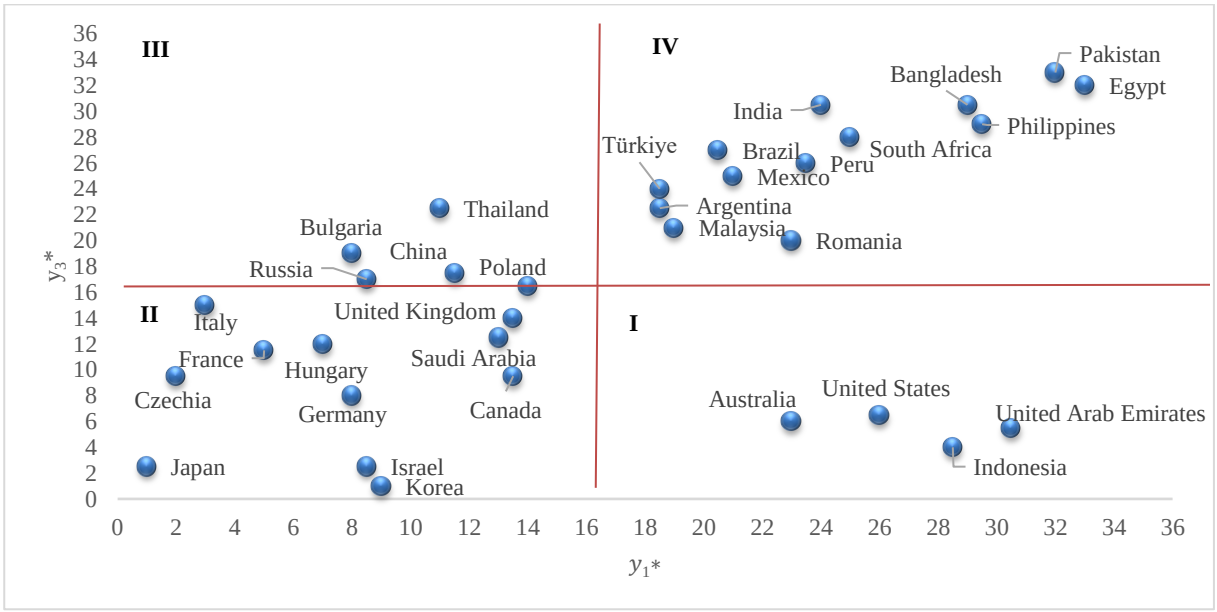

Figure 1. Distribution of Countries by Model 1 and Model 3 Scores in the COVID-19 Period[6]

In Figure 1, the x-axis represents the GDP ratio performance, while the y-axis represents the per-capita ratio ranking. Except for Poland, Bulgaria and Romania among the European Union member countries, all countries performed relatively balanced in both per capita ratio and GDP ratio. Despite that; Pakistan, Philippines, Egypt, Bangladesh, South Africa, India, Peru, Mexico, Türkiye, Argentina, Malaysia and Romania ranked low in macroeconomic performance per capita ratio. It is seen that the USA, United Arab Emirates, Australia and Indonesia perform poorly in GDP ratio ranking, while they perform well in per capita ratio ranking. Thailand, Bulgaria, China, Poland and Russia are seen to rank well in terms of GDP ratio but low in performance per capita ratio.

[6] When calculating the y_1^* ve y_3^* cores, it is considered that only imports have a negative effect on the economic performance index. In addition, the years 2020 and 2021 were considered as the COVID-19 period and the arithmetic average of the two years was used.

Considering the high share of Russia, Thailand and China in the world market, it seems normal that the good macroeconomic performance in GDP ratios instead of per capita ratio. Nevertheless, it is very critical whether Bulgaria and Poland, which are clustered in different groups, have a role as a production centre, despite the fact that the same is the case with the member states of the European Union.

As seen in Figure 1, per capita performance is relatively better in developed countries. Even though China and India constitute the majority in terms of population, it is seen that China performs better per capita ratio ranking than India. The fact that the macroeconomic performance is not evenly distributed among the countries reveals the possibility that the gap between the rich and the poor in the relevant countries will widen in the future.

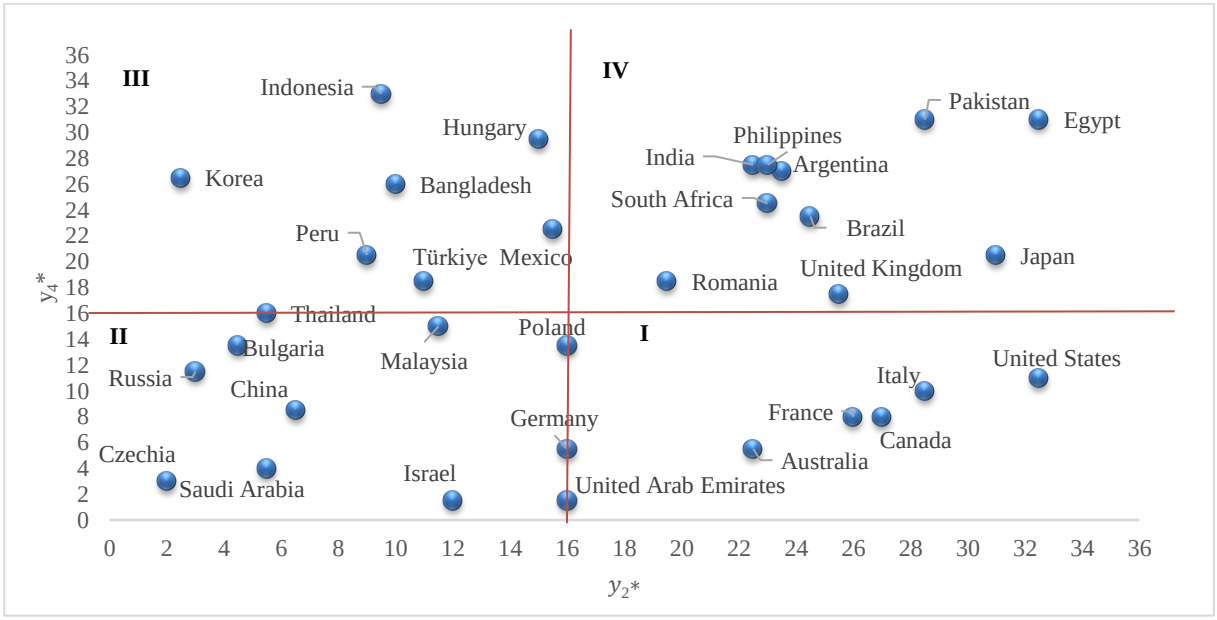

Figure 2. Distribution of Countries by Model 2 and Model 4 Scores in the COVID-19 Period

In Figure 2, the x-axis represents the GDP ratio ranking, while the y-axis represents the per-capita ratio ranking. Figure 2 shows a more heterogeneous distribution than Figure 1. In this figure, which shows the distribution of country scores according to Model 2 and Model 4, it is seen that countries diverge from each other instead of clustering at certain points in the distribution. The differences in the sustainability characteristics of the countries have caused these countries to diverge from each other.

With the change observed in Figure 2, it shows that the usage areas of debt do not have a welfare-enhancing content despite the public authorities and household borrowing. In Figure 1, it can be said that both the public authority and the household have a more balanced expenditure and consumption for the countries in the area number I. Therefore, area I in Figure 2 indicates that despite the low probability of sustainability, welfare has a positive distribution in terms of both GDP ratio and population ratio. Likewise, it can be said that there is a problem with the sub categories of imports behind the low performance of the countries in the IV region in Figure 1, both in GDP ratio and per capita ratio. For example, if these countries are the one who need commodity and intermediate imports, it should be considered that there will be problems in terms of production and consumption.

The relocation of the countries in Figure 1 and Figure 2 is proof that countries are going through a process of change and transformation. With the negative direction of macroeconomic indicators calculated between the two figures, countries experienced one-unit shifts from the numbered areas around the origin. Indonesia has shifted from area I to III, such a change shows that there is a change in the opposite direction of the ranking and that the country has an improving capacity at per capita ratio. On the other hand, Japan and the United Kingdom have shifted II from IV and indicates a deterioration in both per capita ratio performance and GDP ratio performance.

Countries that have shifted from area IV to area III are Peru, Malaysia and Türkiye, while countries that have shifted from are III to II are Bulgaria, Russia, China and Poland. At this point, the transition from higher performance areas to lower performance areas indicates that the current problems and fragile areas of countries whose sustainability capacity has changed have emerged. If problems have arisen in the high design of the efficiency and effectiveness of resource allocation, there is an imbalance in the expenditures and debts of public authorities and households, as seen in Figure 1 and Figure 2.

Conclusion and Discussion

Assuming that public authorities are a mechanism that reflects the decisions and preferences of individuals. So, it is expected that the decisions they take will collectively reflect the intention and desire of each actor that makes up the society and reach results in line with these wishes. In this sense, measuring the macroeconomic performance of countries should not only determine the performance of the public authority in office, but also promise to have the opportunity to comment on the welfare of individuals living in that country. In the literature, macroeconomic performance analyses are made in indicators to GDP, which is seen as a measure of welfare, but considering the persistence of paradoxes about GDP, the need for an alternative method arises. Due the macroeconomic performance may not always reflect the wellbeing of the individuals living in the society, it is difficult to analyse whether it shows a balanced distribution in the countries or not. On the other hand, indicators to per capita ratios are valuable in terms of seeing how economic outlook is reflected for society, whether public authorities are successful in preventing the systematic increase of social inequality or not and where the understanding of the social state has evolved in this century.

In this study, an eclectic perspective was followed; two ranking tables were created in which the impact aspects of the indicators, and then the analysis was made by the per capita and the GDP ratios of the indicators. According to the findings of the study, it has been observed that the macroeconomic performance ranking has completely changed with the change in the direction of the impact of the indicators. With the onset of COVID-19 there has been an increase in public debt, public expenditures and consumption expenditures, and accordingly, there has been a shift in the ranking of countries by per capita indicators.

In the analysis made according to the variables discussed in Model 1 and Model 3, it is understood that developed countries perform better in distributing welfare, while emerging markets have a lower per capita macroeconomic performance, although they have good macroeconomic performance with GDP ratio. On the other hand, in the ranking created according to Model 2 and Model 4, in which the alternative scenario where the sustainability of the countries may be low, it was seen that the countries included in the European Union had similar performances. When the performances with per capita indicators are examined in general, it is seen that developed countries perform better than developing countries. The attitude and preferences of public authorities indicate whether the form of economic development prioritized by countries is society-oriented or individual-oriented. It has been found that if public authorities enclose from a sustainable economic attitude, their economic performance deviates from the desired manifestation both in indicator to GDP and per capita.

In the new world order, where societies begin to become heterogeneous and collective perceptions are mostly replaced by individualism, it should be kept in mind that the individuals are the determining of economics. Also, they are both implicit and explicit power in this mechanism so the macroeconomic performances shown cannot be kept independent from the individual. Therefore, it is very important to evaluate macroeconomic performance with per capita indicators. If the data set used in this study is changed and calculations are made by using sub-indicators rather than headline values, it is possible to see differences in the calculation of macroeconomic performance by per capita. To sum up, it is a necessity to diagnose how macroeconomic performance is reflected in the whole society as well as the way the cost of welfare is reflected to individuals. In future studies, it can be determined how the welfare will be direct to the whole society and what could be the reason for the deadlocks in the distribution of welfare.

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