Investigation of the Effects of Economic Indicators on Child Mortality: Panel Data Analysis

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ABSTRACT

The health level of society is an indicator of development as a whole, and it is monitored through various indicators. Among these indicators, infant and child mortality are followed by both countries and international organizations. The purpose of this study is to determine what effect economic variables have on infant and child mortality. A Panel data analysis was used as a method in the study. Eviews 10.0 and Stata 15.0 package programs were used for data analysis. While the research universe is composed of 132 countries in the middle-upper income and high-income groups in the World Bank classification; The sample of the research consists of 49 countries whose data are taken. The time dimension of the study constitutes the 2000-2019 periods and the data types of the variables were used annually. While variables representing child mortality are used as dependent variables in the study; Gini index value representing income distribution, Gross Domestic Product (GDP), per capita income, public expenditure level, and the unemployment rate were used as independent variables. As a result of the research, it has been revealed that there is a positive relationship between the unemployment rate and income inequality and under-five mortality and neonatal deaths. Also, it has been observed that there is a negative relationship between the increase in public expenditure, per capita income and the level of GDP, and under-five mortality and neonatal deaths. It has been observed that the neonatal mortality rate is affected by economic variables more than the under-five mortality.

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INTRODUCTION

The economic indicators of a country significantly affect many variables from the welfare and health level of the society, to employment opportunities and use of technology. The economic situation of the country is monitored through many indicators such as Gross Domestic Product (GDP), per capita income, unemployment rate, and Gini coefficient showing income distribution. Economic indicators and the health level of the society are in a mutual and strong relationship (Sachs, 2001; Gyimah-Brempong and Wilson, 2004; Dreger and Remers, 2005; Çetin and Ecevit; 2010; Pradhan, 2011; Mehrara and Musai, 2011). In economic development, the investment made on the individual, namely the human being, is considered important due to its effect on many direct and indirect factors (Çelik, 2016; Smith, 2006). In this context, Odrakiewicz (2012) emphasized in her study that health expenditures should be seen as an investment rather than a cost. The health level of the community is monitored with indicators such as life expectancy at birth, maternal mortality rate, under-five mortality rate, and infant mortality rate, and are used in studies showing the relationship between economic development and health. The increase in the health indicators of the society is an indicator of development in every sense and has also been included in international documents. The goals of increasing health indicators have always been included in the sustainable development goals and have been prioritized globally (United Nations, 2000; United Nations, 2015).

Countries make public expenditures to increase the health level of the society and aim to increase the health indicators. At this point, studies on the subject have revealed that health expenditures have a significant effect on reducing child mortality, infant mortality, and increasing life expectancy at birth (Çevik, 2013; Nixon and Ulmann, 2006; Berger and Messer, 2002; Heijink et al., 2013; Moreno-Serra and Smith, 2015; Deluna and Peralta 2014). In a different study, Kim and Lane (2013) showed that the increase in public health spending was the same directional relationship as the increase in health indicators.

Another economic indicator, the level of income per capita, also significantly affects health at individual and social levels. Studies conducted on this subject have revealed that an increase in the income level of individuals has a positive effect on health indicators (Easterly, 1999; Akram, 2009; Kim and Lane, 2013).

There is a strong link between unemployment, another of the economic indicators, and health indicators (Labonté, 2009). Unemployed individuals are negatively affected both physically and psychologically, and their health status is negatively affected due to worsening conditions such as nutrition, housing, and sanitation (Kessler et al., 1987; Jin et al., 1995; Dooley et al., 1996). Studies conducted in this context have also revealed that unemployment and health indicators are negatively correlated (Mathers and Schofield, 1998; Aydın, 2020).

Income distribution in the country is also one of the important indicators affecting the level of health. One of the most widely used tools to measure the income distribution of countries is the Gini coefficient. The Gini coefficient takes a value between zero and one and shows that as it approaches zero, the income equality, and the closer to one, the income inequality increases (Şenses, 2017). Studies examining the relationship between income inequality and health indicators have demonstrated that there is a strong relationship between these two variables and that increasing income inequality leads to adverse health consequences (Kawachi and Kennedy, 1999; Holcman et al., 2004; Materia et al., 2005; Çoban, 2008; Kim and Lane, 2013).

Economic growth also correlates with the health level of society. Growth has traditionally been measured in percentages of GDP or real GDP growth rate (Uçan ve Atay, 2016). Studies conducted in this context reveal that the positive course of health indicators affects the growth of countries positively. On the other hand, the negative course of health indicators such as infant and child mortality rates causes countries to slow down and/or negatively affect their economic growth (Bloom and Sachs, 1998; Bloom et al., 2001; Mayer, 2001; Chakraborty, 2004; Elmi and Sadeghi, 2012; Cooray, 2013).

The averages of neonatal and under-five mortality averages, which are the subject of the research, between 2000 and 2019 are presented in Table 1.

Table 1. Neonatal and under-five mortality averages of countries by income groups (2000-2019)

Variable	Low-income and low-middle-income countries neonatal rate	Low-income and low-middle-income countries under-five mortality rate	Upper-middle-high income countries neonatal rate	Upper-middle-high income countries five mortality rate	High-income countries neonatal rate	High-income countries five mortality rate
Avarage Values	28.26	75.3	22.93	24.61	4.3	7.71

As seen in Table 1, there are significant differences between income groups. The graphs of the neonatal and under-five mortality rates of the relevant income groups between 2000 and 2019 are presented in Chart 1 and Chart 2.

Chart 1. Neonatal rates of countries by income groups (2000-2019)

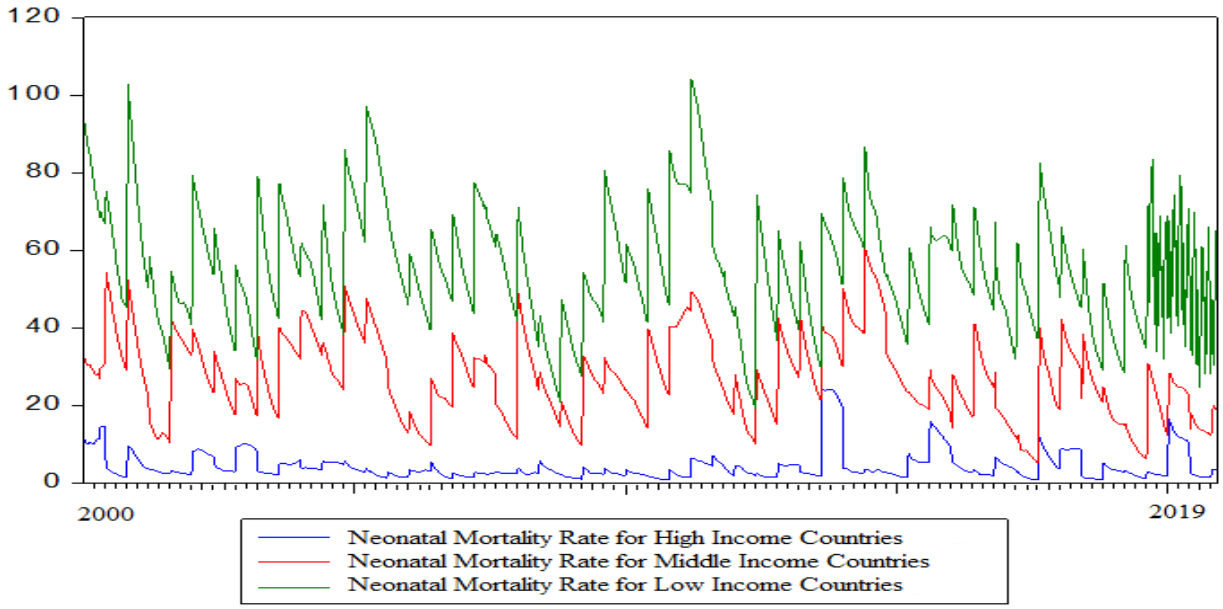
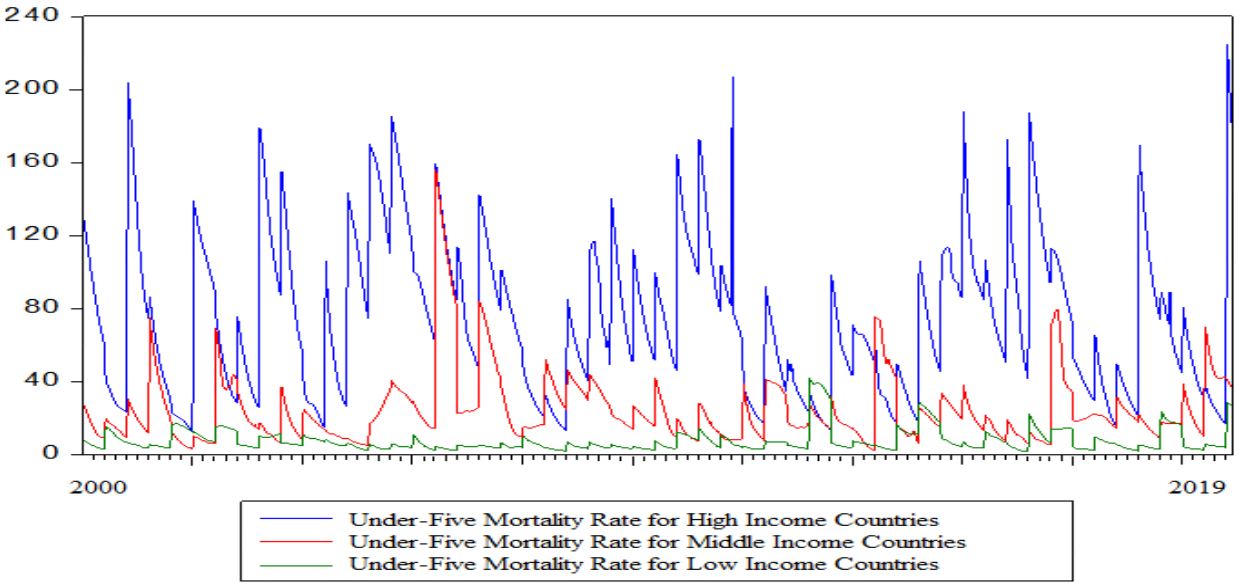


Chart 2. Under-five mortality rates of countries by income groups (2000-2019)



MATERIALS AND METHODS

Child mortality indicators for a country are the most important indicators that provide information about the development level of the country. Countries set various targets for reducing child mortality and implement projects on a global scale. The importance of child mortality reveals the need to examine all factors affecting the indicators related to this issue separately. The most important factor affecting child mortality, starting from the individual to the global scale, is the economic variables. In this regard, the purpose of this study is to determine how economic variables affect infant and child mortality. Panel data analysis method was applied for the research, Eviews 10 and Stata 15.0 analysis programs were used.

While creating the universe of the research, the World Bank's classification of countries according to their income was taken into consideration. The World Bank has classified countries according to 4 different income statuses. The classification in question is low-income countries, low-middle-income countries, upper-middle-income countries, and high-income countries. The universe of this research is upper-middle-income and high-income countries. According to the World Bank's grouping, although there are 132 countries in the universe group, the data of only 49 countries were reached and these countries were included in the analysis. Countries whose included in the study, 32 are developed, and 17 are developing countries. The choice of variables was chosen as a result of a wide literature review and to cover the purpose of the study in the most appropriate way, factors other than economic variables were ignored. The data types of the variables are annual and the time dimension of the study is between 2000-2019. The variables used in the model are presented in Table 2.

Table 2. Definition of Variables

Variables	Symbol
Gross Domestic Product	Lngdp
Gini Index Value	dlngini
Per Capita Income	dlnpci
Unemployment Rate	Lnunemploymentrate
Public Spending Amount	Lnpublicspending
Neonatal Death Rate	Lnneonatal
Under-five Mortality Rate	Lnunderfivemortality

The stationarities of all variables in Table 2 have been checked, except for the Gini index value and per capita income variables, other variables were found to be stable. Non-stationary series, on the other hand, were made stationary by taking their primary differences and included in the model with their stationary state. While variables representing child mortality are used as dependent variables in the study; other variables were used as independent variables to measure the effect on these dependent variables. A separate econometric model for each dependent variable was developed and the predictive coefficients of the independent variables were examined separately. The mathematical representation of the developed models is presented in Table 3.

Table 3. Mathematical Representation of Models

Model 1 (Lnunderfivemortality)	Lnunderfivemortality $i,t = c + \alpha1(dlngini)i,t + \alpha2(dlnpci)i,t + \alpha3(Lngdp)i,t + \alpha4(Lnunemploymentrate)i,t + \alpha5(Lnpublicspending)i,t + \varepsilon i,t$
Model 2 (Lnneonatal)	Lnneonatal $i,t = c + \alpha1(dlngini)i,t + \alpha2(dlnpci)i,t + \alpha3(Lngdp)i,t + \alpha4(Lnunemploymentrate)i,t + \alpha5(Lnpublicspending)i,t + \varepsilon i,t$

While the dependent variable is located on the left side of the equations for both models; The independent variables used in the aforementioned models are given on the right side. Other symbols on the right side of equality represent the constant variable "c", the estimator coefficients of the independent variables "α", the error term "ε", the horizontal section "i", and finally the period information "t". Although different variables are used when estimating a dependent variable in panel data analysis modelling, some variables affect this dependent variable but cannot be measured or are not included in the model. The effect of variables that cannot be predicted or not included in the model within the scope of the model is collected in the error term "ε".

RESULTS

Three different approaches have been developed for each panel data model. Which approach is the most appropriate of each model is determined with the help of the tests to be made. These approaches are; fixed-effects approach, random-effects approach, and pooled model approach. Also, panels are divided into macro and micro, taking into account the size of the time they cover. Baltagi (2013), one of the leading names in panel data, defines panels with 20 periods or less time size as micro, more than 20 periods as macro panels. In the same study, Baltagi did not consider it necessary to provide stationary states due to the short time dimension of the variables used in micro panels; He stated that it is important to ensure the stationarity of macro panels. There are differences in the basic assumptions that the panels should provide according to their micro and macro status. Since the time

dimension of this research is 20 periods, the analysis continued under micro panel assumptions.

Models obtained in panel data analysis studies are required to provide certain assumptions. Both predictive values and analysis results of models that do not provide basic assumptions are misleading. In this direction, the basic assumption results for both models will be tested and the findings of the models created at the end of the section will be given.

One of the basic assumptions of panel data is the multiple linear connection problem. The variables used for panel data analysis studies are careful not to have variables with high correlation with each other. If this issue is not paid attention to, it is inevitable to have a multiple linear connection problem in the model. Different methods have been developed to determine the multiple linear problems in a model. One of these methods is to find Variance Inflation Factor (VIF) values of variables. Brien (2007) suggested using the ($1/1-R^2$) formula while calculating the VIF values of variables. As a result of the application of the formula in question, it has been stated that the VIF threshold value can be accepted up to 4 in some studies, up to 5 in some studies, and up to 10 in some studies (Açıkgöz, Uygurtürk, and Korkmaz, 2015). In this study, the VIF values of the variables to be used in the models should be calculated and the variables above the threshold value should be excluded from the model in order not to cause a multi-linear connection problem. VIF values for the variables of the study are presented in Table 4.

Table 4. Variance Inflation Factor Values of the Variables

Variable	R^2	VIF Value
dlngini	0.31	1.44
dlnpci	0.74	3.84
Lngdp	0.56	2.27
Lnunemploymentrate	0.16	1.19
Lnpublicspending	0.39	1.63
Lnneonatal	0.27	1.36
Lnunderfivemortality	0.49	1.96

VIF values of the variables were obtained by using the $1/1-R^2$ formula in Table 4. As can be seen in the table, it is seen that the VIF values of the variables are all lower than the most critical 4 values. With these results, it is seen that among the variables included in the model, no variable will cause a multiple linear connection problem. Since the VIF values of the variables were below the threshold value, all variables were included in the model and the analysis continued. The next step is to determine with which approach to estimate panel data models. Tests for determining panel data model approaches are shown in Table 5.

Table 5. Panel Data Model Determination Approach Tests

Model / Test	Model 1 (Lnunderfivemortality)		Model 2 (Lnneonatal)	
	Statistics Value	Probability Value	Statistics Value	Probability Value
F-Fixed Effects	71.52	0.000	23.98	0.000
Hausman Test	73.85	0.000	14.22	0.0142

During the panel data modelling process, it is first checked whether the model is suitable for the pooled model structure. The conformity in question is carried out by the F test. While the acceptance of the H_0 hypothesis in the F test indicates that the pooled model is appropriate; rejection indicates that the pooled model is not suitable. When the F test statistics results for both Model 1 and Model 2 are examined, it is seen that the models to be developed are not suitable for the pooled model structure. The next process is to determine whether the model will be estimated using the fixed-effects approach or the random-effects approach. The determination decision in question depends on the result of the Hausman test statistics. The Hausman test is based on the validity of the random effects approach and it is seen that the fixed effects approach is valid if it is rejected in the test result. As a result of Hausman test statistics made separately for both models, it was understood that H_0 hypotheses were rejected, in other words, models should be estimated with a fixed-effects approach. After determining which approach is valid in the models, it should be checked whether there is an autocorrelation problem or not.

The autocorrelation problem is one of the important problems in panel data studies. This problem should not exist in the developed models. If the existence of autocorrelation is detected in a model, it is understood that the error terms of the variables in the model are related to each other. In the presence of an autocorrelation problem in models, this problem should be resolved in order not to make wrong evaluations. Autocorrelation test results for the models are presented in Table 6.

Table 6. Autocorrelation Test Results in Models

Test	Model 1 (Lnunderfivemortality)		Model 2 (Lnneonatal)	
	Statistics Value	Probability Value	Statistics Value	Probability Value
Baltagi-Wu's Local Best Fixed Test	1.02	0.000	1.22	0.000
Durbin-Watson Test	0.46	0.000	0.55	0.000

Because the fixed effects approach is valid for both models, the H_0 hypothesis established that there is no autocorrelation is rejected and it is understood that there is an autocorrelation problem in the models. On the other hand, it is known that the fact that these test values in question have a value less than 2 indicates autocorrelation. The fact that the statistical values obtained for both models are quite smaller than 2 seems to be the problem of autocorrelation. After the problem of autocorrelation is detected in the models, the next step is to check whether there is a problem of varying variance. In Table 7, the results of the varying variance heteroskedasticity test are presented.

Table 7. Varying Variance Heteroskedasticity Test

Test	Model 1 (Lnunderfivemortality)		Model 2 (Lnneonatal)	
	Chi2	p	Chi2	p
Modified Walt Test	207.74	0.000	6.9	0.000

Models established using the panel data analysis method are built on fixed variance. The change in the variance value due to the changes in the units is seen as an important problem and is named as the varying variance. In the presence of varying variance, it causes to obtain incorrect estimators.

Different tests have been developed to check for varying variance in a model. Since the constant effects approach is valid in both models, the varying variance state was checked with the modified Walt Test. As a result of the test, it is seen that the H_0 hypothesis, which was established as there is no varying variance in both models, is rejected and there is a variance problem. Robust correction tests should be performed to eliminate these problems in models. After determining the horizontal cross-section dependence in the models, it will be decided which robust correction test to apply. Table 8 shows the results of the cross-section dependency test.

Table 8. Cross Section Dependency Test

Test	Model 1 (Lnunderfivemortality)		Model 2 (Lnneonatal)	
	Statistic	Prob	Statistic	Prob
Breusch-Pagan LM	1188.92	0.000	707.96	0.000
Pesaran Scaled LM	220.83	0.000	121.55	0.000
Pesaran CD	24.78	0.000	17.12	0.000

In Table 8, it was tested whether cross-sectional dependencies exist or not with three different tests for both models. H_0 hypotheses have been established that there is no cross-sectional dependency. When the test results are examined, it is seen that the H_0 hypothesis is rejected in both models and there is a cross-sectional dependency problem. When examining the basic hypothetical test results of the models, it is seen that there are problems with autocorrelation, varying variance, and horizontal cross-section adherence. Robust correction tests were applied to the models to eliminate these problems and get more accurate statistical results. The Driscoll and Kraay resistant robust correction test was applied, which was able to correct the effect of all three mentioned problems. More linear results were obtained thanks to the Driscoll and Kraay resistant robust correction estimator. In Table 9, the panel data results for Model 1 are presented.

Table 9. Panel Data Results for Driscoll and Kraay Standard Error Model 1

Dependent Variable: Lnunderfivemortality				
Method: Regression with Driscoll-Kraay standard errors				
Period: 2000-2019				
Horizontal Section: 49				
Total Number of Observations: 980				
Variable	**Coefficient**	**Standard Error**	**t-Statistic Value**	**Probability Value**
Lnunemploymentrate	0.106	1.4429	3.95	0.000
Lnpublicspending	-0.3060	1.2425	-11.20	0.000
Dlnpci	-1.284	5.342	-4.43	0.000
Lngdp	-1.318	1.187	4.11	0.000
Dlngini	3.382	6.600	2.02	0.058
C	35.47	23.73	9.45	0.000
R^2 : 0.27	**F-statistic:** 30.21		**Prob (F-Statistic):** 0.0000	

As seen in Table 9, the under-five mortality rate variable was used as the dependent variable in Model 1. As independent variables, GDP, per capita income, public expenditure level, unemployment rate, and Gini index value were used to represent income inequality. It was checked whether Model 1 provided the basic assumptions before reaching the estimation results. It has been observed that there are autocorrelation, variance, and cross-section dependency problems in Model 1. Driscoll and Kraay resistant robust correction test estimator was used to solving the mentioned problems from the model. After the robust correction test was done, the problems in the model were resolved. First of all, whether the model is meaningful in the holistic dimension was understood by looking at the F statistics and F probability value. While the F statistic value is 30.21 and the probability value of F is 0.000. In other words, it is seen that the model is meaningful as a whole. Another value to look at in the model is the R^2 value. R^2 value is the power of independent variables to explain the dependent variable in a model. It is seen that the R^2 value in the model is 0.27. The size or the smallness of the R^2 value in a model is affected by the specific properties of the dependent variable as well as the independent variable used. It is known that many variables other than those in the model affect the under-five mortality rate in a country. The aim of the study was that economic variables affected child mortality, so other variables were ignored. On the other hand, some variables are effective on the dependent variable but cannot be measured. Although it can be measured in panel data analysis, variables that are outside of the model or cannot be measured are collected in the error term.

In Model 1, all other variables except the Gini index value and unemployment rate variables appear to have a negative relationship with the dependent variable. In the event of a one-unit increase in the unemployment rate, under-five mortality is projected to increase by 0.10 units. On the other hand, a one unit increase in income inequality is predicted to cause an increase in the level of under-five mortality by 3.38 units. In the public expenditure variable, it is predicted that a one-unit increase in the amount of public administration's expenditure on society can lead to a 0.30 unit decrease in the under-five mortality level.

On the other hand, it is seen that income has an important effect on health indicators both in individual and national dimensions. It is predicted that a one-unit increase in per capita income level will result in a 1.28 unit decrease in under-five mortality level. Finally, it seems that the increase in the income level of a country has a negative relationship with the level of under-five mortality. In the event of a one-unit increase in GDP, it is assumed that 1.31 units can achieve a decrease in the level of under-five mortality. The results of Model 2, which examine the effects of these economic variables on neonatal deaths, are presented in Table 10.

Table 10. Panel Data Results for Driscoll and Kraay Standard Error Model 2

Dependent Variable: Lnneonatal				
Method: Regression with Driscoll-Kraay standard errors				
Period: 2000-2019				
Horizontal Section: 49				
Total Number of Observations: 980				
Variable	**Coefficient**	**Standard Error**	**t-Statistic Value**	**Probability Value**
Lnunemploymentrate	0.961	0.213870	4.49	0.000
Lnpublicspending	-0.244	0.8433	-3.32	0.001
Dlnpci	-1.64	1.0988	-2.13	0.033
Lngdp	-1.03	0.50	-2.04	0.000
Dlngini	4.31	2.5425	5.07	0.058
C	41.47	13.199	8.12	0.000
R^2 : 0.21		**F-statistic:** 178.88		**Prob (F-Statistic):** 0.000

As seen in Table 10, the neonatal infant mortality rate was used as the dependent variable in Model 2, and the independent variables are the same as the independent variables used in Model 1. In Model 2, the process followed in Model 1 was followed. First of all, it was checked whether the basic assumptions of the panel data were met. After the necessary control tests were performed, problems with autocorrelation, varying variance, and horizontal cross-section dependence were identified. A Driscoll and Kraay resistant robust correction test with resistance were used to eliminating these problems specified from the model. Whether or not Model 2 has a holistic significance can be understood by looking at the F statistic value and the F probability value. While the F statistic value of Model 2 was 178.88, the probability value of F was found to be 0.000. In other words, it is seen that Model 2 is meant as a whole. When the R^2 value is examined, it is seen that it is 0.21. When compared with similar studies in the literature (Aslan and Yapraklı, 2018: 170), it can be said that this rate is sufficient because the dependent variable is the neonatal mortality rate. Like under-five mortality, neonatal mortality can be affected by many factors. Since not all influencing factors can be included in the model, the value of R^2 is affected by this situation.

Parallel to Model 1, it is seen that the unemployment rate and Gini index variables are negatively related to the dependent variable and positively associated with the other variables in Model 2. Neonatal deaths are more sensitive compared to under-five mortality, so they can be more affected by economic variables. First of all, it is predicted that a one-unit of increase in the unemployment rate may affect the neonatal mortality level of 0.96 unit negatively. On the other hand, the existence of income inequality is seen to be effective in Model 2 in parallel with Model 1. It is predicted that a one-unit increase in income inequality in society may negatively affect the neonatal mortality level by 4.31 units. While it is estimated that a one-unit increase in public expenditure level may decrease neonatal deaths by 0.24 units. It is predicted that a one-unit increase in per capita income may decrease 1.64 units of neonatal deaths. Finally, a one-unit increase in GDP level is predicted to be a 1.03 unit decrease in neonatal deaths. Also, it is seen that the constant coefficient variables are significant in both models. The fact that the constant variable is significant indicates that the effect of the variables included in the model is also significant. According to Model 1 and Model 2, the possible effects of economic variables on infant and under-five deaths are presented in Table 11.

Table 11: The possible effects of economic variables on infant and under-five mortality according to Model 1 and Model 2

Economic Variable	**Change in Economic Variable**	**Change in under-five mortality**	**Change in neonatal mortality**
Unemployment Rate	1,00 ↑	0,10 ↑	0,96 ↑
Per Capita Income	1,00 ↑	1,28 ↓	1,64 ↓
GDP Level	1,00 ↑	1,31 ↓	1,03 ↓
Public Expenditure Level	1,00 ↑	0,30 ↓	0,24 ↓
Income Inequality	1,00 ↑	3,38 ↑	4,31 ↑

DISCUSSION

In this study, the relationship of child mortality with economic variables, one of the indicators that are closely related to the level of development of countries, was examined at a macro level to cover data sets of 49 countries. In the scope of the research, two dependent variables and five different independent variables were used. The time dimension of the research covers the periods 2000-2019. Since the time size covered by the study was 20 periods, the stasis of all series was studied, although it fell into the Micro-panel class. In this context, it was determined that income per capita and other variables except the Gini index value variable are stationary. The primary differences of non-stationary series were taken and made stationary and included in the model with these states.

As a result of the research, it has been revealed that there is a positive relationship between the unemployment rate and income inequality and under-five mortality and neonatal deaths, in line with similar studies on the subject. It was observed in Mathers and Schofield's (1998), and Aydın (2020) studies that unemployment and health indicators are negatively correlated. Also, Çoban (2008), Kim and Lane (2013), Collison et al. (2007), Ward and Viner (2017), and Araujo de Souza and Barbosa de Andrade (2020) revealed that income inequality causes negative health consequences. Also, it has been observed that there is a negative relationship between the increase in public expenditure, per capita income and GDP level, with under-five mortality, and neonatal deaths. In this context, Asumadu-Sarkodie and Owusu (2016), Moreno-Serra and Smith (2015), Deluna and Peralta (2014), Cooray (2013), and Akram (2009) concluded that the relevant indicators were positively correlated with health indicators in their studies. It has been observed in the study that the neonatal mortality rate is affected by economic variables more than the under-five mortality rate. Although it is seen that all variables affect child mortality, it has been determined that the greatest effect is the Gini index value used to represent income inequality. The important effect of income inequality in society on child mortality has also been revealed in the research findings.

Our research showed similarities with previous studies. Contrary to the studies on the subject, this study, in which we discussed child mortality with more than one economic indicator, provided a holistic perspective on the subject. In this study, 20 years of data from 49 countries and the relationship between economic indicators and infant and child mortality were examined using econometric models. Thanks to this research, it has been predicted to what extent and in what direction the changes that may occur in the economic indicators in the countries will affect infant and child mortality. In this research, child mortality indicators are examined at a more macro level thanks to panel data analysis models, as well as a guide for different health indicators.

CONCLUSION

An analysis of data from 49 countries that made up the sample of the study showed that economic indicators have a significant impact on many variables, as well as a significant impact on child mortality rates. On the other hand, the excess of child mortality has many effects on the development and economy of countries. A significant portion of child mortality can be reduced and/or eliminated by improving many issues. In particular, income inequality is even more pronounced in child mortality. It is thought that the steps that countries will take to reduce the income inequality in the society and spread the welfare to all segments of the society will affect many negative indicators as well as contribute to the health indicators and indirectly the development level of the country.

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Conflict of Interest:

The authors declare that they have no conflict of interest.

Ethical Approval:

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