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THE MACROECONOMIC DETERMINANTS OF NEET: A PANEL DATA ANALYSIS FOR FRAGILE FIVE COUNTRIES AND RUSSIA

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ABSTRACT

This study aims to investigate the impact of macroeconomic indicators on Not in Education, Employment, or Training (NEET) population in Brazil, India, Indonesia, South Africa, and Turkey accepted as Fragile Five countries and Russia 2005-2018 period by using the panel data analysis method. Gross Domestic Product Per Capita (GDP), Inflation Rate (Consumer prices, INF), Adjusted savings for education expenditure (% of Gross National Income, S), Foreign Direct Investment (FDI), HDI index data were used for explaining the NEET for selected countries. The relationship between variables was analyzed using the Panel Data Methods via Fixed-Effects Model. Therefore, according to the findings of Driscoll and Kraay Estimator- One-Way Fixed Effects Model, "HDI, GDP, FDI and S" variables have a statistically significant effect on NEET as the dependent variable. According to findings, while a 1% increase in HDI and FDI respectively give rise an increase of 2.14% and 0.03% on NEET, a 1% increase in GDP, and S resulted in a decrease of 0.77% and 0.38% on NEET. The findings of the correlation matrix of residuals revealed that the correlation between countries was highest between India and Brazil and the lowest between Russia and Indonesia. According to preliminary results requirement for human development indicators and attraction to FDI should be directed to rural areas for reducing the NEET rates in FFC.

Keywords: *Fragile Five, NEET, Youth Unemployment, Panel Data Analysis, Fixed Effects Model.*

JEL Codes: *F22, F50, F52*

1. INTRODUCTION

Youth unemployment is a sensitive issue for all countries, both local and global dimensions. Macroeconomic variables of countries intensely affect employment policies for all disadvantaged groups, especially youth. While countries' positive macroeconomic views may affect their growth and development goals, short and long-term employment strategies got not affected or negatively affected. This issue mostly depends on the type of country. In this context, instability in countries' macroeconomic indicators, economic and political crises, fiscal breakdowns, and financial distortions strengthen countries' possibility of being affected by unforeseen risks. While countries' vulnerability to these risks

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and shocks increases, the employment policies for women and youth, which are among the disadvantageous groups and need to get under protection, suffer. Besides, implementing these employment policies are not practical due to macroeconomic vulnerabilities. Academics have gradually drawn attention to an acronym in literature for young people who are Not in Employment, Education, or Training (NEET). In the literature, the young population's participation rates in the age range of 15-24 or 15-29 (depending on the definition of OECD, Worldbank, and ILO) to the labor force becomes impossible in the face of macroeconomic vulnerabilities. Rapid increases in the NEET rate leave young people in two-pronged desperation, such as unemployment or intentionally moving away from labor markets permanently or inactive (Caroleo et al., 2020), despite policymakers' efforts to create adequate employment potential. The young population of the countries within the study's scope cannot be included in the labor market due to their macroeconomic vulnerabilities such as growth, economic crises and recession periods, education-employment mismatch, temporary and insecure employment, and insufficient qualification (Ayhan, 2016). Most young people who have lost their hope of finding a job turn to secondary labor markets and informal economy or end active job-seeking activities. On the other hand, the young population's NEET status has severe consequences for economic growth and development (Quintano et al., 2018; Caroleo, 2020). Therefore, it is necessary to understand the difficulties of young people in transitioning to the labor market and why they remain inactive or idle.

This study aims to explain the macroeconomic reasons behind the decision to remain idle of the NEET population in Brazil, India, Indonesia, South Africa, and Turkey, defined as fragile five[1] in literature, and Russia, which is in rapid development with these countries in terms of macroeconomic indicators. The first reason for this analysis to be focused on fragile countries and Russia is how different perspectives consider their economic impacts on the NEET population. The second reason is the heterogeneous structure of countries from different development levels. They have the potential to create an infrastructure for the generalization of the analysis results in terms of fragility impacts. Besides the unemployment issues in all the world, especially in fragile countries, as one of the most adverse effects of unemployment, the population's impact not in education or employment, on economic development emerges as a notable field worth studying. This study's primary motivation is to determine macroeconomic indicators from Gross Domestic Product Per Capita, Adjusted savings for education expenditure in Total Savings (% in Gross National Income), Human Development Index, Inflation Rate (Consumer Prices), and Foreign Direct Investment. For this purpose, the panel data analysis method analyzes related datasets of Fragile Five Countries (FFC) and Russia in the 2005-2018 period.

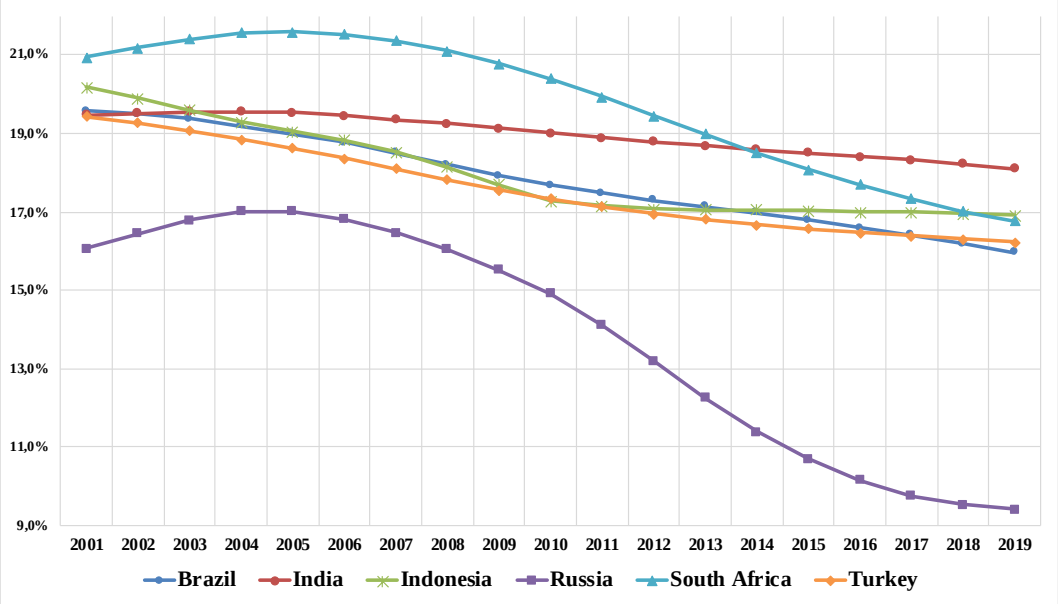
[1] In terms of macroeconomic definition of fragile countries, Morgan Stanley introduced the term “Fragile Five” in December 3rd, 2013 for describing emerging economies mostly depend on foreign investment for growth and having external vulnerabilites such as current account deficit, unstabilized gross domestic product (GDP) and growth (Business Insider; 2013). These five countries have also have been troubling with macroeconomic issues like unemployment, inflation capital flows. This kind of issues impede governments to take steps for tackling youth unemployment and NEET.

This study consists of three parts. A conceptual framework on FFC and Russia's current macroeconomic indicators and NEET will be presented in the first section. The second section examines the literature within the scope of the study. The third part shows the study's findings conducted with econometric models; subsequently, the study will be completed with the evaluation of the findings in the conclusion section.

2. NEET AND MACROECONOMIC DEVELOPMENT IN TERMS OF FRAGILE FIVE AND RUSSIA

Youth unemployment rates are often above the total unemployment rates of countries. Young people mostly worked on temporary contracts and low wages in low profile jobs (OECD, 2016). The majority of young people who do not or cannot participate in the labor market for various reasons lose their hopes of finding a job. Now, countries have to develop policies regarding the NEET population together with the youth unemployment problem. The share of FFC and Russia's young population in the total population is shown in Graph 1.

Graph 1. Youth population percentage aged 15-24 years in the total active population



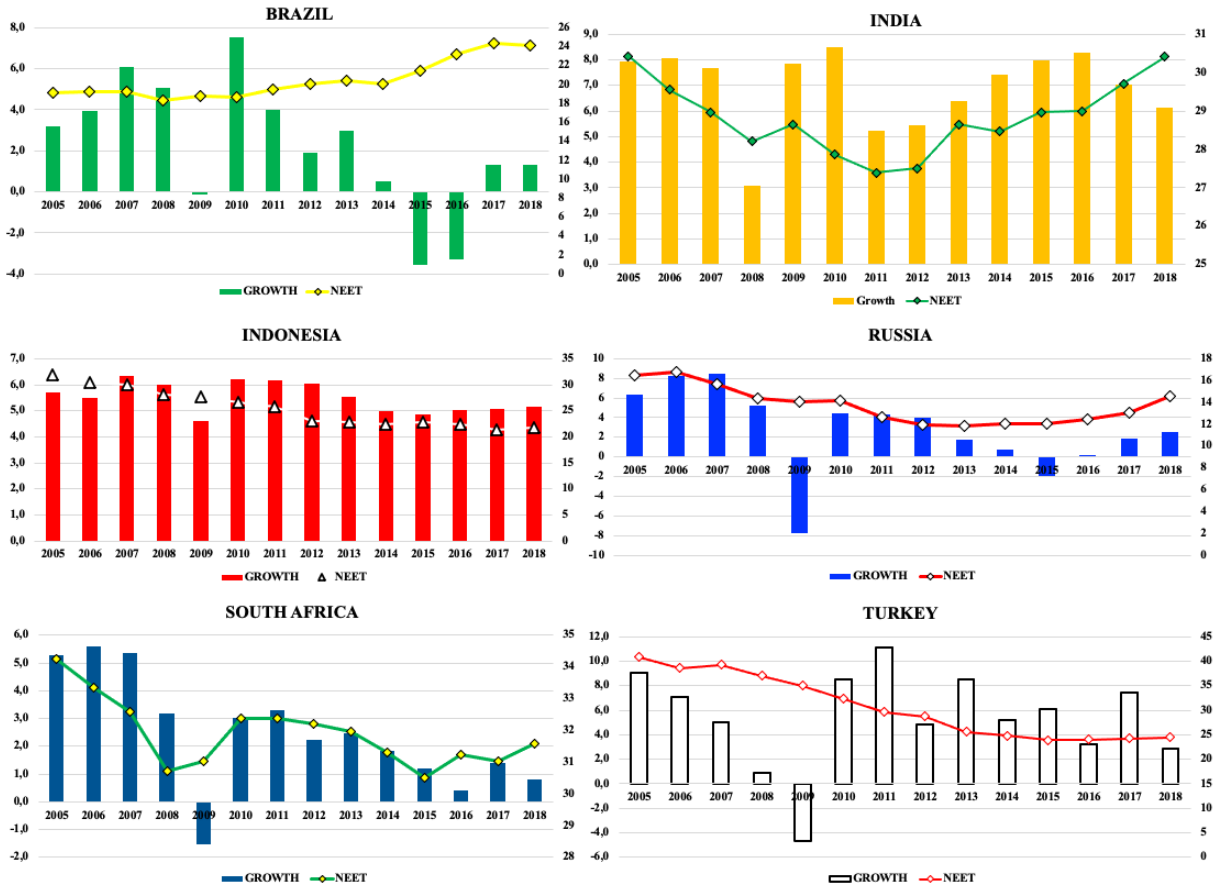
Source: WorldBank (2020), Calculated by the author via Word Development Indicators

As shown in Graph 1, the young population of countries other than Russia within the study's scope constitutes a significant part of the working-age population. In addition, FFC have demographic bonus(dividend) opportunity until the 2050s (Cooper et al., 2003). Therefore, countries within the study's scope should implement employment policies for young people and ensure macroeconomic stability in terms of using this advantage. Otherwise, the current advantage will disappear as young people are excluded from the labor market. Furthermore, this will likely cause problems with poverty, income distribution, and welfare in the future. On the other hand, these young people in NEET status are likely to face the physical and mental problems who are unemployed and left behind (cited from

Scarpetta et al. Zudina, 2018) or who are "saunterer" (Işık, 2016) will also be effective in the social and psychological aspects of the NEET issue.

One of the most important indicators of economic development is economic growth. The stability of sustainable economic growth in terms of FFC is controversial. The economic growth and NEET rates of the countries covered in the study are presented in Graph 2.

Graph 2. NEET and Economic Growth in FFC and Russia



Source: Combined by author. WorldBank (2020) World Development Indicators, OECD (2020) Labour Force Statistics (LFS)

According to Graph 2, other countries except Indonesia and India are experiencing an unstable economic growth process. In terms of economic growth, India is the closest to Indonesia. While Indonesia has a steady decline in NEET rates with sustainable economic growth, it is not India's case. While the economic growth rate of South Africa slowed down in the years, Brazil, Turkey, and Russia show choppy and low economic growth in recent years. Despite a steady decline in Turkey's NEET rates, it is still ranking second among OECD countries (OECD, 2020). NEET rates are increasing in parallel with Brazil's low and negative growth rates in recent years.

Contrary to Russia's volatile and negative growth rates in recent years, NEET rates follow a fairly balanced course. Although NEET rates have declined at a low rate over the years, they tend to increase

again at a low rate, especially in recent years. South Africa, which currently has the highest NEET rate among OECD countries, experienced a decline in NEET rates and balanced growth until the 2009 global economic crisis. In the post-crisis period, it remained at the same level and entered a slow upward trend today. The impact of the fragility in the macroeconomic development of the countries covered in the study in the last fifteen years on the fight against NEET is highly controversial. However, there is a statistical relationship between unemployment and economic growth according to Okun's law (1962); it is still unclear that this proven relationship is symmetrical on the NEET problem in terms of FFC and Russia. To answer this question and clarify how the macroeconomic perspective affects NEET in FFC, sub-factors of macroeconomic indicators should be analyzed.

3. LITERATURE REVIEW

Many studies in the literature directly examine the FFC or Russia, together with the dimension of unemployment (de Arruda & Slingsby, 2014; Tadjoeddin (2015); Pehlivanoğlu & Tanga, 2016, Meyer & Meyer, 2017; İzgi & Konu, 2018; Ayhan, 2019; Akkuş & Topuz, 2019; Kumar et al., 2019, Kırca & Canbay, 2020). In this context, macroeconomic variables such as inflation and growth affect unemployment and vary by country. Also, the fragile macroeconomic indicators of countries have a permanent impact on unemployment. According to the relevant researches, all countries' central governments within the study's scope currently have very intense policy targets to solve the youth unemployment issue. In this sense, FFC are implementing training and job placement programs because they know their young population advantage and demographic bonus. However, countries still have significant problems in the transition from education to employment.

In the academic literature, various studies on the countries with high NEET rates regarding NEET determinants (Bruno et al., 2014; Drakaki et al., 2014; Quintano et al., 2018; Vancea & Utzet, 2018; Rodriguez-Modroño, 2019; Caroleo et al., 2020). According to these studies, the transition process from education to work is the primary determining area of NEET. On the other hand, there is a negative relationship between the increase of GDP and GDP expenditures for education and NEET rates.

In the literature, there is no study examining the macroeconomic determinants of NEET within the scope of all FFC. However, there are individual country studies on FFC and Russia for analysis of factors affecting NEET. In this context, Kovrova and Lyon (2012) examined the dynamics of NEET in Brazil and Indonesia during the 2009 crisis period with descriptive and econometric methods. According to the research results, participation in education, including primary education, is an essential determinant of NEET in both countries. While increasing the schooling rate prevents young people from falling into NEET status, increasing adult unemployment rates in the same direction. Dias and Vasconcelos (2020) analyzed the NEET population's heterogeneous structure in Brazil with multiple correspondence analysis methods. According to the results of the research, 74% of the NEET population consists of women. Half of the female NEET population in Brazil comprises mothers, and most are the

poor and non-white population. When the NEET population's urban-rural distinction is examined, males have fewer NEETs in the rural population, while females are the opposite. The study recommends policies to prevent early school leaving, especially for women. Indeed, while Shirasu and Arraes (2020) propose the same solution, they found out NEET population-related costs in Brazil approach 1% of GDP.

Pattinasarany (2019) examined the effect of socio-economic and socio-cultural factors on NEET in Indonesia with the logistic regression method. In addition to Brazil's findings above, a negative relationship was found between per capita household expenditures and NEET status. A positive relationship is also observed between being covered by social protection such as the national health program and being NEET. Zuraya and Wulandari (2020) examined the demographic determinants of NEET in Indonesia by the logistic regression method. According to the research results, education, age, gender, urban-rural, marital status, and immigration status affect NEET statistically. The group with the highest probability of being NEET is the group that has completed high school, while higher education graduates are more likely to be NEET status than primary school graduates. The young female population is also more likely to be NEET than the male population. Both studies suggest that the transition from education to labor markets is re-designed in line with market needs and facilitates access to education in Indonesia.

Although youth unemployment in Indian labor markets is frequently studied in the literature, few studies directly cover the NEET issue. In this context, Schmid (2015) examined the youth unemployment problem in India. According to the research results, being NEET is an essential element of unemployment in the Indian labor market. O'Higgins (2020) summarized the NEET situation in India in the report. According to the report results, despite the high participation rate in education, especially among girls in India, they are not sufficiently integrated into the labor markets after school due to their socially attributed duties. There are also differences in NEET rates by Gender in India. While 90 percent of the NEET-unemployed are young males, 90 percent of the NEET-inactive are young females in India. On the other hand, most of those with NEET-inactivity are in the poor and low educational profile, while high-income and well-educated young people are in NEET-unemployment.

There are various studies in the literature on the determinants of NEET in Russian labor markets. Varshavskaia (2017) analyzed the NEET population of Russia by descriptive analysis method. According to the research results, one out of every eight young people in Russia is in NEET status. Approximately 72% of the NEET population has never met the labor markets. Similar to other countries, the NEET population has a heterogeneous structure. Increased education rate and duration of NEET stay are negatively correlated. Zudina (2017) examined the socio-demographic reasons for being NEET in the Russian labor market with the Multinomial Logit regression model. According to the research results, education level, gender, and urban-rural distinction significantly affect NEET's status.

Currently, South Africa has the highest NEET rate among OECD countries. Kraak (2013) examined NEET's socio-economic characteristics in South Africa with the qualitative data analysis method. According to the research results, the country's inadequate growth rates, especially after the 2008 global crisis, eliminated the potential for new job creation. Simultaneously, a massive job deficit has arisen due to the increase in participation in the labor markets. In this sense, strong unions have agreed with employers not to increase workers' wages, provided only they create additional jobs. As in other countries of the study, early leaving from education and training is a significant problem for South Africa. In this sense, the study suggests that young people's social accumulation is not provided in their educational time and that NGOs should be particularly active in the NEET problem in this context. Akınyemi and Mushunjeb (2017) examined the labor force participation and NEET situations of young people in rural areas of South Africa with a probit regression model. % 21 of young population in the research sample is in NEET. According to the research results, high education costs, lack of qualifications, marriage, and having children, the public supported social security support were the reasons that prevented labor force participation. Holte et al. (2018) examined youth welfare by comparing Nordic countries and South Africa within the NEET concept. According to the research results, the main problem areas are an education-employment mismatch, lack of transition system to employment after school, and being NEET due to ethnic origin.

Turkey is the country with the second-largest NEET rate among OECD countries (OECD, 2020). There are various empirical, econometric, and theoretical literature on the determinants for NEET in Turkey (Kılıç, 2014; Susanlı, 2016, Işık, 2016; Yüksel, 2020). According to the relevant research results, the young population in NEET status is mostly women. Marriage is the most crucial determinant to make a case for NEET young women in Turkey. The lack of alternative programs for young people who leave school early and transition from school to work has been observed. Also, while the young population tends to stay in education in times of economic crisis, the transition from education to employment fell below the pre-crisis period, despite the increase in general employment, especially during the recovery period after the 2008 crisis.

In the relevant literature, the socio-economic and socio-demographic determinants of the NEET profiles of countries have been intensely examined. One of the most critical findings in the studies in the literature is the increase in NEET rates in the face of economic crises. In this sense, for FFC, there is a minimal presence in the literature about the impact of economic crisis and development factors on NEET rates. Although the relationship between macroeconomic indicators and unemployment is quite widespread in the literature, the lack of studies examining these indicators' effect on NEET increases this study's importance.

4. DATA, METHODOLOGY and FINDINGS

4.1. Data

In this study, Gross Domestic Product (GDP) Per Capita, Inflation Rate (Consumer prices) (%), Adjusted savings for education expenditure (ASEE) (% of Gross National Income), Foreign Direct Investment (FDI), NEET (%), HDI index data retrieved from the United Nations Development Programme (UNDP) and World Bank World Development Indicators (WDI) database were used for the Fragile Five countries group and Russia in Table.1 and the data definition represented in Table.2.

Table 1. Countries Included in the Analysis

Brazil	India	Indonesia	Russia	South Africa	Turkey

Table 2: Data Definitions and Sources

Variable	Abbreviation	Data Source
GDP Per Capita	GDP	WDI Database
Inflation Rate	INF	WDI Database
Adjusted Savings for Education Expenditure	S	WDI Database
Foreign Direct Investment	FDI	WDI Database
Human Development Index	HDI	UNDP
NEET %	NEET	OECD Database, WDI and LFS

The model examined within the scope of this research is shown in open and closed form both as follows:

$$NEET = f(HDI, GDP, INF, FDI, S) \quad (1)$$

$$NEET_{it} = \beta_0 + \beta_1 HDI_{it} + \beta_2 GDP_{it} + \beta_3 INF_{it} + \beta_4 FDI_{it} + \beta_5 S_{it} + \varepsilon_{it} \quad (2)$$

$$\varepsilon_{it} = \mu_{it} + u_{it} \quad (3)$$

i=1,……., N ; t: 1, ……..., T (4)

Among the indices in the equations, sub-indices i indicates countries, sub-indices t indicates time, β indicates predicted coefficient, u indicates error term. Since panel data are used, i and t are shown in the model as sub-indices. While the dependent variable in the equation.2 is the percentage of NEET, the independent variables HDI, GDP, INF, FDI, and S. The data used in the study were obtained from the World Bank World Development Indicators., UNDP Database, and limited Local Labor Force Surveys of FFC and Russia.

4.2. Methodology

4.2.1. Panel Data Analysis

In panel data analysis, just like in time series analysis, it is crucial to have information about the stationarity of variables in terms of reliability of the analysis. However, unlike time series, the concepts of correlation / cross-sectional dependency and slope homogeneity/heterogeneity become essential and are investigated with various tests according to the panel structure.

According to the literature, there are two types of panel unit root tests: the first and second generations. While the first generation does not consider the inter-unit correlation problem and cannot provide reliable results, identified as the interaction between the sections that form the panel, the second generation considers the inter-unit correlation. According to Baltagi, Feng, and Kao (2012), traditional t and F tests may become invalid and may even lead to inconsistent estimation if there is a correlation between units. In this regard, the first stage in the panel time series starts by testing the correlation between the units and continues with the appropriate panel unit root test selection.

Slope heterogeneity as another concept is specific to panel time series is, which indicates that each section that forms the panel has its own and statistically significant parameters. Maddala, Trost, Li, and Joutz (1997) state that estimating heterogeneous panels under the homogeneity assumption causes "heterogeneity deviation". For this reason, correlation and slope homogeneity between units should be tested, and appropriate panel unit root tests and estimators should be selected in accordance with the results obtained.

4.2.2. Cross-Section Dependency(CD) Test

Pesaran (2004) proposes an inter-unit correlation test on the short panels with N (cross-section) large and T (time) small features, which can be used in the analysis of various panels, including heterogeneous parameters (slope) or panels with unit-roots.

4.2.3. Fixed-Effects Model

In panel data analysis with unit and time dimensions, the use of both time series and cross-section data allows analysis with a higher number of observations. The high number of observations also increases the degrees of freedom. This situation provides an opportunity for more reliable analysis by reducing the multicollinearity of independent variables. Thus, it facilitates the analysis of economic problems that cannot be revealed by only time or cross-sectional dimensions (Yerdelen Tatoglu, 2013:9-10).

Specification tests are used to detect deviations from assumptions. For this purpose, the assumptions of heteroscedasticity, autocorrelation, and cross-section dependency are tested. According to Hausman (1978) test results, it is decided whether the fixed-effects or random-effects model should be used. If heteroscedasticity, autocorrelation, and inter-unit correlations are detected in the model

established due to the hypothetical tests analyzed with the fixed-effects model, testing should be done using robust estimators to eliminate these problems. For this reason, model estimation is made using the Driscoll Kraay robust standard errors estimator, which takes into account heteroscedasticity, autocorrelation, and inter-unit correlation.

Driscoll and Kraay (1998) developed a model of the standard nonparametric time series covariance matrix estimator that can be robust to all general forms of spatial and temporal correlation, which remedies the shortcomings of techniques based on the large T asymptotics. It also reveals consistency results, a very simple variance on covariance matrix estimation techniques of standard heteroscedasticity and autocorrelation, such as Newey and West (1987) or Andrews (1991) (Driscoll ve Kraay, 1998:550).

4.3. Findings

Table 3 shows the descriptive statistics for the variables. All variables consist of positive values, and at this stage, the analysis continues by taking the logarithms of the variables. It is also clear that the panel data set is a balanced and long panel *(T>N)*.

Table 3: Descriptive Statistics

Variables	N	T	Obs	Mean	St. Dev.	Min	Max
NEET	*6*	*14*	84	25.16959	7.109863	11.82	40.782
HDI	*6*	*14*	84	0.703036	0.071839	0.539	0.824
GDP	*6*	*14*	84	13615.04	6772.479	2953.109	28763.52
INF	*6*	*14*	84	7.071191	2.967165	2.062852	16.33246
FDI	*6*	*14*	84	2.803234	2.453510	6.234508	1.022411
S	*6*	*14*	84	4.028428	1.148575	2.479171	6.25

Table 4 shows the F tests related to the unit and time effects of the panel data model. According to these results, while there are unit effects in the model, time effects cannot be mentioned. Thus, the panel data model is a One-Way Unit Effects model.

Table 4: Unit and Time Effects Tests

Effect	*F Statistics*	*F Probability*
Unit Effects	108.20	0.0000*
Time Effects	0.37	0.9760

Table 5 shows the statistics and probability values of the Hausman test. It is seen that the primary hypothesis stating that there is no correlation between explanatory variables and unit effects is rejected. In this case, the results indicate that the fixed effects estimator is consistent. For this reason, it is appropriate to use a fixed-effects estimator in model estimation.

Table 5: Hausman Test

χ^2 Statistics	162.46
Probability	0.0000*

Note: **,** and *** respectively express 0.01, 0.05 ve 0.10 significance levels.*

Table 6 contains the estimation results of the one-way (unit-effects) fixed effects model. All coefficients at different significance levels were found to be statistically significant. However, to determine the model's reliability (in other words, the situation that the assumptions affecting the parameters' efficiency characteristics cannot be provided), it must pass some diagnostic tests (heteroscedasticity, autocorrelation, inter-unit correlation).

Table 6: One-Way Fixed-Effects Model Estimation

One Way (Unit Effect μ_i) Fixed Effects Model Estimation Results Dependent Variable: NEET						
Dependent Variable: NEET						
	Constant Term	***HDI***	***GDP***	***INF***	***FDI***	***S***
Coefficient	11.1243*	2.135689*	-0.76996*	-0.04513***	0.027403***	-0.38436*
St. Err	1.225697	0.536189	0.107881	0.024272	0.015537	0.140814
t Statstic	9.08	3.98	-7.14	-1.86	1.76	-2.73
Probability	0.000	0.000	0.000	0.067	0.082	0.008
Model Info						

Note: **, ** and *** respectively express 0.01, 0.05 ve 0.10 significance levels.*

Table 7 shows the results of the regression model's diagnostic tests within the scope of the research. When the statistics of the Modified Wald test, whose primary hypothesis is that there is no heteroscedasticity, is examined, it is seen that the primary hypothesis is rejected, and the model has a heteroscedastic problem. According to the Breusch-Pagan test statistics, which states that the primary hypothesis is that there is no correlation between units, it is understood that the primary hypothesis is rejected, and the model also has the problem in question. In Friedman's test, the primary hypothesis is formed as there is a correlation between units, and it is seen that statistical values cannot reject the related hypothesis. In this case, Breusch-Pagan and Friedman's inter-units correlation tests support each other. The fact that the statistics of the Modified Bhargava et al. test and Baltagi-Wu tests are both less than "2" indicates the presence of an autocorrelation problem. In this case, there are heteroskedasticity, autocorrelation, and inter-unit correlation problems in the relevant model. In this context, a robust estimator should be selected for the problems mentioned in the fixed-effects model.

Table 7: Violations of Assumptions Test

Heteroscedasticity Test	***Statistics***	***Probability***
Modified Wald Test	44.70	0.0000*
Inter-Correlation Test		
Breusch-Pagan LM Test	55.821	0.0000*
Friedman Test	6.210	0.2864
Autocorrelation Test		
Mod. Bhargava et al. Test	0.5023	-
Baltagi-Wu Testi	0.8279	-

Note: **, ** and *** respectively express 0.01, 0.05 ve 0.10 significance levels.*

Table 8 shows the estimation results of the final model examined within the scope of the research. Thus, it is understood that "HDI, GDP, FDI, and S" variables have statistically significant effects on the dependent variable. A statistically significant coefficient could not be obtained for the INF variable. A

% 1 increase in HDI, FDI, GDP, and S resulted in an increase of 2.14%, % 0.03, and a decrease of % 0.77 and %0.38, respectively on NEET. Also, according to the model information, it is seen that the model is a statistically significant and usable macro-econometric model.

Table 8: Driscoll and Kraay Estimator - One-Way Fixed-Effects Model

Driscoll and Kraay One-Way Fixed-Effects Model Estimation Results						
Dependent Variable: NEET						
	Constant Term	***HDI***	***GDP***	***INF***	***FDI***	***S***
Coefficient	11.1243*	2.135689*	-0.76996*	-0.04513	0.027403***	-0.38436*
Std. Error	1.166976	0.380825	0.088588	0.030512	0.014266	0.097839
t Statistics	9.53	5.61	-8.69	-1.48	1.92	-3.93
Probability	0.000	0.000	0.000	0.163	0.077	0.002
Model Info						
R	0.60					
F Stat.	53.06					
F Prob.	0.0000*					

***Note:**. *,** and *** respectively express 0.01, 0.05 ve 0.10 significance levels. ii. All variables are logaritmic.*

According to the correlation matrix of residuals in Table 9, there is a relationship between countries. The highest correlation is between India and Brazil; the lowest correlation is between Russia and Indonesia.

Table 9: Correlation Matrix of Residuals

	Brasil	***India***	***Indonesia***	***Russia***	***South Africa***	***Turkey***
Brasil	1					
India	0.82	1				
Indonesia	-0.79	-0.71	1			
Russia	0.25	0.41	0.01	1		
South Africa	-0.46	-0.48	0.29	-0.21	1	
Turkey	-0.65	-0.55	0.69	0.21	0.33	1

CONCLUSION

Instability in the countries' macroeconomic indicators, economic and political crises, and fiscal and financial structure disorders strengthen countries' possibility to be affected by unforeseen risks. Thus, while countries' vulnerability to these risks and shocks increases, women and youth employment policies, which are among the groups in need of protection, deteriorate. The policies that need to be put forward to solve the problems in youth employment remain ineffective in the face of macroeconomic vulnerabilities.

It is essential to understand young people's difficulties in transitioning to the labor market and why they remain inactive or idle. Many young people who could not participate in the labor market for various reasons lose their hopes of finding a job. Along with the youth unemployment problem, many countries develop active policies regarding the NEET population who is not active in participating in the labor force. However, the primary source of the policies and/or measurements to be implemented

will be macroeconomic indicators. The unstable and fragile economic structure of countries adversely affects unemployment and employment policies.

This study examines the macroeconomic reasons behind the decision to remain idle of young people under NEET, particularly in Brazil, Indonesia, India, South Africa, Russia, and Turkey. In the study, data for the period 2005-2018 of GDP, Adjusted Savings in GDP for Education Expenditure, HDI, INF, and FDI variables, which affect NEET, are analyzed with panel data analysis. In the empirical analysis of the study, the fixed-effects estimator is used in the model estimation since the Hausman test results show that the fixed-effects estimator is consistent. The one-way (unit-effects) fixed effects model's estimation results show that all the coefficients are statistically significant at different significance levels. However, some diagnostic tests are conducted to determine the reliability of the model. A robust estimator should be selected for these problems in the fixed-effects model since the obtained findings reveal heteroscedasticity, autocorrelation, and inter-unit correlation problems. Therefore, according to the findings of Driscoll and Kraay Estimator- One-Way Fixed Effects Model, it shows that the variables "HDI, GDP, FDI, and S" have statistically significant effects on the dependent variable. A statistically significant coefficient could not be obtained for the INF variable. A 1% increase in HDI and FDI gives rise to an increase of 2.14% and 0.03% on NEET. A 1% increase in GDP and S increase in NEET, respectively, causes a decrease of 0.77% and 0.38%.

The research findings have reached similar results with the studies on the determinants of NEET in countries other than FFC regarding the effect of GDP and savings from GDP for education expenditures (Drakaki et al., 2014; Quintano et al., 2018; Vancea & Utzet, 2018; Rodriguez-Modroño, 2019; Bal-Domańska & Sobczak, 2020; Caroleo et al., 2020). The positive relationship between FDI and NEET in the study is shallow. However, in the literature, the positive effect of FDI on employment (Craigwell, 2006; Çolak & Alakbarov, 2017) has not been observed in the FDI-NEET relationship in FFC. In this context, spatial analysis of FDIs for priority investment preference areas in FFCs should be made because the NEET population in FFC countries densely lives in rural areas. This study also suggests that FFC countries should develop policies to attract FDIs to rural areas after spatial investment analysis. The positive effect of HDI on NEET should also be examined in terms of socio-cultural structure in FFC countries. If opportunities for the female NEET population related to HDI components are allocated relatively, it is evaluated that NEET may decrease. According to the results, the prolongation of the transition from school to work, especially in the axis of the education sub-component of HDI, is also compatible with the literature (Quintano et al., 2018; Ayhan, 2019; Caroleo, 2020) in terms of the determinants of NEET.

The research results reveal that regional development policies will be useful in reducing the NEET rate in the young population in the FFC. According to the literature, considering that the NEET population in the FFC mainly live in rural areas, FDI should be attracted to rural development areas. In

this sense, HDI and FDI will have a negative relationship with the NEET rates if the distinction between urban and rural areas is eliminated with the implementation of priority regions in development. On the other hand, in line with the literature increasing GDP, which is one of the countries' leading growth indicators and the savings allocated to education within the GDP, will also reduce the NEET population rates in FFC countries. FFC country politicians and government officials have essential responsibilities for the idle youth population of countries. In order to contribute to this responsibility academically, it is essential to include other political, economic, and cultural parameters that affect the NEET rates in FFC countries in future studies.

REFERENCES

Akinyemi, B. E., & Mushunje, A. (2017). Born free but 'NEET': Determinants of rural youth's participation in agricultural activities in eastern cape province, South Africa. *International Journal of Applied Business and Economic Research*. 15:521-533.

Akkuş, Ö., & Topuz, S. G. (2019). Validity of Unemployment Hysteresis: The Most Fragile Five Developing Countries. *Sosyoekonomi*. https://doi.org/10.17233/sosyoekonomi.2019.01.04

Ayhan, F. (2016). Youth Unemployment As A Growing Global Threat. *Actual Problems of Economics*, 7(181), 262-269

Ayhan, F. (2019). Türkiye Ekonomisinde İşsizliğin Belirleyicisi olan Temel Makroekonomık Değişkenlerin Tespitine İlişkin Bır Uygulama. *Uluslararası Iktisadi ve İdari İncelemeler Dergisi,* 25, 235-252., DOI: 10.18092/ulikidince.567458

Bal-Domańska, B., & Sobczak, E. (2020). Econometric Assessment of the Relation Between the Situation of Youth on the Labour Market and the Macroeconomic Factors Among the Eu Countries. *Vision 2025: Education Excellence and Management of Innovations through Sustainable Economic Competitive Advantage*.

Bruno, G. S. F., Marelli, E., & Signorelli, M. (2014). The rise of NEET and youth unemployment in EU regions after the crisis. *Comparative Economic Studies*. https://doi.org/10.1057/ces.2014.27

Business Insider (2013) *MORGAN STANLEY PRESENTS :' The Fragile Five' — The Most Troubled Currencies In Emerging Markets*. 1–12. Date of Access: 21.04.2020

Caroleo, F. E., Rocca, A., Mazzocchi, P., & Quintano, C. (2020). Being NEET in Europe Before and After the Economic Crisis: An Analysis of the Micro and Macro Determinants. In *Social Indicators Research* (Vol. 149, Issue 3). Springer Netherlands. https://doi.org/10.1007/s11205-020-02270-6

Craigwell, R. (2006). Foreign direct investment and employment in the English and Dutch-speaking Caribbean. *ILO Subregional Office for the Caribbean*.

Cooper, R. N., Bloom, D. E., Canning, D., & Sevilla, J. (2003). The Demographic Dividend: A New Perspective on the Economic Consequences of Population Change. *Foreign Affairs*. https://doi.org/10.2307/20033592

Çolak, O., & Alakbarov, N. (2017). Does Foreign Direct Investments Contribute To Employment? Empirical Approach for the Commonwealth of Independent States. *Bilig*, *83*, 147-169.

de Arruda, P. L., & Slingsby, A. K. (2014). Social programmes and job promotion for the BRICS youth (No. 130). International Policy Centre for Inclusive Growth.

Dias, T. S., & Vasconcelos, A. M. N. (2020). Heterogeneity among Young People Neither in Employment Nor in Education in Brazil. *Annals of the American Academy of Political and Social Science*. https://doi.org/10.1177/0002716220913234

Drakaki, M., Papadakis, N., Kyridis, A., & Papargyris, A. (2014). Who's the Greek Neet? Neets' profile in Greece: parameters, trends and common characteristics of a heterogeneous group. *International Journal of Humanities and Social Science*, *4*(6), 240-254.

Driscoll, J. D. & KRAAY, A. C. (1998) Consistent Covariance Matrix Estimation with Spatially Dependent Panel Data, *The Review of Economics and Statistics*, 10(4), 549-560.

Hausman, J. A. (1978), Specification Tests in Econometrics, *Econometrica: Journal of the Econometric Society*, 46(6), 1251-1271.

Holte, B. H., Swart, I., & Hiilamo, H. (2019). The NEET concept in comparative youth research: the Nordic countries and South Africa. *Journal of Youth Studies*. https://doi.org/10.1080/13676261.2018.1496406

Işık, V. (2016). Türkiye'de Genç İşsizliği ve Genç Nüfusta Atalet. *Hak İş Uluslararası Emek ve Toplum Dergisi*, 5(11), 130-145.

İzgi, B. B., & Konu, A. (2018). Genç işsizliğini belirleyen unsurlar: BRICS ülkeleri ile Türkiye Panel ARDL Uygulaması. *Dokuz Eylül Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 21(1), 95-112.

Kılıç, Y. (2014). Young People in Turkey who are Not in Education, Employment or Training (NEET). *Ted Eğitim ve Bilim*. https://doi.org/10.15390/eb.2014.3094

Kırca, M., & Canbay, Ş. (2020). Kırılgan Beşli Ülkeleri için Phillips Eğrisi Analizi. *İktisadi İdari ve Siyasal Araştırmalar Dergisi*. https://doi.org/10.25204/iktisad.717391

Kovrova, I., & Lyon, S. (2012). NEET Youth Dynamics in Indonesia and Brazil: A Cohort Analysis. *Understanding Children's Work (UCW) Project - UNICEF*, Rome, Italy (2012) iii + 1-22.

Kraak, A. (2013). State failure in dealing with the NEET problem in South Africa: Which way forward? *Research in Post-Compulsory Education*. https://doi.org/10.1080/13596748.2013.755819

Kumar, P., Jain, V. K., Pareek, K. S., Rai, S. K., & Chaturvedi, B. K. (2019). Econometric Estimation of the Relationship between Unemployment Rate, Economic Growth, and Information and Communication Technology in BRICS Countries. In *The Stances of e-Government Policies*. https://doi.org/10.1201/9780203731451-9

Maddala, G.S. , Trost, R.P. , Li, H., & Joutz, F. (1997). Estimation of Short-Run and Long-Run Elasticities of Energy Demand from Panel Data Using Shrinkage Estimators. *Journal of Business & Economic Statistics.* 15(1): 90-100.

Meyer, N., & Meyer, D. (2017). An Econometric Analysis of Entrepreneurial Activity, Economic Growth and Employment: The Case of the BRICS countries. *International Journal of Economic Perspectives*.

O'Higgins, N. (2020). Young People Not In Employment, Education Or Training, *ILO/SIDA Partnership On Employment*. 10.13140/RG.2.2.25339.87847.

Okun, A. M. (1962). Potential GNP, its measurement and significance. *Business and Economics Statistics Section of the American Statistical Association*.

Pattinasarany, I. R. I. (2019). Not in Employment, Education or Training (NEET) Among the Youth in Indonesia: The Effects of Social Activities, Access to Information, and Language Skills on NEET Youth. *MASYARAKAT: Jurnal Sosiologi*. https://doi.org/10.7454/mjs.v24i1.10308

Pehlivanoğlu, F. A., & Tanga, M. (2016). An Analysis on the Validity of Okun's Law: Case of Turkey and BRICS 31 An Analysis on the Validity of Okun's Law: Case of Turkey and BRICS 1. *International Journal of Economic Studies*.

Pesaran, M. H. (2004). *General Diagnostic Tests for Cross Section Dependence in Panels*. University of Cambridge, Faculty of Economics. Cambridge WP 0435 in Economics.

Quintano, C., Mazzocchi, P., & Rocca, A. (2018). The determinants of Italian NEETs and the effects of the economic crisis. *Genus*, *74*, 5. https://doi.org/10.1186/s41118-018-0031-0

Rodriguez-Modroño, P. (2019). Youth unemployment, NEETs and structural inequality in Spain. *International Journal of Manpower*. https://doi.org/10.1108/IJM-03-2018-0098

Tadjoeddin, M. (2015). Spatial Dimensions of Key Employment Outcomes in Indonesia. *Journal of Comparative Asian Development*. 14. 466-509. 10.1080/15339114.2015.1096552.

Schmid, G. (2015). Youth unemployment in India: From a European and transitional labour market point of view, IZA Policy Paper, No. 95, Institute for the Study of Labor (IZA), Bonn

Shirasu, M. R., & de Albuquerque E Arraes, R. (2020). Evaluation of the economic costs associated to the neet youth in Brazil. *Revista de Economia Politica*. https://doi.org/10.1590/0101-31572020-2902

Susanlı, Z. B. (2016). Understanding The NEET in Turkey. *Eurasian Journal of Economics and Finance*. https://doi.org/10.15604/ejef.2016.04.02.004

OECD (2016). *The NEET challenge: What can be done for jobless and disengaged youth?* (2016). https://doi.org/10.1787/soc_glance-2016-4-en

OECD (2020), *OECD Labour Force Statistics 2020*, OECD Publishing, Paris, https://doi.org/10.1787/5842cc7f-en.

Vancea, M., & Utzet, M. (2018). School-to-work transition: the case of Spanish NEETs. *Journal of Youth Studies*. https://doi.org/10.1080/13676261.2017.1421313

Varshavskaia, E. I. (2017). Russian NEET Youth. *Sociological Research*, *56*(6), 389–403. https://doi.org/10.1080/10610154.2017.1407589

Yerdelen Tatoğlu, F. (2013), *Panel Veri Ekonometrisi: Stata Uygulamalı*, Beta Yayınevi, 2. Baskı, İstanbul

Yüksel, A. R. (2020). Türkiye'de Ne Eğitimde Ne İstihdamda Olan Gençlerin Sosyo-Demografik Yapısı ve İşgücü Piyasası ile Bağlantısı. *Amme İdaresi Dergisi*. 53. 103-130.

Zudina, A. (2017). What Makes Youth Become NEET? The Evidence from Russian LFS. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3060295

Zudina, A. (2018). The pathways that lead youth in NEET: The case of Russia. *HSE Economic Journal*. https://doi.org/10.17323/1813-8691-2018-22-2-197-227