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Youth not in Employment, Education, or Training (NEET) in Turkey: A Regional Analysis

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ABSTRACT

The concept of youth not in education, training, and employment (NEET) is a relatively new popular concept. Its popularity is largely due to the fact that it takes into account different vulnerabilities such as unemployment and early school leaving, which are common among young people. The aim of this study is to examine the NEET youth in Turkey. In this context, the situation of young people in NEET status is examined according to gender, age, education level, marital status, and regional differences. For this purpose, the data pooled from the Household Labor Force Survey for the years 2014-2020 was used. In the study, first, NEET interpretations were made for Turkey using descriptive statistical tools, and then a logit analysis was performed to identify the determinants of NEET in Turkey. The findings reveal that demographic characteristics such as gender, marital status, age, education level, and region of residence are among the determinants of NEET.

Keywords: NEET, Youth Unemployment, Turkey, Labor market, Logistic Regression.

JEL Classification Codes: C21, J21, J64

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INTRODUCTION

Although NEET has only recently entered the global political agenda, reducing unemployment among youth and young adults has become an urgent problem for many countries. The rapid increase in the number of young people who are neither in education, employment nor training (NEET) has made the concept of NEET, which was initially used to define social status, embodied and become an important indicator. Young people are the most important representatives of the social and economic transformation of countries. If young people are ignored, their social benefits are jeopardized. The remarkable increase in the NEET rate in the population of countries requires an in-depth analysis of unemployment and inactivity, which are two important elements of the concept in question by policymakers. Especially countries with aging populations should produce policies to ensure the continuity of their social security systems, so that young people are more active in the workforce. However, in terms of countries, it is more difficult to fight youth unemployment than to fight general unemployment. Because the youth unemployment rate is higher than the general unemployment rate and requires consideration of factors different from those known during the struggle phase (Caroleo *et al.*, 2020). Therefore, there is a need for a comprehensive perspective beyond traditional tools, focusing specifically on youth unemployment.

As a result of the research conducted by the OECD (Organization for Economic Cooperation and Development), it is stated that Turkey is the second country with the highest NEET rate. According to the data of the Turkish Statistical Institute (TURKSTAT), the rate of young people neither in education nor in employment is 28.8%, which is well above the European average. In a country like Turkey with a high youth population, the fact that one out of every three young people has the status of NEET poses the risk of increasing instability in all areas of society. It is noteworthy that these rates are 40% for the young female population. Considering the fact that the NEET rate in the female youth population in Turkey is quite high compared to males, it makes it important to develop policies and research that take into account gender differences. When we look at the distribution of young people with NEET according to education levels in the data of TURKSTAT between 2014 and 2020, it is seen that the NEET rates of illiterate people are quite

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high compared to those who graduated from other education levels. On the other hand, higher education graduates in Turkey also have higher NEET rates than those who graduated from general high schools and vocational technical high schools. Young people who have just graduated from higher education in Turkey are taking longer to participate in employment. According to OECD data, 75% of higher education graduates in Turkey participate in employment within 4-5 years after graduation (2020, p. 84). The reason why vocational and technical high school graduates have higher NEET rates than general high school graduates is due to the higher transition rates of general high school graduates to higher education. Considering the transformative effect of digitalization and globalization in the job market, the main motivation of our study is to investigate the NEET status of the young population in Turkey.

Our research revealed four works that previously investigated the status of NEET in Turkey. The first study in Turkey was conducted by Kılıç (2014) and examined the demographic characteristics of young people with NEET using the relational research method. In the study, it was concluded that women are more likely to be NEET than men, the probability of being NEET increases with age, and low education increases the probability of being NEET. Later, Susanlı (2016) analyzed the determinants of youth NEET in Turkey with the probit model using the Household Labor Force survey data. In the study, it was concluded that those aged 20-24 are more likely to be NEET than those aged between 15-19, women are more likely to be men, married people are single and those living in rural areas are more likely to be NEET than those living in the city, and the probability of being NEET decreases as the education level of the individual increases. However, according to the model results estimated separately for men and women; It was found that while married women were more likely to be NEET than unmarried, unmarried men were more likely to be NEET than married people. In his study, Yüksel Arabacı (2020) examined the socio-demographic characteristics of NEET youth in the 15-29 age group and the reasons that prevent them from entering the labor market, using the TURKSTAT 2017 Household Labor Force Survey micro dataset. In the study, the differences between the socio-demographic characteristics of NEET youth were analyzed with the Pearson Chi-Square test and the status of NEET youth in the labor market was revealed by age and gender. In line with the report prepared by the ILO (2021), NEET young people affected by the COVID-19 pandemic in Turkey were collected and analyzed using qualitative and quantitative methods between 15-May-10 August 2020. Refugees were also discussed in the study. In this context, a survey was conducted with 1250 people, 250 of whom were refugees, and in-depth interviews were conducted with 11 experts from 11 different organizations. The findings reveal that most of the NEET youth are single, living with their families, healthy, and without any disability. However, it was concluded that most of the NEET youth are not involved in education due to economic conditions. It was found that the majority of NEET youth could not find a job after leaving full-time education, while those who found a job quit due to long working hours, irregular working conditions, and low wages. It has been revealed that education is a very important factor in working status, especially for women. It has been found that the COVID-19 pandemic has made NEET youth feel more important than ever to earn their own money and that the pandemic has acted as an incentive to seek a paid job.

We aimed to reveal the regional determinants of being a NEET in Turkey, which previous studies on Turkey neglected to take into account, and which constitute the main motivation of our study. In this context, we analyzed the status of youth in NEET status according to gender, marital status, age, education level, and region differences by using the pooled data from the Household Labor Force Survey data for the years 2014-2020 with logit model. Since young people who are not involved in education and employment are not a homogeneous group within themselves, differences such as age, gender, marital status, educational status, family history, health status, and the expectations and needs of the young people differentiate the measures to be taken. In this study, the 15-29 age group as well as the 15-24 and 25-29 age groups, which were not taken into account in previous studies, were also included in the analysis.[1] Models were estimated separately for each of the three age groups, and how the effects of socio-economic factors on age groups differed. In addition, ages entered the equations as a continuous variable. To our knowledge, regional differences, which were not taken into account in previous studies, were first time included in the analysis. In the study, first, NEET interpretations were made for Turkey using descriptive statistical tools, and then a binary logit analysis was performed to identify the determinants of NEET in Turkey. The findings reveal that demographic characteristics such as gender, marital status, age, education level, and region of residence are

[1] The age range of 15-24 is used by the TURKSTAT and the European Community Statistical Office (Eurostat) in statistics on youth. However, the age range of 15-29 can also be used for a more comprehensive analysis.

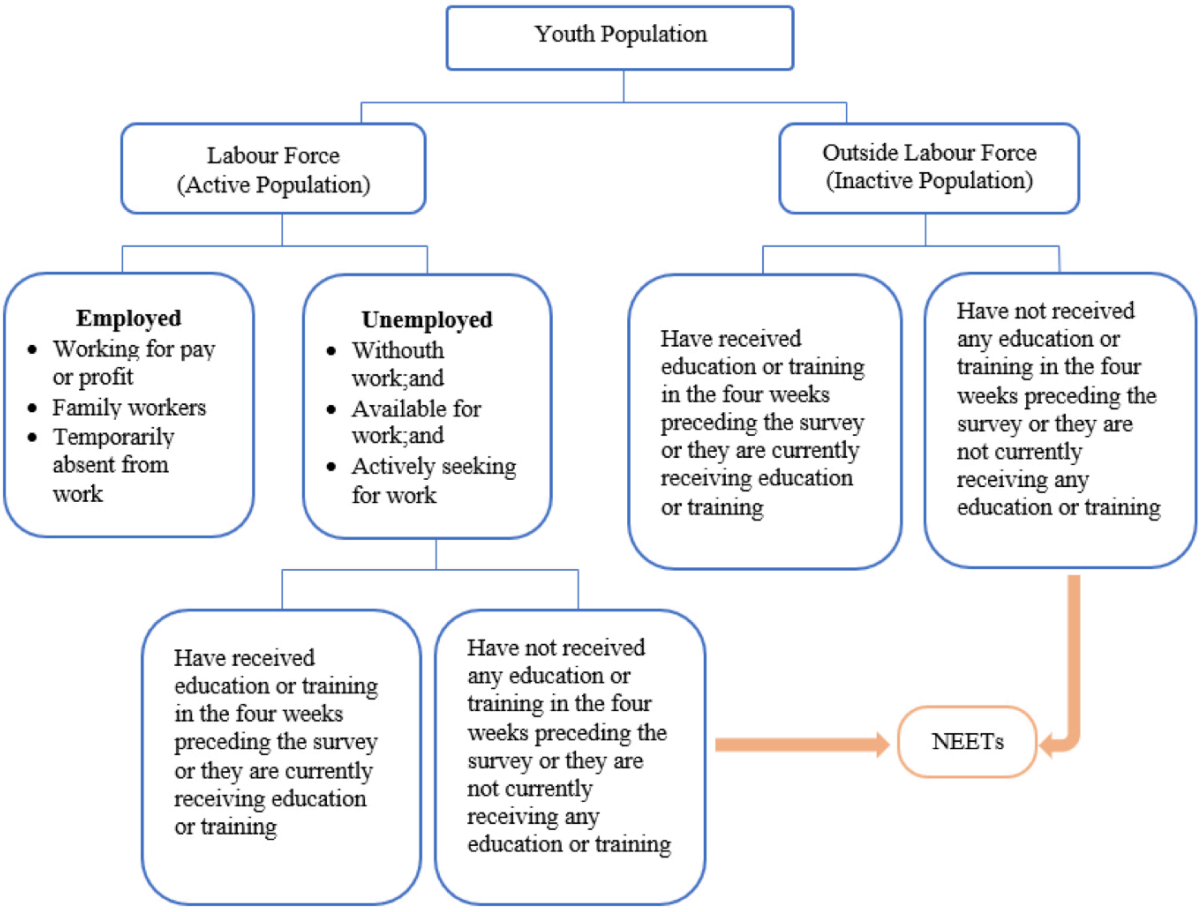

Figure 1. Composition of NEET Indicator
Source: Bardak et. al. (2015)

among the determinants of NEET. The subsections of the study are summarized as follows. The second part of the study is devoted to the definition of NEET and the third part is reviewed the literature on NEET. In the fourth chapter, the Status of NEET Youth in Turkey is analyzed and in the fifth chapter, the econometric method used is given. While the definition of the data set and dependent variable used in the study is given in the fourth section, the methodology, data set and descriptive statistics, and model results are included in the fifth section. In the last part, general evaluations of the determinants of NEET and the conclusions are made.

NEET DEFINITION

Labor market participation is often defined by indicators such as employment rates and unemployment rates, which provide information about those who already have a job or are actively looking for a job. These indicators are often criticized as they contain limited information about the young population. Since students are outside the workforce, basic unemployment and employment statistics do not take young people into account enough (Eurofund, 2011). While the integration of young people into society is traditionally considered as a transition from school life to business life, today it is accepted that such linear transitions are replaced by diversified and personalized transitions. Particularly in times of economic turbulence, modern youth transitions tend to be complex and long-lasting, with young people frequently entering and leaving the workforce. As many of these transitions cannot be revealed by traditional unemployment indicators, approaches that show the position of young people in the labor market have diminished. Therefore, in contemporary societies, it may be necessary to go beyond the approaches that divide the labor market into employed and unemployed in order to reveal labor market dependencies. As a matter of fact, researchers, national authorities, and international organizations have started to use alternative concepts and indicators for young people who are disconnected from both business and education life. In this framework, the concept of NEET has been increasingly used for young

people who are at high risk of the labor market and social exclusion (Mascherini *et al*., 2012).

NEET includes young people who are not integrated into employment or the education system and are not involved in any vocational training program. The assumption underlying this definition is that the NEET indicator also includes young people who are not in the labor market. NEET, which refers to young people who are not involved in employment, education, or training, is also an indicator of the social exclusion of young people and young adults. It should be noted that not all young people in the NEET category are at risk of social exclusion, and not all socially excluded youth are in the NEET category. However, NEET is a better indicator than youth unemployment statistics in revealing the risk of social exclusion (Bacher *et al*., 2014). Since the concept includes not only the unemployed young people who are included in the labor market but also those who are not included in the labor force and education system, it also reveals the idle youth workforce potential (Yüksel Arabacı, 2020). Unlike unemployment or employment, it has no international standard. Eurostat, ILO, and some other organizations have adopted the definition of the percentage of the population not employed and not engaged in education or training in a given age group and gender for the NEET rate (Elder, 2015).

LITERATURE REVIEW

Although there are many studies on unemployment in the literature, there are limited studies focusing on NEET youth. Most of the studies have focused on the socio-economic determinants and negative effects of being a NEET.

Genda (2007) analyzed the determinants of unemployed youth, whose numbers increased from 1990 to the early 2000s in Japan, using secondary data with a multinomial logit model. In the study, single, unemployed, and out-of-school individuals between the ages of 15-34 were discussed. The findings reveal that those with a low level of education, less work experience, and women are more likely to be NEET. Kelly and McGuinnes (2013) analyzed the determinants of NEET youth in Ireland and the impact of the recession on these determinants using the Quarterly National Household Survey data from 2006 and 2011 with a probit model. The model results showed that women were more likely to be NEET than men and those aged 20-24 were more likely to be NEET than those aged 15-19. It has been concluded that the level of education and the geographical region where one lives is also effective in being NEET. Kovrova and Lyon (2013) analyzed the NEETs of individuals between the ages of 15-24 for Brazil and Indonesia with a probit model, taking into account the cohort effect. In the study, it was concluded that women are more likely to be NEET than men, while the probability of women being NEET increases as age progresses, and men decrease. Rural residents in Brazil were less likely to be NEET than urban residents, while rural residents were more likely to be NEET than urban residents in Indonesia. In both countries, it has been observed that as the level of education increases, the probability of young people being NEET decreases. As the household size increases in Brazil, the probability of having NEET increases for men and decreases for women. However, as the number of children aged 0-4 increases, the probability of women being NEET increases, while the probability of men being NEET decreases. Increasing the number of children aged 5-14 years reduces the likelihood of NEET for both women and men. It was concluded that the probability of having NEET decreased in households with high-income levels. Ranzani and Rosati (2013) investigated the NEET problem in Mexico with a dynamic multinomial logit panel data model with random effects and investigated whether individuals' being NEETs is permanent and how being NEET affects their future employment status. The results show that being NEET is permanent in the short term, that women are more likely to be NEETs than men, that the probability of being NEET increases as the household size increases, that those who have children between the ages of 0-4 are more likely to be NEETs, that those who live in the city are more likely to be NEETs than those who live in rural areas. They showed that the probability of being NEET is higher for young people living in low-income households, the probability of being NEET increases as the level of education increases, and married people are more likely to be NEET than singles.

Bacher *et al*. (2014) examined the determinants of being a NEET and exiting the NEET status for Austria. The study investigates what the decisive factors are for a (successful) exit from a NEET situation. While the findings make it easier for women to exit the NEET status of living in the city and looking for a job; revealed that increasing age, having children aged 0-3, and leaving school at an early age make it more difficult to exit NEET status. It was concluded that early school leaving and health status were effective on the boys' exit from NEET status. It has been found that those with low education levels, those with low parental education

levels, those living in the city, and women who take care of children have a higher risk of NEET. Tamesberger and Bacher (2014) investigated the socio-structural features that characterize the NEET youth in Austria, the main reasons for being a NEET, and whether it is permanent to be in the NEET category. NEET youth were analyzed by dividing them into different subgroups due to heterogeneity. In the study, it was concluded that the risk of being permanently included in the NEET category of those living with their parents is lower than that of permanently leaving the NEET category. The findings showed that early school leavers and women have a high risk of permanent NEET status. However, it has been revealed that those who are NEET due to care responsibilities, personal or family problems, and illness have a higher risk of being permanent in the NEET category than those who are NEET for other reasons. In general, it has been observed that women, those living in the city, those who left school at an early age, those who have children, and those with parents with a low level of education are more likely to be in the NEET category. Feng *et al*. (2015) examined the consequences and risk factors of being a NEET in Scotland using the logit model. In the study, results were obtained for both male and female individuals, with low education levels and those with physical health problems increase the probability of NEET. However, it was found that the absence of a working adult in the household and having many siblings also increased the probability of NEET. In addition, it has been revealed that the risk of being NEET increases among women who do housework, and the risk of being NEET differs according to the geographical regions where they live. Işık (2016) examined youth unemployment and NEET issues in Turkey. In the study, workforce age, considering data on gender and distribution as education, unemployment and stagnation for the young labor issues have tried to put forward in a whole. It was revealed that Turkey has the highest NEET rate among OECD countries due to gender discrimination. In addition, the necessity of an effective education system and a structure that supports the education-employment relationship has been emphasized. Dama (2017) examined the general situation of NEETs in Turkey and Europe. The study investigates the demographic characteristics of NEETs in Turkey. It has been revealed that the risk of being NEET increases among women and young people who drop out of school. Therefore, the importance of policy making for this disadvantaged group was emphasized. Pattinasarany (2019) analyzed the factors affecting an individual's NEET using a logit model in his study to reveal how common NEET is among young people in Indonesia. In the study, it was found that women are more likely to be NEET than men, the risk of being NEET increases with age, the risk of being NEET decreases as the education level of the individual increases, the probability of being NEET in urban residents decreases compared to those living in rural areas, married men are less likely to be NEET than single men. It has been found that married women have a higher risk of being NEET than single women. It has been observed that the presence of individuals younger than 5 years and/or older than 60 years in the household decreases the probability of being NEET for men, while the risk of being NEET increases for women, and the probability of being NEET decreases as the household income increases. Abayasekara and Gunasekara (2020) analyzed the determinants of NEET and the subgroups that make up NEET individuals for Sri Lanka using binomial logit and multinomial logit models. In the study, it was concluded that those between the ages of 15-19 are less likely to be NEET than those between the ages of 20-24, women are more likely to be NEET than men, and those who have never been married are more likely to be NEET than those who have been married before or are currently married. It has been found that those in the higher income group are less likely to be NEET than those in the lowest household income group. It has been concluded that those with children under the age of 5 are more likely to be NEET and the area of residence has an effect on the probability of being NEET. Caroleo *et al*. (2020) analyzed the main individual and macroeconomic determinants of NEET for European countries with different specifications of multilevel models with binary outcomes of logit models. The model results revealed that married women, those with at least one child, or those who are permanently disabled are more likely to be NEET, the risk of being NEET decreases as the education level of the individual increases, and the probability of being NEET is decreased if at least one of the parents is university. Bingöl (2020) investigated theimpact of macroeconomic indicators on 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, Inflation Rate, Adjusted savings for education expenditure, Foreign Direct Investment, HDI index data were used for explaining the NEET. According to findings, increase in HDI and FDI respectively give rise an increase on NEET, increase in GDP, and S resulted in a decrease on NEET.

STATUS OF NEET YOUTH IN TURKEY

Although there is an increase in the rate of NEET youth globally, this rate differs from country to country. Among OECD countries, Turkey is among the countries with the highest NEET youth rate.

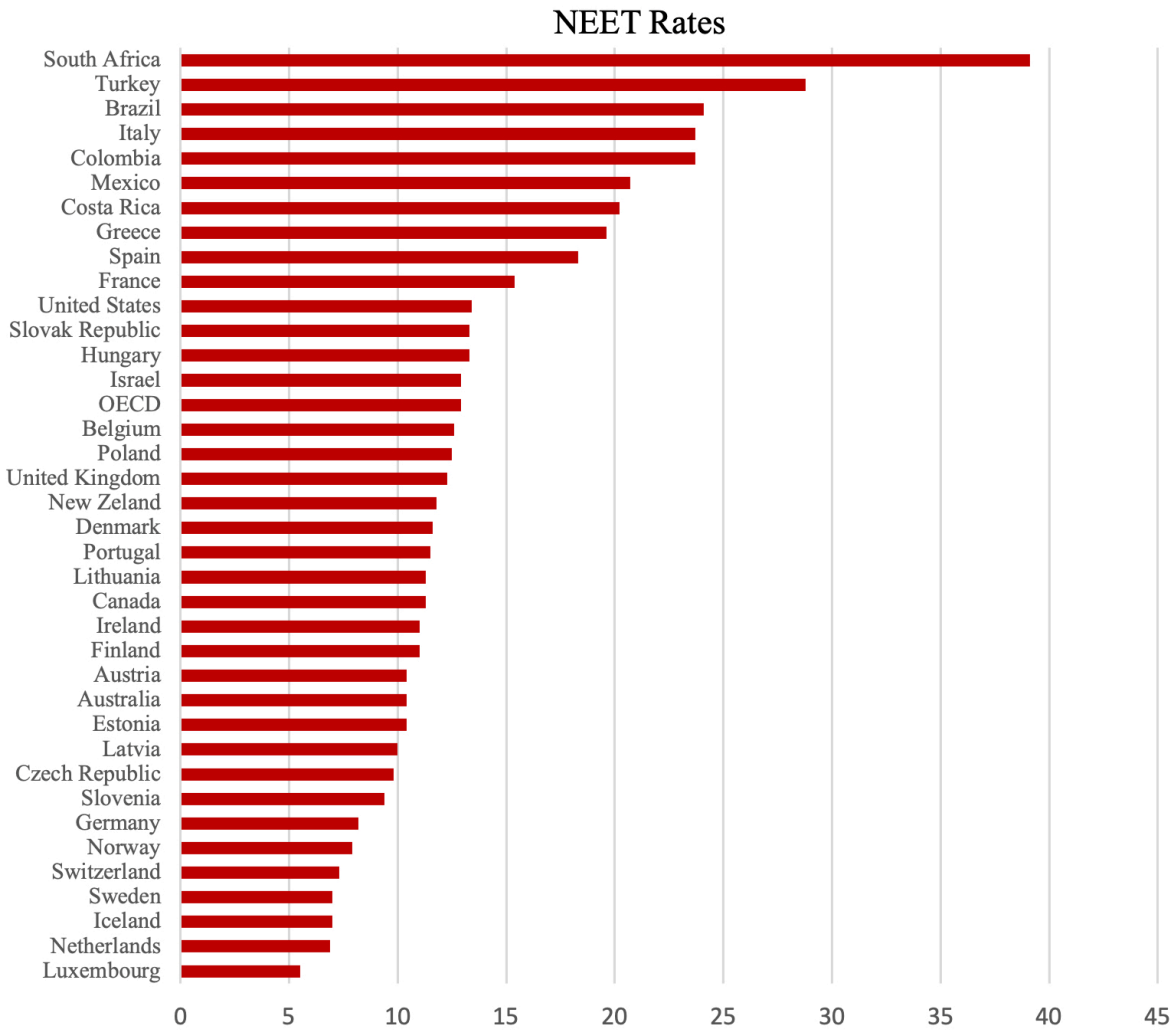

Figure 2. NEET Rates for the 15-29 Age Group in OECD Countries in 2019
Source: OECD, 2022

Table 1. NEET Rate and Labor Market Status by Years for the 15-29 Age Group*

	15-29 Age Group				
Year	Not Included in the Labor force	Unemployed	NEETs	Employed	In Education/Training
2014	0.2509	0.0540	0.3048	0.3971	0.3917
2015	0.2369	0.0533	0.2902	0.4035	0.4103
2016	0.2310	0.0568	0.2878	0.4005	0.4219
2017	0.2307	0.0610	0.2917	0.3994	0.4192
2018	0.2389	0.0663	0.3052	0.3978	0.4052
2019	0.2367	0.0844	0.3211	0.3840	0.3895
2020	0.2581	0.0753	0.3334	0.3427	0.3895

* Calculations were made by the authors.

When the graph in Figure 2 is examined, the country with the highest NEET youth rate among OECD countries after South Africa is Turkey, which is well above the OECD average. When the NEET ratios by gender in the OECD countries in Figure 3 are examined, it is seen that the female NEET ratio is higher than the male NEET ratio in all countries except Sweden, Switzerland, Iceland, Canada, Latvia, and Lithuania. Turkey is the country with the highest female NEET rate after South Africa. Looking at the average of all OECD countries, the male NEET rate is 10.8% and the female NEET rate is 15.5%. In Turkey, while the male NEET rate is 17.9%, the female NEET rate is 40%.

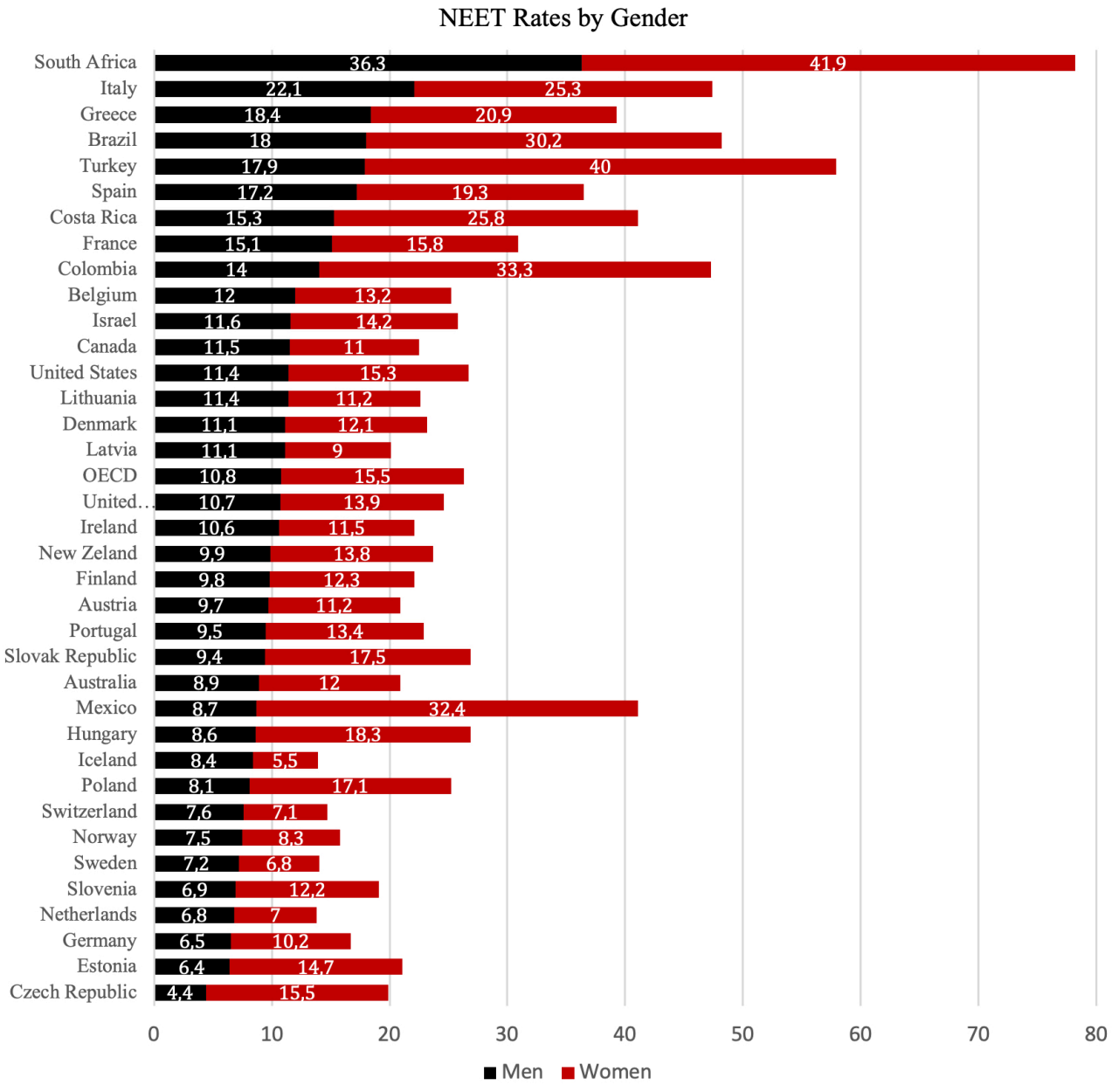

Figure 3. NEET Rates by Gender for the 15-29 Age Group in OECD Countries in 2019
Source: OECD, 2022

Table 2. NEET Rate and Labor Market Status by Years for the 15-24 Age Group*

	15-24 Age Group				
Year	Not Included in the Labor force	Unemployed	NEETs	Employed	In Education/Training
2014	0.2266	0.0473	0.2740	0.3194	0.5071
2015	0.2085	0.0465	0.2550	0.3266	0.5318
2016	0.2031	0.0475	0.2506	0.3226	0.5463
2017	0.2078	0.0534	0.2611	0.3192	0.5362
2018	0.2194	0.0584	0.2778	0.3216	0.5137
2019	0.2162	0.0751	0.2913	0.3071	0.5023
2020	0.2341	0.0657	0.2998	0.2644	0.5050

* Calculations were made by the authors.

Table 3. NEET Rate and Labor Market Status by Years for the 25-29 Age Group*

	25-29 Age Group				
Year	Not Included in the Labor force	Unemployed	NEETs	Employed	In Education/Training
2014	0.3062	0.0690	0.3753	0.5745	0.1280
2015	0.3020	0.0689	0.3709	0.5800	0.1313
2016	0.2944	0.0778	0.3723	0.5776	0.1392
2017	0.2839	0.0786	0.3625	0.5850	0.1483
2018	0.2842	0.0847	0.3690	0.5752	0.1525
2019	0.2827	0.1052	0.3879	0.5568	0.1360
2020	0.3122	0.0970	0.4093	0.5193	0.1293

* Calculations were made by the authors.

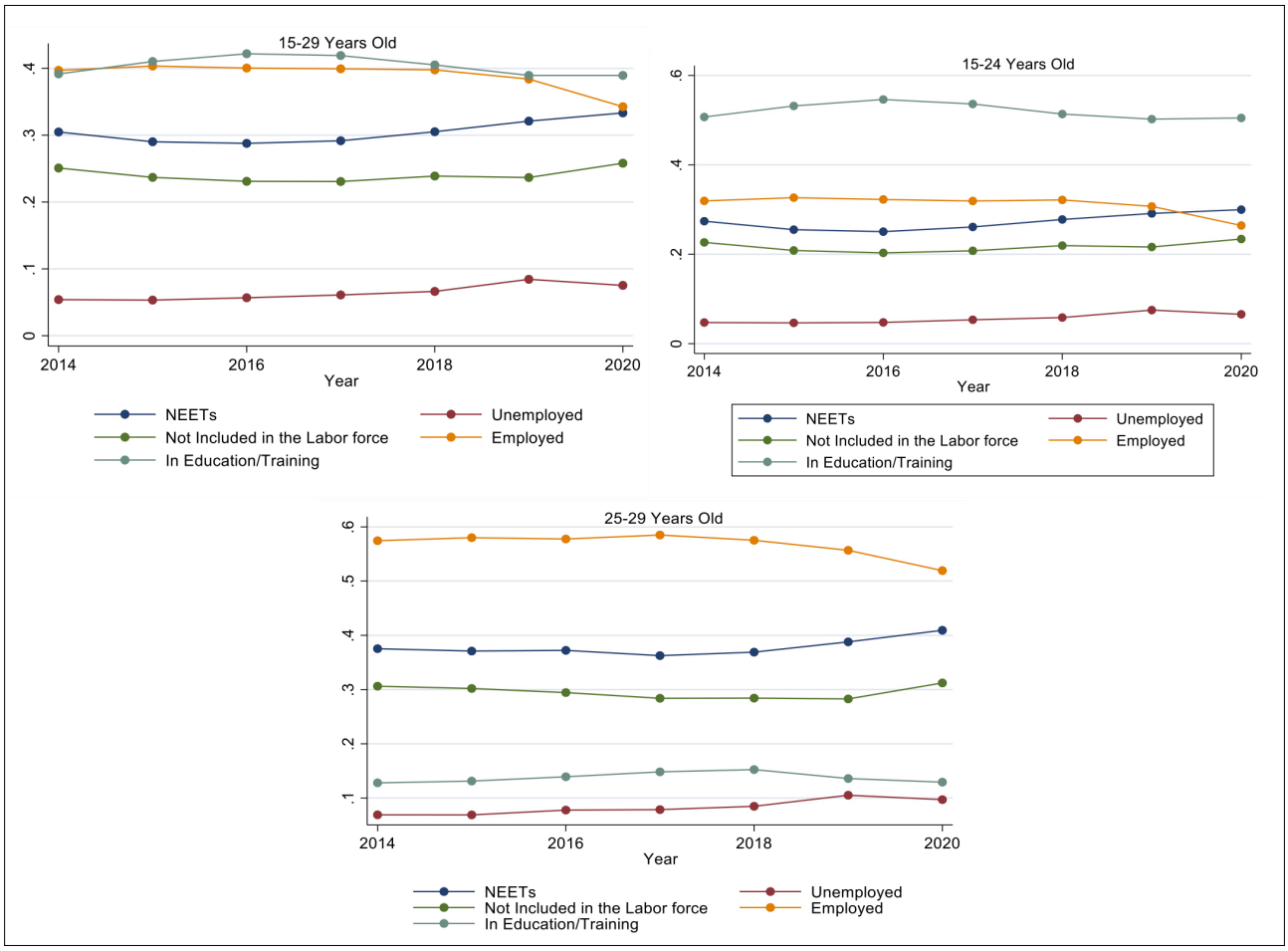

Figure 4. NEET Rate and Labor Market Status by Years for Age Groups

In particular, it is seen that the female NEET rate is much higher than the OECD average.

Table 1, Table 2, and Table 3 below were created according to the age groups of 15-29, 15-24, and 25-29 to reveal the NEET rate and the labor market situation in Turkey between the years 2014-2020.

When Table 1, Table 2, and Table 3 above are examined, it is seen that the NEET rate in all age groups has increased over the years. From 2014 to 2020, the NEET rate increased from 30.48% to 33.34% for the 15-29 age groups, from 27.4% to 29.98% for the 15-24 age groups, and from 37.53% to 40.93% for the 25-29 age groups. The reason why the NEET rate is quite high in the 25-29

age group compared to the 15-24 age group is that most of the individuals in this age group have ended their education life. When the distribution of NEETs in all age groups is analyzed, it is seen that the rate of those who are not in the labor force is much higher than the rate of those who are unemployed. The age group with the highest rate of unemployment among those with NEET is the 25-29 age group. The proportion of married people in the 25-29 age group is higher than in other age groups. It can be said that this rate is higher, especially since married men actively seek work to earn a living for the household.

Looking at Figure 4, it is seen that the NEET rate tends to increase in all age groups according to years, and the age group with the highest NEET rate is the 25-29 age group. When the rate of those in employment and education is examined, the age group with the highest rate of employment is the 25-29 age group, while the age group with the highest rate of education is the 15-24 age group. When we look at the ratio of those in education between 2014 and 2020 for all age groups, it is seen that there is not much change in proportion, but there is a remarkable decrease in the ratio of those in employment for all age groups. Therefore, it can be said that the main reason for the increase in the NEET rate is the decrease in the employment rate.

EMPIRICAL APPLICATION

Methodology

The models used in cases where the dependent variable is a qualitative variable that takes two values are called binary outcome models. One of the most used models among these models is the logit model. Since it is assumed that dependent variable *Y* takes only two values, 0 and 1, in binary logistic regression, it follows a Bernoulli distribution (Yılmaz and Çelik, 2021).

The logit model uses the logistic cumulative distribution function. Linear regression model showing the relationship of a binary outcome with a continuous variable

$$P_i = E(Y=1 \mid X_i) = \beta_0 + \beta_1 X_i \tag{5.1}$$

In the above model, X_i represents the continuous variable, P_i is the probability that event of interest occurs. The probability of the event occurring is shown as follows:

$$P_i = E(Y_i=1 \mid X_i) = \frac{1}{1+e^{-(\beta_0+\beta_1 X_i)}} \tag{5.2}$$

Substituting in equation (5.2) for $Z_i = \beta_0 + \beta_1 X_i$ the following equation (5.3) is obtained:

$$P_i = \frac{e^{Z_i}}{1+e^{Z_i}} \tag{5.3}$$

Equation (5.3), which shows the probability of an event occurring, is known as the logistic distribution function. The ratio of the probability of an event occurring to the probability of not occurring is obtained as:

$$\frac{P_i}{(1-P_i)} = \frac{1+e^{Z_i}}{1+e^{-Z_i}} = e^{Z_i} \tag{5.4}$$

By taking the logarithm of equation (5.4),

$$L_i = Ln\left(\frac{P_i}{(1-P_i)}\right) = Z_i = \beta_0 + \beta_1 X_i \tag{5.5}$$

the logit model in equation (5.5) is obtained. Here L_i is called logit. In the logit model, while L_i is linear with respect to X, the probabilities themselves are not linear, and while the probabilities are limited between 0 and 1, there is no limitation in logit (Greene, 2018).

Data Set

In the study, pooled data from the Household Labor Force Survey for the years 2014-2020 were used. One of the problems that most affect the socio-economic development of Turkey is the youth who are not in employment or education. The aim of this study is to determine the profile of young people between the ages of 15-29 who are neither in education nor in employment in Turkey with socio-economic factors. Of the 752930 young people in the sample, 229950 (30.54%) are neither in education nor in employment. Factors affecting an individual's NEET were analyzed on an individual basis using a binary logit model. The age criterion is important in practice. United Nations (UN), World Bank (WB), and International Labor Organization (ILO) accept the age range of 15-24 for youth in international data and statistics. However, the age range accepted for youth may also vary according to the purpose of the measurement. As a matter of fact, the age group of 25-29 is also used in many international studies, since the education period exceeds the age of 24. Based on these statements, 15-24 and 25-29 age groups were also included in the study. The dependent variable is a dummy variable that takes a value of 1 if the young individual is NEET and 0 otherwise. However, in the Labor Force survey, NEET individuals

Table 4. Descriptive Statistics by Age Categories

	15-29 Years Old		15-24 Years Old		25-29 Years Old	
Variable	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
The Dependent Variable						
NEET	0.3054	0.4605	0.2731	0.4455	0.3790	0.4851
Age						
15 Years Old	0.0847	0.2784	0.1217	0.3270		
16 Years Old	0.0855	0.2797	0.1230	0.3284		
17 Years Old	0.0860	0.2804	0.1236	0.3292		
18 Years Old	0.0780	0.2682	0.1121	0.3155		
19 Years Old	0.0655	0.2475	0.0943	0.2922		
20 Years Old	0.0553	0.2286	0.0795	0.2706		
21 Years Old	0.0572	0.2323	0.0823	0.2749		
22 Years Old	0.0602	0.2380	0.0866	0.2813		
23 Years Old	0.061	0.2396	0.0879	0.2832		
24 Years Old	0.0615	0.2402	0.0884	0.2839		
25 Years Old	0.0610	0.2394			0.2005	0.4004
26 Years Old	0.0605	0.2385			0.1989	0.3991
27 Years Old	0.0606	0.2386			0.1990	0.3993
28 Years Old	0.0610	0.2393			0.2004	0.4003
29 Years Old	0.0612	0.2397			0.2010	0.4007
Sex						
Male	0.4975	0.4999	0.5018	0.4999	0.4877	0.4998
Female	0.5024	0.4999	0.4981	0.4999	0.5122	0.4998
Marital Status						
Single	0.7425	0.4372	0.8800	0.3249	0.4283	0.4948
Married	0.2574	0.4372	0.1199	0.3249	0.5716	0.4948
Education						
Illiterate	0.0753	0.2639	0.0619	0.2410	0.1058	0.3076
Primary School	0.0297	0.1697	0.0172	0.1302	0.0581	0.2339
Secondary School	0.4777	0.4995	0.5640	0.4958	0.2805	0.4492
General High School	0.1400	0.3470	0.1444	0.3515	0.1297	0.3360
Vocational High School	0.1186	0.3233	0.1242	0.3298	0.1058	0.3076
Academy-University	0.1522	0.3593	0.0870	0.2818	0.3013	0.4588
Master-PhD	0.0062	0.0790	0.0009	0.0302	0.0185	0.1348
Region						
Istanbul	0.0937	0.2914	0.0882	0.2836	0.1062	0.3082
Western Marmara	0.0500	0.2180	0.0471	0.2118	0.0567	0.2314
Eastern Marmara	0.0780	0.2682	0.0748	0.2631	0.0854	0.2795
Western Anatolia	0.1077	0.3100	0.1056	0.3073	0.1126	0.3162
Central Anatolia	0.0644	0.2456	0.0659	0.2482	0.0611	0.2395
Centraleastern Anatolia	0.0889	0.2846	0.0925	0.2897	0.0807	0.2724
Northeastern Anatolia	0.0709	0.2567	0.0741	0.2620	0.0636	0.2441
Southeastern Anatolia	0.1288	0.3350	0.1357	0.3425	0.1130	0.3166
Western Black Sea	0.0712	0.2572	0.0714	0.2575	0.0707	0.2564
Eastern Black Sea	0.0378	0.1907	0.0380	0.1912	0.0373	0.1896
Aegean	0.0996	0.2995	0.0967	0.2956	0.1063	0.3082
Mediterranean	0.1083	0.3108	0.1095	0.3123	0.1058	0.3075
Year						
2014	0.1511	0.3582	0.1511	0.3582	0.1512	0.3582
2015	0.1466	0.3537	0.1469	0.3540	0.1461	0.3532
2016	0.1387	0.3457	0.1385	0.3455	0.1392	0.3462
2017	0.1359	0.3427	0.1364	0.3432	0.1346	0.3413
2018	0.1326	0.3392	0.1334	0.3400	0.1309	0.3373
2019	0.1296	0.3359	0.1290	0.3352	0.1311	0.3375
2020	0.1650	0.3712	0.1643	0.3706	0.1666	0.3726

were not given a single data collectively. For this reason, the classification of NEET individuals was obtained based on the survey questions: "Did you attend a formal education institution in the last 4 weeks ending with the reference week? (including open education)" and those who are unemployed and not included in the labor force when asked about the individual's labor force status. In the study, NEET individuals were formed by considering those who were not included in the workforce and did not continue their education, and those who were unemployed and did not continue their education.

Descriptive Statistics

Before the evaluation of the model results, the descriptive statistics of the variables included in the analysis are given in Table 4.

While the NEET rate in the 15-29 age group is 30.54%, this rate is 27.31% in the 15-24 age group and 37.90% in the 25-29 age group. The reason why the NEET rate in the 25-29 age group is higher than in other age groups is that the rate of individuals who do not take part in education is higher. 51.22% of those aged 25-29, 50.24% of those aged 15-29, and 49.81% of those aged 15-24 are women. When the marital status is examined, the rate of single people is the highest in the 15-24 age group with 88%, while this rate is 74.25% in the 15-29 age group and 42.83% in the 25-29 age group. Among the 15-29 age group, 47.77% are Secondary Schools, 25.86% are General High School/Vocational High School and 15.22% are Academy/University graduates. Of the 15-24 age group, 56.4% are in Secondary School, 26.86% are General High School/Vocational High School and 8.7% are Academy/University graduates. 30.13% of the individuals in the 25-29 age group are graduates of Academy/University, 28.05% are Secondary School and 23.55% are General High School/Vocational High School, graduates. While 12.88% of those in the 15-29 age group live in Southeastern Anatolia, 10.83% in the Mediterranean, 10.77% in Western Anatolia, and 9.96% in the Aegean region, 3.78% live in the Eastern Black Sea region, and 5% in the Western Marmara region. While 13.57% of the 15-24 age group live in Southeastern Anatolia, 10.95% in the Mediterranean, 10.56% in Western Anatolia, 9.67% in the Aegean region, 3.8% in the Eastern Black Sea region, and 4.71% in the Western Marmara region. 11.30% of those in the 25-29 age group live in Southeastern Anatolia, 11.26% in Western Anatolia, 10.63% in the Aegean, and 10.58% in the Mediterranean region. The least inhabited regions are the Eastern Black Sea Region with 3.73% and the Western Marmara region with 5.67%.

LOGIT Model Estimation

In order to reveal the characteristics of the youth in the NEET status in Turkey, the logit model was estimated for the 15-29, 15-24, and 25-29 age groups and the results are given in Table 5.

In all models, the reference class is male, single, graduate/doctorate graduate, living in Istanbul, and 2014. 29 years old in the model estimated for the 15-29 age group, 24 years in the model estimated for the 15-24 age group, and 29 years old in the model estimated for the 25-29 age group were taken as the reference class.

When the results in Table 5 are examined, it is concluded that women are more likely to be NEET than men in all three models, which supports the literature (Genda, 2007; Kelly & McGuinnes, 2013, Susanli, 2016). Looking at the model result obtained especially for the 25-29 age group, it is seen that the probability of being NEET is 17.5% more for women than for men. When the effect of marital status on individuals' being NEET is examined, the probability of married people being NEET is 13.94% less in the model estimated for the 15-29 age group, 5.57% in the model estimated for the 15-24 age group, and 23.95% in the model estimated for the 25-29 age group (Abayasekara and Gunasekara, 2020). In all three models, it is seen that being married and female increases the risk of being NEET.

Looking at the effect of age on an individual's NEET, it is seen that 15, 16, and 17-year-olds are less likely to be NEET than 29-year-olds and 24-year-olds in the models estimated for the 15-29 and 15-24 age groups, respectively. It can be argued that this result is due to the fact that most individuals under the age of 18 continue their education. Looking at individuals older than 17 years of age, it is seen that they are more likely to have NEET than those aged 29, but the probability tends to decrease with age. In the model estimated for the 25-29 age group, it was concluded that the probability of being NEET decreased as the age increased.

When the effect of an individual's education level on being NEET is examined, it is seen that the probability of being NEET is increased for those with a low education level, which supports the literature in the models estimated for the 15-29 and 25-29 age groups (Kovrova & Lyon, 2013; Bacher *et al*., 2014; Susanli, 2016, Caroleo *et al*., 2020). Looking at the model estimated for the 15-24 age group, the risk of being NEET is lower for primary, secondary, high school, and college/university graduates than for master/PhD graduates. This result is in line

Table 5. Determinants of NEET Status, Logit Model Estimates

The Dependent Variable (NEET)	15-29 Years Old		15-24 Years Old		25-29 Years Old	
Variable	Coefficient (Std. Error)	Marginal Effect	Coefficient (Std. Error)	Marginal Effect	Coefficient (Std. Error)	Marginal Effect
Female	0.6095*** (0.0068)	0.1176	0.5512*** (0.0077)	0.0964	0.7852*** (0.0153)	0.1750
Married	-0.7959*** (0.0141)	-0.1394	-0.3429*** (0.0249)	-0.0557	-1.0571*** (0.0181)	-0.2395
Married Women	2.2072*** (0.0156)	0.4929	2.1638*** (0.0273)	0.4825	2.0612*** (0.0226)	0.4630
15 Years Old	-1.2845*** (0.0203)	-0.1851	-1.1731*** (0.0206)	-0.1576		
16 Years Old	-1.0203*** (0.0194)	-0.1569	-0.8946*** (0.0194)	-0.1282		
17 Years Old	-0.6142*** (0.0181)	-0.1041	-0.5013*** (0.0180)	-0.0786		
18 Years Old	0.5981*** (0.0162)	0.1283	0.6158*** (0.0157)	0.1211		
19 Years Old	0.6170*** (0.0165)	0.1330	0.5670*** (0.0160)	0.1111		
20 Years Old	0.3368*** (0.0170)	0.0696	0.2180*** (0.0165)	0.0400		
21 Years Old	0.2515*** (0.0169)	0.0511	0.0825*** (0.0162)	0.0147		
22 Years Old	0.2910*** (0.0165)	0.0596	0.0604*** (0.0158)	0.0107		
23 Years Old	0.3420*** (0.0163)	0.0707	0.0475*** (0.0155)	0.0084		
24 Years Old	0.3513*** (0.0162)	0.0727				
25 Years Old	0.2747*** (0.0163)	0.0561			0.1637*** (0.0163)	0.0374
26 Years Old	0.1997*** (0.0163)	0.0402			0.1165*** (0.0163)	0.0265
27 Years Old	0.1293*** (0.0164)	0.0257			0.0750*** (0.0162)	0.0170
28 Years Old	0.0901*** (0.0163)	0.0177			0.0576*** (0.0162)	0.0130
Illiterate	1.9095*** (0.0400)	0.4397	0.5102*** (0.0959)	0.0997	2.0182*** (0.0453)	0.4636
Primary School	1.2009*** (0.0417)	0.2773	-0.2858*** (0.0983)	-0.0462	1.4498*** (0.0472)	0.3473
Secondary School	0.3121*** (0.0389)	0.0605	-1.4324*** (0.0951)	-0.2606	1.1474*** (0.0432)	0.2694
General High School	0.5710*** (0.0392)	0.1204	-0.8606*** (0.0951)	-0.1258	0.8262*** (0.0443)	0.1981
Vocational High School	0.5896*** (0.0393)	0.1252	-0.8174*** (0.0952)	-0.1193	0.7521*** (0.0450)	0.1804
Academy/University	0.5542*** (0.0389)	0.1163	-0.3698*** (0.0950)	-0.0592	0.4966*** (0.0430)	0.1148
Western Marmara	0.0809*** (0.0166)	0.0159	0.1236*** (0.0215)	0.0222	-0.0069 (0.0266)	-0.0015
Eastern Marmara	0.2322*** (0.0143)	0.0470	0.2538*** (0.0184)	0.0470	0.1877*** (0.0233)	0.0433
Western Anatolia	0.1950*** (0.0132)	0.0390	0.2000*** (0.0169)	0.0364	0.1838*** (0.0217)	0.0423
Central Anatolia	0.3752*** (0.0149)	0.0779	0.4138*** (0.0187)	0.0793	0.2893*** (0.0255)	0.0675
Centraleastern Anatolia	0.7344*** (0.0135)	0.1599	0.8675*** (0.0168)	0.1785	0.5253*** (0.0238)	0.1249
Northeastern Anatolia	0.4018*** (0.0146)	0.0837	0.5245*** (0.0181)	0.1025	0.1877*** (0.0257)	0.0433
Southeastern Anatolia	0.9965*** (0.0125)	0.2204	1.1241*** (0.0156)	0.2350	0.7944*** (0.0219)	0.1907
Western Black Sea	0.1814*** (0.0148)	0.0363	0.1917*** (0.0188)	0.0350	0.1182*** (0.0246)	0.0270
Eastern Black Sea	0.4437*** (0.0175)	0.0937	0.5037*** (0.0219)	0.0989	0.2955*** (0.0298)	0.0691
Aegean	0.1324*** (0.0136)	0.0262	0.1762*** (0.0174)	0.0320	0.0411* (0.0221)	0.0093
Mediterranean	0.4497*** (0.0130)	0.0938	0.4904*** (0.0166)	0.0945	0.3758*** (0.0218)	0.0881
2015	-0.0544*** (0.0107)	-0.0104	-0.0947*** (0.0133)	-0.0162	0.0058 (0.0187)	0.0013
2016	-0.0318*** (0.0109)	-0.0061	-0.0983*** (0.0135)	-0.0168	0.0539*** (0.0190)	0.0122
2017	-0.0016 (0.0109)	-0.0003	-0.0424*** (0.0134)	-0.0073	0.0178 (0.0193)	0.0040
2018	0.0768*** (0.0109)	0.0150	0.0577*** (0.0134)	0.0102	0.0547*** (0.0194)	0.0124
2019	0.1899*** (0.0109)	0.0379	0.1630*** (0.0134)	0.0294	0.1937*** (0.0193)	0.0446
2020	0.3122*** (0.0102)	0.0633	0.2605*** (0.0125)	0.0477	0.3718*** (0.0182)	0.0867
Constant	-2.5060*** (0.0414)	-	-0.9522*** (0.0957)	-	-2.5822*** (0.0481)	

*** Significant at %1 level; ** %5 level; *%10 level.

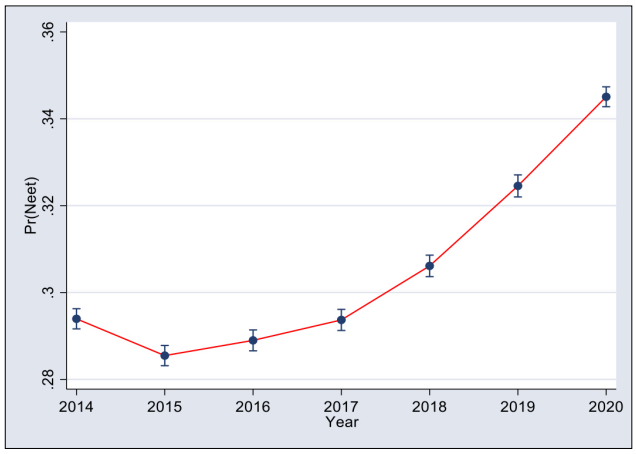

Figure 5. Marginal Probabilities by Years

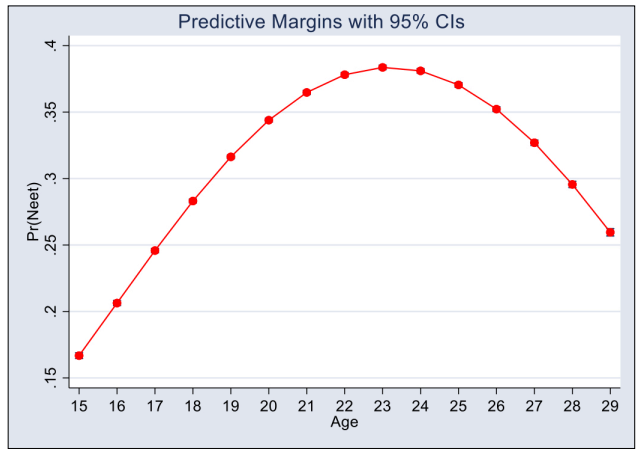

Figure 6. Marginal Probabilities by Age

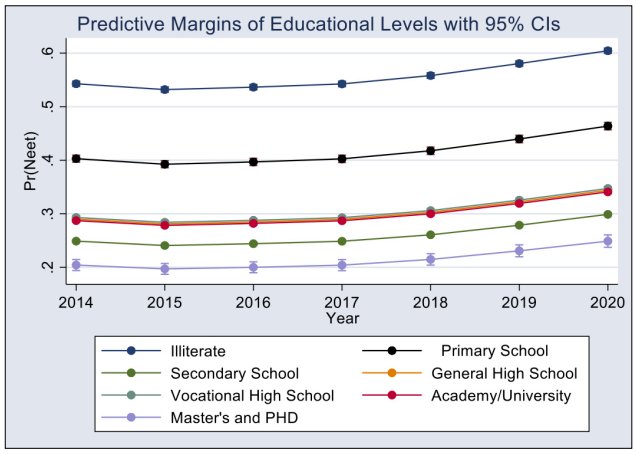

Figure 7. Marginal Probabilities by Education Level

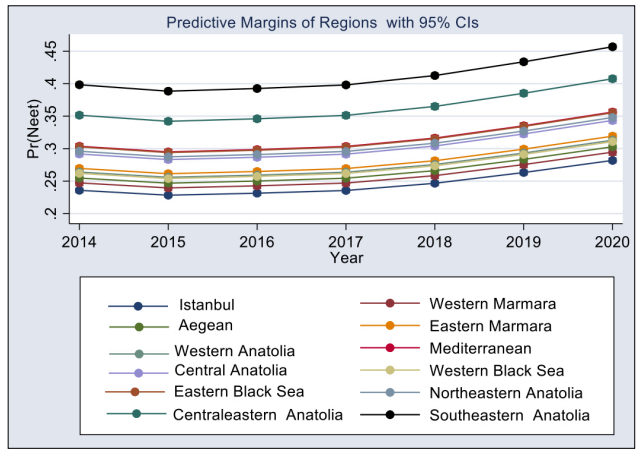

Figure 8. Marginal Probabilities by Region

with the expectation when considering the job search period of a master/PhD graduate who is not involved in education.

When the living regions are examined, all other coefficients are statistically significant except for the coefficient obtained for the Western Marmara region in the model estimated for the 25-29 age group, and in all three models, those living in areas outside of Istanbul are more likely to be NEET than those living in Istanbul. The regions with the highest probability of being NEET are Southeastern Anatolia, Centraleastern Anatolia, Mediterranean, Eastern Black Sea, and Central Anatolia, respectively. The low rate of continuing education in these regions and the increasing unemployment rate in recent years, unfortunately, increase the risk of being NEET.

When the years are examined in the models estimated for age groups, all other coefficients are statistically significant except for the coefficient for 2017 in the model estimated for the 15-29 age group, and for the years 2015 and 2017 in the model estimated for the 25-29 age groups. Looking at the results in general, it is seen that the risk of being NEET has increased in all age groups from 2014 to 2020 in Turkey, in parallel with the recent increase in the NEET rate globally.

Analysis of Marginal Effects

After model estimation and marginal effect interpretation, we can also show the marginal probabilities results of NEET with the graphs below:

Looking at Figure 5, it is seen that the probability of being NEET increases from 2014 to 2020. When Figure 6 is examined, it is concluded that as the age increases, the probability of being NEET first increases and then decreases, and the probability of being NEET is at its peak around the age of 23. Considering the probability of being NEET in terms of education level over the years in Figure 7, it is seen that the probability of being NEET is higher for those who have not completed school and who are primary school graduates. When we look at the probability of being NEET according to the region in the years in Figure 8, it is seen that the probability of being NEET increases towards 2020 in all regions. This could ultimately be the effect of the Covid-19 pandemic. It is

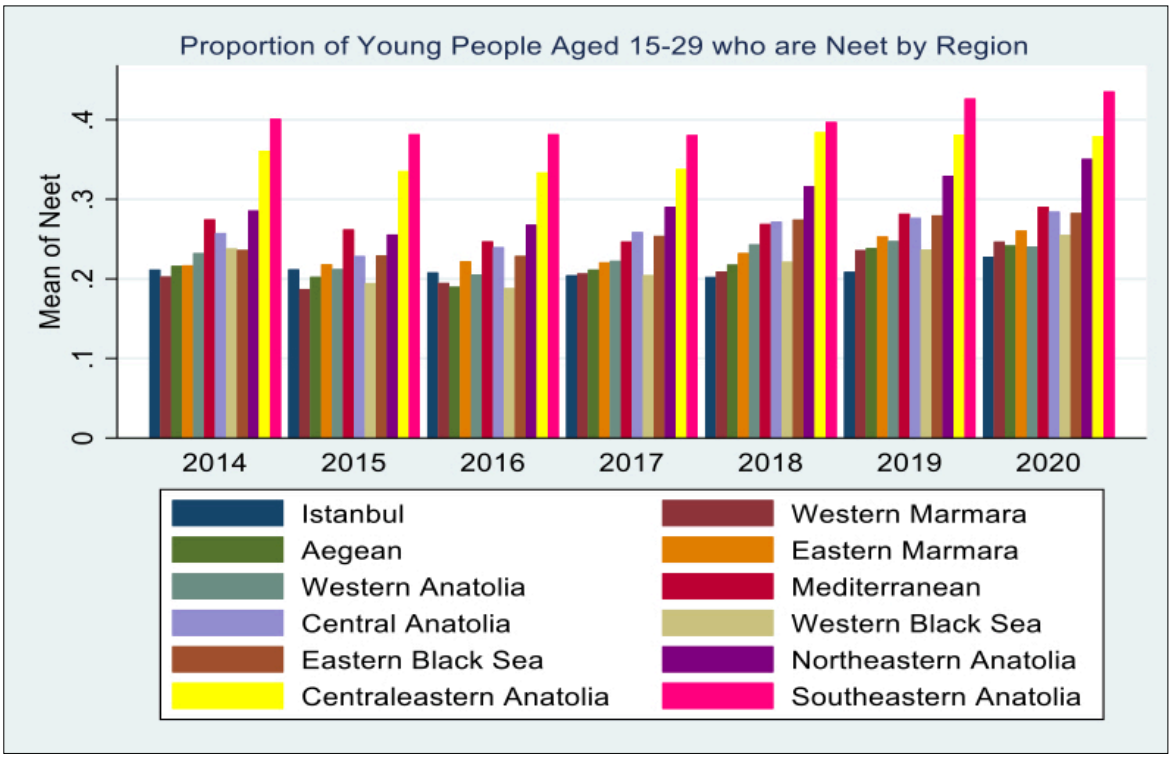

Figure 9. Neet Rates for 15-29 between 2014-2020
Note: Calculations are made by authors from the 2014-2020 Household Labor Force Survey Data

seen that the region with the highest probability of being NEET is the South East Anatolia region. When we focus on the highest neet rates of broadly defined youth between 2014 and 2020 in the graph, we come across three regions see Figure 9. These are Southeastern Anatolia, Centraleastern Anatolia, and Northeastern Anatolia regions, respectively.

In order to explain these regional differences regarding the NEET, the per capita gross domestic product values of the three regions are given (see Table 6). It is seen that the NEET averages (see Figure 9) obtained by us from the microdata and the macro indicators in Table 6 below support each other. It is inevitable that there will be socio-economic imbalances between the regions with the lowest per capita income and other regions. In other words, the differences in agriculture, industry, trade, service, communication, transportation, health, education, demographic and social indicators lead to high unemployment and neet rates among young people.

Table 6. Per Capita Domestic Product for Southeastern Anatolia, Northeastern Anatolia, and Centraleastern Anatolia

	Per capita Gross Domestic Product (based on 2009 TURKSTAT data)		
Year	**Southeastern Anatolia**	**Northeastern Anatolia**	**Centraleastern Anatolia**
2014	13392	13917	12747
2015	15226	15945	14270
2016	16541	18274	16149
2017	19627	21534	19164
2018	23020	24618	22289
2019	26304	28671	26024
2020	31627	35716	31785

Source: https://biruni.tuik.gov.tr/medas

DISCUSSION AND CONCLUSION

The NEET status of young people, who are the human capital of the countries, causes many problems at the social level and constitutes an obstacle to socio-economic development. Identifying the factors that cause young people to be in NEET status is very important for policymakers to determine and implement strategies to reduce the rate of young NEET individuals. In this study, the determinants of being NEET in Turkey were examined separately for the 15-29, 15-24, and 25-29 age groups, using the pooled data of the Household Labor Force Survey for the years 2014-2020. In the study, considering the NUTS 1 region classification of TURKSTAT, the region of residence, education level, age, gender, marital status, and year dummies were used as explanatory variables.

According to the model results, it is seen that women are more likely to be NEET than men, and married people are less likely to be NEET than singles. It has been concluded that being married and being a woman further increases the risk of being NEET. This finding is in line with the expectation as there are more responsibilities for women in households in Turkey and supports the literature (Genda, 2007; Kelly & McGuinnes, 2013, Susanli, 2016). It can be said that since the proportion of married people is higher in the 25-29 age category than in other age categories, and in most developing countries, women are more likely to be NEET in the care of young children and the elderly than men. When the effect of marital status is examined, married people are less likely to be NEET and this finding supports the literature (Abayasekara and Gunasekara, 2020). Model results show that being married and female increases the risk of being NEET. Responsibilities such as housework, child care, and care for the sick and/or elderly increase the probability of married women being NEET.

The results show that individual's education level has an impact on being NEET. The model results obtained for the 15-29 and 25-29 age groups reveal that young people with a low level of education are more likely to be NEET which supports the literature (Kovrova & Lyon, 2013; Bacher *et al*., 2014; Susanli, 2016, Caroleo *et al*., 2020). Primary, secondary, high school, and college/university graduates have a lower risk of being NEET than master's/PhD graduates in the 15-24 age group. When considering the job search period of a master's/PhD graduate who is not involved in education, this result is in line with expectation. The findings obtained from the models estimated for all three age groups show that the region of residence has an effect on the probability of being in NEET status. The regions with the highest probability of being NEET are Southeastern Anatolia, Centraleastern Anatolia, Mediterranean, Eastern Black Sea, and Central Anatolia, respectively. Especially in these regions, in addition to early school leaving, the increase in the unemployment rate in recent years increases the risk of being NEET. When the results of the years are examined in general, it is seen that the risk of NEET has increased in all three age groups in Turkey in parallel with the increase observed globally.

The consequences of the high NEET rate in the young population are long-lasting and should not be seen as just an economic problem, as it has sociological and psychological effects not only for young people but also on the whole society (ILO, 2021). While high unemployment and inactivity rates reduce the productivity of countries, they have negative effects on factors that affect the level of welfare in the long run, such as human capital accumulation and fertility rate (Jimeno and Rodríguez–Palenzuela, 2002). Therefore, effective active labor market policies should be adopted by policymakers in order to reduce the NEET rate in the young population. The education system should be made more effective and training activities should be made sufficient. However, it is very important for the authorized institutions to play an active role in the good management of the transition process of young people from education life to business life. Otherwise, the NEET rate will continue to increase with socioeconomic consequences (Choudhry *et al*., 2012).

Vocational education and training have become important economic policy tools to meet market expectations. They are not only instruments for economic productivity, but also instruments for the self-development and emancipation of individuals. Therefore, the quality of public primary and secondary education should be improved in every region of the country. The education system should be reformed to increase student performance in mathematics, science, literature, soft/behavioral skills, and general competencies for better employability (ILO, 2021).

Gender inequality in the labor market is a major problem in many countries, due to the low female labor force participation rate. Cultural differences aside, the main reason for inactivity among women is mostly related to childcare responsibilities, especially in countries where affordable childcare and child-friendly employment are not available (OECD, 2016). To increase female labor force participation, affordable family-friendly care services should be addressed, which should help not only for childcare but also for aged care and

caring for the disabled. Gender-based support policies that support childcare should be implemented to alleviate the characteristics of the dominant patriarchal culture. Education programs and social services in childcare and labor market policies for young women should be implemented. Work-family life balance of deindustrialization, the increasingly informal economy, and the 'resilience and social security nexus' as key factors behind the NEET problem. Skills-gap or skills-mismatch is assumed to be the main cause of youth unemployment. Current policies mostly focus on vocational training. In addition to these active labor policies and programs, Turkey needs a comprehensive macroeconomic policy plan to deal with the NEET problem. Implementation of employment policy in Turkey remained a piecemeal effort to mitigate the negative effects of the economic and financial crises on the labor market and labor force. Institutional and legislative measures mainly include mechanisms to encourage employers to hire workers with support from the public budget. In the absence of a general transformation to inclusive and employment-rich growth strategies, such piecemeal policies are only symptomatic treatments. More comprehensive programs are needed to reintroduce NEETs in employment, education or training (ILO, 2021).

Finally, we point out several issues for further studies. First, we found evidence of the importance of young people's individual characteristics as the most important reasons for becoming a NEET. According to the literature, in addition to individual characteristics, families' socio-economic characteristics are also relatively influential on being NEET with youths from poor families are more likely to become NEET. Therefore, these characteristics should be examined in further studies. Second, the aim of our study is limited to investigating the determinants of being NEET among young people. However, the term NEET includes various subgroups and each group has different characteristics and needs, so it is a heterogeneous category. Therefore, examining unemployed NEETs, inactive NEETs, youth in education and youth in employment with multinomial discrete choice models will be more beneficial in terms of revealing the status of the Turkish labor market, and to take into account the characteristics of these subgroups.

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