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RESEARCH ARTICLE / ARAŞTIRMA MAKALESİ

Analysis of the relationship between education and youth unemployment: evidences from Turkey and Spain

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Abstract

Education has a vital role in improving youth employment. Increasing youth unemployment rates and the high share of the unemployed educated young population indicate that the labor market cannot create good job opportunities. This study analyzes the relationship between youth unemployment and education in countries with a high level of youth unemployment but having different characteristics: Turkey and Spain. The analysis was conducted using Johansen Cointegration tests. The results indicate no unidirectional causal relationship from enrollment in higher education towards youth unemployment rate in Turkey and Spain. Besides, it has been observed that the increase in the higher education schooling rate does not decrease youth unemployment. The results showing the relationship between youth unemployment and education will be crucial in designing policies to improve job markets for youth.

Keywords: *Youth Unemployment, Cointegration Analysis, Laborconomics, Labor Policy, Demographics.*

Jel codes: *J2, J4, J6*

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1. INTRODUCTION

Unemployment is one of the most important societal and economic problems in economies. The young population constitutes an essential share in overall unemployment. ILO (2020) expresses that the share of young people neither in employment nor in education (NEET) is more than 22% which has not improved since 2005. As ILO (2020) reports, higher education schooling can be seen as one reason for the high level of youth unemployment. Thus, NEET gives evidence of a potential threat to economic growth. Besides economic factors, school-to-work transition, socio-demographical factors such as gender and education may affect youth unemployment and worsen the problem.

Several studies are focusing on youth unemployment and figure out the roots of this problem. Economic indicators and financial crises are generally included in several economic models to reveal their impacts on youth unemployment. Socio-demographical factors (age, education, gender) are partially or completely analyzed in several studies. As known, education can be an important indicator in employment. The OECD (2012) expresses that a higher level of education may offer better job prospects, and tertiary education graduates are more likely to be employed than non-graduates[1]. Although there is vast literature on the impact of education on youth unemployment, recent data are noteworthy to measure. Rather than extensive research, in this study, we examine two economies in which youth unemployment has been chronically persistent for years: Turkey and Spain. Spain and Turkey are located in the Southern European or Mediterranean basin and show similarities regarding macro-economic indicators[2].

On the other hand, these countries have differences. Spain is an EU member, and its trade partnership with Germany has been increasing rapidly in recent years. Moreover, increasing migration from Mediterranean countries to more industrialized countries, especially Germany, is under debate, and these countries can be classified as semi-peripheral countries in the EU (Góis and Marques, 2009). In this respect, we analyze one of the semi-peripheral countries –Spain- and one EU candidate country –Turkey- that is located far away from major EU economies like Germany within the scope of youth unemployment.

When the youth unemployment data are analyzed, it is possible to see that these two countries have been at above-average levels for years. Figure 1 shows the youth unemployment levels of 2 countries over the years. As seen, there have been increases and decreases in different trends over the years. Figure 1 shows the increasing youth unemployment trend in Turkey in recent years, whereas Spain has decreasing trends since 2013-2014. It is also worthy of mentioning that the Financial crisis of 2007–2008 caused a high increase in youth unemployment in Spain.

The study has a significant contribution: it focuses on the impact of higher education on the youth unemployment rate and offers policy recommendations accordingly in two countries where youth unemployment rates are relatively high. Since there is a vast literature on comparing these two economies in terms of several macro-economic indicators, we first aim to see whether the root of the youth unemployment problem differs. Secondly, another contribution of the study is to discuss the youth unemployment problem in two countries that are different economically and geographically but show similar patterns in high youth unemployment rate. From this perspective, we aim to make a preliminary study to discuss the link between a geographical position with youth unemployment and education.

In short, the results showing the relationship between youth unemployment and education will be crucial in designing policies to improve job markets for youth. In this respect, we aim to analyze Spain and Turkey having similar characteristics to discuss and evaluate current policies.

The structure of this study is as follows. The next section provides a literature review on the relationship between youth unemployment and higher education and the semi-peripheral position of Spain. The third section gives econometric analysis and discussion of results. In the fourth section, we bring our concluding remarks.

2. LITERATURE REVIEW

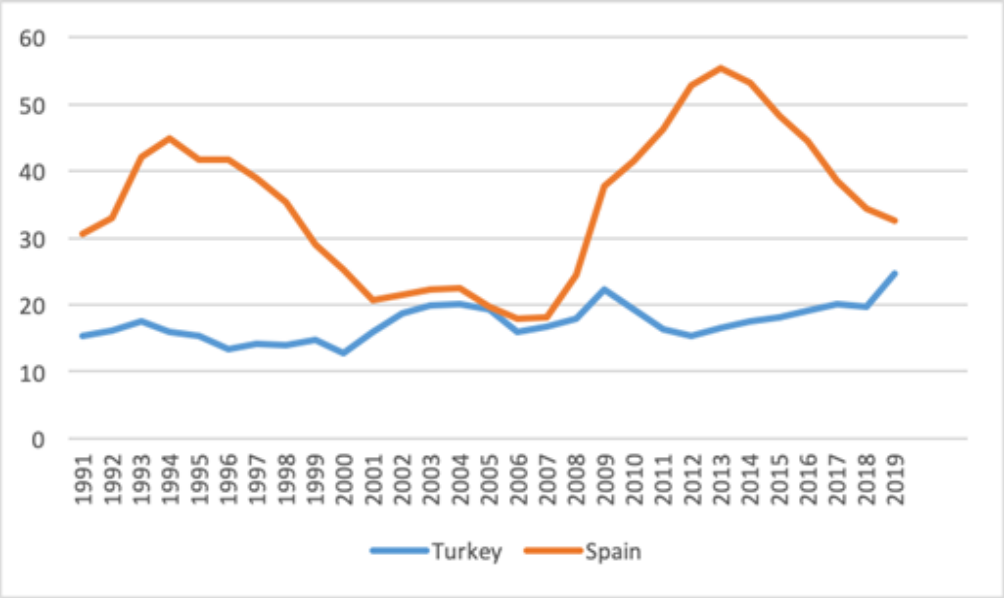
Youth can be considered as the most disadvantageous group in unemployment (Murat and Şahin, 2011). The most evident reasons for youth unemployment can be economic, demographic, educational, and attitudinal factors (Jallade, 1987). Studies generally focus on the roots of the youth unemployment problem by examining a different set of economic variables (such as inflation, population growth, GDP). As noted, education is strongly linked to the youth unemployment problem. Jallade (1987) expresses that lack of skill due to lack of poor training education can be considered the main reason for youth unemployment.

The vast literature on youth unemployment highlights the importance of education to reduce the youth unemployment rate. Additionally, many international organizations have been carrying out studies aiming to increase educational opportunities in world coun-

1Tertiary education can be described as the education taken above school age level such as university, college, vocation schools as Cambridge Dictionary defines.

2Many studies focus on the similarities between Turkish, Spanish economies in several research areas; for example, see Yılmaz (2002), Yılmaz (2008), Lazzerretti et al. (2015).

Figure 1. Youth Unemployment Rates in Turkey and Spain Between 1991-2019



Source: The data is taken from https://fred.stlouisfed.org/

tries and indicate the impact of education on employment with reports such as educational policies aim to improve the transition of youth into the workforce (OECD, 2012). For low and middle-income nations, such as African countries, the youth unemployment problem can be solved regarding education and training policies (Van Aardt, 2012). Besides, Caliendo and Schmidl (2016) express that training courses can be classified among active labor market policies (ALMP) in the EU to reduce youth unemployment, whereas studies find mixed results. They also argue that training may reduce the rate of formal education (Caliendo and Schmidl, 2016). In Turkey, Ürüt Kelleci and Türk (2016) states that inefficient conditions in the job market and education are among the causes of youth unemployment. In some EU countries, including Spain, inconsistencies due to the Financial crisis of 2007–2008 and Debt Crisis constituted problems in training and enhancing human capital (Beşkaya, 2015).

Empirical studies look into the impact of education on youth unemployment by using different variables. Schooling is the most preferred one. We see studies measuring the impact of variables such as secondary and higher education schooling rates, expenditures on schooling (Jensen, 2003; Li, 2006; Mroz and Savage, 2006; Clark, 2009; Biavaschi et al., 2012). In Turkey, several studies have investigated the relationship between youth unemployment and education, including schooling rate. These studies show heterogeneous results: some find a positive impact of higher education schooling on youth unemployment (Arı and Yıldız, 2017, Çondur and Cömertler Şimşir, 2017, Ekiz and Özel, 2020); whereas some show adverse effects (Sayın, 2011; İzgi, 2012; Sertkaya and Okur, 2016; Abdioğlu and Albayrak, 2018; Altunöz, 2019). Additionally, Çalışkan (2007) found that education system did not meet employment expectations. In Spain, the analysis of youth unemployment is recently focused on the inancial crisis of 2007–2008 (Aguilar-Pallacio et al., 2015; Rodriguez-Modroño, 2019; Verd et al., 2019). Eichhorst and Neder (2014) found that in Mediterranean countries, including Spain, school dropout rates are high, returns to education are low, and the transition from education to work is problematic and difficult. They linked these problems to high minimum wage, vocational training system, the dualization of the labor market. Rodriguez-Modroño (2019) found a negative relationship between currently having education or training and NEET in 2016 in Spain. Moreover, she expresses that youngsters have a tendency to be employed in temporary jobs and are more likely to be unemployed in the long run (Rodriguez-Modroño, 2019). Similarly, Garcia (2011) addresses the roots of the youth unemployment problem to early school leaving and inefficiency in the transition from school to the job market. Rocha Sanchez (2012) also explain that high level of should dropouts and temporary job seeker youngsters constitute the root of the high level of youth unemployment in Spain. Moreover, Gündoğan (1999) expressed that youth unemployment was mainly due to the high mobility of youngsters in Europe. In a comparative study, Taş and Bilen (2014) found that the youth unemployment was due to inefficient job creation in Turkey, whereas, in the EU, it

was linked to the inancial crisis of 2007–2008 and other financial crises.

As stated earlier, some classify Spain among semi-peripheral countries in the EU (Gracia, 2017; Caraveli 2017). In this respect, Toussaint (2011) classifies EU countries into two sections: The Core and Peripheries. According to Toussaint (2011), the Core consists of industrialized countries like Germany and France and the UK, Italy, and the former Benelux (the Netherlands, Belgium, and Luxembourg). The Periphery consists of countries in the south and east of the EU and Ireland. There are opinions about peripheral economies providing labor and raw materials to the Core (Gracia, 2017). From this point of view, the relationship of youth unemployment with education can reveal the dynamics in the labor market with the production dimension in peripheral countries.

It is quite essential to look into the policies to improve youth employment. Due to non-homogeneous macroeconomic variables in EU countries, national and regional policies are applied. As noted, ALMP combines several policies to aid unemployment in the EU, such as training, job search assistance, subsidies, supported employment opportunities, and programs to support entrepreneurial activities. In Spain, ALMP is controlled by the Spanish National Employment Institute (INEM) and the regional governments. Moreover, passive employment policies are more concerned with the sociological and psychological aspects of unemployment. It sets out some measures to reduce the loss of income resulting from job loss and prevent social problems (Soylu and Aydın, 2020). In Turkey, active labor market policies have started with the application of training-related programs in 1988. Centralized associations play a crucial role in helping youngsters for job search. Vocational training and skills are provided to the unqualified labor force via "employment guaranteed courses" (Ay, 2012; Soylu and Aydın, 2020).

3. ECONOMETRIC ANALYSIS

In the model, we looked at the relationship between youth unemployment and education, so that we used annual data for 1988-2019 from Turkey. Accordingly, tertiary, gross school enrollment (TSE), secondary gross school enrollment (SSE), and youth unemployment (YUN) were taken from World Bank and Turkey Statistical Institute. Data for Spain for tertiary school enrollment (TSE) and youth unemployment (YUN) were obtained from World Bank. Data on youth unemployment and higher education enrollment rates between 1988 and 2019 were used. The logarithms of all variables were taken in the analysis.

To reach reliable results, first, the stationarity of the variables used in the model was tested. Augmented Dickey-Fuller (ADF) tests were preferred to examine the stationarity of the series in the study. To determine the relationship between variables in the model, firstly, the VAR model was applied, and the appropriate lag length was determined, and then the Johansen cointegration method was applied.

3.1. Unit Root Tests

The fact that series are not stationary in the macroeconomic analysis is one of the most common problems encountered in similar studies. This situation may lead to an unrealistic relationship between the variables used in the model. Granger and Newbold (1974) showed that spurious regression problems could be encountered when working with non-stationary time series. In this case, the result obtained by regression analysis does not reflect the true relationship as these test statistics lose their validity since they do not have a standard distribution (Gujarati, 2006: 713). Therefore, when working with time series, the stationarity of the series must first be tested.

There are many different methods for testing stationarity. In this study, the Augmented Dickey-Fuller (ADF) test developed by Dickey and Fuller (1981), which is the most frequently used in the literature, was preferred. The ADF unit root test results show whether the variables used in the analysis are stationary, and their stationarity levels are given in Table 1.

In Table 1, it can be seen that as the ADF-t statistics obtained for YUN, SSE, and TSE variables in the level values are less than the MacKinnon absolute values, which are 5% significance level, they are not stationary. When the first differences of these variables are taken, it is determined that all variables are stationary.

According to the results of the ADF unit root test presented in Table 2, it is seen that while the variables of youth unemployment and higher education schooling rate for Spain contain unit root at the level, they become stable when the second differences are taken. According to the unit root test results, it can be investigated whether the series are cointegrated or not, since the variables are integrated at the same degree. For this purpose, the most frequently used and preferred Johansen Cointegration method was applied to determine the long-term relationship between non-stationary variables at the level.

3.2. Johansen Cointegration Test

Johansen Cointegration test was conducted to determine the long-term relationship between variables. In this test, firstly, the length of the delay should be determined. Accordingly, it is necessary to determine the appropriate delay length by establishing the VAR model. LogL, LR test statistics (LR), Akaike information criterion (AIC), Last prediction error (FPE), Schwarz

Table 1. ADF Unit Root Test Results for Turkey

Variables	ADF Level (Fixed)		ADF First Difference	
	Test Statistics	Critical Value (5%)	Test Statistics	Critical Value (5%)
YUN	-1.317761	-2.960411 (0.6086)	-4.652830	-2.963972 (0.0008)
SSE	-1.357895	-2.960411 (0.5897)	-5.423896	-2.963972 (0.0001)
TSE	-0.226606	-2.963972 (0.9245)	-3.930791	-2.963972(0.0053)

*Values in parenthesis show probability values.

Table 2. ADF Unit Root Test Results for Spain

Variables	ADF Level (Fixed)		ADF First Difference		ADF Second Difference	
	Test Statistics	Critical Value (5%)	Test Statistics	Critical Value (5%)	Test Statistics	Critical Value (5%)
YUN	-2.551818	-2.963972 (0.1140)	-2.672027	-2.963972 (0.0906)	-4.938668	-2.967767 (0.0004)
TSE	-2.702690	-2.967767 (0.0857)	-2.557424	-2.963972 (0.1128)	-6.334328	-2.967767 (0.0000)

*Values in parenthesis show probability values.

Table 3. Determination of Lag Length

Lag	LogL	LR	FPE	AIC	SC	HQ
0	87.31683	NA	4.86e-07	-6.022631	-5.879895	-5.978995
1	187.3067	171.4112*	7.36e-10*	-12.52191*	-11.95096*	-12.34736*
2	190.5833	4.914990	1.14e-09	-12.11310	-11.11394	-11.80764
3	197.0320	8.291193	1.46e-09	-11.93086	-10.50350	-11.49450
4	204.9004	8.430385	1.80e-09	-11.85003	-9.994458	-11.28276

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

information criterion (SC), and Hannan-Quinn (HQ) statistics are used to determine the appropriate delay length. The appropriate lag length for VAR model is selected as 2 at final predicting error (FPE), Akaike (AIC), Schwarz (SC) and Hannan-Quinn (HQ) values (Table 3).

Johansen and Juselius (1990) proposed two tests to determine the number of cointegration vectors and their significance. Accordingly, the trace statistic tests the null hypothesis that there is at most r cointegration against the alternative hypothesis that there are more than r cointegration vectors. The maximum eigenvalue statistic tests the alternative hypothesis that there are r + 1 cointegrated vectors instead of the null hypothesis stating that the number of vectors performing cointegration is r.

While the H_0 hypothesis states that there are no r or less cointegrated relations between the variables, the general alternative hypothesis shows that there is r number of cointegration relationships between variables. Accordingly, the r = 0 null hypothesis is rejected if the test statistics values are more significant than the table critical value at the 5% significance level (Lutkepohl, Saikkonen, & Trenkler, 2001: 287-310).

Considering the trace test and the maximum eigenvalue statistics in Table 4 and Table 5, the null hypothesis, which states that there are no cointegrated relations between the variables r = 0, r≤1, and r≤2, is accepted due to the test statistics values being lower than the table critical value at the 5% significance level. In the analysis, both tests concluded that there is no cointegrated vector at a 5% critical value. Therefore, there is no long-term stable relationship between YUN, SSE,

Table 4. Results of Johansen Cointegration Test by Trace Statistic for Turkey

Hypotheses	Eigenvalue	Trace Statistic	% 5 Critical Value	Probability
r = 0	0.364127	18.91996	29.79707	0.4987
r 1	0.159812	5.337283	15.49471	0.7720
r 2	0.003772	0.113385	3.841465	0.7363

Table 5. Results of Johansen Cointegration Test by Max-Eigen Statistic for Turkey

Hypotheses	Eigenvalue	Max-Eigen Statistic	% 5 Critical Value	Probability
r = 0	0.364127	13.58268	21.13162	0.4002
r 1	0.159812	5.223898	14.26460	0.7134
r 2	0.003772	0.113385	3.841465	0.7363

and TSE variables.

The delay lengths for the Johansen Test are based on AIC selection criteria were determined as 2 for Spain. The results of the Johansen Cointegration Analysis with this lag length are given in Table 6.

It is seen that there are no cointegration vectors in the model at the 5% significance level, as the trace statistics and maximum eigenvalue test statistics calculated are lower than the critical value as a result of the Johansen Cointegration test (Table 6). Therefore, it is possible to say that the youth unemployment rate and higher education schooling rate series do not affect each other in the long term for Spain.

4. CONCLUSION

Education is strongly linked to youth unemployment. In this study, the relationship between youth unemployment and education for Turkey and Spain has been discussed. Our results show no unidirectional causal relationship from enrollment in higher education towards youth unemployment rate in Turkey and Spain. Besides, it has been observed that the increase in the higher education schooling rate does not decrease youth unemployment. We have found that higher education does not meet job market expectations. Our results align with the literature showing that early school dropouts are very common, and youngsters are more likely to be unemployed in temporary jobs rather than permanent ones in Spain (Alves et al., 2017; Rodriguez-Modroño, 2019).

It is possible to conclude that higher education does not necessarily fulfill the job market requirements in both countries. Young people may not be encountering frequent employment opportunities even if they get tertiary education. This situation shows that higher education is not enough to meet the labor market necessities in the economy of a country that is located distant from the core EU. Moreover, the Turkish economy has been recently growing with its service sector. It can be foreseen that there are not adequate job opportunities to hire youngsters with no university degree, for instance in industrial sectors. In Spain, the results can be interpreted as follows: Firstly, as noted, young people mostly work in temporary jobs, and the school dropout rate is quite high. Secondly, as Gracia (2017) denotes, peripheral countries provide raw material and industrial inputs to the core EU countries to

Table 6. Results of Johansen Cointegration Test by Trace and Max-Eigen Statistics for Spain

	Hypotheses	Eigenvalue	Trace Statistic	% 5 Critical Value	Max-Eigen Statistic	% 5 Critical Value
Spain	r = 0	0.280137	13.37779	15.49471 (0.1017)	9.532126	14.26460 (0.2445)
	r ≤ 1	0.124193	3.845669	3.841465 (0.0499)	3.845669	3.841465 (0.0499)

*Values in parenthesis show probability values.

have employment mobility opportunities for secondary school graduates in the intermediate sectors of industry.

Given the preliminary nature of this work, more extensive research will be needed to test our interpretations. Nevertheless, this study has suggestions for these two countries to make their labor markets more efficient. There may be a mismatch in labor market supply and demand in these countries. The mismatch may arise due to two reasons: unqualified education, lack of experience. So that, both countries should invest in the qualification of the educational system. Furthermore, Turkey may create positions for the young labor force with no university diploma and create job opportunities for new graduates. Job search associations responsible for reducing youth unemployment may focus on school-to-work transition and promote internships. Spain may implement policies to increase the proportion of higher education. In order to reduce the rate of school dropouts, financial aids like student loans can be increased. As Ürüt Kelleci and Türk (2016) state, we also believe that pre-school education and collaboration between industries and education systems may ameliorate youth employment in Turkey and Spain.

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