

**THE RELATIONSHIP OF HIGH TECHNOLOGY EXPORT AND MIDDLE INCOME TRAP:
ANALYSIS FOR TURKEY****Lect. Mahmut Sami DURAN (Ph.D.)** **Assoc. Prof. Esra KABAKLARLI (Ph.D.)** **ABSTRACT**

In the last 200 years that the world has undergone, technological advances, improvements and important developments in the industry have been an effective factor for sustainable development in the world's richest countries. At this point, there has been an important need to divide the countries of the world into low, medium and high income groups. Due to such a need for a dynamic structure, the United States, which has assumed the economic leadership of the world since 1920, has been a benchmark in determining the income groups of other countries, and this situation has been preferred as a generally accepted approach. Spillover effects of technological progress to local firms are key to improving productivity and generating innovative production. Many countries have escaped the middle income trap through high-tech sectors. In this study, we analyzed the Turkish high-technology exports and income per capita data using a cointegration approach for the years 1990-2018 . The long-run coefficients for the cointegrated system are also tested in this study applying dynamic ordinary least square (DOLS). According to empirical findings, investment and labor are statistically significant whereas the high tech export parameter is statistically insignificant. Therefore, investment and labor force affect GDP per capita positively whereas the high technology export effect on GDP per capita is statistically insignificant and negative.

Keywords: High technology Export, Middle income Trap, Economic Growth, Turkey.**Jel Codes:** O32, O14, C82.**YÜKSEK TEKNOLOJİ İHRACATI VE ORTA GELİR TUZAĞI İLİŐKİSİ: TÜRKİYE
ANALİZİ****ÖZET**

Son 200 yılda dünyada meydana gelen teknolojik ilerlemeler ve endüstri alanında yaşanan gelişmeler, dünyanın en zengin kabul edilen ülkelerinin gelirlerini sürekli arttırmasına neden olmuştur.

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Bu noktada ülkeleri düşük, orta ve yüksek gelir gruplarına ayırmak önemli bir ihtiyaç olmuştur. Böylesi bir ihtiyaç dinamik bir yapıyı gerekli kılmış ve bun nedenle 1920 yılından günümüze dünyanın ekonomik liderliğini üstlenmiş olan Amerika Birleşik Devletleri'nin (ABD) gelir düzeyine göre ülkelerin gelir düzeyini kıyaslamak genel kabul gören bir yaklaşım olarak kabul edilmiştir. Teknolojik ilerlemenin yerel firmalara yayılma etkileri, üretkenliği artırmanın ve yenilikçi üretimin gerçekleştirilmesinin anahtarıdır. Pek çok ülke, yüksek teknoloji sektörler aracılığıyla orta gelir tuzağından kaçınmaktadır. Bu çalışmada, Türkiye'nin yüksek teknoloji ihracatı ve kişi başına düşen gelir verileri eşbütünleşme yaklaşımı kullanarak 1990-2018 yılları arasında analiz edilmektedir. Eşbütünleşik sistem için uzun dönem katsayıları da bu çalışmada dinamik sıradan en küçük kareler (DOLS) uygulanarak test edilmiştir. Ampirik bulgulara göre, yatırım ve iş gücü istatistiksel olarak önemliyken, yüksek teknoloji ihracatı parametresi istatistiksel olarak anlamsızdır. Bu nedenle, yatırım ve işgücü kişi başı GSYİH'yi olumlu etkilerken, yüksek teknoloji ihracatının kişi başına GSYİH üzerindeki etkisi istatistiksel olarak önemsiz ve olumsuzdur.

Anahtar Kelimeler: *Yüksek Teknoloji Ihracatı, Orta Gelir Tuzağı, Ekonomik Büyüme, Türkiye.*

JEL Kodları: *O32, O14, C82.*

1. INTRODUCTION

Although the Middle Income Trap is a new issue, when it is considered within the context of economic growth and development, it is widely studied today. In general, this concept is tried to be concretized by considering the economic structures of the countries. However, although it is widely used, Middle Income Trap cannot find a specific dictionary meaning in its definition (Felipe et al., 2012: 7) As a concept, the Middle Income Trap is presented for the first time in a World Bank report titled “An East Asian Renaissance Ideas for Economic Growth” in 2007. According to this report; “Middle-income countries will have a slower growth performance compared to rich countries, because they cannot keep up with economic diversity in the 21st -century world. In other words, the countries that caught in the middle income trap are low-wage, poor countries competitiveness in the production of standard manufacturing industry products weakened; On the other hand, the rich countries based on innovation are defined as hard-to-grow countries” (Bozkurt et al., 2014: 24).

In the last 200 years, technological advances in the world and industrial developments have caused the world's richest countries to increase their income continuously. At this point, it was an important need to divide countries into low, middle, and high income groups. Such a necessity necessitated a dynamic structure and therefore it was accepted as a generally accepted approach to compare the income level of countries according to the income level of the United States (USA), which has assumed the economic leadership of the world since 1920 (Alçın and Güner, 2015).

On the other hand, global economies are evaluated by the World Bank in three groups according to their per capita income. In the 2014 ranking, countries with a per capita income of less than \$ 1,035

are considered low-income countries. With per capita income in the range of \$ 1,036 - \$ 4,085 in low-middle-income countries. With per capita income in the range of \$ 4,086 and \$ 12,615 are also considered as upper middle income countries. At lastly, with a per capita income of more than \$ 12,616 are referred to as high-income countries (World Bank, 2015).

Table 1. Country Groups Classification of the World Bank

Global Economies	Average Annual Revenue Per Person
Low Income Economies	Under 1,035 \$
Lower Income Economies	Between 1,036 \$ - 4,085 \$
Middle Income Economies	Between 1,036 \$ - 12,615 \$
Upper-Middle Income Economies	From 4,086 \$ to 12,615 \$
High Income Economies	12,616 \$ and above

Source: Prepared by the Author Using World Bank Data.

Ultimately, the medium-income trap can be expressed as the fact that a global economy with a middle income level will remain at this level for a long time as a result of the slowing per capita income level and cannot pass to the group of high-income countries.

Middle-income trap is calculated by GDP per capita. Developing countries could not escape between \$1,000 to \$12,000 in terms of per capita income. In this reason, that countries could not reach the high-income. Thus, countries that caught in the middle-income trap remained within this cycle for long periods of time. Escaping middle income trap requires some structural policies; such as industrialization, high technological export and quality of education. Economic development generates immense opportunities for industrial development, education, high productivity and rural development. Creating and diffusing technology to local firms are key to improving productivity and generating innovative production. Korea and Taiwan used to create local firms in high-tech sectors for escaping middle-income trap.

2. LITERATURE REVIEW

After the basic study published by the World Bank in 2007, an increase has been observed in research in this area. Countries carried out studies to avoid from the middle income trap. In this section, econometric studies that mostly investigate the middle income trap are included.

Robertson and Ye (2013), state that countries in the Middle Income Trap have 8% - 36% of the per capita income of the USA. With about 10.438 dollars per capita GDP (per capita income of the about 25 per %), Turkey considers in this group as well. Similarly Woo (2012), Turkey is located in Middle Income Trap. Yeldan (2012), studies that assessed the middle income trap of Turkey in terms of regional, is compared to the differences in the level of human capital and technology of each region. According to Yeldan (2012), Turkey is located in the middle-income trap. Kocak and Bulut (2014), are investigating as empirical whether Turkey is in the middle income trap. Findings obtained from the study show that the series is not stationary at the level. Therefore, it is confirmed as Turkey's economy is not in the middle income trap. Yılmaz (2014) is another study showing that Turkey is in the middle-

income trap. The results obtained from the study show that the increase in productivity and in per capita income is not enough to get out of the middle income trap.

Bozkurt et al. (2014) show that Turkey is in proximity to high-income countries. According to the results of their analysis, it is confirmed that the effect of higher education and domestic savings rates on income per capita is positive and significant. The study shows that Turkey is in the middle-income trap. Gursel and Soybilgen (2013), Kocak and Bulut (2014), Tasar et al. (2016), Karanfil (2016), Ünlü and Yıldız (2018) refers to studies that Turkey's not middle-income trap. On the other hand, Sak (2012), Bozkurt et al. (2014), Şahin (2015), Ener and Karanfil (2015), Ada and Acaroğlu (2016), Manga et al. (2019) shows that Turkey is in the middle-income trap.

The studies related to the middle-income trap in Turkey are summarized in Table 2.

Table 2. Literature Review

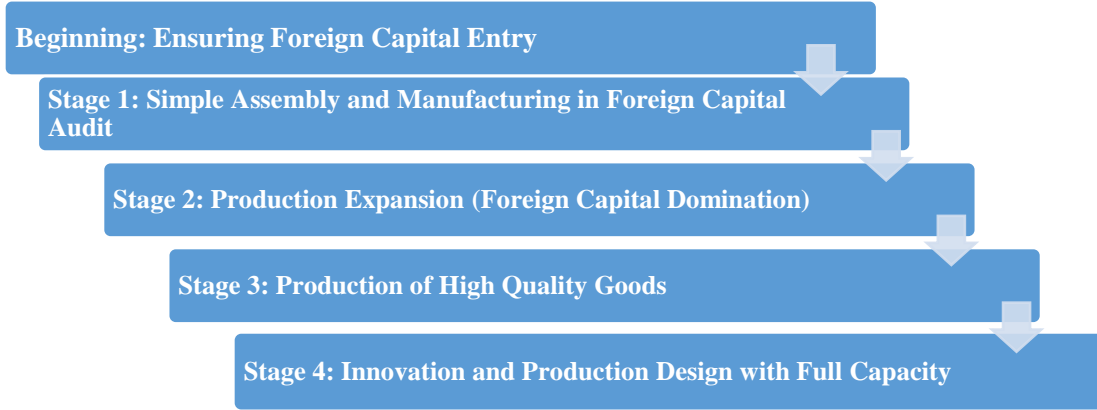
Publication Year	Writer(s)	Period	Country	Result
2014	Koçak and Bulut	1950-2010	Turkey	Turkey is not in the middle-income trap.
2014	Bozkurt et al.	1971-2012	Turkey	Turkey is in the middle-income trap.
2015	Şahin et al.	1980-2013	Turkey	Turkey is in the middle-income trap.
2019	Manga et al.	1950-2014	Turkey	Turkey is in the middle-income trap.
2016	Tasar et al.	1960-2014	Turkey	Turkey is not in the middle-income trap
2012	Yeldan et al.	1980-1989 1989-1999 2000 ve sonrası	Turkey	Turkey is in the middle-income trap
2013	Gürsel and Soybilgen	2005-2013	Turkey	Turkey is not in the middle-income trap
2012	Sak	2000-2010	Turkey	Turkey is in the middle-income trap.
2015	Ener and Karanfil	1980-2103	Turkey	Turkey is in the middle-income trap.
2018	Ünlü and Yıldız	1950-2014	Turkey	Turkey is in the middle-income trap
2016	Karanfil	2000-2014	Turkey	Turkey is not in the middle-income trap
2016	Ada and Acaroğlu	1983-2013	Turkey	Turkey is in the middle-income trap.

Source: by the author.

3. DEVELOPMENT PERIOD AND GROWTH RATE OF NATIONAL INCOME IN TURKEY

According to Ohno (2009), the middle income trap takes place in four different stages, which it calls development periods. In the first stage of these periods, the products which may be easy to export such as food and shoes take place of installation. At this stage, many elements (production, marketing, design, etc.) are managed by foreign capital because their inputs are imported. Countries contribute to this stage through unqualified labor and raw materials. In the second stage of development periods, the foreign capital inflow is boosted by increasing the income and business capabilities of the country. The third stage aims to increase the knowledge of human capital and to reduce the dependence on foreign capital and to realize production through local industries. In this way, it is aimed that the country can export high quality products by increasing its competitiveness. In the last stage, the country will become a country capable of generating new products and having a say in global markets. According to Graph 1, the failure of a country to pass from the development stages to the third step shows that the country is caught in the middle income trap (Şahin et al., 2015).

Graph 1. Development Stages and Middle Income Trap



Source: Ohno (2009)

When Turkey's economic data are analyzed from 1955 to 2005, it is seen that it is located in the lower middle income group of countries. Since 2005, Turkey has managed to rise to the middle-income group of countries. When the world economies analyzed in the group of middle income countries, Turkey's economy has attracted our attention as one of the longest remaining three countries. Therefore, middle-income trap has been one of the most discussed topics in the Turkish economy (Alçın and Guner, 2015: 34).

Table 3. Transition Periods and Growth Rates of These Countries in the Lower Middle Income Level and the Upper Middle Income Level after 1950.

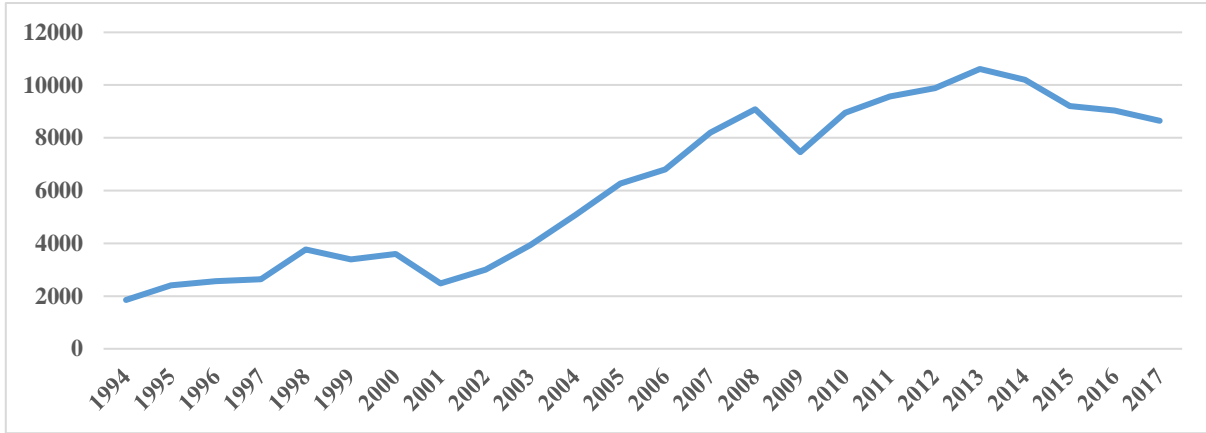
Country	The Year That is Reached Low-Middle Income	The Year That is Reached High-Middle Income	The Time That is Passed Low-Middle Income	Average Growth Rate in Transition Period
Turkey	1955	2005	50	2.6
Malaysia	1969	1996	27	5.1
Taiwan	1967	1986	19	7.0
Thailand	1976	2004	28	4.7
Bulgaria	1953	2006	53	2.5
Costa Rica	1952	2006	54	2.4
China	1992	2009	17	7.5
Korea	1969	1988	19	7.2
Oman	1968	2001	33	2.7

Source: Felipe et al. (2012)

Table 3 shows the countries with low middle income level and transition to upper middle income level and the transition periods of these countries after 1950. Among these countries when assessing the situation of Turkey, has reached from low-income to high-middle income level in 50 years. On the other hand, the level of national income per capita in Turkey enters the last five years the declining trend seen in Figure 2. With the 2001 economic crisis, in per capita income has been in a reduction of approximately 28% compared to the previous year. Due to the crisis in the global markets in 2007, per

capita income decreased in 2009. It reached a maximum level of \$ 12,480 in 2013. Turkish economy entered the recession trends since 2013. The income per person reached to \$ 9.632 in 2018.

Graph 2. National Income Per Capita (current US \$)



Source: WDI

Consequently, when Turkey's annual per capita data are evaluated at last 25 years, Turkey is seen to trapped \$ 1,036 between \$ 12,615 \$. Therefore, according to the classification made by the World Bank income group, Turkey is located in the Middle Income Trap.

4. COINTEGRATION ANALYSIS OF GDP, HIGH TECH EXPORTS, INVESTMENT AND LABOR DURING 1990–2018

If the series are not stationary, cointegration might be characterized by two or more I (1) variables indicating a common long-run development. We apply the Johansen and Juselius (1990) cointegration test to explore the existence of a cointegration relationship between GDP per capita, high tech exports and other variables. After finding at least one cointegration vector between the variables, we adopt Vector Error Correction model (VECM) to examine the long and short run dynamic relationship. And we apply Granger-causality (1987) through VECM, in order to point out the direction of causality (Angelini, 2018).

4.1. Data and Model

The Schumpeterian model of technological advance supports the theory that international trade develop technological progress and, thus, economic growth because it makes innovations available to more people in developing countries, and stimulus the world's effective resources that can be assigned to innovative activities (Ustabaş & Ersin 2016). Regarding the theoretical framework, the relationship between economic growth, high tech exports, investments and labor can be illustrated as follows.

$$Y_{it} = f(\text{Labor}, \text{Investment}, \text{Exports})$$

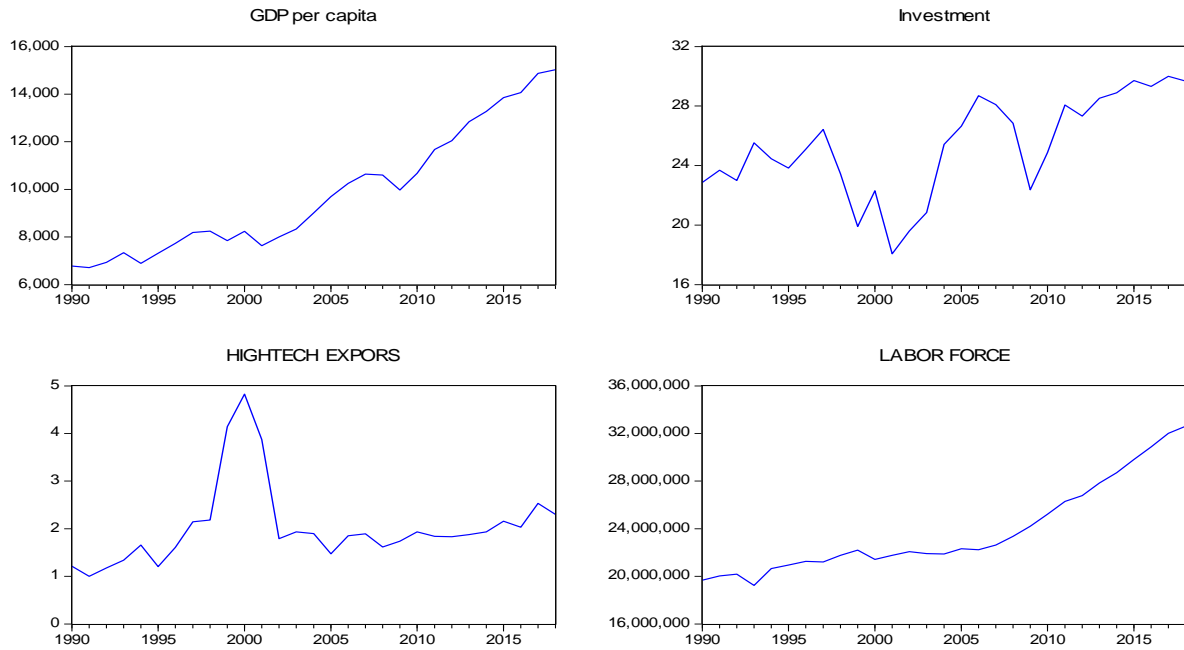
In this study, we employ a dynamic ordinary least square (DOLS) model to predict the single cointegrating vector that characterizes the long-run relationship among the variables GDP per capita and

other variables estimator which was introduced by Ekananda and Parlinggoman (2017.) The model is denoted below:

$$\ln GDP_{it} = a_i + \ln I_{it} + \ln Labor_{it} + \ln Ex_{it} + u_{it}$$

We use yearly data from the years between 1990-2018 and obtained the data World Bank's database. Because of the lack of the high tech export data for 2018, the final year data is gathered from OECD Indicators. Figure 3 shows $\ln GDP_{it}$ the logarithm of the GDP per capita (constant 2010 US\$), the $\ln I_{it}$ logarithm of the gross fixed capital formation (% of GDP) representing the variable of the investment, and $\ln Ex_{it}$ the high-technology exports (% of manufactured exports), $\ln Labor_{it}$ the labor force, the total for Turkey.

Graph 3. GDP Per Capita, Investment, Labor Force and High Tech Exports in Turkey 1990-2018



Robertson and Ye (2013), test for a presence of a Middle income trap using the following Augmented Dick-Fuller (ADF) unit root test specification. According to Robertson and Ye (2013), for countries to test for middle income trap, per capita expected value or long-term estimates of income level; (i) big changes over time (ii) must be in the middle income band. Unit root test performed, accepting the null hypothesis (Ho) that the country may be in a middle income trap. The acceptance of the alternative hypothesis (H1), is the country's reference that the country does not converge to the GDP level per capita, that is, it is in the middle income trap.

The results of the unit root test by ADF and Phillips Perron for each variable are shown in Table 4. The null hypothesis of the ADF test is that there is a unit root, that is, the time series is not stable. At

the confidence level of 5%, if p is greater than 0.05, then the null hypothesis cannot be rejected and the time series is not stable. If p is less than 0.05, then the null hypothesis is rejected and the time series is stable (Zhang and Zhang,2018). Unit root tests which we used ADF and Phillips Perron unit root test clearly indicate that all four time series are I (1). The test statistics for unit root tests are summarized in table 4.

Table 4. Unit Root Tests

Variables	Level		First Difference	
	ADF statistic	PP statistics	ADF statistics	PP statistics
LHIGH	-2.085110	-2.085111	-4.981191*	-4.979900*
LNLABOR	-0.588963	-0.355941	-6.176283*	-6.176283*
LNGDP	-2.275079	-2.302376	5.366047*	-5.366047*
LINVESTMENT	-2.366506	-2.366506	-5.686519*	-5.547201*

Notes: Both tests consist of a constant and trend. Figures in parenthesis are lag lengths.

*denote statistical significance at the 1%, 5% and 10% levels.

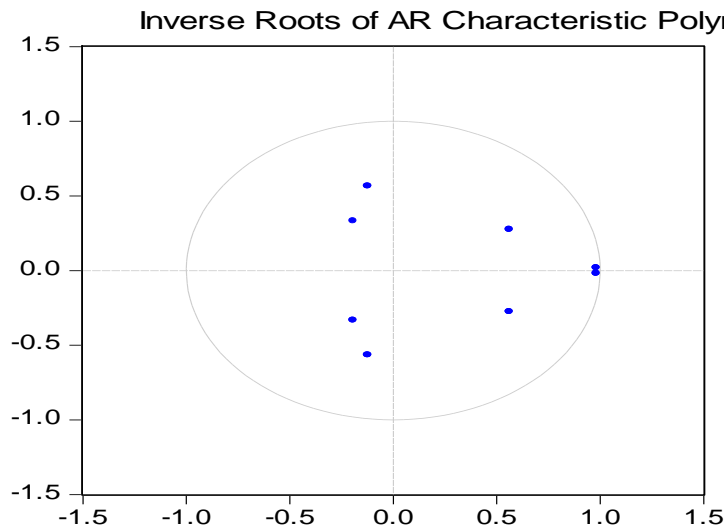
Before checking the cointegration relationship we must VAR-based cointegration tests to define lag order. In the next step we will regress the VAR model of GDP, high tech exports, investment and labor, The Hannan-Quinn criterion suggests a lag length of two so we chose 2 lags.

Table 5. VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	71.68714	NA	7.81e-08	-5.013863	-4.821887	-4.956778
1	174.5453	167.6207	1.28e-10	-11.44780	-10.48792*	-11.16238
2	196.9083	29.81739*	8.70e-11*	-11.91914*	-10.19135	-11.40537*

According to Figure 4. no root lies outside the unit circle, VAR model with the selection of the 2 lags satisfies the stability condition.

Graph 4. VAR Model Stability Check



4.2. Johansen Cointegration Test

If the series is not stationary, cointegration might be characterized by two or more I (1) variables indicating a common long-run development. We apply the Johansen and Juselius (1990) cointegration test to explore the existence of a cointegration relationship between GDP per capita, high tech exports and other variables. After finding at least one cointegration vector between the variables, we adopt the Vector Error Correction model (VECM) to examine the long and short run dynamic relationship (Angelini, 2018).

We applied the unit root test to variables, GDP, high tech, investment and labor variables are I (1) processes. We run equation (1) for the series, any linear combination of these two variables will again be an I (1) process. However, if there exists a parameter b so that the linear combination is stationary, then x and y are cointegrated. The I (0) process z has an expectation of zero. The parameter a defines the level of the corresponding equilibrium relation which is given by equation (2).

$$y_t - bx_t = z_t + a \quad (1)$$

$$y = a + b x. \quad (2)$$

The vector $\beta' = [1 \ -b]$ is the cointegration vector. It is unique only because of its normalization, as $\alpha \beta'$ with $\alpha \neq 0$ also leads to a stationary linear combination of y and x. The stationary process z describes the deviations from the equilibrium, the *equilibrium error* (Kirchgässner et al, 2013). Johansen test is used to verify the null hypothesis of no cointegration among GDP per capita and explanatory variables, against the alternative hypothesis of cointegration. Johansen Cointegration Test statistics (trace and maximum eigenvalue test) are shown in table 4. The results of both tests indicate at least one cointegration vector is reported in Table 6.

Table 6. Johansen Cointegration Test

H_0	H_A	λ_{trace}	Critical values (5%)	Prob.	λ_{max}	Critical values (5%)	Prob.
r=0	r>0	69.3470	47.8561	0,0002	41.0110	27.5843	0,0005
r=1	r>1	28,3359	29,7970	0,0730	16,4990	21,1316	0,1970

Source: Authors' calculations

4.3. Vector Error Correction

The Vector Error Correction model (VECM) assuming the existence of cointegration relations capturing the long run relation between the variables and deviation from the long run relation affects the speed of adjustment which is called, short-run adjustment dynamics. The cointegration term is known

as the *error correction* term since the deviation from long-run equilibrium is corrected gradually through a series of partial short-run adjustments. The error correction coefficient is expected to have a negative sign and be smaller than 1 (Moriyama, 2008).

Table 7. Vector Error Correction Model (VECM)

Error Correction:	D(Lngdp)	D(Lnhigh)	D(Lninvestment)	D(Lnlabor)
CointEq1	-1.341863	-0.476476	-2.662560	-1.135837
	(0.62783)	(3.86343)	(1.24757)	(0.32310)
	[-2.13730]	[-0.12333]	[-2.13419]	[-3.51548]

Source: Authors' calculations

Table 7 shows the results of the error correction term, which is significant and negative, it means that the deviation from long-run equilibrium is corrected gradually through a series of partial short-run adjustments. Error correction model indicates, the short-run adjustment of GDP per capita, investment and labor ensure that these variables converge to their equilibrium level. It has been concluded that all adjustment takes place within three quarter.

Table 8. Unrestricted Cointegrating Vector

	LGDP(-1)	LHigh(-1)	LInvestment(-1)	LLabor(-1)	Constant
Unrestricted Cointegrating vector	1.000000	-0.060591	0.28133	0.441325	0.810797
t-values		[5.0708]*	[-7.05978]*	[-11.8633]*	

Source: Authors' calculations

Provided all series are I (1), then the Dynamic OLS model is used to predict the single cointegrating vector that characterizes the long-run relationship among the variables GDP per capita and other variables. Estimation results (table 9) show that investment and labor are statistically significant whereas the high tech export parameter is statistically insignificant. Therefore, investment and labor force affect GDP per capita positively whereas the high technology export effect on GDP per capita is statistically insignificant and negative.

Table 9. Dynamic OLS Model

Dependent Variable: LNGDP					
Method: Dynamic Least Squares (DOLS)					
Variable	Coefficient	Std. Error	t-Statistic	Prob.	
LNHIGH	-0.012649	0.025257	-0.500803	0.6256	
LNINVESTMENT	0.429655	0.076565	5.611647	0.0001	
LNLABOR	0.410654	0.062729	6.546475	0.0000	
C	0.539771	0.970883	0.555959	0.5885	
@TREND	0.021433	0.001272	16.84508	0.0000	

Source: Authors' calculations

5. CONCLUSION

The results of cointegration tests indicate long run comovement between the variables, GDP per capita, high tech exports, investment, and labor. According to empirical findings of the Dynamic OLS

model, investment and labor are statistically significant for whereas the high tech export parameter is statistically insignificant. Therefore, investment and labor force affect GDP per capita positively. This finding is parallel with Lin (2017 :6) suggests that “the middle-income trap is a result of a middle-income country’s failure to have a faster labor productivity growth through technological innovation and industrial upgrading than high-income countries”. Foreign companies tend not to act as a spillway for technology diffusion to local firms. They prefer to use in house production or imports from their suppliers, source only simple content from local firms, and send profits (Wade,2016). According to Lin (2017) and Wade (2016) technology will benefit the developing countries as a whole in the long run. Although could not help developing countries to escape from middle income trap in the short run. The R&D investments as a component of the high technology, need more than 10 years of return on investment. According to this paper’s empirical analysis, the error correction model indicates, the short-run adjustment of GDP per capita, investment and labor ensures that these variables converge to their equilibrium level. It has been concluded that all adjustment takes place within three quarter.

Research and Development is usually considered as the major component of innovation, high-tech therefore, one of the important drivers of growth. This model is the basis of new (endogenous) growth theory (Lucas, 1988; Romer, 1990). Literature shows that there is a clear positive linkage between technology level and growth in the GDP per capita for economies. Although there is no clear-cut relationship between public high-tech activities and growth, at least in the short term According to our empirical results, there is long run relationship between the GDP per capita and high technology exports. When we estimate long run parameter to predict the high technology effect on GDP, this parameter is insignificant. High technology export share in Turkey’s total export is very low and only %3. Therefore, investment and labor force variables are explaining the long run GDP per capita growth model significantly. As a conclusion, Turkey must invest in high technology sectors to boost GDP per capita and escape from middle income trap. Private firms can not be eager to invest on high -tech industries because the R&D investments need more than 10 years of return on investment. Turkish state firms may target sectoral industrial policy (telecommunication, biotechnology, aerospace, medicine) that helps escape the middle-income trap, and was effective in East Asia.

REFERENCES

- Altun, A. A., and Acaroğlu, H. (2016). “An Empirical Remark About Middle Income Trap Problem for Turkey”, *Siyaset, Ekonomi ve Yönetim Araştırmaları Dergisi*, 4(3).
- Alçın, S., and Billur, G. (2015). “Orta Gelir Tuzağı: Türkiye Üzerine Bir Değerlendirme”, *Marmara Üniversitesi İ.İ.B.F Dergisi* 33 (1): 27-45.
- Angelini, E. (2018) “The “Donald” and The Market: Is There a Cointegration?”, *Research in International Business and Finance* (45): 30-37.

- Ballı, E., Manga, M. and Güreşçi, G. (2019) “Orta Gelir Tuzağı: Türkiye Üzerine Ampirik Bir Analiz” , Dumlupınar Üniversitesi Sosyal Bilimler Dergisi. (59): 48-60.
- Bozkurt, E. et al. (2014) “Orta Gelir Tuzağı ve Türkiye Örneği.”, Maliye Dergisi. (167): 22-39.
- Ener, M. and Karanfil, M. (2015) “Türkiye Ekonomisinde Tasarruf Açığının Orta Gelir Tuzağı Üzerine Etkisi.” Eskişehir Osmangazi Üniversitesi İİBF Dergisi. 10(2): 31-46.
- Felipe, J., Arnelyn A. and Utsav K. (2012). “Tracking The Middle-Income Trap: What Is It, Who Is In It, and Why ?.” Levy Economics Institute, Working Paper (715).
- Gürsel, S. and Soybilgen, B. (2013). “Türkiye Orta Gelir Tuzağının Eşiğinde”, BETAM Araştırma Notu 13 (154).
- Karanfil, M. (2016). “Ar-Ge Harcamalarının Orta Gelir Tuzağı Üzerine Etkisi: Avrupa Birliği ve Türkiye İçin Panel Veri Analizi”, Journal of Life Economics 3(4): 219-234.
- Kirchgässner, G., Wolters, J. and Hassler, U. (2012). “Introduction to Modern Time Series Analysis”, Springer Science & Business Media. Berlin, Heidelberg.
- Koçak, E., and Bulut, Ü. (2014) “Orta Gelir Tuzağı: Teorik Çerçeve, Ampirik Yaklaşımlar ve Türkiye Üzerine Ekonometrik Bir Uygulama”, Maliye Dergisi (167): 1-21.
- Lin (2017) “Industrial Policies for Avoiding the Middle-Income Trap: a New Structural Economics Perspective”, Journal of Chinese Economic and Business Studies Volume 15, Issue 1.
- Moriyama, K. (2008) “Investigating Inflation Dynamics in Sudan.”, International Monetary Fund 8. Working paper. (189).
- Ohno, K. (2009). “Avoiding the Middle-Income Trap: Renovating Industrial Policy Formulation in Vietnam”, ASEAN Economic Bulletin 26(1): 25-43.
- Şahin, İ., Başer, K. and Karanfil, M. (2015) “Orta Gelir Tuzağı Üzerine Ampirik Bir Çalışma: Türkiye Örneği (1980-2013)”, Journal of Alanya Faculty of Business/Alanya İşletme Fakültesi Dergisi 7(2).
- Tasar, I., Gültekin, E. and Acci, Y. (2016). “Is Turkey in a Middle Income Trap.”, Journal of Applied Research in Finance and Economics 1(1): 36-41.
- Ünlü, F. and Yıldız, R. (2018). “Orta Gelir Tuzağının Belirlenmesi: Ekonometrik Analiz”, Uluslararası Yönetim İktisat ve İşletme Dergisi 14(1): 1-20.
- Yeldan, E. et al. (2012) “Orta Gelir Tuzağından Çıkış: Hangi Türkiye”, Türkonfed Raporu.
- Wade, R.H. (2016) “Industrial Policy in Response to the Middle-income Trap and the Third Wave of the Digital Revolution”, Glob Policy, 7: 469-480.

Ekananda, M. and Parlingoman, D. J. (2017) "The Role of High-Tech Exports and of Foreign Direct Investments (FDI) on Economic Growth", European Research Studies Journal, European Research Studies Journal, vol. 0(4A), pages 194-212.

Lucas, Robert E, (1988) "On the Mechanics of Economic Development", Journal of Monetary Economics, 22 (1): 3-42.

Romer, P. M. (1990) "Endogenous Technological Change.", Journal of Political Economy. 98(2): 71-102.

Zhang, Y. and Zhang, S. (2018) "The Impacts Of GDP, Trade Structure, Exchange Rate and FDI Inflows on China's Carbon Emissions", Energy Policy, 120

Robertson, P. E., & Ye, L. (2013) "On the Existence of a Middle Income Trap", University of Western Australia Economics.

Yılmaz, G. (2014) "Türkiye'nin Orta Gelir Tuzağı ve Az Yetenekli Beşeri Sermayesi", İktisat İşletme ve Finans, 30 (346): 9-36

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Veri Toplama ve İşleme / <i>Data Collecting and Processing</i>	Verileri toplamak, düzenlenmek ve raporlamak / <i>Collecting, organizing and reporting data</i>	Lect. Mahmut Sami DURAN (Ph.D.) Assoc. Prof. Esra KABAKLARLI (Ph.D.)
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