

# CURRENT ECONOMIC RESEARCH IN DIFFERENT COUNTRIES

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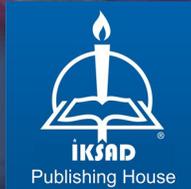
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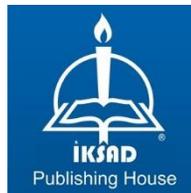
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## **PREFACE**

Today's global economy is more complicated than it was. There are many global challenges such as growing dependence on trade and investment, epidemics, wars and refugees. These complexities and challenges place increased demands on the cosmopolitan system.

We need more research, cooperation, greater economic integration, and stronger partnerships than ever before to find solutions of global economic problems.

This book a good sample of economics studies of different countries' basic economic issues which have been waited to be answered.

Dr. Hamit ÖZMAN provides us a different point of view with his study “the importance of human capital and the effects of vocational education on economic growth and development”

Dr. R. Can AKKAY's chapter “The empirical investigation of the Turkish middle-income trap at provinces level: The convergence approach” is an enriching study teaching us more about middle-income trap.

Mr. Abdulgaffar Muhammad's chapter “The relationship between market capitalization and financial performance in money deposit banks in Nigeria (2006-2019)” is very impressive study over Nigeria's financial sector.

Mr. Ehsan RASOULINEZHAD's chapter "How do economic sanctions reshape foreign trade pattern? Evidence from Russian Federation" is a satisfying study for researchers studying on Russian Federation's economy.

Dr. Vidya Sunil Kadam and Assistant Professor Rajarambapu's chapter "Perceptions and Preferences of Women Investors towards Stock Market Investment" is one of the significant research which contributes on women business studies.

It was my honour editing these distinguished authors' chapters. I believe that book will be one of the main guide for economics researchers

Yours truly

Mustafa Latif EMEK

## **CHAPTER 1**

### **THE IMPORTANCE OF HUMAN CAPITAL AND THE EFFECTS OF VOCATIONAL EDUCATION ON ECONOMIC GROWTH AND DEVELOPMENT**

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## **INTRODUCTION**

Education, with its generally accepted definition, is the process of creating desired changes in the individual's thought, behavior and skills. Tezcan (1992), on the other hand, defines education as “the sum of the processes in which an individual acquires skills, orientation, attitude and other forms of behavior that have practical value in the society in which he lives”. One of the main purposes of educational institutions is to realize the social and economic development process by aiming to train individuals who can internalize the changes in technology in the process of industrialization and socialization and have the knowledge, skills and equipment required by the innovation phenomenon. The concept of human capital, which can be briefly expressed as human capital, is a significant phenomenon. Human capital is the type of capital that a person earns and accumulates over time, thanks to his skills, experience and participation in educational-cultural activities. Bontis (1999) defines human capital as any stock of knowledge, talent and experience that has the performance functions required for production, held individually by the employees in the enterprises. Human capital investment is directly related to the quality of education, health opportunities, skill acquisition, economic income and the improvement of living standards.

The most valuable resource of a society is educated manpower. As a matter of fact, one of the economic functions of education is to train manpower in the quality and quantity that the country needs. Technical and vocational education plays an important role especially

in the industrialization process of countries, and classical education plays an important role in the socio-cultural development of a society. Individuals who create value with the knowledge and skills gained as a result of vocational training make significant contributions to workforce capacity and economic growth. Human capital is a part of a country's wealth and is seen as one of the main factors of differences in international economic developments. As a matter of fact, famous economists such as A. Smith and A. Marshall considered education as an investment in people and introduced the concept of 'human power capital'.

A significant part of the state budgets has allocated to education recently (the ratio of the Ministry of National Education's budget to national income is 2.6% and its ratio to the central government budget is 11.6% in 2020), so education can be considered as a long-term and high-cost investment at first glance when the issue is approached from an economic point of view. Despite the high cost of education, it is also one of the investment areas with the highest return. In this regard, studies in the literature show that the rate of return on education exceeds the rate of return on physical capital. In Denison's study (1962), which examined the period of 1930-1960 in the USA, he concluded that the increase in the education level of the workforce explained 23% of the annual growth rate. The results of this study had wide repercussions and inspired other studies of educational economics. Therefore, the employment of individuals in the 12-18 age group as child labor leads to the fact that these individuals do not continue their education, thus creating an important opportunity cost

problem. While 79.7% of working children were in the 15-17 age group, 15.9% were in the 12-14 age group and 4.4% were in the 5-11 age group in Turkey, according to Turkish Statistical Institute (TUIK) as of at the end of 2019. 34.3% of working children did not continue their education.

Economic growth can be defined as the increase in the country's production volume, that is, quantitative development. Development, on the other hand, is a broader phenomenon than economic growth. Development includes economic growth as well as the development of a society in terms of education, culture, health and social aspects, that is, an overall rise in living standards. In addition to capital, technology transfer, high production capacity, a country definitely needs educated manpower for its development. Today, the integration of the education system with the labor market has become increasingly important. In this respect, it is of key importance to raise individuals who have the skills required by the age, such as innovation, creativity, problem solving and entrepreneurship, and who contribute to economic and social developments. A good vocational education makes the individual ready for production, ensures the emergence of hidden talents, increases the efficiency and productivity of the individual by making him more confident in his work. In addition, it increases labor mobility and people's flexibility in the labor market. In the face of rising family income, children are not required to work, poverty and child labor are significantly reduced. In addition, educated individuals are less dependent on social security funds and have less financial burden on the state.

Transformations in economies and societies in the historical process have also changed the quality of labor. Now, muscle power has left its place to brain power. In this direction, the importance of vocational education in the transition process to the information society and the structuring of this education according to the conditions of the age come to the fore. Investments in people provide significant benefits both individually and socially. Human capital accumulation primarily increases the efficiency of physical capital and stimulates technological advances (Karataş and Çankaya, 2010: 29-30). Effective investment in human capital is at the center of development. It provides significant economic benefits to the country in the long run, by increasing competitiveness and making this competitiveness sustainable and that is why countries allocate significant resources to education.

**Table.1:** Education Expenditures by Countries (2016, \$)

Country	Education Expenditures		Country	Education Expenditures	
	Primary School	Secondary School		Primary School	Secondary School
Luxembourg	20,892	20,412	France	7,395	11,747
Norway	13,275	15,401	Portugal	7,380	9,518
USA	11,727	13,083	Spain	7,320	9,019
England	11,629	10,569	Polond	6,757	6,806
S.Korea	11,047	12,202	Greece	5,809	6,785
Austalia	9,545	12,302	Czechia	5,207	8,476
Finland	9,305	10,481	Hungary	5,089	5,870
Canada	9,249	n.a	Chile	5,063	4,930
Japan	9,104	11,147	<b>Turkey</b>	<b>4,134</b>	<b>3,510</b>
Germany	8,618	11,790	Colombia	3,178	2,817
Netherland	8,477	12,849	Mexico	2,874	3,128
Italy	8,425	9,079	Indonesia	1,514	1,435

Source: OECD (2020), "Education at a Glance"

Today, gaining key skills to the workforce has become an important issue in terms of increasing the employability of people. The fact that vocational and technical education combines theory and practice due to its nature highlights the necessity and importance of this type of education based on knowledge, skills and competencies. In addition, an effective and successful vocational and technical education basis is needed in order to ensure individuals with new skills in line with demand, to support innovation and entrepreneurship, as well as to allow transition between professions and to gain the ability to adapt to the new profession. According to Forbes magazine, 52% of companies published on the Forbes-500 list since 2000 are no longer on this list. Therefore, it is extremely important to analyze the demands and trends of the business and the labor market well, to prepare themselves for this change and to realize this transformation successfully.

This transformation in the industries shortens the shelf life, that is, the usage period of the existing talents of the employees, and necessitates some theoretical and practical revisions in the vocational training of young worker candidates who will join the new workforce, which will meet the requirements of the age and even beyond the competition. As a matter of fact, according to the 'Future of Jobs' research conducted by the World Economic Forum, 30% of the skills that will be required in the future will consist of skills that are not yet in demand by businesses today. According to the results of the research, 'problem solving', 'critical thinking' and 'creativity' were determined as the top three skills to be demanded the most. Therefore, supporting technical

skills with strong social and cooperation skills stands out as a factor that prepares people for the future in vocational education.

In this study, the relationship between education expenditures and income was analyzed statistically by using time series method. In addition, empirical evidence for the strong relationship between education and economic growth in the literature was presented. Finally, it is of key importance to implement practices that increase human capital equipment in order to eliminate income distribution injustice. In this context, the answers of the questions such as “What role should education play in terms of income distribution in a country?” and “Does education function as a transmission mechanism of the status quo existing from one generation to the next or does it have a function of eliminating inequality?” were sought.

The study was planned in seven parts. In chapter 1, current reports and country views published by international institutions on human capital and education were given. In the 2nd chapter, the economic importance of vocational and technical education was emphasized. In chapter 3, the economic importance of vocational and technical education was emphasized. In the 4th chapter, the literature about the subject was given, and in the 5th chapter, how the education expenditures affect the national income was analyzed by the econometric method (ARDL bound test). In the 6th chapter, steps taken for the development of vocational and technical education and related regulations were given. In the 7th chapter, the effect of education on income distribution apart from economic growth was

mentioned and the status quo phenomenon in education was emphasized. The study was ended with conclusions and recommendations.

## **1. CURRENT REPORTS PUBLISHED BY INTERNATIONAL INSTITUTIONS ON HUMAN CAPITAL AND EDUCATION**

Although spending on education seems to be a consumption in the short run, it is actually an important and valuable investment in the long run. In other words, reaping the fruits of these investments is possible with a certain periodic delay rather than in the short term, and the benefits are not visible enough in the short term. Studies and reports prepared by international institutions in the context of education, living standards and economy play an important role both in raising awareness and in observing the differences between countries comparatively. Some of these reports and indices are given below.

### **1.1. Human Capital Index**

Current policy practices play a significant role in improving the quantity and quality of regulation in education and health. The 'Human Capital Index' measures the current education and health outcomes by the World Bank on a country-by-country basis in order to make investments in education more visible and to raise awareness. The index measures which countries are more successful in mobilizing the economic and professional potential of their citizens. In addition, the index analyzes how much human capital each country loses due to weaknesses in education and health. According to World

Bank, “ the index measures the amount of human capital a child born today can expect to reach by age 18, given the risks of poor health and poor education prevailing in their country of residence. The model is designed to highlight how improvements in current health and education conditions shape the productivity of the next generation of workers”. The index takes values between 0-1<sup>2</sup>. According to the latest index covering 157 countries, examining the year 2017 and the results of which were announced in October-2018, Singapore, South Korea and Japan are in the top three places. Turkey ranked 53rd with 0.63 points.

**Table.2:** Human Capital Index

Top 10 Countries		Lowest 10 Countries	
Singapore	0.88	Mozambique	0.36
S.Korea	0.85	Ivory Coast	0.35
Japan	0.84	Mauritania	0.35
Hong Kong	0.82	Sierra Leone	0.35
Finland	0.81	Nigeria	0.34
Ireland	0.81	Liberia	0.32
Australia	0.80	Mali	0.32
Netherland	0.80	Niger	0.32
Sweden	0.80	S.Sudan	0.30
Canada	0.80	Chad	0.29

Source: World Bank (2018), “Human Capital Index”

Today, in poor/underdeveloped countries, children die before they are born due to malnutrition and poor living conditions of the mother, even while they are still in their mother's womb. Even if they are born,

<sup>2</sup> “A value of X in the index means that a child born today expects to produce only X x100%.” Kraay (2019).

they lose their lives due to adverse health conditions and economic inadequacies before they can see school life (before reaching the age of five). While there is a 14-year period from pre-school to higher education as a standard norm in developed countries, this period decreases to 4 years in underdeveloped poor countries. In this study, which covers 157 countries, Turkey is in the 75th place with an expected average education period of 12.1 years

**Table.3:** Expected Average Length of School

Top 10 Countries		Lowest 10 Countries	
France	14.0	Guinea	7.0
Czechia	13.9	Iraq	6.9
Austria	13.9	Rwanda	6.6
Germany	13.9	Burkina Faso	6.5
Singapore	13.9	Mauritania	6.3
Sweden	13.9	Mali	5.6
England	13.9	Niger	5.3
Russia	13.8	Chad	5.0
Netherland	13.8	Liberia	4.4
Portugual	13.8	S.Sudan	4.2

Source: World Bank (2018), "Human Capital Index"

Children, who have the chance to receive education until the age of 18 in underdeveloped countries, have lasting effects that bound their physical and cognitive skills as an adult due to poor health and nutritional conditions in childhood. As a matter of fact, the rate of stunting seen in children up to the age of 5 is mostly seen in the poor economies of the world. In Turkey, this ratio is 0.91, and it is in the 25th place in the group with the best among 109 countries whose data are calculated.

**Table.4:** Number of Non-dwarf Children

<b>Top 10 Countries</b>		<b>Lowest 10 Countries</b>	
Australia	0.98	Congo	0.57
USA	0.98	Mozambique	0.57
Chile	0.98	Nigeria	0.56
S. Korea	0.98	Pakistan	0.55
Kuwait	0.95	Yemen	0.54
N.Macedonia	0.95	Guatemala	0.53
Costa Rica	0.94	Madagascar	0.51
Paraguay	0.94	Papua New Guinea	0.51
Serbia	0.94	Timor	0.50
Brazil	0.94	Burundi	0.44

Source: World Bank (2018), "Human Capital Index"

In addition to these physical disadvantages, as stated, cognitive deficiency and quality difference in education arise in these countries due to economic problems, inadequate health and nutritional opportunities. In this context, it is extremely important to be sufficiently aware of the dynamics that cause inequalities and to put forward policy recommendations and practices in order to provide equal opportunities to every child. As a matter of fact, as seen in Table-5, all of the countries with the lowest scores are underdeveloped/poor economies. The top three countries with the highest scores are Singapore, Japan and S. Korea. Turkey, on the other hand, took the 52nd place in this list of 157 countries with an average of 459 points.

**Table.5:** Average of Scores Received in International Proficiency Exams

Top 10 Countries		Lowest 10 Countries	
Singapore	581	Chad	333
Japan	563	Liberia	332
S.Korea	563	Angola	326
Hong Kong	562	Nigerya	325
Finland	548	Yemen	321
Macau	545	Congo	318
Estonia	542	S.Lione	316
Ireland	538	Ghana	307
Russia	538	Mali	307
Canada	537	Niger	305

Source: World Bank (2018), "Human Capital Index"

## 1.2. United Nations (UN) Human Development Index

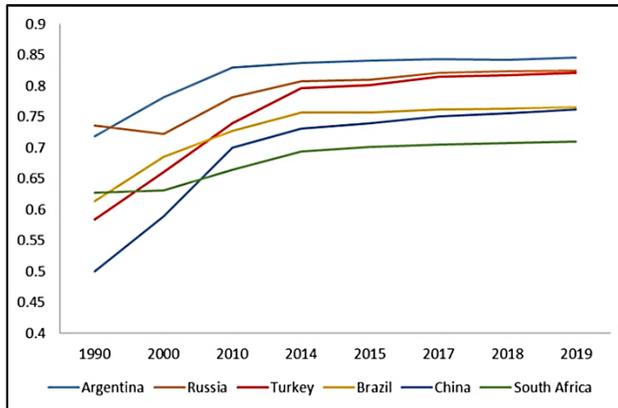
The 'UN Human Development Index' is an index prepared for countries by taking into account life expectancy, literacy rate, education, economic income and standard of living. It makes a situation assessment of the countries regarding people's decent standards of living and especially children's rights and has shared this with the public since 1990. According to the latest 2018 report, Turkey was ranked 59th (in the very high human development group) with 0.81 points among 189 countries. According to the report data, the world average is 0.73, while the OECD average is 0.90.

**Table.6:** UN Human Development Index Scores

Top 10 Countries		Lowest 10 Countries	
Norway	0.954	Mozambik	0.446
Switzerland	0.946	Sierra Leone	0.438
Ireland	0.942	Burkina Faso	0.434
Germany	0.939	Eritre	0.434
Hong Kong	0.939	Mali	0.427
Australia	0.938	Burundi	0.423
Iceland	0.938	G.Sudan	0.413
Sweden	0.937	Çad	0.401
Singapore	0.935	Orta Afr. Cum.	0.381
Netherlands	0.933	Nijer	0.377

Source: UN (2019), "Human Development Index Report"

According to this report, Turkey, like other developing countries, has been making progress in this regard since 1990, and it is observed that the recovery accelerated in our country, especially in the 2008-2016 period. According to the 2019 report, Turkey is ahead of Brazil, China and India and has closed the gap with Argentina and Russia in this process.



**Graph.1:** UN Human Development Index (UN HDI Report,2019)

According to the UN Human Development Index (2019) report, in low-income countries, about 42% of adults have a primary education degree, compared to 94% in developed countries. Again, 3.2% of adults in underdeveloped countries have a higher education degree, while this rate is 29% in developed countries.

**Table.7:** Rates of Attending Primary Education&University by Country Groups (%)

<b>Human Development Group</b>	<b>Primary Education</b>	<b>Tertiary (University) Education</b>
Low	42.3	3.2
Middle	66.5	13.7
High	84.9	18.5
Very High	93.5	28.6

Source: UN (2019), "Human Development Index Report"

However, the inequality in question is not only seen on the basis of country groups, but also in different income groups within the country. For example, participation in tertiary education differs significantly across income groups in countries in the high human development group. According to this, while the participation rate of those in the lowest 20% income group in higher education is below 20%; the rate of going to university for those in the highest 20% income group is over 50% in the same countries.

### **1.3. Knowledge Economic Index (KEI)**

The 'knowledge economy' is a concept of economic development where innovation and access to knowledge foster productivity growth and is central to ensuring long-term competitiveness. In this context, the European Bank for Reconstruction and Development (EBRD) prepares the 'Knowledge Economy Index' report every year in the light of data obtained from institutions such as the World Bank,

UNESCO, International Telecommunication Union, World Economic Forum. The four main elements that make up this index are 1) innovation institutions, (2) innovation skills (general capabilities and specialized skills), (3) innovation system, and (4) information technology infrastructure. Eight OECD countries, including the USA, Canada, Czech Republic, France, Germany, Japan, Sweden, England, and thirty-eight economies with investments by the European Bank for Reconstruction and Development are scrutinized in the index.

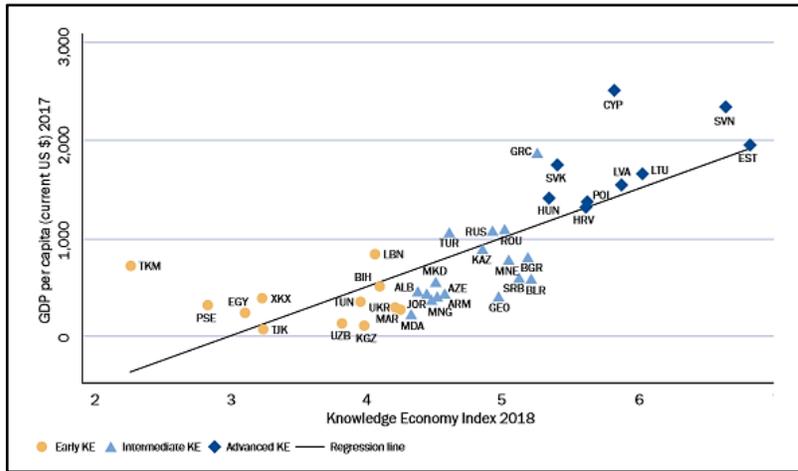
In the last report published in 2018, Turkey ranked 19th among these thirty-eight countries in the overall score ranking with 4.60 points (scale: 0-10 points). The first 3 places in the group were Estonia(6.82), Slovenia(6.65) and Lithuania (6.03). In the report, the countries that showed the most and least development in the index during the period of 2011-2018 were also included, and Turkey was the second country that increased its score the most among these countries in the category of innovation skills. On the other hand, in the category of 'innovation institutions', Turkey was stated as the second country that declined the most in the 2011-2018 period.

**Table.8:** Knowledge Economy Index (Lowest:0; Highest: 10 points)

	<b>Overall Score</b>	<b>Innovation Institutions</b>	<b>Innovation Skills</b>	<b>Innovation Systems</b>	<b>IT Infrastructure</b>
<b>OECD Av.</b>	7.36	8.08	7.14	6.48	7.73
<b>EBRD Av.</b>	4.67	5.52	4.96	3.22	5.00
<b>Turkey</b>	4.60	4.87	4.81	3.82	4.9

**Source:** European Bank for Reconstruction and Development (2018), "Knowledge Economy Index"

The European Bank for Reconstruction and Reconstruction found a positive development trend of the 'Knowledge Economy Index' analysis with the revenue from the detailed review of this review. Accordingly, the per capita monthly income in the world has been increasing.



**Graph.2:** Correlation between National Income Per Capita and Knowledge Economy Index (EBDR - Knowledge Economy Index, 2018)

#### 1.4. The Programme for the International Assessment of Adult Competencies (PIAAC)

The fact that the desired level of vocational and general education could not be achieved forty years ago may be a disadvantage for those who were in the education system as a child/young student at that time, in terms of the knowledge and skills they use in business life today. As a matter of fact, the 'The Programme for the International Assessment of Adult Competencies' (PIAAC) 2016 report, which Turkey participated for the first time, reveals the weakness of the performance of adults, who are students of the past and employees of today, compared to other countries. This report examines "problem

solving skills in verbal, numerical and technology-rich environments” of the 16-65 age group on a country basis.

The 'Adult Skills Survey' was carried out in Turkey between April-2014 and March-2015, and 5227 adults in the 16-65 age group participated in the study. According to the results, adults in Turkey performed below average in all three assessed areas (verbal skills, numeracy skills, and problem-solving skills in a technology-rich environment) compared to other OECD countries. Another remarkable point in this study is that men in Turkey seem to be more competent than women in all three areas evaluated. This observed difference between the genders is the highest among all countries and economies participating in the study. Gender-related performance and proficiency differences are interpreted as an indication that men in Turkey have greater access to educational opportunities than women.

## **2. HISTORY AND OVERVIEW OF VOCATIONAL AND TECHNICAL EDUCATION**

There are some differences between countries in terms of the historical development of vocational and technical education and the current view of this education system. The reasons for this can be stated as the historical, social process, cultural perception and economic development level of the countries.

## **2.1. History and Application of Vocational and Technical Education**

Looking back at the 19th century, the USA and Prussia (Germany) had a higher appearance than other countries in education. In these countries, about 70% of students aged 5-14 years were in school in 1860. In the early 1900s, while the schooling rate in England and France reached 70%, the enrollment rate in the USA reached 90%. The USA was also the pioneer in high school education. At the beginning of the 20th century, while full-time secondary and higher education level in European countries was at a very low level, it spreads to large masses in the USA.<sup>3</sup> According to OECD data in 1955, the level of attending full-time high school education in the 15-19 age group was 86% in the USA, while this rate remained at the level of 25% in France, 20% in Germany and England. However, unlike the USA, it is seen that technical education was given importance in European countries at that time. In the USA, education was given in a theoretical rather than practical context (Goldin & Katz, 2008).

In Turkey, the roots of vocational and technical education go back to the 12th century under the name of systems such as ‘Ahilik’<sup>4</sup>, ‘Gedik’, ‘Lonca’. In particular, the Ahi system has been successfully applied for generations, both in terms of placing vocational education on a broad social base and in meeting the need for qualified

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<sup>3</sup> For data for countries other than the USA, Lindert (2004), for USA data, Carter et al. (2006).

<sup>4</sup> It was moved from the Karakhanids to the Ottoman Empire. The Arabic word “ahi” means my brother. In addition, it also has meanings such as bravery, hospitality and generosity (mtegm.meb.gov.tr).

intermediate level manpower. In the 19th century, influenced by the great technological advances in Europe, the first western-style technical schools were opened in the Ottoman Empire, and the first vocational school was established by Mithat Pasha in 1861. During the Ottoman Empire, vocational schools were established and managed by local administrations, not centrally (Sertel, 1993: 99). In the 18th and 19th centuries, progress in vocational and technical education (agriculture, industry and art schools) in the Ottoman Empire was realized in the 'Tanzimat Period'.

In the Republican era, these schools came under the jurisdiction of the Ministry of National Education in 1927, and they were included in the scope of formal education by being affiliated to the General Directorate of Vocational and Technical Education in 1933. In this period, although their weights changed over time, different training models were seen in our country, such as 'School-Centered' models, 'Business Centered' models applied in apprenticeship training and continued in enterprises as full-time, and 'Cooperation Models' based on school-business partnership (Adıgüzel and Berk, 2009). Another important development in the field of vocational education was the adoption of the 'Apprentice<sup>5</sup>, Journeyman<sup>6</sup> and Mastership Law No. 2089' in 1977. In this law, as the conditions of being an apprentice; It is stated that to complete at least primary education and

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<sup>5</sup> “Apprentice refers to the person who has developed the knowledge, skills and work habits required by the profession according to the principles of the apprenticeship contract” (MEB,2010).

<sup>6</sup> “ A ‘Journeyman’ is a person who has acquired the knowledge, skills and work habits required by a profession and can perform work and operations related to this profession at acceptable standards under the supervision of the master” (MEB,2010).

not to be less than 12 years old and not more than 18 years old<sup>7</sup>. With the "Apprenticeship and Vocational Education Law"<sup>8</sup> numbered 3308, which entered into force in 1986, scattered practices were gathered under a single law. As a result of this law, a restructuring was made in the vocational-technical education approach based on school-business cooperation. The name of this law was changed to "Vocational Education Law" in 2001. Within the scope of the law, 'provincial vocational education boards' were established in the provinces to take decisions on issues such as the planning, development and evaluation of vocational education and to provide opinions and recommendations to the governorship.<sup>9</sup> With the change made in 2016, it was required to be at least a secondary school or imam-hatip secondary school graduate in order to be an apprentice, and the maximum age limit was determined as under 19 years old.

According to the 18th article of the relevant law, enterprises employing ten or more personnel provide skills training to the students of vocational and technical education schools and institutions, not less than 5% of the number of personnel they employ, and internship and complementary training to the students of vocational and technical secondary education schools and institutions. Within the scope of Article 25, at least 30% of the net amount of the minimum wage in workplaces employing twenty or more personnel must be paid to

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<sup>7</sup> The employer's obligation to pay the apprentice no less than 30% of the minimum wage from the day he/she started to work is also in question in the law on that date (article 13).

<sup>8</sup> This law aims to provide a profession by giving apprenticeship training to children under the age of 13 who cannot complete formal education for various reasons.

<sup>9</sup> Provincial vocational education board convenes under the leadership of the provincial director of national education (article 6).

students who receive vocational education in enterprises and students who receive internship or supplementary education in vocational and technical secondary schools and institutions. In workplaces employing less than twenty personnel, wages cannot be paid less than 15% and an apprentice less than 30% of the age-appropriate minimum wage.

## **2.2. Overview of Technical and Vocational Education**

The "Outlook of Vocational and Technical Education in Turkey" report, the first report published by the MEB, within the scope of the "Education, Analysis and Evaluation Reports Series", was announced to the public in November-2018. According to the report, 1.9 million (35%) of a total of 5.7 million students receiving secondary education in the 2017-2018 period are in vocational and technical education institutions. This rate decreased to 33% in 2018-2019. According to the MEB data, only 435,000 of the 670,000 quotas allocated in the 2017-2018 academic year were newly registered. The share of students enrolled in vocational and technical education did not show a significant change in the 2008-2015 period, however, it entered a downward trend in the last four years. According to the same report, the budget assigned to vocational and technical education has increased approximately twice, from 6.32 billion TL to 12.5 billion TL in the 2013-2018 period. MTEK <sup>10</sup> budget per student in 2018 is 7,609 TL.

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<sup>10</sup> Vocational and Technical Education Institutions

**Table.9:** Shares of General and Vocational High Schools from the Republican Era to the Present

Year	General High School	Vocational High School*	Year	General High School	Vocational High School*
1923 - 1924	32.7	67.3	2006 - 2007	63.2	36.8
1943 - 1944	77.2	22.8	2007 - 2008	61.0	39.0
1963 - 1964	71.8	28.2	2008 - 2009	59.2	40.8
1983 - 1984	59.6	59.6	2009 - 2010	57.1	42.9
2000 - 2001	63.0	37.0	2010 - 2011	56.4	43.6
2001 - 2002	64.9	35.1	2011 - 2012	56.1	44.0
2002 - 2003	67.4	32.6	2012 - 2013	54.6	45.4
2003 - 2004	64.4	35.6	2013 - 2014	53.6	46.4
2004 - 2005	63.5	36.5	2015 - 2016	40.8	59.2
2005 - 2006	63.7	36.3	2016 - 2017	52.8	47.2

**Source:** MEB & Strategy Budget Presidency (economic and social-indicators) (\* Including Imam-Hatip high schools)

Formal education, which is given as vocational and technical education in Turkey, takes place in three types of schools in Turkey. These are Vocational and Technical Anatolian High Schools, Multi-Program Anatolian High Schools and Vocational Education Centers. Vocational and technical education in the form of widespread education is carried out in Vocational Open Education High Schools. There are differences in educational processes according to school types. There are a total of 54 fields in Vocational and Technical Anatolian High Schools and education and training is carried out in 199 branches in relation to these fields. Vocational Training Centers have 27 areas and activities are carried out in 142 branches connected to these areas. Vocational and technical secondary education in Turkey is predominantly focused on the 'school-based model'. The total number of vocational and technical secondary schools in Turkey is 3,636. While 70% of these institutions are Vocational and Technical Anatolian High Schools, 21% are Multi-Program Anatolian High

Schools and 9% are Vocational Education Centers. Moreover, there are 383 Private Vocational High Schools and 33 vocational high schools operating in organized industrial zones. (MEB, 2018; 33).

“While students do internship for 40 days in the Anatolian technical program, there is a 10-month workplace training application in the Anatolian vocational program. The 'Anatolian Technical Program' has a more academic-oriented education program and it is aimed that the graduates of this program continue to higher education and that vocational and technical higher education has qualified human resources in this context. 'Anatolian Vocational Programme', on the other hand, offers a more application-oriented education opportunity, so the main goal of this program is to meet the need for qualified technical staff of the sector rather than continuing higher education” (Bozgeyikli,2019).

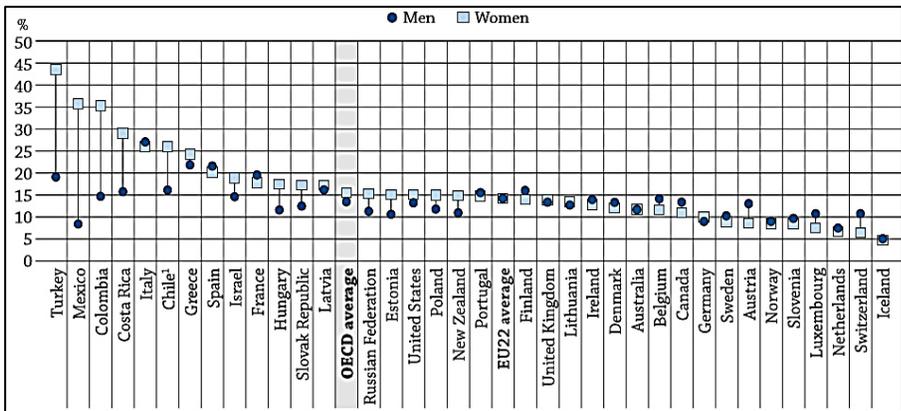
**Table.10:** Types of Technical and Vocational High Schools

<b>Technical and vocational High School</b>	<b>Girls' Technical and Vocational High School</b>	<b>Hotel Management and Tourism Vocational High School</b>	<b>Commerce Vocational High School</b>	<b>Health vocational high School</b>	<b>Vocational and Technical Education Center</b>	<b>Multi-Program High School</b>
Anatolian Technical High Schools	Anatolian Girls Technical High School	Anatolian Hotel Management and Tourism Vocational High School	Commerce Vocational High School	Anatolian Health Vocational High School	Vocational and Technical Education Center	High School Program
Anatolian Vocational High School	Anatolian Girls Vocational High School	Anatolian Hotel Management and Tourism Vocational High School	Anatolian Trade Vocational High School	Health vocational high School		Vocational High School Program
Technical High School	Girls Technical High School		Justice Vocational High School			Imam-Hatip High School Program
Industrial Vocational School	Girls Vocational High School		Anatolian Communication Vocational High School			
Maritime Vocational High School						
Maritime Anatolian Vocational High School						
Agriculture Vocational High School						
Agriculture Anatolian Vocational High School						
Land Registry and Cadastre Vocational High School						

**Source:** 10th Development Plan 2014-2018, “Vocational Education Restructuring Working Report, 2014”

When evaluated independently of the fields, 56% of vocational education graduates are male and 44% are female students. These

rates may differ on the basis of areas <sup>11</sup> (MEB,2018; 34). The industrial sector in Turkey, where technical and vocational high school graduates work predominantly, constitutes 21.3% of the total employment, while the number of male employees in this field is 76% of the total employees, the ratio of women working in the industrial sector is 24% (TUIK, 2021). According to OECD data, the rate of young people aged 15-19 who are not in the working life and at the same time do not receive education (NEET) is only 5 points higher than the OECD average of 35 countries on a male basis, while the difference with the OECD is up to 30 points when the subject is considered from the point of view of female students. Therefore, in order to increase the competitiveness of our country, it is important to follow the female students more closely in vocational education and to bring them into business life in the field they specialize in.



**Graph.3:** The Proportion of Unemployed and Uneducated Young People aged 15-19 ( OECD- Education at a Glance Database, 2018)

<sup>11</sup> For example, while the rate of male students in areas such as ‘Motor Vehicles Technology and Metal Technology’ is over 90%, the rate of female students in areas such as ‘Child Development and Education’ and ‘Handicrafts Technology’ is over 90%.

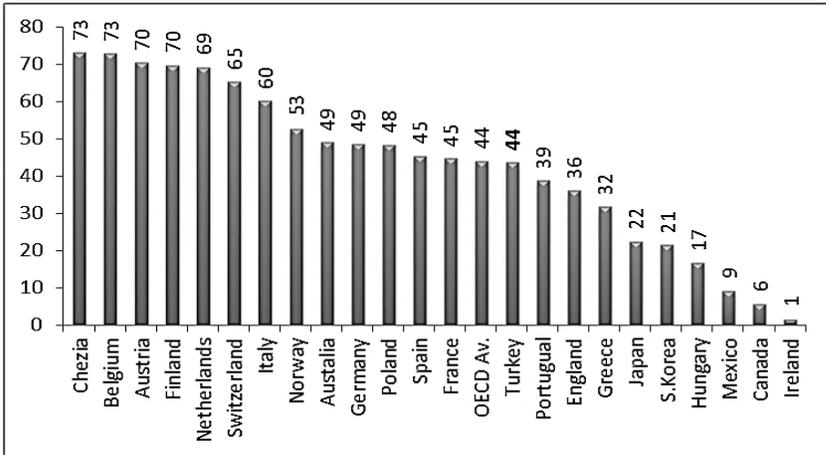
Although the rate of young people who do not work and do not receive education is higher in Turkey compared to other OECD countries, our country has shown a significant improvement in the last 10-15 years as a result of the labor force and education policies implemented. For example, while the rate of young people who did not work and did not receive education in 2006 was 42.6% in our country, this rate decreased to 26.5% in 2018.

**Table.11:** Proportion of Unemployed and Uneducated Youth in the 15-29 Age

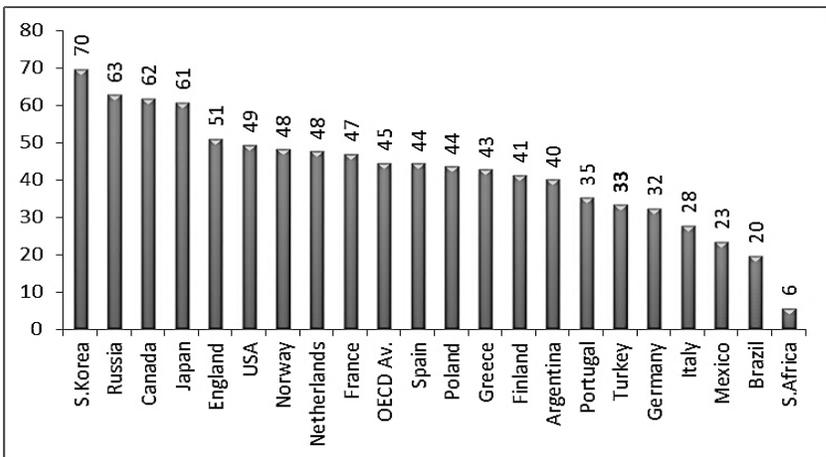
Country	2006	2011	2018	Country	2006	2011	2018
Netherlands	6.2	6.9	7.0	USA	12.9	15.9	12.7
Norway	7.9	8.5	8.7	Poland	17.4	15.5	12.7
Sweden	10.5	9.1	8.9	OECD Av.	14.3	15.9	13.2
Germany	13.6	11.0	9.2	Hungary	17.0	18.5	13.5
Japan	12.0	11.7	9.8	France	15.2	16.4	16.1
Chezia	14.1	12.7	10.0	Spain	15.9	24.3	19.1
Australia	11.4	11.5	10.8	Mexico	23.2	24.0	20.9
Austria	12.0	10.3	11.1	Greece	16.7	21.6	21.5
Portugal	12.4	15.3	11.6	Italy	20.1	23.2	23.9
Finland	10.4	11.8	11.9	Brazil	n.a	19.3	24.9
Canada	12.0	13.4	11.9	<b>Turkey</b>	<b>42.6</b>	<b>34.6</b>	<b>26.5</b>
England	15.1	15.5	12.6				

Source: OECD(2019), "Family Database"

According to OECD data, the share of technical and vocational education in secondary education differs significantly across countries. Turkey is close to the OECD average in this ranking, and this rate reaches 70% in Austria, Belgium and the Czech Republic. The lowest rates are seen in Ireland, Canada and Mexico. While vocational education starts from the secondary education level in our country, in countries such as the USA and England, vocational education is given at the level of post-secondary education, that is, vocational school (two-year university).



**Graph.4:** Share of Technical and Vocational Education (10th Development Plan - Vocational Education Restructuring Working Report, 2014)



**Graph.5:** Ratio of Higher Education Graduates in the 25-34 Age Group ( OECD Education at a Glance – 2019)

### 3. ECONOMIC IMPORTANCE OF VOCATIONAL AND TECHNICAL EDUCATION

Vocational education is a type of education in which the relevant knowledge and skills are gained in order to train qualified technical personnel in the required fields, taking into account the social goals and demands of the business world at every stage of social life. One of

the fundamental goals of vocational and technical high schools is to bring qualified workforce to the employment market for economic growth and development. As a matter of fact, according to the 'January-March 2021-1st Quarter Labor Statistics' report released by TUIK, employment rates of vocational and technical high school graduates in our country were approximately 12 points higher than those of general high school graduates.

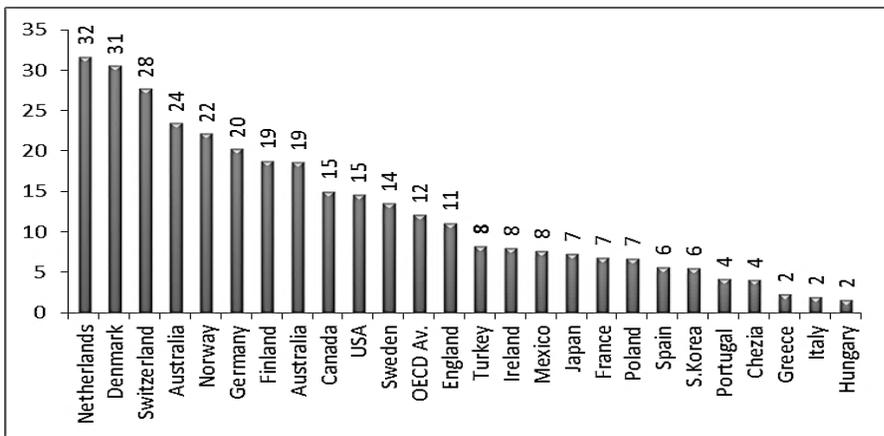
**Table.12:** Employment Rates by Educational Status

<b>Educational status</b>	<b>General</b>	<b>Men</b>	<b>Women</b>
<b>Total</b>	43.3	60.5	26.3
<b>The illiterate</b>	12.7	23.5	10.5
<b>Less than high school education</b>	38.3	55.5	20.7
<b>High school (general)</b>	41.9	57.1	24.5
<b>Vocational or technical high school</b>	53.7	69.7	28.2
<b>Tertiary Education</b>	66.3	76.1	55.4

Source: TUIK (2021), "Labor Force Statistics (January-March 2021, 1st Quarter)"

With the advancement in science and technology, raising the technical and qualified manpower needed by the rapidly developing industries is becoming increasingly important in the world and in our country. Today, the question of "what is this?" replaces the question of "what is the purpose of this?". The importance of technical and vocational education emerges at this point. The existence of knowledge associated with human and its transformation into practice also opens the doors of technological change and development. It facilitates the transmission of technological innovations to the production process. Technology complements skills and abilities while increasing the return on education investments. Thanks to the technological development experienced, the income generated after the increased

growth encourages education. Growth in education accelerates the pace of technological development, increasing income and population. In short, technical and vocational education has a great importance in realizing human-oriented growth and development. In this direction, in some countries, necessary arrangements are made for young people to both work and continue their education, allowing them to work in employment markets without leaving education.

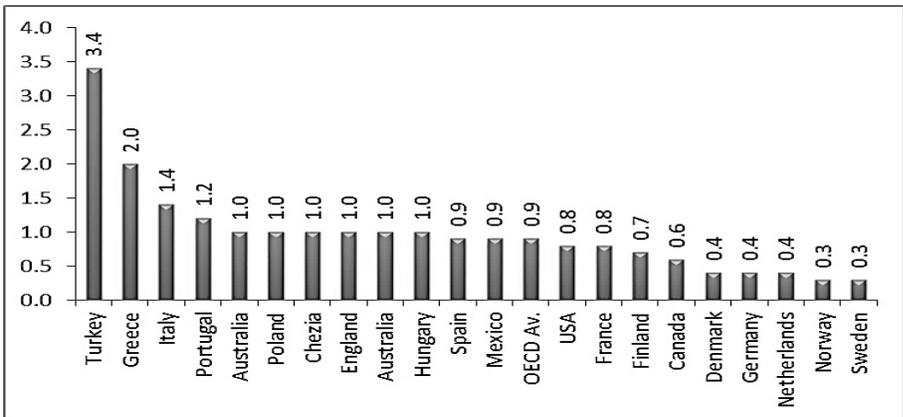


**Graph.6:** Proportion of Young People Who Work and Get Education (OECD, Social Indicators-2016 <sup>12</sup>)

Today, the integration of the education system with the labor market has become increasingly important. In this respect, it is of key importance to raise individuals who have the skills required by the age, such as innovation, creativity, problem solving and entrepreneurship, and who contribute to economic and social developments. A good vocational education makes the individual

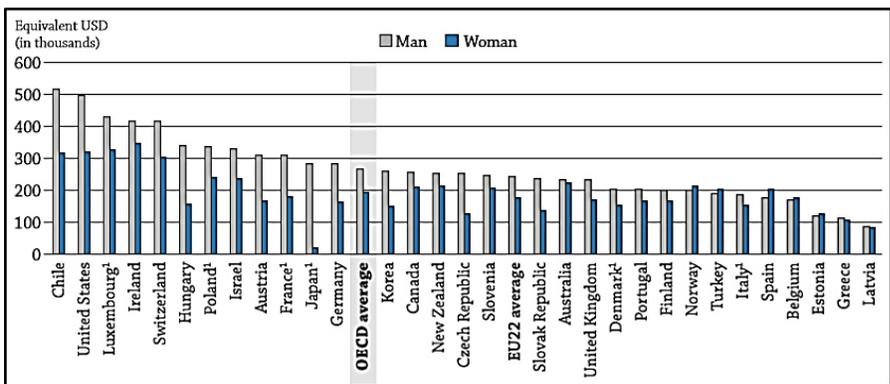
<sup>12</sup> According to Total Young Population; data refer to 2014

ready for production, ensures the emergence of hidden talents, increases the efficiency and productivity of the individual by making him more confident in his work. In addition, it increases labor mobility and people's flexibility in the labor market. In the face of rising family income, children are not required to work, poverty and child labor are significantly reduced. In addition, since educated individuals are more likely to work, their dependence on social security funds is lower and their financial burden on the state is less. As a matter of fact, Turkey is the OECD country where the burden of the young population who do not receive education and work is the highest, and an important resource in the budget can be used more efficiently if these people are integrated into the employment market with an appropriate vocational training. Thus, not only does education create employment and money for individuals, but governments also benefit from having a large proportion of individuals in terms of higher tax revenues and competitiveness in the international arena.



**Graph.7:** Cost of Young Population Uneducated and Unemployed to the State (% of GDP), (OECD Society at a Galance-2016)

In a study conducted by the OECD, it has been determined that people make a very beneficial investment for themselves by getting education when the cost of education is deducted from the income obtained from education. Another interesting point in this study is that in the majority of OECD countries, men's net educational benefits are higher than women's, and in countries such as Turkey, Norway, Spain and Belgium, women seem to have the advantage in terms of net benefit.



**Graph.8:** Net Benefit of Education by Country (Total Income – Total Cost), (OECD Education at a Galance – 2018)

According to the 2012 report of McKinsey<sup>13</sup>, the world's leading consultancy firm, Turkey was among the first fifteen countries in terms of its share in the added value of the manufacturing industry in the world in the 1990s and 2000s, but later lost its superiority in this field and remained out of this list in 2010. Not being able to create enough added value in the manufacturing industry in this period of high economic growth is important for the sustainability and quality of growth, and it stands as a threshold as one of the reasons for our country's rise from the middle-income country group to the upper

<sup>13</sup> Manufacturing the Future: The Next Era of Global Growth and Innovation, 2012

group, which it has been in for decades. In other words, if we want to become an economy that falls into the group of high-income countries, like South Korea, which was in the middle income group in the past and got rid of the middle income trap<sup>14</sup> in about 20 years as a result of value-added production realized over time, it is necessary to attach importance to technical-vocational education that will bring qualified workforce to the manufacturing industry and this sector.<sup>15</sup>

**Table.13: Share of Countries in Value Added Production**

Ranking	1980	1990	2000	2010
1	USA	USA	USA	USA
2	Germany	Japan	Japan	China
3	Japan	Germany	Germany	Japan
4	England	Italy	China	Germany
5	France	England	England	Italy
6	Italy	France	Italy	Brazil
7	China	China	France	S.Korea
8	Brazil	Brazil	S.Korea	France
9	Spain	Spain	Canada	England
10	Canada	Canada	Mexico	India
11	Mexico	S.Korea	Spain	Russia
12	Australia	Mexico	Brazil	Mexico
13	Holland	<b>Turkey</b>	Taiwan	Indonesia
14	Argentina	India	India	Spain
15	India	Taiwan	<b>Turkey</b>	Canada

**Source:** McKinsey (2012), *Manufacturing the Future: The Next Era of Global Growth and Innovation*

Today, the share of production in total exports is at the level of 70%, and the manufacturing industry has a special importance especially for

<sup>14</sup> The middle-income trap is when the per capita income of a country or region rises from low to medium levels (1,000-12,275 USD), then it gets stuck there and cannot move to the next level.

<sup>15</sup> “The following are the diseases seen in economies that fall into the middle-income trap: (1) Savings and thus investments remain at a low level. (2) Development progresses slowly in the manufacturing industry. (3) Diversification does not occur in the industry. (4) Conditions in the labor market remain weak” (Eğilmez, 2012).

the economic growth and development of developing countries. According to a report examining the period of 1970-2011, while the ratio of those working in the manufacturing industry to the total employees was 26.8% in 1970 in developed countries, it decreased to 12.8% in 2011, and some Asian countries, especially China and South Korea, filled this area. In these countries, the rate which was 13.9% in the 1970s increased to 21.5%. However, not every developing country has a similar trend. For example, in Latin American countries that have not recovered from the economic crisis in the last 30 years, this rate decreased from 15.5% in the 1970s to 11.5% in 2011. Therefore, in developing countries, if the manufacturing industry is not the driving force of growth, vulnerabilities may increase in the face of economic risks and as a result economic crises may occur. Considering the share of those working in the manufacturing industry in total employment, the situation differs on the basis of countries. Turkey ranks first in this field with a share of 18.1% among the countries examined, and the manufacturing industry and therefore the qualified workforce who will work in this field have a great importance for our country.

**Table.14:** Ratio of Manufacturing Industry Employees to Total Employees

Country	Share in Total Employees	Country	Share in Total Employees
Poland	20.2	Indonesia	13.5
Germany	19.0	Switzerland	13.0
Italy	18.5	France	12.4
<b>Turkey</b>	<b>18.1</b>	Spain	12.3
S.Korea	16.9	Brazil	11.4
China	16.9	India	11.4
Japan	16.9	USA	10.5
Mexico	16.3	Holland	10.4
Rusya	14.4	İngiltere	9.5

Source: International Labor Organization- ILO (2017)

It is worth emphasizing one point here. In order to rise to a higher income group in economic growth and development, it is not only sufficient to develop the manufacturing industry alone, but also to increase the share of high-tech products in the manufacturing industry. According to United Nations Comtrade data, the share of high technology products in total production exports was 17.6% in OECD countries in 2018. This rate is 36.3% in South Korea, 25.9% in France, 22.3% in England and 18.9% in the USA. In Turkey, the share of high-tech products in our total production exports is only 2.3%, and increasing this ratio by giving importance to R&D activities and vocational-technical education in this field should be one of the main priorities.

Vocational education also significantly affects the competitiveness of countries in a globalizing world. The World Economic Forum (WEF) defines competitiveness as “the set of institutions, policies and factors that determine a country's level of productivity”. This institution measures the performance of a country according to 114 indicators that affect that productivity. According to the latest 2019 report covering 141 economies, our country was ranked 61st among 141 countries. Argentina, which ranks 83rd with 57.2 points, shows the lowest performance among the G-20 countries. When developing countries are analyzed, China is in the 28th place, while Russia is in the 43rd place, followed by South Africa (60th), India (68th) and Brazil (71st).

**Table.15:** Global Competitiveness Index- 2019

<b>Ranking</b>	<b>Country</b>	<b>Point</b>	<b>Ranking</b>	<b>Country</b>	<b>Point</b>
<b>1</b>	Singapore	84.8	6	Japan	82.3
<b>2</b>	USA	83.7	7	Germany	81.8
<b>3</b>	Hong Kong	83.1	8	Sweden	81.2
<b>4</b>	Netherlands	82.4	9	England	81.2
<b>5</b>	Switzerland	82.3	10	Denmark	81.2

Source: World Economic Forum –WEF (2020)

#### **4. LITERATURE**

Although its origins date back to famous economists such as A. Smith and A. Marshall in the 18th century, studies on the importance of human capital began in the 1960s in a disciplinary sense. Denison (1962), in his study covering the period of 1930-1960 in the USA, calculated that the increase in the education level of the workforce has an explanatory power of 23% on the annual growth rate, and this study increased the awareness of the importance of human capital and the number of studies on the subject. The development of models for human capital took place towards the end of the 1980s. According to the 'internal growth model' pioneered by Romer (1986) and Lucas (1988), unlike the exogenous (neoclassical) growth model, the factors that trigger growth are determined as human capital and technological development as well as population growth. In this model, human resource is the main driver of growth. According to this approach, a sustainable improvement in the standard of living in the long run is possible with technological development and human capital.

From a historical perspective, physical capital accumulation and land, which are factors of production, explained a significant part of

economic growth in the past. While the part that cannot be explained by physical production factors in economic growth between 1840-1900 was 57%, this rate increased to 85% in the 1900-1980 period (Goldin, 2014:3). According to the study of Goldin and Katz (2008), it is possible to reduce this unexplained part by approximately 20% for the period 1900-1980 when the human capital is included in the model. In addition, Solow (1957), one of the famous growth and development economists, determined that 87.5% of the per capita income growth could not be explained by the increase in physical production factors such as physical capital stock, number of workers and working hours in his study in which he examined the period 1909-1949. Therefore, more important than cumulative physical capital accumulation in growth is the increase in human capital, in other words, the increase in labor input through knowledge creation and education. Haddad et al. (1990) calculated that the agricultural productivity of a farmer with four years of primary education is 8.7 % higher than that of a farmer with no education in his study for the World Bank in which he analyzed eighteen low-income countries. According to Romer (1990), the factors that constitute the source of economic growth are developments in the field of technology, new products and human capital.

Otani and Villanueva (1990) examined the factors of long-term growth in developing countries. Using time series data, they examined the period 1970-1985 in fifty-five developing countries. According to the authors' findings, countries that invest more in education achieve higher levels of economic growth and measure that human capital

development leads to an average annual increase of 1% per year in the growth rate of developing countries. According to Barro (1996), the first factor of economic growth is the high level of human capital, and therefore education contributes positively to economic growth. Bassanini and Scarpetta (2001) used the panel data method in their study in which they examined the years 1971-1998 based on 21 OECD countries. According to the findings of the study, each annual increase in the length of education creates a 6% increase in economic output in the long run. Amaghionyeodiwe (2017), on the other hand, used panel data analysis method covering the period 1990-2016 and 15 West African countries, and determined the existence of a statistically significant Granger causality relationship between the education expenditures of the governments and economic growth in the long run. In Turkey, Çalışkan et al. (2013) examined the period of 1923-2011 with the Johansen cointegration method and it was determined that every 1% increase in the number of high school students in Turkey increased the national income by about 0.2%.<sup>16</sup> Çakmak and Gümüş (2005), examined the period of 1960-2002 for Turkey with time series analysis and determined that there is a long-term positive relationship between human capital and economic growth in their study.

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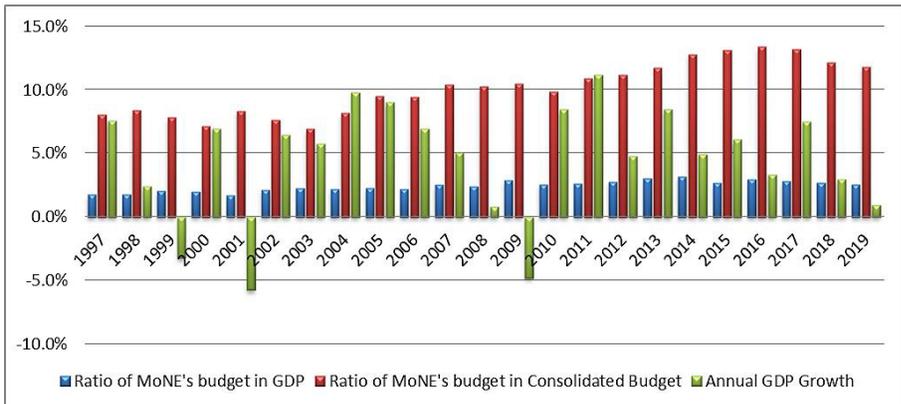
<sup>16</sup> The authors calculated that a 1% increase in tertiary education increases GDP by about 3%..

## 5. ECONOMETRIC ANALYSIS

In this study, the dependent variable is the annual GDP growth and the explanatory variables are the share of the education budget in the national income and the share of the education budget in the central government budget. The relevant data covering the 1997-2019 period were obtained from the economy and budget data of the Presidency of the Republic of Turkey, Strategy and Budget Department, and the data of the Ministry of National Education Strategy Department.

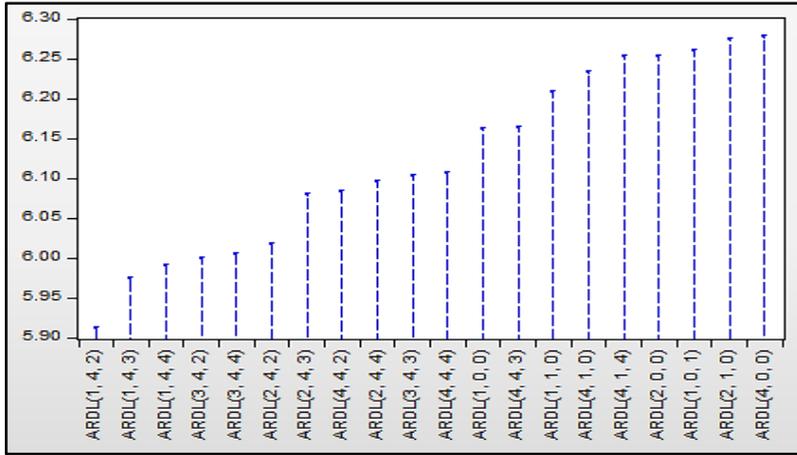
<b>YGSMH</b>	Annual GDP Growth
<b>GSMHPAY</b>	Share of Education Budget in GDP
<b>MERYONPAY</b>	Share of Education Budget in Central Government Budget

In the study, the ADF (Augmented Disk Fuller) unit root test was applied to the dependent and explanatory variables, and the YGSMH variable became stationary at the level value, namely  $I(0)$ , and the GSMHPAY and MERYONPAY variables became  $I(1)$ , that is, with the first difference taken. Unlike the other cointegration methods, there is no restriction that all variables are stationary to the same degree in ARDL analysis. In other words, even if the stationarity levels of the series are various, the existence of a cointegration relationship can be tested with this model. In addition, the boundary test approach makes it possible to predict the model by making a low number of observations (Narayan & Narayan, 2004).



**Graph.9:** Economic Growth – Ratio of MoNE (Ministry of National Education) Budget to GDP and Central Government Budget ( World Bank & MoNE)

The specified lag of the dependent variable was kept constant and regression models were created taking into account all the latency possibilities of the descriptive variables. Determining the number of delays for descriptive variables is based on the smallest AIC value. Accordingly, it is seen that the share of the education budget in the national income lags the national income growth by four periods, and the share of the education budget in the central government budget, with a two-term delay, provides the best fit among the possible models.



**Graph.10:** ARDL Analysis – Appropriate Lag Length

Looking at the short-term analysis, it is seen that the coefficient of the error correction term is negative and statistically significant. Therefore, the error correction model is working, and the short-term deviations seen between the long-term co-acting series will disappear in the future and the series will again convergent to the long-term equilibrium level.

**Table.16:** Error Term Regression Model

Dönem: 1997-2019				
Gözlem Sayısı: 19				
Hata Terimi Regresyon Modeli				
Değişken	Katsayı	Std. Hata	t-ist.	Olasılık
D(GSMHPAY)	-0.200519	3.639295	-0.055098	0.9573
D(GSMHPAY(-1))	-39.00979	8.640694	-4.514659	0.0015
D(GSMHPAY(-2))	-31.16892	8.056684	-3.868703	0.0038
D(GSMHPAY(-3))	-17.95650	5.837612	-3.076001	0.0132
D(MERYONPAY)	-1.183267	1.452905	-0.814415	0.4364
D(MERYONPAY(-1))	4.966696	1.471077	3.376232	0.0082
ECT(-1)*	-1.302144	0.216352	-6.018629	0.0002

The explanatory power of the model, in other words, the R2 (determination coefficient), which expresses the goodness of the regression model fit, was calculated as 0.79, and the adapted R2 (adj-R2) was calculated as 0.68, and it has a high explanatory power in general in the study.

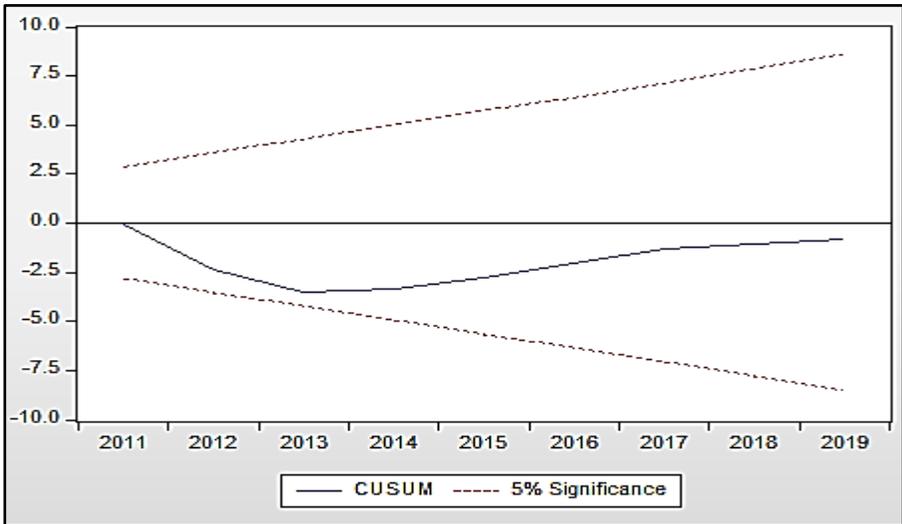
The cointegration relationship between the series was analyzed using the bounds test approach. In the limit test analysis, the F statistical values were determined by Pesaran et al. (2001) were compared with the critical values calculated in their studies. The statistical value of F obtained in the analysis was determined by Pesaran et al. If the upper bound is greater than the critical value, the existence of a cointegration relationship is accepted. As it can be seen in Table-15, since the calculated F statistic value (6.79) is greater than Pesaran's upper bound critical value (3.35), a cointegration relationship was found between the series. According to the results of the analysis, the series move together in the long run and it has been determined that there is a link between annual national income growth and education expenditures.

**Table.17:** ARDL Limit Test

F-Sınır Testi			Boş Hipotez: İlişki Yok	
Test İstatistiği	Değer	Önemlilik Or.	I(0)	I(1)
F-istatistik	6.791979	10%	2.63	3.35
k	2	5%	3.1	3.87
		2.5%	3.55	4.38
		1%	4.13	5

In the analysis, it was also examined whether there was any structural break in the analysis period, and according to the results of the

CUSUM test, it is seen that there was no structural break in the analysis period since the model remained between the determined 95% confidence intervals.



**Graph.11:** Structural Break Test (CUSUM)

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob*	
		1	0.127	0.127	0.3596	0.549
		2	-0.219	-0.239	1.4843	0.476
		3	0.120	0.199	1.8416	0.606
		4	-0.058	-0.188	1.9320	0.748
		5	-0.283	-0.180	4.2170	0.519
		6	-0.322	-0.371	7.3896	0.286
		7	-0.108	-0.122	7.7802	0.352
		8	0.049	-0.067	7.8674	0.447
		9	-0.118	-0.200	8.4189	0.493
		10	-0.096	-0.249	8.8266	0.549
		11	0.279	0.016	12.713	0.312
		12	0.196	-0.098	14.899	0.247

**Graph.12:** Autocorrelation

## **6. STEPS TAKEN AND PLANNED ARRANGEMENTS TO PROMOTE TECHNICAL AND VOCATIONAL EDUCATION**

With the publication of Law No. 3308 in 1986, it is seen that awareness and practices regarding the development of technical and vocational education have increased. The 'Vocational and Technical Education Development Project (METGE)' started to be implemented in 1993, the 'Vocational Education and Training System Strengthening Project (MEGEP)' in the early 2000s, and the 'Development of Human Resources through Vocational Education Project (İKMEP)' in the 2008-2010 period. ' can be stated as the most important of these steps. In 2011, new arrangements were made in the organization and duties of the MEB, and vocational and technical secondary education institutions operating under different general directorates, thus having a scattered appearance, started to operate under a single roof under the 'General Directorate of Vocational and Technical Education'.

Face-to-face and one-to-one education is one of the most important factors in increasing teacher-student interaction in vocational education, so a reasonable number of students per teacher is one of the prerequisites for a quality education. According to the MEB data, the number of students per classroom in vocational high schools is 19 in the 2018-2019 period, and the number of students per teacher in these schools is 11. However, this quantitative expansion (the increase in teachers in vocational high schools in the last ten to fifteen years) has not been reflected in the scores of vocational high school students in both national and national exams as a qualitative increase. An

interesting situation emerges when the number of teachers and students is analyzed on the basis of statistical region classification. Although the Aegean Region has approximately 93,000 fewer vocational high school students compared to the Istanbul region, it has more teachers than Istanbul in the number of teachers (MEB,2018;38).

The extent to which the education received by graduates in vocational and technical education coincides with the demands of the business environment is another issue that needs to be followed in terms of the quality of the education system. In the survey titled 'Transition of Youth to the Labor Markets' conducted by the Turkish Statistical Institute (TUIK) in 2016, in which the contribution of the graduates' education to work is evaluated, the rate of those who say that they have contributed to a large extent among vocational high school graduates was 23.9%. Among the general high school graduates, this rate was 9.7%. However, for vocational high schools, it should be aimed to bring this ratio closer to the Vocational School level, that is, to reach at least 40% in terms of matching the demand (qualified workforce) and supply (the number of qualified graduate students).

Pursuant to the 'Public Financial Management and Control Law No. 5018' which entered into force in 2004, public institutions have been obliged to prepare a strategic plan. In the 2010-2014 Strategic Plan, which was first prepared in this context, the Ministry of National Education (MEB) determined access to education and training as the main priority. In the second 'Strategic Plan' for the 2015-2019 period, quality came to the fore and determined the main theme of increasing

the quality of education and improving institutional capacity. It is extremely important to maintain the education-employment-production relationship on a healthy basis in order to increase the quality of vocational education. In this context, the Ministry of National Education follows the issue closely and carries out some supportive studies. In the last period, the steps taken and the regulations made within the scope of encouraging technical and vocational education are briefly as follows:

- In December-2016, apprenticeship training became part of compulsory education, during which the curriculum in apprenticeship training and vocational education was harmonized.
- The theme of the 2019-2020 academic year was determined as “Patent, Utility Model and Design”, and the "My Profession is My Life" portal was launched.
- The 15% treasury cut in revolving capital income from vocational and technical schools has been decreased to 1%, thus increasing the production capacity of the revolving funds, allowing more students to receive education in a real business environment.
- Since the 2012-2013 academic year, every student in 42 private vocational and technical education schools that have started to operate in organized industrial zones (OIZ) receives incentives. Apart from the OIZ, educational support is provided to 103 private vocational and technical education schools. The incentive amounts to be given per student vary between 5,000-8,000 TL for the year 2019-2020.
- In order to meet the needs of the tourism sector, 11 high schools with employment guarantee were opened within the scope of the protocol signed between the Ministry of National Education and

the Ministry of Culture and Tourism. It is aimed that this number will increase every year and reach 200 by 2023.

- The right to postpone military service for 3 years, which is provided to high school graduates and equivalent, has been increased to 3+3 years in order to be an encouraging step for vocational high school graduates.
- "81 Vocational and Technical Anatolian High School Collaboration Protocol in 81 Cities" was signed with TOBB and TOBB University of Economics and Technology.
- With the cooperation protocols signed with vocational education stakeholders in 2019, model/project schools such as ASELSAN MTAL, ITU MTAL, Cağaloğlu Traditional Turkish Arts MTAL were put into operation. With the contributions of the Machinery and Chemical Industry Corporation (MKEK), studies have been initiated to establish MKEK Vocational and Technical Anatolian High School (MEB 2020 Budget Presentation, 2019).

The arrangements planned to be made within the scope of the "Eleventh Development Plan" regarding technical and vocational education in line with economic and social development are as follows:

- Revolving fund revenues will be increased by more effective use of workshops within institutions and organizations in vocational education.<sup>17</sup>
- Curriculum of vocational and technical schools will be updated in line with sector demands and developing technology.

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<sup>17</sup> The number of schools with revolving fund income is 774, and a total of 217.197.000 TL income was obtained from the productions made in 2017. Ankara, İstanbul and Antalya had the largest share of total revolving capital income in the same period. The school with the highest revolving fund income is Batman Vocational and Technical Anatolian High School, and its 2017 revolving fund income is 5.455.000 TL. The city with the highest revolving fund income per student was again Batman with 2.508 TL; Turkey average in this field is 686 TL.

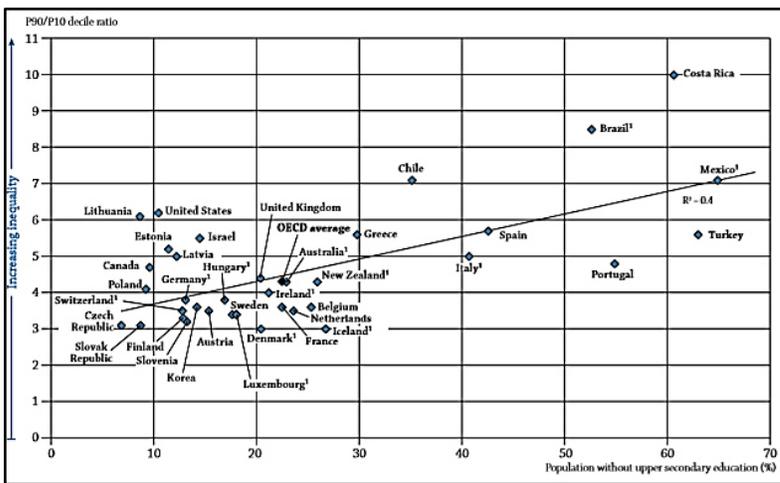
- A multi-vocational skill infrastructure will be created that will allow students to get certification in more than one branch, so that students can transition between occupational fields and gain achievements related to different occupations.
- Vocational high schools and higher education institutions, especially in organized industrial zones (OIZ), will be restructured to support each other in terms of program, management, human resources, financing and physical infrastructure.
- The link between vocational and technical education and the labor market will be strengthened in order to meet the need for qualified manpower.
- Career guidance in vocational and technical education will be activated; Promotional activities will be carried out to strengthen the perception of vocational and technical education high schools and vocational schools in the society.
- Students will be encouraged to apply for inventions, patents and utility models.
- Cooperation protocols between vocational and technical education institutions and the sector will be increased.
- Employment of vocational and technical education graduates will be prioritized by encouraging different wages according to their vocational education fields and levels.
- Support payments will be provided for students studying in private vocational and technical schools, investment incentives for the private sector to open schools will be risen, and the number and diversity of private vocational and technical schools, especially in organized industrial zones (OIZ), will be increased.
- Legislation will be made for the private sector to establish a private vocational training center.

- In order to keep their knowledge and skills up to date, graduates will be encouraged to take certified education and courses accredited by the industry and universities.
- National occupational standards and qualifications, which form the basis for vocational training programs and examination and certification activities, will be updated and their number will be increased” (Eleventh Development Plan 2019-2023; 129-130).

## **7. STATUS QUO IN EDUCATION**

Education, beyond increasing economic growth, also has an important socio-political role in improving income inequality in countries and reducing poverty. Education, with the positive externalities it creates in the macro dimension, not only on economic growth but also on health, culture, etc. It also fulfills a very important task with the social improvement it has created in the fields. There are many types of inequality today. According to the United Nations, the best answer to the question of “inequality of what?” is perhaps “inequality of talents”. The fact that the increase in the education level reduces the probability of being unemployed in the employment market is generally accepted as an important benefit of education (Mincer, 1991; 22). Income status of families can affect children's health, education and future income. For example, 17 of every 100 babies born in 2000 die before reaching the age of 20 in underdeveloped countries, while this number is only 1 in developed countries. Again, while only 3 children receive higher education in underdeveloped countries, this number is around 55 in developed countries.

Countries with lower income inequality are more willing to offer better education opportunities to their citizens, so that economic growth can spread to the base and development can be realized. However, there are some exceptions to this. For example, while the number of people who have not received an associate degree or bachelor's degree in the USA is at a low level of 11%, it is behind Turkey in terms of income distribution justice.



**Graph.13:** Income Distribution Justice and Educational Statistics  
( OECD Educational at a Galance – 2018)

There has been an increase in the share of the highest income groups from the total income as a general trend on the basis of countries in the last 20 years, and this situation increases the income distribution inequality. For example, the average income growth in the USA during 2000-2018 was 63%, while the increase in the lowest 40% income group was only 10.8%; on the other hand, the increase in the highest 1% income group was 203.4%. In China and India, which are

also important emerging economies, the increase in the highest income group is well above the average per capita income increase.

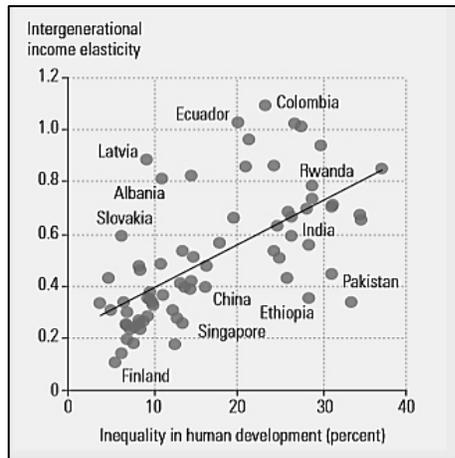
**Table.18:** Income Growth in BRIC Countries in the Period 2000-2018 (%)

Country	Average Income Increase per Capita	Income Increase in the Lowest 40% Group	Income Increase in the Top 1% Group
Brazil	5	20	16
China	361	263	518
India	122	58	213
Russia	72	121	68

Source: UN (2019), "Human Development Report"

Although skill is generally defined as the freedom of people to choose what to be and do, skill is actually a freedom of will about what people want to be and do, regardless of whether they actually make these choices. For this reason, skill (ability) is closely related to the concept of opportunities. Children in the low-income group are more likely to be exposed to lower education and more adverse health conditions. Because of the low level of education, these children are less likely to develop their skills and earn better money in the future. Thus, social inequality between generations turns into a vicious circle and continues. There is a positive correlation between income inequality and intergenerational mobility. Therefore, as income inequality increases, intergenerational mobility decreases. This relationship, which is called the "Great Gatsby Curve", continues to be valid when the criterion of "inequality in human development" is used instead of income inequality. The greater the inequality in human development, the lower the intergenerational mobility in incomes, and vice versa. In other words, the higher the intergenerational income

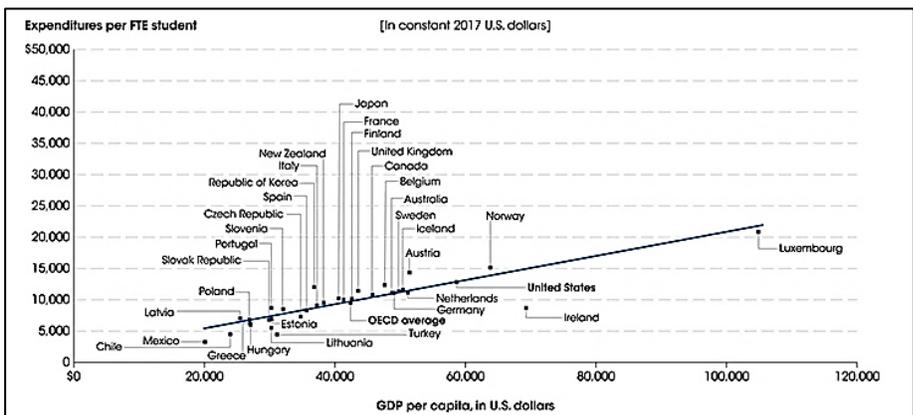
elasticity, the stronger the relationship between parents' income and their children's income, reducing intergenerational mobility. As a matter of fact, as seen in the graph, the higher the inequality in human development, the higher the intergenerational income elasticity.



**Graph.14:** Intergenerational Income Elasticity and Inequality in Human Development ( UN Human Development Report- 2019)

Today, a significant part of state budgets is allocated to education. The highest share is seen in Scandinavian countries such as Norway, Sweden and Finland, and total education expenditures in these economies are 7-8% of the country's national income. In countries such as the USA, England and Australia, this rate is around 5-6%. In Germany, Spain, Italy and Japan, the share of education in national income is between 3-4%. In Turkey, the ratio of the budget of the Ministry of National Education to the national income was determined as 2.6% and the ratio to the central government budget as 11.6% in 2020.

When the investments made by the countries in education after 2000 are examined, it is seen that the expenditures of OECD countries at primary and secondary education level per full-time student increased by 23% in the 2005-2015 period, from 7,700 USD in 2005 to 9,500 USD in 2015. In this period, the OECD countries that increased their education expenditures the most were Slovakia with a 94% increase (from \$3,500 to \$6,800), Poland with an increase of 70% and South Korea with an increase of 61%. It was in Iceland (from \$16,300 to \$11,600) with a decrease of 29% (OECD, 2018). In general, education expenditures of countries increase positively as per capita income increases.

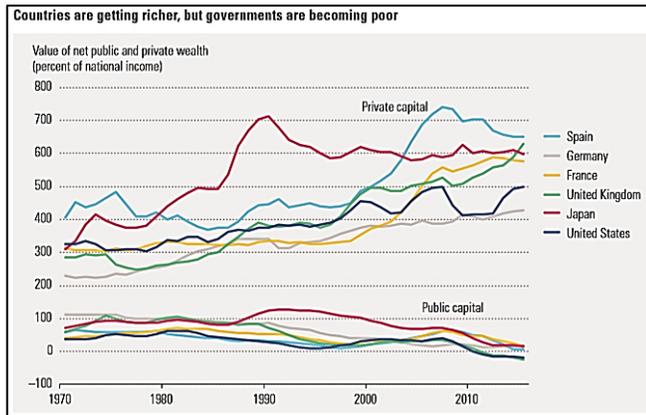


**Graph.15:** Primary and Secondary Education Expenditures and Per Capita National Income ( OECD Online Education Database, 2018)

When the funding sources of education expenditures are examined, government expenditures in primary and secondary education constitute 83% of total education expenditures in OECD countries, while private resources, including households, constitute 17%. While the rate of private resources is below 3% in Scandinavian countries such as Finland, Sweden and Norway, the share of private education

resources is over 15% in Turkey, Spain, South Korea, England, Australia and Mexico. Turkey is also the country with the highest private funding sources in education among OECD countries with a rate of 25%.

Effective use of general public assets and budgets comes to the fore as a necessary element for governments to move more freely in education expenditures. As a matter of fact, as seen in the example of Greece (the education expenditure per student in primary and secondary education in the country decreased by 2% in the 2005-2015 period, and by 45% in higher education), the financial crises experienced may cause countries to reduce their investments in education. Looking at the historical process, net public assets have declined to a negative level in the last ten years with the effect of the 2008 Global Economic Crisis. This situation, which has emerged as a result of privatization of public assets, increasing public debt and widening budget deficits, limits governments to make future investments such as education. Thus, it leaves little room for governments to deal with current and future income and wealth inequality. On the other hand, there is a significant increase in the assets of the highest income group, in contrast to the public assets.



**Graph.16:** Private and Public Sector Net Asset (Ratio of GDP, %),  
( UN Human Development Report – 2019)

## 8. CONCLUSION AND RECOMMENDATIONS

The importance of human capital is great in realizing economic growth and development, as well as ensuring its sustainability. In addition to direct macro benefits such as vocational and technical education, economic growth and development, creating a qualified labor market, it also contributes to economic development by increasing the productivity of employees and thus the performance of companies. In terms of the individual, vocational education provides employment and career opportunities in different fields, and accordingly, it allows the person to earn an income. Thus, individuals gain the opportunity to break the income flexibility rigidity between generations to a certain extent and increase their income by specializing in working life thanks to vocational training. However, the high level of per capita income in a country is not an indicator of a complete improvement in development, in other words, in living standards. In this context, important duties and responsibilities fall on

education at the point of establishing the link between economic growth and social development level.

It is critical for the future of vocational high schools and a sustainable economic progress to abandon the understanding of "everyone should be a university graduate" and instead to expand the understanding of "everyone should have a profession" in the education system. In vocational education, although the number of schools is high, their effectiveness is not at the same level. According to the results of the study covering the period of 2008-2015, the rate of employment in the graduation field is below 5% for many occupational fields in vocational and technical education in Turkey (MEB,2018: 58). This picture clearly shows that there is an incompatibility problem between the education students receive and their jobs in working life. However, in the last current study conducted in February-2018, signs of improvement are observed, and the rate of vocational high school graduates working in the same field as the one they graduated from increased to 18.9% (MEB,2018: 65).

Despite many projects being carried out, the lack of qualified interest in vocational education in Turkey is an indication that it is a more comprehensive problem, in other words, a quality problem rather than a numerical size. In this context, first of all, it is important to correct the negative perception in the society towards vocational and technical education. Practices such as encouraging the private sector to contribute more to vocational education, giving double diplomas, scholarships to students, granting non-refundable or interest-free loans

to vocational high school graduates for a few years, providing employment guarantee to graduates according to their success level, providing differentiated wages for vocational high school graduates and will make significant contributions to the improvement of individual perception. Giving a certain share to the administrators, teachers and students in the revolving fund income from the revolving fund will increase the interest and competitiveness of these schools. Although some of these suggestions are already being implemented, it is equally important to closely monitor, analyze and interpret the results in order to expand and disseminate the scope and make sound analyzes. As a matter of fact, perhaps more important than setting out is to successfully complete that journey.

In the modern age, where technological transformation plays an important role, a productive, entrepreneurial and innovative understanding of education is of great importance. Raising individuals/employees who not only know how to use technology but can also design and produce technology and transform it in accordance with the requirements of the age is one of the issues that should be emphasized in vocational education. In this direction, modern equipment tools (machinery, equipment, workshop and laboratory materials) required by education and an updated curriculum are needed in order to optimize the total benefit in vocational education. Vocational and technical education should be implemented in a way that allows transitions to increase workforce flexibility instead of imposing certain professions. Again, the understanding of education called “STEM+A” (Science, Technology, Engineering,

Mathematics+Art), consisting of science, technology, engineering, mathematics and art disciplines, and country practices are well analyzed and these concepts are applied in the curriculum of vocational high schools. It will be an appropriate approach to catch the requirements. In other words, the vocational education system should have a proactive content and a systemic operation, not a stagnant or lagging behind.

It is suggested as one of the important points in bringing the education system to higher standards that teachers who will equip school graduates with the knowledge and skills required by the age should transfer their experiences to their students by observing the systems in different countries, if possible, on site, in addition to in-service training. Again, in order to increase the field experience of vocational education teachers, spending a certain period of time (3-4 weeks) in on-the-job training institutions, as in the case of China, will provide significant benefits to teachers in following sectoral innovations and developments. A collaborative working spirit and culture should be established more strongly among the stakeholders in the vocational and technical education system (state, universities, schools, development agencies, research institutions, other public institutions, unions, technoparks, private sector). The number of private vocational high schools, which have a higher education investment per student and currently have approximately 6% of the total vocational high school students, should be increased without compromising on quality. Although a study was carried out on this subject in 2018, the 'Vocational Qualifications Authority', which was established in 2006,

should move to a more functional understanding of the certification of professional qualifications, and its scope should be expanded by revising professional standards and qualifications.

Finally, in order to evaluate the advantages and disadvantages of the option of converting vocational high schools into vocational education centers and bringing vocational and technical education to the level of vocational higher schools, which are seen in countries such as Japan and Australia, it would be helpful to have a workshop for discussing this issue with the relevant stakeholders in the country and the stakeholders under the leadership of the Ministry of National Education.

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**CHAPTER 2**

**THE EMPIRICAL INVESTIGATION OF THE  
TURKISH MIDDLE-INCOME TRAP AT PROVINCES  
LEVEL: THE CONVERGENCE APPROACH**

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## INTRODUCTION

The interest in the Middle-Income Trap (MIT henceforth) has been increasing since the introduction of the World Bank Report “An East Asian Renaissance” which was published in 2007. Gill and Kharas used this concept for the first time in this report to underline an economic development problem. They state that the lack of specialization in production, poor innovation, and less-skilled workers are the main three reasons behind MIT which is defined as the inability of a middle-income country to reach the income levels of the advanced countries. The literature consists of many theoretical and empirical studies which explore the MIT problem from different perspectives. The common feature of these studies, on the other hand, is the usage of the per capita income levels of the countries to diagnose the MIT problem. Besides, the investigation of the MIT problem is made mostly at the aggregate level by assuming as if the whole country can escape from the MIT problem by ignoring the regional differences within the country. In practice, the per capita income levels may differ from region to region especially in the emerging market countries where the income distribution is relatively unfair. This important detail has been mentioned for the first time by Yeldan et al. (2012) as far as we know. Their report shows that some provinces in Turkey are far from the threat of MIT while some provinces may face MIT and even further poverty trap problems. (Yeldan; 2012, p.4)

In this paper, the findings of Yeldan et al. (2012) will be revisited by employing a modified convergence approach for the investigation of

the MIT problem at the provincial level. We find the approach of Yeldan et al. (2012) very important since the determination of the structural problems at the provincial level may help to conduct more effective economic policies towards the MIT problem both at the regional and aggregate level.

This study made some contributions to the MIT literature. The first one is the employment of the World Bank's per capita income thresholds as the benchmark for the empirical investigation of the MIT problem. Most of the previous works employed the per capita income level of the U.S. as the benchmark to define income groups since they accepted the country as the technological frontier. Besides some studies employ some absolute income thresholds with no background. In contrast, this study employed official income thresholds which are announced by the World Bank as the empirical benchmark to define the income groups. In our view, this choice relaxes the conceptual confusion which stems from the fact that the empirical findings differ parallel to the various MIT definitions based on different benchmarks. The second contribution is about a modified convergence concept which is used for the first time in the literature to detect the MIT problem at the provincial level which encourages us to replace the "Divergence Trap" instead of the "Middle Income Trap". The third contribution is the investigation of two-income traps as the "upper-middle-income divergence trap" and "lower-middle-income divergence trap" respectively. We do not need to state that our study is one of the few studies

that deal with the MIT problem on a province basis, as a further difference from the existing literature.

The plan of the paper is as follows. The study consists of three main sections. In the first section, we provide a detailed literature survey about the MIT concept both at the country and at provinces level. In the second section, the theoretical background of the convergence approach is introduced. The third section has three subsections. In the first one, the dataset is introduced and the classification of the Turkish provinces is made according to the World Bank's latest per capita income thresholds. In the second sub-section, the empirical model is introduced and in the third sub-section, the test results are given. In the last section, we discuss our findings in the light of the previous studies and make some suggestions for future works.

## **1. LITERATURE SURVEY**

The MIT literature has been classified by some authors based on different criteria. Pruchnik (2017) classified the literature according to the studies into five categories that use descriptive definitions, fixed thresholds, relative thresholds, time thresholds, and indices to investigate the MIT problem. Glawe and Wagner (2016) divide the literature into two parts as theoretical and empirical studies. According to their observation, the non-empirical studies focus basically on the structural reasons of the MIT problem which allow them to make strong definitions of the MIT concept. The empirical studies, on the other hand, explore the changes in the per capita income levels of different coun-

tries concerning relative and absolute income thresholds. Besides some empirical studies use time thresholds and a few studies use indices to diagnose the MIT problem. In this study, the most cited studies are summarized by following their publication dates which allow observing the change in the literature over time. In addition, the Turkey-specific studies, both at the country and regional level, are discussed as a benchmark for our empirical findings.

As mentioned in the introduction part, the MIT literature started with the World Bank report written by Gill and Kharas in 2007. They defined MIT as the income convergence problem of the developing countries towards the high-income level. They compared Latin American and Middle East countries to the East Asian countries and observed that specialization, innovation, and technology are the main motivations of the successful income convergence of the East Asian countries. The descriptive MIT definition of Ohno (2009) has been widely used due to its success to define the concept. The author used the “glass wall” metaphor to represent the threshold between the upper-middle-income and high-income countries. According to their analysis, the low quality of human capital is the fundamental reason why some upper-middle-income countries cannot pass this “glass wall” and become a member of the high-income group. Likewise, Kharas and Kohli (2011) underline the importance of human capital and income equality for a successful income convergence. According to their solution; productivity-led growth, specialization in production, and decentralization in the economy will help to overcome the MIT

problem. Spence (2011) and Woo (2011) proposed income thresholds for the first time in the literature to determine the existence of MIT. The income thresholds of Spence were in absolute terms like certain GDP per capita income levels which separate different income groups while Woo (2011) used relative thresholds as certain percentages of the US per capita income level. Woo (2011) also constructed an index that is based on the changing proportions of the income levels of different countries relative to the income level of the U.S. to decide whether there is a closing gap between the per capita income level of the U.S. and the other countries. The study of Yeldan et al. (2012) has been the pioneering study that investigated the MIT problem for the Turkish economy. Besides the study has brought a new and very important dimension to the literature by investigating the MIT problem not only at the country level but also at the regional level too. The authors classify Turkish provinces into three groups based on the regional per capita income levels. The first group consists of the cities which already passed the income threshold that separates upper-middle and high-income countries. The cities in the second group face the MIT risk since the average income levels of these cities are between upper-middle-income and lower-middle-income thresholds. The last group includes cities that are facing the threat of a lower-middle-income trap. The average per capita income levels in these cities are lying between low-income and lower-middle-income thresholds. The inspiring research of Yeldan et al. (2012) concludes that the solution to such a regional MIT problem can only be solved through specific policies designed only for this region. The authors' suggestion for the

first group is to conduct supply-side policies with significant support to the R&D activities, technological investments, and the production of value-added products. For the second group, infrastructure and transportation investments are mentioned as the necessities which make them more connected to the first group. Besides the mid-tech production should be encouraged for this group. The third group needs more governmental support to get rid of the poverty trap. The demand-side subsidies for the products and the adoption of modern production processes may be supported. In sum, Yeldan et al. (2012) conclude that the role of the government is very important for the solution to the MIT problem. “Regional middle-term plans” and “regional development agencies” are the two suggested tools that may increase the efficiency of the region-specific economic policies. Agenor et al. (2012) defines MIT as the productivity slowdown and stress the importance of public policies to escape from MIT. The author states that these policies should aim to increase technological development and R&D activities. Zhuang (2012) describes MIT as a slowdown in economic and productivity growth that exists while developing countries approach an invisible income threshold. Felipe et al. (2012) added the time dimension into the analysis to state the existence of MIT. The authors calculate that a lower-middle-income country needs 28 years to become an upper-middle-income country on average while the average transmission period is 14 years for an upper-middle-income country to become a high-income country. Jankowska et al. (2012) stressed the differences in the quality of education and infrastructure between developed and developing countries as the primary issues to

solve. Eichengreen, Park, and Sheen (2012, 2013) set three quantitative criteria for the decision of MIT. Their empirical investigation showed that there are three income thresholds at the 17000 USD level, 10000-11000 USD level, and 15000-16000 USD level. (all in PPP, constant 2005 prices) They concluded that a diversified export basket with more technological products, the improvement in the quality of education, and a developed financial market help developing countries to pass these thresholds without facing a slowdown. The study of Robertson and Ye (2013) has been the first empirical study that employed an econometric technique to explore MIT. According to their investigation, 23 out of the 46 developing countries in their research sample are in MIT. Aiyar et al. (2013) employed many explanatory variables to investigate the economic slowdowns in developing countries. The investigation shows parallel results with the literature about the role of diversified export basket, technology, education, and infrastructure to escape from MIT. Besides, they find that low young and old dependency ratios and efficient macroeconomic policies decrease the probability of economic slowdowns. Gürsel and Soybilgen (2013) found out that the contribution of productivity to economic growth has started to decrease after reaching the per capita income level of \$10000 in Turkey. Their empirical findings support the fact that Turkey is on the brink of the middle-income trap. The structural reforms about education, labor markets, taxation system, and the energy market are mentioned as the key issues to escape from MIT. Islam (2014) developed another evaluation method based on the World Bank income classification and focus on the changes in the income classes of

the countries in time. He chose the years 1980, 1990, 2000, and 2010 as the points in time to check whether there is a change in the income groups of the selected countries. If a country stays in the upper-middle-income country group in these four checkpoints in time, the author decides on the existence of MIT. Tuncel (2014) used the economic success stories of South Korea and Taiwan as the benchmark examples to analyze the Turkish case. The policies about production, innovation, and technology are mentioned as the key factors which help these countries to solve the MIT problem. The author stressed the dominance of small and medium-sized enterprises (SMEs) in the manufacturing sector of the Turkish economy which increases the priority of these firms as the primary tool to solve the MIT problem. Yaşar and Gezer (2014) explored the MIT risk in light of the time thresholds defined by Felipe (2012). The authors argued that the transition in the infrastructure, education, human capital, technological breakthroughs, and institutional structure are the necessary steps to escape from MIT. Koçak and Bulut (2014) tested the existence of the MIT problem empirically for the Turkish economy by using the Lee-Strazicich and Carrion-i-Silvestre et al. unit root tests by following the approach of Robertson and Ye (2013). Their findings showed a closing gap between Turkey's and the US's GDP per capita which led them to conclude no MIT problem for Turkey. Taşçı and Özhan (2014) investigated the MIT problem based on the public investment differences among regions and concluded that 8 out of 26 regions in Turkey face the MIT risk while the country as a whole is not in the MIT. Im and Rosenblatt (2015) investigated the MIT concept by using

the probability approach. According to their findings, high-income countries are staying as high-income countries with a high probability. Besides the developing countries' probability to stay as developing countries is lower. In this context, they concluded that there can be a slowdown in economic growth but there is no evidence for an income trap. Agenor et al. (2015) built a mathematical model to investigate the MIT problem and concluded that the productivity slowdown lies at the core of the problem. Yılmaz (2015) investigated the MIT problem from the human capital perspective and concluded that the quality of the education and the improvement in skills are the key factors to avoid MIT. The author suggested that Turkey has not been benefitted from the de-agriculturalization. The fact that the surplus labor coming from agriculture could not be employed in knowledge-intensive manufacturing activities is the underlying reason for this statement. The author concluded that low human capital accumulation and unfavorable structural transformation feed each other in a vicious circle. Robertson and Ye (2016) revisited their econometric approach to the MIT problem by updating the country sample. Their empirical investigation showed this time that 7 out of 46 developing countries are in MIT. Bulman et al. (2017) preferred to use the expression “difficulties in transition” instead of the “middle-income trap” to define the growth slowdown problem of the developing countries. The author underlined the importance of TFP growth, fair income distribution, and sound macroeconomic policies as the key factors to overcome the MIT problem. Ozturk (2016) examined the “middle-income trap” from the perspective of the middle class. The main findings are as follows; (i) the

marginal effects of innovation, foreign direct investment, and productivity on economic growth are diminishing. (ii) the marginal effect of the relative share of the middle-class on growth is also diminishing but this ratio plays a more important role than the mentioned factors to avoid the middle-income trap, (iii) the contraction of the middle-class in emerging markets is observed as a common fact. The author underlined technological innovation, quality in human capital, R&D expenditures, and income equality as the key elements to escape from MIT. Seyfettinoğlu and Zambak (2016) suggested that Turkey faces the MIT problem at the aggregate level. The research at the regional level indicated that size of the workplaces, the high number of vocational and technical schools and low numbers of the student per teacher are the main variables that cause differences in the per capita income levels among the regions. Felipe et al. (2017) set two “time thresholds” for the lower-middle-income and upper-middle-income countries as 55 years and 15 years respectively. These time thresholds represent the average years that lower-middle-income and upper-middle-income countries need to move on to the next income level. The countries were identified by the author as “trapped countries” if they are staying in the same income level longer than the time thresholds mentioned above. Han and Wei (2017) criticized “definite judgments” about MIT since most of the countries will be able to move to the next income level in the long run. They find out that a large working-age population with a balanced sex ratio, developed financial system, and economic stability decreases the required time to move to the next income level. Ito (2017) described three distinctive convergence

paths in East Asia. The first one converges to the low-income steady-state, the second path converges to a middle-income steady-state and the last one converges to the high-income steady-state. The author suggested that the MIT problem is about the inability to jump from the middle-income path to the high-income path. The author concluded that a successful jump and convergence to the high-income steady-state requires significant reforms that stimulate innovation needed for technological progress. Konya et al. (2017) showed that the diagnosis of MIT can differ according to the different MIT definitions. The authors concluded that Turkey is not in the middle-income trap. On the other hand, they stated that it has the potential to fall into it. Tiftikçigil et al. (2018) employed time series and panel unit root tests in linear and non-linear forms to investigate the existence of MIT for the E7 countries (China, India, Brazil, Russia, Mexico, Indonesia, and Turkey). They concluded that none of these countries are in the MIT. Glawe and Wagner (2020) compared empirically the consistency of the MIT definitions and the related datasets to explore the Chinese case. The analysis indicated that there is no consistency between the empirical results when different methods and datasets are employed. The authors concluded that structural reforms and fair income distribution will ease the transition of China towards a high-income country. İlhan and Akdeniz (2020) found that Turkey is not in the MIT as a whole while the per capita income levels of some provinces have been decreasing since the year 2013 which may cause a divergence from the high-income countries.

It is possible to get some important outcomes for our study from the MIT literature that we have just tried to summarize. First, there is no consensus about the definition of MIT which led to an inconsistency about the empirical investigation of the problem. Second, most of the studies employed the U.S. as the benchmark country which represents the technological frontier. This choice raises another debate about the question of whether or not the US is the right choice to represent developed countries. Third, different studies emphasized the technology, research and development expenditures, higher savings and investments, diversified export basket, value-added products, education, developed financial system, high-quality institutions, TFP, etc. as the key factors to get rid of the MIT problem. On the other hand, these suggestions are made under the assumption that the escape from MIT is a country-wide process without taking regional differences into account. The emerging market countries which are the subjects of the MIT problem are facing serious regional income differences. All these outcomes led us to approach the MIT problem from the regional perspective by employing the convergence approach empirically. Following this purpose, the theoretical background of the convergence approach will be discussed in the next section. Besides we employed the income thresholds which are suggested by the World Bank as the benchmarks to separate countries from each other as lower-middle-income, upper-middle-income and high-income countries. In other words, we proposed the World Bank income thresholds as the empirical benchmark to decide whether there is an income convergence problem for the Turkish provinces.

## 2. MIT AND CONVERGENCE APPROACH

In the growth literature, the convergence approach has been used by many studies to investigate whether the income levels of different economies/regions tend to converge over time. The income convergence concept is based on two important hypotheses of the economic growth model of Solow (1956) and Swan (1956). The first hypothesis suggests that each country has a balanced long-run economic growth path (steady-state growth) and the economic growth rates of the countries converge to their steady-state growth rates. The second hypothesis suggests that the countries with low capital/labor ratios can grow faster than the countries with high capital/labor ratios. (Turan, 2001) In short, the neo-classical growth approach suggests that the per capita income gap between developing and developed countries will disappear under the assumption of interregional mobility of the factors of production. These two hypotheses together have been the basis of the empirical investigation of income and growth convergence. According to the theory, there should be an inverse relationship between the economic growth rate and per capita income levels of the countries. In other words, the income gap between the rich and poor countries is closing through the faster increase of the poor country's income level. On the other hand, the economic growth of the poor country slows down as the income level is increasing.

The empirical literature refers to two kinds of convergence as beta ( $\beta$ ) and sigma ( $\sigma$ ) convergences. Beta convergence can be classified as unconditional (absolute) and conditional convergences. The

unconditional convergence is based on the diminishing marginal productivity assumption of the Neo-classical approach which suggests that the country with a lower capital/labor ratio will converge to the income level and the growth rate of the country with a higher capital/labor ratio. Another assumption is that there are no differences in the factors like technology level, institutional structure among the countries. (Barro and Sala-i Martin, 1992) The basic hypothesis of the Neo-classical model has been criticized by many researchers especially after the 1980s due to the increasing gap between the income levels of developing and developed countries which were observed with the advent of globalization. This fact led some researchers to put the country-specific facts forward as the reason for the contradiction between theory and reality. This version of the beta ( $\beta$ ) convergence suggests that the countries with different conditions indicate different convergence paths. Some country-specific facts may ease the convergence of the developing countries to the advanced countries' income levels while some of them lead to the divergence of the income levels. (Mankiw et al. 1992) These two ( $\beta$ ) convergences can be seen in the following equations.

$$\frac{1}{T} \log\left(\frac{y_{i,t}}{y_{i,t-T}}\right) = a - \left[ \frac{1 - e^{-\beta T}}{T} \right] \log(y_{i,t-T}) + u_{i,t} \quad (1)$$

$$\frac{1}{T} \log\left(\frac{y_{i,t}}{y_{i,t-T}}\right) = a - \left[ \frac{1 - e^{-\beta T}}{T} \right] \log(y_{i,t-T}) + cS_{i,t} + u_{i,t} \quad (2)$$

In both equations ( $T$ ) represents the time interval; ( $y_{i,t}$ ) is the income level at the time ( $t$ ) and ( $\beta$ ) is the convergence speed. The first equation is used to investigate the unconditional (absolute) convergence while the second equation is used for the determination of conditional convergence. The difference between the two equations exists as a result of the inclusion of the ( $S_{i,t}$ ) to the second equation which represents the country-specific structural differences like education level, the contribution of the agricultural sector to the economy, the financial development level, etc. For simplicity, the variable ( $S_{i,t}$ ) in equation (2) is employed to represent all of these structural differences. The positive value of ( $\beta$ ) indicates a convergence between income levels while a negative value of ( $\beta$ ) is a sign of divergence. Besides the value of ( $\beta$ ) gives an idea about the speed of the convergence or divergence.

The sigma ( $\sigma$ ) convergence as the second approach of the income convergence literature is based on the idea of Quah (1993) and Friedman (1992) who suggest that the standard deviation of all per capita income levels of different countries/regions indicates whether there is a convergence or divergence among these countries or regions. Accordingly, the increasing standard deviation in time suggests a divergence in the group while the decreasing standard deviation can be evaluated as a sign of convergence.

In this study, the mentioned convergence approach has been applied to investigate the existence of the MIT problem at two income stages for

the Turkish provinces. The underlying idea is quite simple. If the income levels of the upper-middle-income and lower-middle-income Turkish provinces converge to the World Banks' high-income and upper-middle-income thresholds respectively, they will catch up eventually the high-income and upper-middle-income country level under the assumption of no time constraint.<sup>2</sup> Hence, in this study, we prefer to employ the “Income Divergence Trap” concept instead of the “Middle Income Trap” concept to state the difficulties that developing countries face in the process of becoming higher-income countries. The next section is about the empirical investigation of the “Income Divergence Trap” (IDT thereafter) at the level of Turkish provinces.

### **3. THE EMPIRICAL INVESTIGATION**

In this section, the income convergence approach is employed to explore the existence of the IDT problem at the provincial level in Turkey and it consists of three subsections. In the first subsection, the required information for the dataset is given. In the second subsection, the empirical model is introduced. In the third and the last subsection, the empirical results are presented and discussed.

#### **3.1. Dataset**

There are two available income datasets for the Turkish economy at the provincial level. The first dataset has been published by the Turk-

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<sup>2</sup> The time constraint is firstly discussed by Felipe et al. (2012,2017) and Islam (2014) in the literature. The concept is quite important for the “convergence concept” due to the fact that the relatively lower-income country catch up the relatively higher-income country eventually but this catch-up process may take several years.

ish Statistical Institute (TURKSTAT thereafter) over the period 1987-2001 and used as the only source until the year 2016. In this year, TURKSTAT published the second dataset for the 2004-2014 period and updated the series two times in 2019 and 2020 so that the latest dataset is covering the period, 2004-2018. The per capita income levels for the 1987-2001 period have been calculated by employing the constant price method where the year 1987 was taken as the base year. TURKSTAT changed the calculation methodology for the 2004-2018 series and used the chain-volume approach where the year 2009 was taken as the base year. Besides, the missing years 2002 and 2003 in the dataset and the methodological inconsistency between these two series arise the need for a new dataset which is expected to remove the mentioned shortcomings. In 2019 the alternative dataset was published by Büyükdere (2019) on behalf of the Economic Policy Research Foundation of Turkey (EPRFT thereafter) for the period 1992-2018. Büyükdere has employed a unique methodology which is based on the study of Henderson et.al. (2009) that proposes “the satellite data on lights at night” as a readily available proxy of the GDP growth for cities and subnational regions. This framework of Henderson et al. (2009) has been used in the World Bank Reports and in many empirical studies where the data about the real GDP growth at provinces and regional levels is poor.<sup>3</sup> In Turkey this methodology has been firstly used by Başiboş (2016), another researcher of EPRFT, to forecast the real GDP per capita level for the Turkish economy over the period

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<sup>3</sup> See Gibson et al. (2020) for a detailed literature survey about the usage of the “night lights” in economics.

1992-2013 at the aggregate and provincial level. The empirical findings of this research show that the real GDP forecast at the aggregate level with the satellite method is consistent with the real GDP series of TURKSTAT. On the other hand, Başiboş noticed an internal inconsistency in the 1987-2001 dataset of TURKSTAT at the aggregate and provincial levels. The author's calculation indicates that the sum of all provinces' real GDP levels in 2001 is 34,64% less than the real GDP level at the aggregate level according to the dataset of TURKSTAT. Başiboş (2016) suggests that the consistency of the data sets of TURKSTAT and EPRFT at the aggregate level and the inconsistency of the TURKSTAT data over the period 1987-2001 at disaggregated level increases the reliability of the "satellite data on lights at night" method to forecast the real GDP per capita levels at provinces level over the period 1992-2013. While Başiboş (2016) used the "satellite method" to calculate the real GDP and per capita income levels at the provinces level, Büyükdere (2019) prefers to use the "satellite methodology" only to forecast the per capita income levels at the provinces level. The data about Turkey's real GDP was taken directly from the TURKSTAT dataset as given. Büyükdere (2019) explains this preference with three facts. First, TURKSTAT has changed the real GDP computation method in 2016 by employing the chain-volume approach instead of the base-year-fixed-price approach which increases the reliability of the data at the aggregate level. Second, the consistency of the TURKSTAT and EPRFT datasets at the aggregate level resolve the need for the computation of the real GDP again through the satellite approach. Third, the internal inconsistency of the 1987-2001

dataset increases the reliability of the satellite approach about the computation of the per capita income levels for the provinces.

### **3.1.1. The income classification of the Turkish provinces**

Different income thresholds have been employed in the existing MIT literature to classify countries. Felipe et al. (2012) use three income thresholds as \$2000, \$7250, and \$11.750 to separate countries as low-income, lower-middle-income, higher-middle-income, and high-income countries. Robertson and Ye (2013, 2016) set two relative income thresholds as 8% and 36% of the U.S. per capita income level to define the middle-income countries. Aiyar et al. (2013) classify countries as low-income, middle-income, and high-income countries based on two absolute income thresholds as \$2000 and \$15000. Im and Rosenblatt (2013) define low, middle, and upper-middle-income countries according to three relative income thresholds as 15-30 percent, 30-45 percent, and 45-60 percent of the US's GDP per capita level. On the other hand, there are only a few studies in the MIT literature that classify the provinces or regions according to their income levels. (Taşçı and Özhan 2014, Seyfettinoğlu and Zambak 2016, İlhan and Akdeniz 2020)

The inconsistency of the relative and absolute income thresholds used in the literature leads us to employ the income classification of the World Bank which is widely accepted as a benchmark due to its institutional and scientific reliability. The only disadvantage of this choice arises since the World Bank uses the Atlas method and GNI per capita

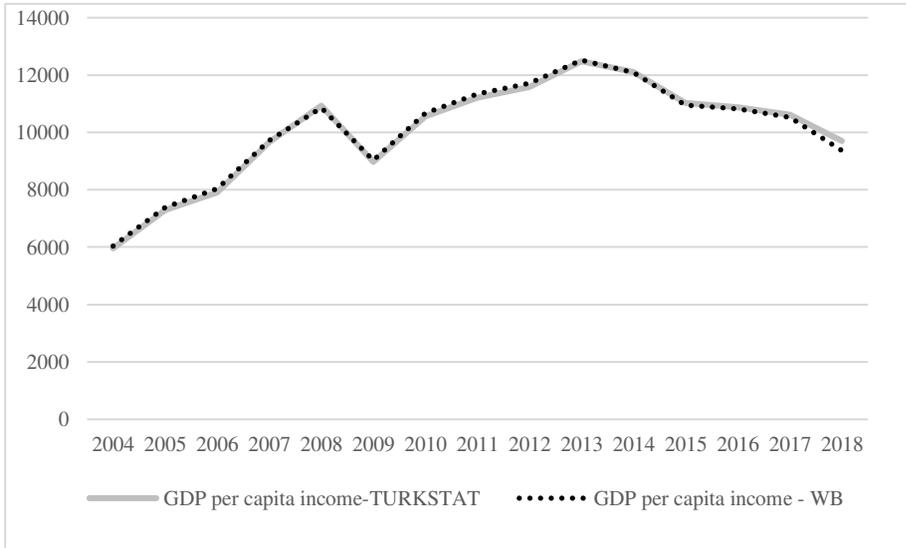
income levels to determine income threshold rather than the GDP per capita income levels.

**Table 1.** Turkish GDP Per Capita Income Series of WB and TURKSTAT. (Source: World Bank and TURKSTAT)

	1.TURKSTAT	2.WORLD BANK	DIFFERENCE (1-2)
2004	5961	6041	-80
2005	7304	7384	-80
2006	7906	8035	-129
2007	9656	9712	-56
2008	10931	10854	77
2009	8980	9039	-59
2010	10560	10672	-112
2011	11205	11336	-131
2012	11588	11707	-119
2013	12480	12519	-39
2014	12112	12096	16
2015	11019	10949	70
2016	10883	10821	62
2017	10616	10514	102
2018	9693	9370	323

To overcome this methodological difference we transform the GDP per capita income series in our dataset into the GNI per capita income series by using the following transformation procedure. First, we find the GDP per capita income series in the World Bank dataset which represents the GDP per capita income series of TURKSTAT. Table 1. indicates these two series over the period 2004-2018. The difference in current US dollars between the series can be seen in the last column of Table 1. The visual representation of these two series can be seen in Figure 1. As can be seen, the GDP per capita series of the World Bank

at current prices is identical to the GDP per capita series of TURKSTAT with minor differences on a yearly basis.



**Figure 1.** GDP per capita income series of WB and TURKSTAT, (Source: World Bank and TURKSTAT)

The second step is to find the relationship between the GNI per capita (Atlas method) and the GDP per capita (current prices) income series of the World Bank. The aim here is to create a multiplier series that helps us to express the GNI per capita income threshold series in terms of GDP per capita income levels which allows us to classify the Turkish provinces according to the income classification of the World Bank. To find an aggregate multiplier series we divide the GDP per capita income series (current US \$) by the GNI per capita income series (Atlas method, current US \$) of all countries under five different income groups as high income, upper-middle-income, middle-income, lower-middle-income and low-income over the period 1989-2019. So

we obtain five multiplier series that can be used to construct an aggregate multiplier series which helps us to express the GNI per capita income thresholds via GDP per capita income levels. The aggregate multiplier series is constructed by considering the weights of different income groups according to their contribution to the World GDP. Table 2. shows the GNI per capita income thresholds (Atlas method), the aggregate multiplier, and the new GDP per capita income thresholds.

**Table 2.** Income per capita thresholds via GNI and GDP method ( Source: World Bank and TURKSTAT)

YEAR	UMI-HI	LMI-UMI	LMI-LI	MULT.	UMI-HI	LMI-UMI	LMI-LI
1989	6000	2335	580	0,962	5770	2246	558
1990	7620	2465	610	1,027	7824	2531	626
1991	7910	2555	635	1,029	8140	2629	653
1992	8355	2695	675	0,997	8331	2687	673
1993	8625	2785	695	0,986	8502	2745	685
1994	8955	2895	725	1,004	8994	2908	728
1995	9385	3035	765	1,037	9729	3146	793
1996	9645	3115	785	1,002	9661	3120	786
1997	9655	3125	785	0,979	9452	3059	769
1998	9360	3030	760	0,998	9346	3025	759
1999	9265	2995	755	1,014	9391	3036	765
2000	9265	2995	755	1,007	9326	3015	760
2001	9205	2975	745	0,993	9140	2954	740
2002	9075	2935	735	1,019	9246	2990	749
2003	9385	3035	765	1,050	9856	3187	803
2004	10065	3255	825	1,031	10377	3356	851
2005	10725	3465	875	1,005	10779	3482	879

2006	11115	3595	905	1,011	11242	3636	915
2007	11455	3705	935	1,055	12082	3908	986
2008	11905	3855	975	1,068	12709	4115	1041
2009	12195	3945	995	0,987	12040	3895	982
2010	12275	3975	1005	1,031	12652	4097	1036
2011	12475	4035	1025	1,079	13456	4352	1106
2012	12615	4085	1035	1,022	12892	4175	1058
2013	12745	4125	1045	0,998	12725	4119	1043
2014	12735	4125	1045	0,999	12724	4121	1044
2015	12475	4035	1025	0,963	12018	3887	987
2016	12235	3955	1005	0,987	12078	3904	992
2017	12055	3895	995	1,038	12516	4044	1033
2018	12375	3995	1026	1,025	12680	4094	1051
2019	12375	3995	1026	0,991	12266	3960	1017
2020	12535	4045	1036				

The left side of the multiplier column in Table 2. represents the GNI per capita income series while the right side represents the income thresholds expressed in GDP per capita. As can be seen from Table 2. the income thresholds expressed in GNI per capita (Atlas method) and GDP per capita are almost identical with minor differences.

The next step is to classify the Turkish provinces according to their per capita income levels. Table 3. shows the GDP per capita income rankings of the Turkish provinces. As can be seen there are eight provinces with a per capita income level higher than 10,000 USD. The GDP per capita income thresholds for the year are 12,266 USD; 3960 USD and 1017 USD respectively. 12,266 USD threshold separates the upper-middle-income countries from the high-income countries.

The data about the Turkish provinces indicate that there are only two provinces, Kocaeli and İstanbul, that have passed this threshold according to the 2019 data.

**Table 3.** Turkish provinces and their GDP per capita income levels, (Source: EPRFT)

	Province	GDP per capita income (US \$)		Province	GDP per capita income (US \$)
1	<i>Kocaeli</i>	<i>15643</i>	42	Hatay	6293
2	<i>İstanbul</i>	<i>15183</i>	43	Afyonkarahisar	6240
3	Ankara	11498	44	Sivas	6176
4	Tekirdağ	11278	45	Samsun	6144
5	İzmir	10914	46	Osmaniye	6052
6	Bursa	10328	47	Çankırı	6051
7	Bilecik	10253	48	Aksaray	6024
8	Yalova	10177	49	Kırşehir	5944
9	Eskişehir	9415	50	Nevşehir	5862
10	Manisa	9282	51	Niğde	5852
11	Kırklareli	9249	52	Çorum	5827
12	Antalya	9201	53	Bartın	5644
13	Çanakkale	9133	54	Ardahan	5570
14	Bolu	9104	55	Gümüşhane	5535
15	Muğla	8677	56	Elazığ	5496
16	Denizli	8634	57	Erzurum	5447
17	Sakarya	8491	58	Bayburt	5424
18	Artvin	8033	59	Kahramanmaraş	5423
19	Karaman	7839	60	Ordu	5329
20	Erzincan	7710	61	İğdir	5271
21	Tunceli	7660	62	Yozgat	5201
22	Rize	7655	63	Sinop	5127

23	Düzce	7538	64	Kilis	5053
24	Uşak	7535	65	Giresun	5041
25	Balıkesir	7529	66	Malatya	5011
26	Karabük	7482	67	Tokat	4577
27	Kırıkkale	7470	68	Hakkari	4576
28	Edirne	7338	69	Mardin	4548
29	Mersin	7248	70	Kars	4511
30	Kayseri	7243	71	Adıyaman	4469
31	Trabzon	7235	72	Bingöl	4383
32	Burdur	7190	73	Şırnak	4311
33	Isparta	7010	74	Batman*	4004
34	Konya	6950	75	Diyarbakır*	3978
35	Gaziantep	6864	76	Muş*	3977
36	Zonguldak	6794	77	<i>Siirt</i>	<i>3951</i>
37	Kastamonu	6664	78	<i>Bitlis</i>	<i>3564</i>
38	Kütahya	6605	79	<i>Şanlıurfa</i>	<i>3219</i>
39	Adana	6474	80	<i>Van</i>	<i>3209</i>
40	Aydın	6419	81	<i>Ağrı</i>	<i>3144</i>
41	Amasya	6328			

The data shows that most of the provinces belong to the upper-middle-income group while only five provinces Siirt, Bitlis, Şanlıurfa, Van, and Ağrı are below the 3960 USD threshold that separates the upper-middle-income group from the lower-middle-income group. Batman, Muş, and Diyarbakır are potential candidates for the lower-middle-income group since they have GDP per capita levels that are only 40 USD above the threshold which separates the upper-middle-income and lower-middle-income countries. In summary; there are two high-

income, 74 upper-middle-income and five lower-middle-income provinces in Turkey. Three provinces have the potential to relegate and become a lower-middle-income province and two provinces have the potential to upgrade and become a high-income province.

### 3.2. The model

In this part of the study, the model behind the convergence concept will be discussed by employing the modification of Ito's (2017) approach which is based on the following basic convergence equation.

$$g_j(t) = a + b \{ \log y_j(t) - \log y_j^*(t) \} \quad (3)$$

In the above equation, ( $g_j$ ) is used to represent the per capita income growth rate. ( $a$ ) denotes the steady-state growth rate,  $y_j(t)$  represents country  $j$ 's per capita income, and  $y_j^*(t)$  is the per capita income at steady-state. The negative value of the catch-up factor ( $b$ ) indicates a convergence while the positive value implies a divergence. The steady-state per capita income  $y_j^*(t)$  and the per capita income  $y_j(t)$  of the country  $j$  are both changing in time. If the condition  $y_j(t) = y_j^*(t)$  is satisfied, the second term in equation (3) will be zero and  $g_j(t)$  will be equal to  $a$ . In other words, if the country  $j$ 's per capita income reaches the income level at steady-state, per capita income increases at a constant rate  $a$ . The only shortcoming of this approach stems from the fact that the steady-state growth rate of the country  $j$  may not be known. Considering this fact, Ito (2017) employed per capita income

level of the US at time  $t$ ,  $y_{us}(t)$  instead of the steady-state income level  $y_j^*(t)$ . Hence steady-state growth rate,  $a$ , represents the growth rate of the US per capita income. The underlying reason for this modification is the expectation that the advanced economies should converge to the income level and growth rate of the US economy. As a result, Ito (2017) used the following equation for the empirical investigation.

$$g_j(t) = a + b \{ \log y_j(t) - \log y_{us}(t) \} \quad (4)$$

In this study, the approach of Ito (2017) is employed to investigate the existence of the divergence-trap at the provinces level for Turkey. As it is mentioned before, the middle-income trap is defined as the inability of the middle-income countries to reach the income level of the advanced countries. This definition led us to use the high-income and upper-middle-income thresholds of the World Bank as the benchmark that represents the high-income and upper-middle-income country levels respectively since it separates the upper-middle-income countries from the high-income countries and the lower-middle-income countries respectively. In other words, if the per capita income level of an upper-middle-income (lower-middle-income) country converges to the high-income (upper-middle-income) threshold of the World Bank in time, it can be concluded that the country is not in an income divergence trap.<sup>4</sup> As can be expected the same approach can be used to

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<sup>4</sup> The time required to catch-up the income threshold is excluded from the analysis. The decision about being in a trap or not, is made only by considering the existence

explore the income divergence trap problem at the provincial level. If the per capita income level of a province converges to the high-income (upper-middle-income) threshold of the World Bank, it is concluded that the income divergence trap problem does not exist.

$$g_i(t) = a + b \{ \log y_i(t) - \log y_{HI}(t) \} \quad (5)$$

$$g_i(t) = a + b \{ \log y_i(t) - \log y_{UMIT}(t) \} \quad (6)$$

The two basic regression equations (5) and (6) of the growing convergence at the provincial level can be seen above.  $g_i(t)$  denotes the per capita income growth rate of the province (i),  $a$  represents the steady-state growth rate of the high-income (upper-middle-income) threshold,  $y_i(t)$  is the per capita income level of the province (i) at time t, and  $y_{HI}(t)$  is the high-income threshold and  $y_{UMIT}(t)$  is the upper-middle-income threshold at time t. The positive value of  $b$  indicates the existence of an income divergence trap problem since the province's GDP per capita diverges from the high-income (upper-middle-income) level threshold.

### 3.3. Empirical results

The main idea of the empirical investigation is to estimate the sign of the coefficient  $b$  in the equation for all provinces in Turkey except İstanbul and Kocaeli. The GDP per capita income level of these two provinces exceeds the high-income threshold of the World Bank.

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of the income convergence. The time dimension of the analysis will be discussed in the future works.

Hence these provinces are excluded from our empirical investigation. Besides the per capita income level of Siirt, Bitlis, Şanlıurfa, Van, and Ağrı are below the upper-middle-income threshold of the World Bank which means that these countries are facing upper-middle-divergence trap rather than a middle-income-divergence trap. In summary, we employed the fifth equation for the upper-middle-income group and the sixth equation for the lower-middle-income provinces.

The explanation of the variables in the fifth equation is also valid for the sixth equation but with minor differences like; (i)  $a$  represents the steady-state growth rate of the upper-middle-income threshold and (ii)  $y_{UMIT}(t)$  is the upper-middle-income threshold. But the aim of the investigation is again to estimate the coefficient  $b$  to decide about the convergence or divergence. The positive value of  $b$  indicates the existence of the “upper-middle-income divergence trap” problem for these five provinces. The OLS method is employed to estimate the coefficients. The test results can be seen in Table 4. and Table 5.

**Table 4. The upper-middle-income divergence trap**

Province name	b-coefficient	t-Statistics	Divergence trap
Adana	3.8864***	9.7737	YES
Adiyaman	2.5019***	5.3258	YES
Afyonkarahisar	2.6070***	5.5371	YES
Aksaray	4.0424***	10.5189	YES
Amasya	4.0766***	10.5638	YES
Ankara	2,5462***	5,5026	YES
Antalya	2.5206***	5.4646	YES
Ardahan	2.8854***	5,7277	YES
Artvin	2.7024***	5.4870	YES
Aydın	3.8610***	9.9611	YES

Balıkesir	3.9479***	9.9471	YES
Bartın	2.5717***	5.3736	YES
Batman	2.5598***	5.4604	YES
Bayburt	2.8066***	5.6444	YES
Bilecik	2.3102***	4.9415	YES
Bingöl	4.0577***	10.0825	YES
Bolu	2.5639***	5.5482	YES
Burdur	2.4632***	5.2736	YES
Bursa	3.8467***	9.6848	YES
Çanakkale	2.5894***	5.3996	YES
Çankırı	4.0823***	10.8841	YES
Çorum	2.6660***	5.6345	YES
Denizli	3.7849***	9.3794	YES
Diyarbakır	2.4459***	5.1747	YES
Düzce	3.9708***	10.2556	YES
Edirne	2.6236***	5.4175	YES
Elazığ	2.4888***	5.2367	YES
Erzincan	4.1112***	10.3774	YES
Erzurum	2.6138***	5.3114	YES
Eskişehir	2.6191***	5.6007	YES
Gaziantep	3.8237***	9.4854	YES
Giresun	4.1128***	10.7389	YES
Gümüşhane	2.7497***	5.6191	YES
Hakkari	2.6448***	5.5781	YES
Hatay	3.0749***	5.8440	YES
İğdır	2.5625***	2.1736	YES
İsparta	2.5353***	5.4117	YES
İzmir	2.9326***	5.6504	YES
K. Maraş	2.6522***	5.5820	YES
Karabük	2.6119***	5.5878	YES
Karaman	3,8910***	9.4692	YES
Kars	2.6611***	5.3365	YES
Kastamonu	2.7323***	5.7893	YES
Kayseri	2.4744***	5.2188	YES
Kırıkkale	2.7044***	5.6849	YES
Kırklareli	2.6746***	5.5257	YES
Kırşehir	4.1562***	11.0798	YES

Kilis	2.6664***	5.5923	YES
Konya	2.5327***	5.4814	YES
Kütahya	2.4915***	5.2882	YES
Malatya	4.0582***	10.5089	YES
Manisa	3.8791***	9.6229	YES
Mardin	2.4044***	4.9961	YES
Mersin	2.5184***	5.4015	YES
Muğla	2.3799***	5.0623	YES
Muş	4.0215***	9.7138	YES
Nevşehir	2.5449***	5.3641	YES
Niğde	3.9925***	10.0688	YES
Ordu	2.4076***	35.6596	YES
Osmaniye	2.6768***	5.5546	YES
Rize	4.0648***	10.1504	YES
Sakarya	2.5227***	5.3760	YES
Samsun	4.0117***	10.1782	YES
Sinop	2.6789***	5.6183	YES
Sivas	2.4995***	5.1096	YES
Şırnak	2.4768***	5.2099	YES
Tekirdağ	2.7053***	5.6936	YES
Tokat	4.0898***	10.3738	YES
Trabzon	4.0136***	9.8185	YES
Tunceli	2.8140***	5.7614	YES
Uşak	2.5576***	5.3710	YES
Yalova	3.9838***	10.5921	YES
Yozgat	2.5331***	5.3410	YES
Zonguldak	2.40007***	4.9563	YES

Note: (\*), (\*\*) and (\*\*\*) denote significance at 10%, 5% and 1%, respectively.

**Table 5.** The lower-middle-income divergence trap

Province name	b-coefficient	t-Statistics	Divergence trap
Ağrı	2.8031***	5.7160	YES
Bitlis	2.3629***	4.8562	YES
Siirt	2.3715***	4.9519	YES
Şanlıurfa	2.6314***	5.6101	YES
Van	2.3728***	4.9671	YES

Note: (\*), (\*\*) and (\*\*\*) denote significance at 10%, 5% and 1%, respectively.

The test results show that all  $b$  values for the 74 upper-middle-income and five lower-middle-income provinces in Turkey are positive which means an income divergence trap for all provinces in our research sample. These empirical findings are partly in line with the very limited number of studies about the MIT problem at the provincial level.<sup>5</sup> The two provinces, Kocaeli and İstanbul, have already passed the high-income threshold according to the World Bank per capita income classification. Therefore they are excluded from the empirical investigation. Besides the income convergence of these two cities towards the high-income countries like the US, the UK, Germany, etc. is another topic that can be discussed under a new concept “high-income divergence trap.”

## CONCLUSION

The MIT literature has been developing since the publication of the World Bank report “An East Asian Renaissance: Ideas for Economic Growth” which was written by Gill and Kharas in 2007. This study belongs to the limited number of studies that approach the MIT problem from a disaggregated perspective and investigate the existence of the income trap at the provincial level. In addition, this study differs from the limited studies in its category with the “divergence trap” approach it has put forward.

The choice about the province-level investigation and the usage of the “divergence trap” concept depends on some shortcomings that we

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<sup>5</sup> See the literature survey part for the findings of Taşçı and Özhan 2014, Seyfettinoğlu and Zambak 2016, İlhan and Akdeniz 2020.

have noticed in the literature. The first shortcoming is about the inconsistencies in the definition of the “advance country” concept. As it is mentioned before, MIT refers to the inability of emerging market countries to become advanced countries due to some economic, structural, and political reasons. The theoretical definition of the problem and the suggested solutions are much clearer than the results of the empirical findings. In most of the studies, the U.S. is taken as the proxy for the “world technological frontier” and hence as the proxy for the advanced countries. On the other hand, the income distribution in the U.S. is as bad as the income distribution in emerging market countries. Moreover, if we approach from the perspective of the economic performance, institutionalization, fraud, judicial system, gender equality, democracy, education, etc., there are many European countries which are better than the U.S. like Germany, Sweden, Denmark, Norway, Switzerland according to many studies of the World Bank, IMF, etc. In short, the usage of the U.S. as the benchmark country for the relative income thresholds or the usage of some absolute income thresholds that differ from study to study decreases the reliability of the existing empirical studies. This is the reason why the income thresholds of the World Bank are preferred as the benchmark income levels in this study. This choice is expected to increase the internal consistency of the study.

Another shortcoming is the concentration of a single middle-income trap in the literature. Most of the studies concentrate on the upper-middle-income countries’ inability to become advanced countries.

Besides, there are also lower-middle-income countries that should become the first upper-middle-income countries before falling into the MIT. Moreover, they are counted as middle-income countries with the upper-middle-income countries in the same category. This fact increases the possibility of another income trap that may exist while lower-middle-income countries are becoming upper-middle-income countries. In summary, there may be more than one income trap and more related dynamics than suggested in the literature.

The last shortcoming is about the aggregation bias in the literature. The theoretical and empirical findings are about the whole country which ignores the differences between provinces or regions. The income distribution in most of the emerging market countries like Brazil, Mexico, Turkey shows that there are significant differences between regions and provinces. This fact led us to follow the study of Yeldan et al. (2012) which suggests region-specific solutions for the MIT problem.

In the light of the mentioned shortcomings, we explore the existence of two-income traps at two income levels. The first one is the income trap of the upper-middle-income provinces while they are becoming high-income provinces. The other income trap, as might be expected, is the one that may exist while the lower-middle-income province becomes an upper-middle-income province. We employ the income classification of the World Bank to distinguish the Turkish provinces and determine that two cities, Kocaeli and İstanbul, belong to the high-income level and five provinces, Ağrı, Bitlis, Siirt, Şanlıurfa, and

Van, belong to the lower-middle-income group. The World Bank's income classification as a scientific and accepted source provides us a reliable benchmark relative to other studies. On the other hand, the usage of this benchmark creates another shortcoming which arises from the fact that a country that has just passed the high-income threshold cannot be compared to the high-income countries like the U.S., the U.K., or Germany despite they all are evaluated as advanced countries. In this way, we get rid of the problem of defining the advanced country since it is already defined by the World Bank with the help of the income thresholds. In short, our investigation shows whether the provinces in the upper-middle-income and lower-middle-income levels are converging to the high-income and upper-middle-income thresholds of the World Bank. This empirical procedure led us to use the "income divergence trap" approach instead of the "middle-income trap" approach.

The empirical investigation indicates that all 74 upper-middle-income and five lower-middle-income Turkish provinces are in a divergence trap. The depreciation of the Turkish Lira against the U.S. dollar after 2013 due to the "taper tantrum" seems the main reason for the increasing gap between the per capita income levels of the Turkish provinces and the high-income segment.

The definition of the "advanced country" is a topic that should be discussed in more detail. The per capita income level is the only proxy that is used in the empirical literature but other proxies like economic performance, income distribution, institutionalization, fraud, judicial

system, gender equality, democracy, education, financial development, etc. should be also added to the analyses. Besides the possibility of other income traps like the “lower-middle-income trap” and “upper-middle-income trap” should be investigated. The countries that have just passed the high-income threshold of the World Bank may also face some problems to close the “life quality gap” with the more advanced countries despite they are officially in the same group. In sum, there might be more income traps than is already suggested.

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**CHAPTER 3**  
**THE RELATIONSHIP BETWEEN MARKET  
CAPITALIZATION AND FINANCIAL PERFORMANCE IN  
MONEY DEPOSIT BANKS IN NIGERIA (2006-2019)**

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## **INTRODUCTION**

The Nigerian capital market, which is a member of the Nigerian financial system, is a market that provides an avenue for the mobilization of long term funds. This market serves the needs of industries, the commercial sector, government and local authorities, which are big borrowers of funds. The Nigerian capital market consists of two markets (primary and secondary markets) and some operational institutions. The main institutions in the Capital Market are the Securities and Exchange Commission (SEC), which is at the apex and represents the regulatory authority for the market, the Nigerian Stock Exchange (NSE), the issuing houses and the stock-broking firms. The secondary market in Nigeria is the NSE. In general, the Nigerian capital market helps to stimulate industrialization and development in the Nigerian economy. It also improves the gearing of domestic corporate sector and helps to reduce dependence on borrowing. Access to finance for new and smaller companies and also the encouragement of institutional development are based on the framework provided by the Nigerian capital market. (Oluwatoyin, 2009).

Market capitalization is a measure of the value of companies and stock markets which is an on-going market valuation of a public firm whose shares are publicly traded on a stock exchange computed by multiplying the number of outstanding shares held by the shareholders with the current per share market price at a given time (Oilman, 2004). A market capitalization calculation is a critical part of any stock

valuation formula as it represents the total market value of all the company's outstanding shares. This represents the value the market has placed on the value of a company's equity. As outstanding stock is bought and sold in public markets, capitalization could be used as a proxy for the public opinion of a company's net worth and is a determining factor in some forms of stock valuation. Market capitalization represents the public consensus on the value of a company's equity. In public corporation, ownership interest is freely bought and sold through purchases and sales of stock, providing a market mechanism which determines the price of the company's shares (Kaundal and Sharma, 2010).

### **Objectives of the Study**

The study seek to establish the relationship between market capitalization and performance of commercial banks listed at the Nigerian Stock Exchange (NSE).

### **Statement of Hypotheses**

The Hypothesis for the study is:

H<sub>0</sub>: Return on equity has no significant effect on market capitalization of money deposit banks in Nigeria.

### **Literature Review**

Oluwatoyin and Gbadebo (2009) studied the impact of share market capitalization on a company's performance using a case study in the Nigerian confectionary industry. Their study faces on the impact of companies' shares on their performance, using one of the largest

confectionary companies in Nigeria as a case study. In other words, the article analyses the correlation between the sales of shares and the growth of the company.

While it adopts the Ordinary Least Square (OLS) analytical technique, using the company's annual data for 20 years, it recommends that the confectionary company should implement policies that would encourage increase in their profit after tax, dividends and turnover as these variables have positive and statistically strong significance on the changes in the company's performance and the value of its market capitalization. They concluded that when a company has a high turnover, it usually records a high profit after tax. Given a high profit after tax, if such a company declares a good bonus and dividends for its shareholders, this will also lead to an increase in its share price index. Investors will be attracted if a good dividend and bonus history is maintained and this will then increase the value of the market capitalization of the company. Consequently, more funds would be at the company's disposal for growth purposes and this will then lead to an increase in its turnover in an ever-flowing cycle.

Their study recommended that the confectionary company should create policies that will encourage increases in its profit after tax and their dividends as these variables have been statistically proven to have strong significances on the changes in the company's performance and the value of its market capitalization. Furthermore, it should improve on the policies relating to its dividends, market capitalization and turnover since they have some form of influence on

each other, even though they are not statistically significant in the analysis.

### **A. Capital Asset Pricing Model (CAPM)**

The capital asset pricing model (CAPM) was derived by Sharpe (1964) and Lintner (1965). According to the CAPM, the expected excess return of an asset is linearly proportional to the expected excess market return, called the market risk premium.

Excess returns are returns above the risk-free interest rate. The market risk of an asset is measured by its beta, which reflects the systematic risk of the asset. Formally, it can be written in the following way:

$$E(R_i) = R_f + \beta_i (E(R_m) - R_f)$$

Where  $E(R_i)$  is the expected return of asset  $i$ ;  $(E(R_m) - R_f)$  is the market risk premium;

$\beta_i$  is the systematic risk. The capital asset pricing model (CAPM) relies on several assumptions including: investor preferences which looks at investor behavior as risk averse individuals seeking to maximize the expected utility of their wealth at the end of the period; Mean-variance preferences which holds that investors consider only the first two moments of return distribution when choosing an investment: the expected return and the variance; CAPM also holds that there are no operational frictions like taxes and transaction costs; and that all assets are infinitely divisible. The theory further holds that all assets can be traded meaning that all claims to future cash-flows can be freely exchanged. This also means that each investor's wealth is

entirely made up of tradable assets; the theory also assumes homogeneous beliefs where the investment period is the same for all investors and all investors have the same investment preferences. CAPM also holds that information is accessible free of charge and is available simultaneously to all investors therefore, there is nothing like information asymmetry. All investors therefore have the same return, variance, and covariance expectations for all assets. (Skamo, 2012).

### **B. Proxies of Profitability**

There are many profitability measures that can be used. Previous studies had widely used return on assets (ROA): return on equity (ROE) and return on invested capital (ROIC) also known as return on investment (ROI). Szymanski (1993) states that ROI and ROA can be viewed collectively. While these measures of profitability are widely accepted as reliable and strong measures of profitability they have certain shortfalls, most commonly that they are based on accounting information and thus account for neither time value of money nor the investment risks faced by the shareholders. (Skamo, 2012).

### **C. Return on Equity**

Return on Equity (ROE) is the best accounting ratio to measure shareholder performance (Ward and Price. 2006). Ward and Price (2006). Rothschild (2006) comment that the fact that ROE represents the end results of structured financial ratio analysis, also known as Du Pont analysis, it contributes to its popularity among analysts, financial managers and shareholders.

The components are profitability, asset turnover and financial leverage. From the equation it is clear that ROE can therefore be improved by improving profitability and, by using assets more efficiently as well as by increasing financial leverage. Over time it has become clear that improving the ROE may not necessarily improve shareholder value.

According to De Wet (2007) some of the limitations of ROE include: ROE does not consider the timing of cash flows and thus may overstate returns; Asset turnover may be affected by inflation; Earnings can be manipulated legally within the framework of Generally Accepted Accounting Practice (GAAP). Thus earnings may not truly represent true earnings; ROE is calculated after the cost of debt before taking into account the cost of own capital, which is not a free resource. This may lead to some companies reporting profits while not creating any value or even destroying value.

### **Methodology**

The research uses cause and effect research design which attempts to explain why that is, how one variable produces changes in another (Cooper & Schindler, 2003).

### **RESULT AND DISCUSSION**

This section presented the estimated findings of the cross sectional observation involving a linear regression model. All tests were carried out using statistical package for the social science (SPSS) and the findings presented accordingly in the proceeding section below. The

study utilizes a sample of one hundred and forty (140) observations covering the time span of 2006 – 2019 using ten money deposits banks in Nigeria. The variables considered for the study are market capitalization and return on equity.

### Data Analysis (Inferential Analysis)

Correlation analysis was first applied to estimate the amount of relationship between the variables under discussion. While regression analysis was used to estimate the relationship between market capitalization and financial performance. Consequently, the model for the study is:

$$MC = \alpha_0 + ROE + \mu$$

**Table 1:** Correlation Coefficient Matrix

<b>Correlations Matrix</b>			
		FSMA	ROE
Pearson Correlation	FSMA	1.000	
	ROE	.615***	1.000

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1 **Source: Summary of SPSS OUTPUT 2020**

Table 1 present the correlation matrix of the independent and dependent variables used in this study. It basically reflect the relative strength relationship. It can be observed that there is a positive relationship of 0.615 between market capitalization and return on equity.

## Regression Analysis

The study employed panel data regression analysis to explore the association between market capitalization and firm's financial performance proxies by return on equity.

**Table 2:** Regression Result for Panel Data

Dependent Variable: Market Capitalization

Method: Linear Regression

Sample: 2006 – 2019

Periods included: 10

Cross sections included: 10

<b>Regression Result</b>				
	Coef	T- Statistics	P-value	
(Constant)	7.613	120.061	0.000	
ROE	0.038	9.168	0.000	
R	0.615			
R-square	0.379			
Adj R-square	0.374			
F-statistics	84.046			
Sig	0.000			
Durbin-Watson	0.718			

**Source: Summary of SPSS OUTPUT 2020**

The study looks at the relationship between market capitalization and financial performance of Nigerian deposit money banks measured by market capitalization and return on equity. The result of goodness of fit test as presented in the table shows a coefficient of determination of  $R^2 = 0.38$  (38%) and adjusted  $R^2$  is 0.37 (37%); this shows that 38%

variation in the dependent variable (Market capitalization is explained by the independent variable ROE).

The p- value of the F- statistics is 0.000 which is significant at 5% explaining the null hypotheses should be rejected and shows the fairness and non-biasness of the model. The Durbin-Watson is 0.718 which falls within the acceptable region and shows the presence of low auto-serial correlation which is common in time series data. This confirms the statistical reliability of the model.

Therefore, the model shows there is a significant relationship between market capitalization and financial performance of Nigerian deposit money banks. The findings resonates with the work of (Skamo, 2012).

### **Hypotheses Testing**

H<sub>0</sub>: Return on equity has no significant effect on market capitalization of money deposit banks in Nigeria.

From the regression analysis the dependent variable is market capitalization and the independent variable is ROE. From the result the relationship between MC and ROE has a coefficient (r) of 0.038 signifying a positive link (weak) between the two variables with a p-value of 0.000 significant at 5%. This shows a positive effect of performance on market capitalization.

## **Conclusion and Policy Implication**

The study shows that there is a significant relationship between banks performance (in terms of financial performance) and market capitalization. The study also indicates that although there is a relationship, it is weak and may not be the sole determinant of the changes witnessed in each variable from time to time. Each variable is influenced by other variables beyond those discussed in this study.

From the findings presented above, this study recommends that commercial banks make their decisions carefully so as to send the right signals to the investors as regards their future prospects. This will help in reducing the chances of miscommunication which can distort the performance of the Bank at the NSE.

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**CHAPTER 4**

**HOW DO ECONOMIC SANCTIONS RESHAPE FOR-EIGN  
TRADE PATTERN? EVIDENCE FROM RUSSIAN  
FEDERATION**

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## 1. INTRODUCTION

Between 2014 and 2016, Russia's foreign economic relations experienced a deep decline conditioned by a number of negative external shocks of a political and economic nature (Rasoulinezhad et al. 2020). Recently, two political conflicts of the 2014 Russia-Ukraine tension and the Western Sanctions imposed since 2014 have impacts harshly on the economic aspects of Russia, particularly on its foreign trade volumes and trade partners. Furthermore, in late 2015, another political tension with Turkey accelerated the speed of trade transformation in Russia, both in composition and geographical directions.

To lower the adverse impacts of sanctions and political tensions, Russia has tried to redirection of its trade and capital flows from the countries imposed sanctions to trading partners in Asia and announced the strategy of import substitution (Russification) and diversification policy to enhance its trade potential and domestic production. According to the ROSTAT (Federal State Statistic Service of Russian Federation), The regional pattern of Russian foreign trade is gradually changing away from the European Union to the Asia-Pacific region, although trade with Asian partners in 2015–2016 also dropped, albeit to a lesser extent than with other regions. In addition to the Asia Pacific region, Russian exports are growing to other destinations, including Africa, Iran, the countries in the Middle East, as well as India and Latin America.

The main purpose of this paper is to study the trade transformation in Russian Federation under the economic sanctions imposed by the

West since 2014 using a gravity trade theory to model Russia's trade pattern. The remainder of this paper is structured as follows: Section 2 discusses literature review. Next Section represents data and methodology. Section 4 explains empirical results and the last Section summarized the paper with some concluding remarks.

## **2. LITERATURE REVIEW**

The effect of economic sanctions has been drawn by a vast number of scholars in the recent decades. A number of papers focus on the economic impact of sanctions on the target (the country that suffers sanctions). Dizaji and van Bergeijk (2013) explored the economic and political impacts of the oil boycott as an economic sanction on Iran. Haider (2017) studied the relationship between sanctions and export deflection in Iran over the period 2006–2011. The main results concluded that two-thirds of the Iranian export volume was deflected towards non-sanctioning countries. Taghizadeh-Hesary et al. (2013, 2019) proved that Iran and Russia benefit from a sharp increase in world oil prices, which could improve their trade flows with their main partners and reduce the negative effects of sanctions. Neuenkirch and Neumeier (2015) empirically assessed how economic sanctions imposed by the United Nations and the United States affect the GDP growth in 160 countries over the period 1976–2012. They found that the United Nations sanctions have a significant influence on the target state's economic growth, while the effect of sanctions on the part of the United States is much smaller and more poorly defined. The effect of economic sanctions is not limited to their targets, but extends to other

countries as well. On the one hand, third countries may suffer from negative effects of sanctions because of a reduced income in a sanctioned country or import substitution policies that hurt bilateral trade. On the other hand, economic sanctions create favourable business opportunities for some third party states, which may capture the gains of diverted trade (Early, 2015, Caruso, 2003). Finally, third countries can play a decisive role in weakening sanctioning efforts. They can do this either by expanding their commercial relations with a sanctioned party to seek profits or to achieve political aims (Early, 2015).

### **3. DATA AND METHODOLOGY**

To study the effect of external shocks on Russia's bilateral trade, we use a gravity model widely used in the literature (Rasoulinezhad, 2020, Rasoulinezhad and Jabalameli, 2019, Rasoulinezhad, 2018) as an approach to analysing the pattern of bilateral trade. The gravity equation was proposed by Tinbergen (1962), who argued that the volume of bilateral trade flows between any two countries is a function of their GDP and distance.

Based on the gravity trade theory, the variables of Russia's import and Russia's export are selected as dependent variables and joint GDP defined as the Russia's GDP, income, exchange rate, sanctions, geographical distance and common border were gathered as explanatory variables. The econometric equations based on the variables of gravity trade theory are as follows:

$$\ln IM_{jt}^k = a_0^k + a_1^k \ln(Y_{Rt} Y_{jt}) + a_2^k \ln DIS_j + a_3^k \ln EXCH_j + a_4^k SANC_j + a_5^k BORD_{jt} + a_6^k \ln INCOME_{jt} + \varepsilon_{jt}^k, \quad (3)$$

$$\ln EX_{jt}^k = a_0^k + a_1^k \ln(Y_{Rt} Y_{jt}) + a_2^k \ln DIS_j + a_3^k \ln EXCH_j + a_4^k SANC_j + a_5^k BORD_{jt} + a_6^k \ln INCOME_{jt} + \omega_{jt}^k, \quad (4)$$

Where IM and Ex represent import and export of Russia, while Y, DIS, EXCH, SANC, BORD, and INCOME denote GDP, geographical distance, exchange rate, sanctions, common border and income per capita, respectively. Furthermore, for gathering annual data, the TradeMap statistics for certain years contain significant values of exports and imports of goods belonging to the HS99 product group, which includes commodities not specified elsewhere. To control for the consistency of data collected in different years, we divided the values of the HS99 product group between sectors in proportion to their shares in Russia's total annual volumes of exports or imports.

#### 4. EMPIRICAL RESULTS

Prior we began to estimate the gravity equations, we applied a sequence of tests in order to determine the estimation approach appropriate to our models and the data used. First of all, the F-Limer test was done to explore whether the panel data or the pool data method is appropriate to estimate the coefficients. Then, the Hauman test to choose fixed effects or random effects is carried out. The test's statistics are not significant at 5% level, hence the null hypothesis can

be rejected. Then, to ensure the estimate consistency, three tests for residual cross-section dependence (Breusch-Pagan LM, Pesaran Scaled LM and Pesaran CD) are employed. According to the results of these three tests, the null hypothesis of no cross-section dependence in residuals can be strongly rejected at the 0.01 level meaning that all our series have strong evidence for the cross-sectional dependence. Given the results of the preliminary tests which prohibit apply of cointegrated panel methods, the panel EGLS (cross-section random effects) is implemented to estimate the parameters of equations 1 and 2. The estimation results are reported in Table 1:

**Table 1.** EGLS panel estimation of equations (1) and (2).

Equation	(1)	(2)
GDP	0.5543*** [0.058]	-0.0315 [0.084]
DISTANCE	-0.4382* [0.193]	0.1015 [0.500]
BORDER	0.0538 [0.004]	1.0042** [0.492]
SANCTIONS	-0.6184* [-3.285]	-1.1903* [0.644]
EXCHANGE RATE	-1.1540*** [0.238]	-0.3193* [0.274]
INCOME	0.0013 [0.223]	-0.1932 [0.258]
N of observations	220	219
F statistic (H <sub>0</sub> : all variables are equal to 0)	19.03***	1.67

Note: \* significant at the 0.10 level; \*\* significant at the 0.05 level; \*\*\* significant at the 0.01 level. Standard errors are in brackets.

According to the estimates for the import pattern, a 1% increase in GDP accelerates imports to Russia by nearly 0.55%, while a 1% increase in geographical distance between Russia and its trading partners decreases import flows by approximately 0.43%. The existence of common border between Russia and its trading partners is a positive factor to enhance import flows of Russia. The imposed sanction against Russia is an obstacle to import of Russia from other countries. According to Table 1, it has negative coefficient which proves the adverse impact of this variable on import flows of Russia. In addition, official exchange rate shows negative impact, while a higher level of income per capita may motivates the demand side of Russian markets to consume more meaning a need to raise imports from other countries into Russia.

For the case of exports from Russia to its trading partners, the findings show a strong positive effect of the common border, coming nearly to 1%. The results also reveal that the effect of external shocks (like economic sanctions) on Russia's exports of goods to all destinations is negative, but statistically insignificant.

## **CONCLUSIONS**

The paper estimated the gravity model of the Russia's bilateral trade with its 40 largest trade partners over 2012–2016 and received the results, which are theoretically grounded and coincide with the expected values. The major concluding remarks are that an increase in a partner's economic size leads to a rise in bilateral trade of Russia. Furthermore, sanctions imposed by the West are a negative external

shock which adversely affected on imports and exports of Russia. A common geographical border has a strong positive effect in imports and exports of Russia. The effect of the common border on the Russian bilateral trade is significant and positive. Furthermore, the paper concludes that increasing the distance between trade partners reduces the volume of exports or imports to Russia.

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**CHAPTER 5**

**PERCEPTIONS AND PREFERENCES OF WOMEN  
INVESTORS TOWARDS STOCK MARKET INVESTMENT**

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## 1.INTRODUCTION

Awareness of investment avenues and financial market plays a crucial role in the choice of investment opportunities. Women have vast knowledge about the various investment activities and they prefer various investment avenues according to their choice or objectives and financial position. Women economic empowerment is the biggest social change in recent times. The change in the economic and social status of women calls for a change in their financial knowledge and awareness level. Besides examining the level of awareness of women, the results of the study brought out major differences in the awareness level of investors and non-investors, thereby proving that lack of awareness is one of the major reasons due to which women invest less in the stock market. In the traditional family husband earns for the family and wife maintains it. Her role was mainly confined to domestic works. She creates life, nurtures, and guards and strengthens it. She plays the role of wife, mother, sister, sister-in-law, daughter, daughter-in-law, granddaughter etc. She is the transmitter of tradition and the instrument by which the family culture is preserved. Women's role. This is due to the education she is getting, the women centered policies, program of the government and the job opportunities available to her in the wake of modernization, urbanization, industrialization, liberalization, globalization etc. The opportunities available to women paved the way for economic independence and their involvement in political and social sphere has increased to a great extent.

## 2. STATEMENT OF THE PROBLEM

The main goal of an investor is to make more money. The Indian savings market has been developing over time, and household savings have been steadily increasing. Furthermore, the general profile of women investors is evolving over time. However, they lack in many areas of investment, such as understanding and awareness of investment, preferences of investment. As a result, the researcher attempted to identify the factors affecting investors' actions, assess the level of knowledge and awareness of investment in stock market among women investors, and analyse investors' preferences for various investment.

## 3. LITERATURE REVIEW

**Guiso (2005)** : Stated “ investors' view cannot be influenced by their wages, wealth, age, or educational position. When researchers looked into the relationship between age and investor attributes, they discovered that there were no significant links between the two. Investors' risk bearing limit, venture procedures, motives to invest resources into capital market reserve, executives' system, mindfulness, and investors' risk bearing limit. In terms of mindfulness, there is a significant difference in age, educational, and word-related groupings.

**Joshi (2012)** : argued that the investors were unusual with numerous venture options and were presumptuous, according to those who investigated the Indian financial specialist's behaviour. Previous examinations have yielded disparate data about individual financial experts. As a result, the current study attempted to consider the financial ex-

perts' interest in the stock market.. Indian investors are good savers, yet they regularly lose their hard-earned money due to a lack of knowledge and understanding of financial products and sectors.

**Ullah, M.H., & Chowdhury, N.J., (2011)** :stated that the number of female investors in the capital market is steadily increasing, but interest in the capital market remains high, and it is a necessary occupation for both male and female financial professionals. The support of female financial experts has grown as a result of opportunities created for them, such as the establishment of an independent female prediction corner and web-based offer exchanges. Women are today employed at a higher rate and have more financial autonomy than in previous years, but women also carry an unbalanced load of a subsequent move, performing more housework and providing more child care, as well as being more vulnerable to disabled or wiped out relatives than males.

**Ranganath (2003)** : **He has expressed** the investor conduct from the showcasing scene and monetary financial matters has united to the surface an energizing region for study and examination: social money. The acknowledgment that this is a genuine subject is, nonetheless, scarcely unfolding. Investigators appear to regard monetary business sectors as a total of factual perceptions, specialized and central examination. A rich perspective on exploration holds up this modern comprehension of how monetary business sectors are likewise influenced by the 'monetary conduct' of financial specialists. With the changes of mechanical approach, public area, monetary area and the numerous

advancements in the Indian currency market and capital market, common finances that has become a significant entryway for the little speculators, is additionally affected by their monetary conduct.

**Vohra (Oct 2016):**Scholastic analysts are of the view that in spite of the fact that the effect of absence of mindfulness on securities exchange cooperation is more noteworthy on account of women, comparable of effect is pretty much seen on all fragments of speculators in the financial exchange. To the extent the effect of monetary mindfulness on the interest of women in financial exercises is concerned, securities exchange cooperation is a lot of lower among women than men. While people are similarly not prone to contribute because of absence of capital, absence of premium, pay, hazard avoidance, instructive direction, and so on, women are more probable not to contribute because of the absence of mindfulness.

**Krishna.C.(2008) :**In his examination has dissected the profile and attention to salaried class speculators and their disposition and fulfillment towards venture. In has been reasoned that all salaried individuals knew about bank stores, PF plans, protection plans, and mailing station reserve funds plans, gold.This concentrate consequently unquestionably improves the speculation design and their decision to meet of their future venture. Comparative investigations with different examples will help in understanding the speculation consciousness of the focused on respondents in a superior level. The principle reason has been seen to be the absence of consciousness of financial specialists about the idea and working of the venture design. Also, all things

considered, age, sexual orientation, pay, instruction and occupation have been found affecting the disposition of speculators towards venture critical.

**Navdeep Kaur (2019) :** attempted this research paper about the zone of variables affecting the venture disposition of women has been examined and broke down by different analysts and academicians every once in a while. Investigated the elements that expansion women' support in family unit saving and speculation decision. The venture choice of individual relies on their Monetary proficiency and mindfulness about different speculation sources. There are numerous determinants of monetary education level which impacts how an individual arrangements with the standard cash matters and monetary exchanges. These determinants incorporate socio-segment factors like instruction, pay level, conjugal status, house, sex, family pay and conduct, openness to outside world, retirement needs, mindfulness about monetary instruments and so forth Even however, general profile of women financial specialists is changing in line with time. However, they are protecting in different circles of venture, for example, mindfulness, inclination of speculation.

**Paul (1972):**Examined in his exploration that the vast majority of the speculators who contributed on value shares have a propensity of looking on the profits produced by value portions of grounded organizations or financial exchange records returns prior to settling on their venture choice. In spite of the fact that the previous profits for value shares don't give ensure for any future returns, speculators see that

value shares are giving better re-visitations of beat the swelling rate and subsequently they are submitting one value shares. Investment conduct is characterized as how the financial specialists judge, foresee, break down And audit the strategies for dynamic, which incorporates venture Brain science, data assembling, characterizing and getting, exploration and examination

**Hira (2006)** :The investigation proposed that because of absence of riches and schooling, women faced lesser challenge than men in their shared asset speculations the examination saw that the shortcomings in the retirement arranging framework have left it of little advantage for women. The examination uncovered that female members discovered speculation choices distressing, troublesome and tedious. Additionally, the security worries because of the utilization of PC innovation settled on women awkward in their venture choices. Women by and large show lesser monetary information, have more monetary concerns and are less certain about their monetary circumstance in view of their conventional sexual orientation jobs. Women are eager to accept less danger when contrasted with men as they have more noteworthy obligation towards their kids and their family.

**Banudevi P B (2014)** : explained that venture disposition of working women towards different speculation roads reasoned that age and conjugal status has relationship with in speculation roads. Hitched women demonstrated no revenue in high danger protections and are more inquisitive in making speculations than the unmarried respondents. Young women speculators are generally similar to put resources into

shares common assets, fixed stores and protection than the more established women. The moderately aged financial specialists like to make their interest in genuine estate. There is a connection between the sex and the factor of attention to the speculators however no connection between the pay level and familiarity with the venture roads. It finished up future returns and Good returns were the principle targets for making venture.

#### **4. OBJECTIVES OF THE STUDY :**

1. To Find out the awareness of women investors towards stock market investors.
2. To study the factors affecting on investments of women investors while investing in stock market.

#### **5. RESEARCH METHODOLOGY**

A formal questionnaire was created and distributed to stock market investors in Sangli to investigate their knowledge of stock market investment. The 300 questionnaires were delivered through personal contacts by sharing a Google form, the executives of the participating broking agencies, and through e-mail to the client of various stock brokerage firms in Sangli (Maharashtra) and 212 responses were received. This is descriptive type of research.

## 6.ANALYSIS AND RESULTS

**Table 1:** Table showing age wise distribution of respondents

Age	Respondent	Percentage
21yrs-30yrs	58	37.35
31yrs – 40yrs	78	36.79
41yrs& 50yrs	49	23.12
➤ 50yrs	27	12.74
	212	100

(Source : Primary Data)

Above table indicates that 37.35% respondents are from age between 21yrs to 30yrs. 36.79% respondents are from age between 31yrs to 40yrs.23.12% respondents are between 41yrs to 50yrs, and just 12.74% respondents are over 50 years old. It is discovered that 74.14% respondents are young.

**Table 2:** Table showing Marital Status of the respondents

Marital status	Respondent	Percentage
Single	96	45.3
Married	115	54.2
Divorcee	1	0.5
Widow	0	0
Total	212	100

(Source : Primary Data)

It is observed that, 54.2% respondents were married, whereas 45.3% respondents were single i.e. unmarried and only 0.5% respondents were divorcee. It is found that majority of the respondents are young married and invested in stock market.

**Table 3:** Table showing Occupation of the respondents

Occupation	Respondent	Percentage
Self employed	42	19.8
Salaried	44	20.8
Government employee	64	30.2
housewives	64	30.2
Total	212	100

(Source : Primary Data)

From the above table, it is clear that 19.8% respondents are self-employed, 20.8% are salaried, 30.2% respondents are government employees & 30.2% respondents are housewives. It is found that majority of the women investors are earning the money.

**Table 4:** Table showing in which broking firm they have their Demat account.

Firm	Respondents	Percentage
IIFL	41	19.3
ZERODHA	51	24.1
HDFC securities	37	17.4
Angel Broking	28	13.2
Upstock	19	9
5 Paisa	19	9
ICICI Direct	17	8
Total	212	100

(Source: Primary Data)

From the data it is observed that 19.3% respondents have Demat account in IIFL, 24.1 % respondents having in zerodha, 17.4% have demat account in HDFC securities, 13.2% respondents having in angel broking, 9% respondents having in upstocks, 9% respondents having in 5 Paisa & 8% having in ICICI direct. It has been found that Majority of respondents have Demat account in Zerodha. Most of the women investors are preferred zerodha broking firm.

**Table 5:** Table showing mostly women invested areas of the respondents

Areas	Respondents	Percentage
Equity Fixed	81	38.20
Deposit	68	32.0
Gold	43	20.4
Debenture	20	20
Total	212	100

(Source : Primary Data )

From the table it indicates that 38.20% respondents preferred to invest in equity fixed, 32% respondents preferred to invest in deposit, 20.4% respondents preferred to invest in gold & 9.4% respondents preferred to invest in debentures. It is found that majority of the women investors are given preference for Equity fixed and Deposit.

**Table 6:** Table showing the purpose of investment

Purpose	Respondents	Percentage
Future needs	55	26
Financial security	72	34
Capital growth	47	22.1
Regular source of income	38	17.9
Total	212	100

(Source : Primary Data)

Above table, shows that 34% of respondents have invested for financial security, 26% of respondents have invested for future needs, 22.1% of respondents have invested for capital growth, & 17.9% of them have invested for regular source of income. It is found that majority of the respondents are invested for financial Security of their future.

**Table 7:** Table showing whom do you want to credit for earn profit

Credit given	Respondents	Percentage
Professional Help	55	25.9
Friend's advice	79	37.3
Own knowledge	50	23.6
Good luck	28	13.2
Total	212	100

(Source : Primary Data)

It is observed that 37.3% respondents earned profit on investment due to friend's advice 25.9% of them will earn profit due to professional help 23.6% respondents will earn profit due to own knowledge & 13.2% of them will earn profit due to their good luck. It has been found that majority respondents earned profit on investment due to friend's advice and professional help. It means that 76.4% women

investors are having less knowledge and depends on others about the stock market investment.

**Table 8:** Table showing Proportion of income for investment of the respondents

Proportion	Respondents	Percentage
0-5%	33	15.6
5-10%	83	39.1
10-15%	70	33
Above 15%	26	12.3
Total	212	100

(Source: Primary Data)

Above table indicates that, 39.1% respondent used 5 – 10 % of income for the investment, 33% respondent used 10 – 15 % of income for investment, 15.6% of them used 0 – 5 % of income for investment & only 12.3% are use income above 15 % for investment. It is found that majority (39.1%) of the respondents are invested 5-10% proportion of income in stock market.

**Table 9:** Table showing Frequency of monitoring investment of the respondents

	Respondents	Percentage
Daily	44	20.7
Monthly	95	44.8
Quarterly	51	24.1
Annually	22	10.4
Total	212	100

(Source : Primary Data)

From above table, , it is observed that, 44.8% of respondent monitor their investment monthly, 20.7% of them monitor investment daily & 24.1 % of them monitor their investment quarterly Only 10.4 % respondents monitor their investment annually. It is found that majority of the respondents are monthly monitor their investment.

## **SUGGESTIONS**

1. Women investors should to be urged to put resources into more ways and take an interest in the investment of stock market and collect the knowledge about attending seminars.
2. They should take help of private financial consultant to have investment portfolio so as to reduce risk in investment.
3. Women have to perceive their monetary freedom and plan for the future to improve it.
4. Women should not invest in high volatile funds; they should collect all information before investment.

## **CONCLUSION**

The study conducted shows that most of the women investors are not aware of various schemes of stock market. Majority respondents are from age between 21yrs to 30yrs earning by own and invested 5-10% proportion of their income in stock market. It is also found that majority of the respondents are young married and invested in stock market. Majority of respondents have Demat account in Zerodha. Most of the women investors are preferred Zerodha broking firm. Majority of the women investors are invested for financial Security of their future need. Most of the women investors are given preference for Equity fixed and Deposit. Most of the women investors in sangli districts are having less knowledge of investment of stock market and depends on others about the stock market investment. The majority of women have intended for fundamental investments, Life protection. It is suggested that Women investors should to be urged to put resources into more ways and take an interest in the investment of stock market and

collect the knowledge about attending seminars. Also they should take help of private financial consultant to have investment portfolio so as to reduce risk in investment

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