

The Investment Rate of Return (IRR) to Tertiary Education in Turkey

John Taskinsoy
Universiti Malaysia Sarawak, Malaysia
jtaskinsoy@feb.unimas.my

Abstract: Most scholars, professionals, parents, governments, and societies strongly believe that education, especially tertiary education, provides important economic and social benefits to everyone involved. Furthermore, tertiary education is recently considered as an important investment. Students usually think of higher education in more personal terms, therefore they tend to pay less attention to the broader societal benefits, however tertiary education received immediately after secondary school can have considerable positive influence in countries' economic development, further business growth, expansion to international markets and increase in living standards. Robert B. Zoellick, President of the World Bank Group 2010, said: "Improved learning leads to better jobs, greater productivity, and higher incomes in every society."¹ This paper examines the IRR on tertiary education to first degrees, master's degrees, and PhDs in Turkey using previously published data. The purposes of this research are to study and identify whether or not increase in tertiary education leads to increase in wages. Knowledge and advanced skills are critical determinants of a country's economic growth and standard of living as learning outcomes are transformed into goods and services, greater institutional capacity, a more effective public sector, a stronger civil society, and a better investment climate²

Keywords: *Investment rate of return, tertiary education, wages, and Turkey*

1. Introduction

The modern era of Turkish history started in 1923 with the direction of one brilliant man, soldier, politician, strategist, genius; Mustafa Kemal (Atatürk)³, the first President of the newly created the Turkish Republic (after overthrow of Sultan Mehmet VI Vahdettin following the abolition of the Ottoman Empire in 1922, which lasted over five centuries) and the great Saver of Turkey from the invasion of the militaries of Axis powers (France, England, Italy, Greece, Russia, and others), knew very well that the future of Turkey as well as any other nation in the world was in the hands of education not in the hands of aggression as a result of military power. Atatürk once said that "science is the most reliable guide in life" and "teachers are the one and only people who save nations." The new Turkish history witnessed only one university at the time between the years of 1923-1933, which was called Darülfünun inherited from the Ottoman Empire. As the ailing Empire had so many inefficiencies and inflexibilities caused by heavy bureaucracy, so did the Darülfünun; as a result, an order was given by Atatürk for it to be studied and reevaluated based on the needs and expectations of the new Turkish society which were in many ways radically different than those of the Ottoman Empire. The man chosen for the job was the Professor Alfred Malche from Switzerland who came to Istanbul – Turkey through the direct invitation by Atatürk to determine the faith of Darülfünun. Ihsan Doğramacı (MD, DSc), Chairman of Bilkent University, in his opening speech at the 'Transformation of Higher Education in Turkey 1981-2007' made reference to the outcome of the study which wrongly recommended

¹ See World Bank report, "Education Year in Review 2010" Available online: <http://go.worldbank.org/JVGUHPQLC0>

² See World Bank report, "Tertiary Education (Higher Education)" Available on: <http://go.worldbank.org/HBEGA0G2P0>

³ Atatürk (1981-1939), the greatest leader ever, introduced a number of very important social reforms to guide Turkey to become fast Westernized, and these reforms later became laws, which included: family name law; dress law (not using the traditional hat called fez, using modern Western type of hats); use of Turkish alphabet law (Latin alphabet); a law that introduced new courts similar to the ones in Switzerland and Italy and closed down the existing Islamic courthouses. First time in Turkish history or the Ottoman history, Atatürk gave women unprecedented rights never seen before, and he said that "Humankind is made up of two sexes, women and men. Is it possible for humankind to grow by the improvement of only one part while the other part is ignored? Is it possible that if half of a mass is tied to earth with chains that the other half can soar into skies?"

that the government should be the one to appoint lecturers not the rector of Darülfünun.⁴ Later, this adversely affecting decision naturally included rectors of all newly established universities. Ihsan Doğramacı however does not agree with the report's critical and that much more damaging conclusion and he strongly believes that there is nothing more appropriate and more natural process than universities making own decisions on their recruitment needs and plan accordingly. In July of 1933, based on Professor Malche's findings, the Turkish Parliament abolished Darülfünun and created the Turkish Republic's first university called Istanbul University which also marked a special time in history that the word 'university' was actually used in the Turkish language for the first time. This may seem pretty simple and ordinary to most people, nevertheless thousands of new words are included in languages every day, but this rather simple matter of inclusion of a new word into the Turkish vocabulary played a hugely important role in the destiny of the Turkish education because it meant a final closure of an era filled with so much reminiscence of the Ottoman Empire and started a brand new era filled with hopes, dreams, and promises of a fresh Turkish Republic. A country can not control its future unless it truly deals with its past, and after the closure of Darülfünun, university activities (i.e. R&D, patents, research, and publications) gained a considerable speed between 1933-1946.

Today, the Turkish education system for all levels has two main types of education; formal and informal. Formal education is divided into four groups which are; preschool (3-5 age group), primary (6-13 age group and it is compulsory), secondary (14-17 age group in high school), and tertiary (2-yr college, university, master's, and PhD). Informal education consists of on-the-job training, apprenticeship, and public education. Currently, there are total of 167 public and private universities in Turkey; 44 of which are private foundation (called Vakıf in Turkish) universities. The public university figure (123) consists of five technical universities, two institutes of technology, one academy of fine arts, and a distance-learning university (also known as (aka) open education university). Besides universities, there are four military academies and one police academy, which are not included in the total number of higher education institutions. Before 1982⁵, private citizens or companies were not allowed constitutionally to establish private universities because this was considered the ultimate job of the government not the private entities. As a result, there were only less than two dozen universities in 1981 (19 to be exact), however an amendment was included in the law in 1982, which opened the doors to establishing private universities by ordinary citizens as long as these new universities were promised to be strictly non-profit. Turkey's first private university, Bilkent University, was founded in 1984, and just a decade later by the early 1990s, the number of private universities reached 30. The Ministry of National Education - MoNE (aka MEB in Turkish) is in charge of all education related matters in Turkey and the office in charge of tertiary education (The Higher Education Board is called YÖK in Turkish) reports to the Ministry with a dotted line in its organization structure.

Families form societies, which in turn form nations. The child learns norms and values in the family, which makes them capable of interacting with others in the society. Within the nuclear family, positive child development starts, and then involves the extended family (i.e. grandparents, uncles, and aunts) and later the society. Moreover, a number of recently done researches on the topic of family's role in child development suggest that healthier and more productive families are essential in further economic development in a country. Since a growing-up person spends approximately 12-13 years in non- tertiary education before the age of 18, it may probably be assumed by many that the education system where the primary and in some countries the secondary education compulsory had a greater responsibility in the child's development than the parents. Joronen and Astedt (2005) and Resnick, Bearman and Blum (1997) argue that the role of family in the child's positive development is critical and the family's strong influence is exercised all the way into

⁴ Remarks by Ihsan Doğramacı, Chairman of Board of Trustees at Bilkent University, Ankara (capital city of Turkey)

⁵ The years of the late 1970s were especially hard times for the students in Turkey because there was significant political insatiability during these times which led to economic turmoil and created enormous violence as a result of constant clashes between the members of the right-wing/left-wing and the country's armed forces (police and all branches of the military). In these difficult years, Turkey was clearly divided into several political camps and students in higher education were heavily targeted and recruited to join these different political camps either by choice or by force. The higher education institutions around the country on a daily basis were under constant threat of attacks or bomb plots. As the unstoppable violence kept increasing, so did the death toll (estimated well over 5000 people were killed); the military, headed by the General Kenan Evren (the commander-in-chief), decided to take control and end the violence in 1980 which marked the third coup since the establishment of the Turkish Republic (1960, 1971, and 1980).

adolescence. A study⁶ done by Reinherz, Giaconia and Paradis (2007) shows clear findings as to how much families matter and how absence of it adversely affects the performance of children in their education as well as their likelihood of using addictive substances. According to the study's results; children (ages of 15-18), in supportive families (type-A family) where asking for advice is encouraged by parents, did much better in all categories (i.e. academic functioning, current mental disorders, suicidal behavior, and psychological functioning) than those children in the opposite situation family (type-B family).

Table 1: The Relationship between Family Social Support at Age 15 (Advice) and Areas of Age 18 Functioning⁷

Family	Academic Functioning				Mental Disorder		Suicidal Behavior		Psychological
	School Honors	Failed Courses	Dropped Out	Suspended Expelled	Alcohol Disorder	Drug Disorder	Suicide Thoughts	Suicide Attempts	Aggressive Behavior-Mean
Type-A	54%	35%	5%	28%	26%	5%	15%	2.5%	12
Type-B	34%	52%	14%	41%	48%	15%	26%	8.5%	14.2

We can probably draw the following conclusions from the table 1.1 that children in type-B families demonstrate more out of norm behaviors which could be aggressive at times and they seem to be in high risk and more vulnerable to alcohol and drug disorders which may consequently result in more suicide thoughts some of which may be converted as actual suicide attempts. Furthermore, family support played a positive influence how children performed academically in schools. For instance, 58.8% more children in type-A families received school honors than those children in type-B families and type-A family children were less likely to fail their courses, drop out, being suspended or even expelled from school. Interesting enough, type-A children have performed better than those children in type-B families in every category of the table 1. Another engrossing data is that children in type-B families are almost three times more likely to commit suicides due to negative factors in their environment.

Table 2: The Relationship between Family Social Support at Age 15 (Confidants) and Areas of Age 18 Functioning⁸

Family	Academic Functioning			Mental Disorders		Suicidal	Social & Psychological	
	High Grade	Failed Courses	suspended Expelled	Alcohol Disorder	Drug Disorder	Suicide Attempts	Interpersonal problems-Mean	Externalizing behavior-Mean
Type-A	70%	32%	24%	22%	4%	2.1%	11.3	11.4
Type-B	56%	48%	40%	43%	15%	7.8%	12.4	14.5

"My mother was the most beautiful woman I ever saw. All I am I owe to my mother. I attribute my success in life to the moral, intellectual and physical education I received from her" (George Washington). According to Reinherz, Giaconia and Paradis (2007), "the availability of parents and/or siblings as confidants at age 15 also impacted late adolescent functioning in many areas similar, but not identical, to those found for family advice" (p. 7). The results of table 1 and 2 are extremely close, which could be interpreted as a critical indication that having confidants is as important for children at age 15 as having supportive family. Baum and Payea (as cited in Taskinsoy, 2012) argue that tertiary education provides individuals both financial and social benefits. Key financial benefits include: (a) A positive correlation exists between higher levels of education and higher earnings for all racial/ethnic groups and for both men and women; (b) the income gap between high school graduates and college graduates has increased significantly over time; and (c) any college experience produces a measurable benefit, but the benefits of completing a bachelor's degree or

⁶ A total of 386 participants (195 males and 191 females) were included in the current analyses. At age 18 most participants were seniors in high school. Almost all participants were white (98%) and the socioeconomic status of their families was predominately working or lower-middle class. Website: <http://www.simmons.edu/ssw/sls/>

⁷ Source: Reinherz, H.Z., Giaconia, R.M., Paradis, A.D. (2007). Family Matters: The Importance of Family Social Support, Feeling Valued and Family Cohesion in Promoting Positive Adolescent Development. Boston: Simmons Longitudinal Study, Simmons College School of Social Work. The percentages are reworked by the author based on the original graphs and may not reflect the exact numbers.

⁸ Source: Reinherz, H.Z., Giaconia, R.M., Paradis, A.D. (2007). Family Matters: The Importance of Family Social Support, Feeling Valued and Family Cohesion in Promoting Positive Adolescent Development. Boston: Simmons Longitudinal Study, Simmons College School of Social Work. The percentages are reworked by the author based on the original graphs and may not reflect the exact numbers.

higher are significantly greater. Social benefits include: (a) Higher levels of education correspond to lower levels of unemployment and poverty, more to tax revenues than others do, and adults with higher levels of education are less likely to depend on various government services; (b) College graduates have lower smoking rates, more positive perceptions of personal health, and lower incarceration rates than individuals who have not graduated from college; and (c) higher levels of education are correlated with higher levels of civic participation, including volunteer work, voting, and blood donation. The paper is organized around two questions: (1) is tertiary education an investment, if so, what is the IRR? (2) How is Turkish tertiary education system compared to others?

Table 3: Expenditure on Educational Institutions as a Percentage of GDP⁹

Country	2006	2000	1995
	All Education Levels %	All Education Levels %	All Education Levels %
Malaysia (2009)	5.8	5.5	5.2
Turkey (2011)	2.7	2.5	1.7
OECD Average	5.7	5.4	5.1
OECD Total	6.1	5.8	5.5
OECD Mean	5.5	5.2	5.4
United States	7.4	7.0	6.6

Taskinsoy (2012) claims that in most countries worldwide, the public expenditure on education is quite large and a high priority, in fact, it is usually one of the top spending of government fiscal budget in many countries. As shown in table 3, Malaysia has spent 5.8% of its total GDP (Gross Domestic Product) on all levels of education in 2009, which is nearly 19% of all government expenditure. Malaysia's public expenditure is very close to OECD countries, which spend 6.1% of their collective GDP on all educational institutions. Iceland with 8% is the highest on the list among the OECD countries, and Turkey is the lowest at 2.7% of GDP.¹⁰ "In all countries for which comparable data are available, public funding on educational institutions at all levels combined, increased between 1995 and 2006 (except Israel, which experienced a decline from 1995 to 2006 on education expenditure). Private spending increased at an even greater rate in nearly three-quarters of these countries. Nevertheless, in 2006, 85% of expenditure, on average, for all levels of education combined, was still from public sources."¹¹ In the last decade, the world has witnessed an economic turmoil in such great magnitude, which later turned into a global financial meltdown, not seen since the WWII, which IMF called it as 'the largest financial shock since Great Depression.' During the times of financial distress, economies tend to contract really fast which then leads to a major shrinkage in available credit forcing everyone (i.e. individuals, businesses, governments, private and public educational institutions) to become conservative on expenditures or investment decisions. Although the global economy may be showing signs of a slow recovery, but still now and then some bad news surface the headlines (i.e. Greece, Iceland, and Portugal) and make the weary investors nervous all over again (Taskinsoy, 2012). Commentary, Issue 1 (August 2007) documented that there is a relationship between university research and economic growth. For example, Commentary, Issue 6 (July 2010) reported estimates of the contribution universities have made to total economic growth in the United States since WWII range from 12% - 25%.¹² In the United Kingdom, universities are estimated to contribute at least £59 billion annually to the country's economy.¹³ Commentary, Issue 6 (July 2010) documented that In the United States, the return on public investment is estimated to be 10.3% above inflation – or at least US\$7.46 for every dollar the government invests in a college graduate (Trostel, 2008).

OECD (2009) had reported that "across OECD countries, the net public return from an investment in tertiary education well exceeds USD \$50 000 on average for a student" (p.13). OECD (2009) also said that growing economies in some countries would feel the pressure of finding qualified employees who are equipped with

⁹ Education at a glance, OECD 2009: OECD indicators. p218. The data for Malaysia is from: UNESCO Institute for Statistics 2011

¹⁰ Education at a glance, OECD 2009: OECD indicators. p208

¹¹ Education at a glance, OECD 2009: OECD indicators. p223

¹² Committee for Economic Development (1998), America's Basic Research: Prosperity through Discovery. Available online: http://ced.issuelab.org/research/listing/americas_basic_research_prosperity_through_discovery

¹³ Remarks by Lord Mandelson, 4 November 2009, at launch of Universities UK report. 'Universities value to economy increase – UUK report'. Available online: www.universitiesuk.ac.uk/Newsroom

skills and capacities required by their economies and societies, which places a special emphasis and importance on work-based training as part of vocational education and training at the secondary or tertiary education. Education systems across countries throughout the world are enormously different in nature and their requirements vary from country to country based on the country's cultural attributes, spiritual characteristics, business environment, economic activities, development level, and how closely these systems are partnered with companies in the development of necessary policies of both education and employment to capture opportunities where effective vocational and work-based training programs could be developed. What is similar almost in every country though is the existence of a growing significant focus on education, even in the least developed countries, because it is by now crystal clear to people from all walks of life that the education – especially tertiary education is the only way for effective development, sustainable growth, further economic activity, and increased prosperity through which ordinary citizens can enjoy living in better environments where there is great hope for the future. Earnings increase with each level of education. Those who have attained upper secondary, post-secondary non-tertiary or tertiary education enjoy substantial earnings advantages compared with those of the same gender who have not completed upper secondary education. The earnings premium for tertiary education is substantial in most countries and exceeds 50% in 17 out of 28 countries" (OECD, 2009, p. 137). Although the earnings gap between males and females has been narrowed over the years, but the progress has not been very encouraging or promising that the equality in wages for men and women will ever be accomplished. National Committee on Pay Equity (as cited in Taskinsoy, 2012), originated in 1996, reported that women then (1996) earned about 73.8 cents for every dollar men earned (women earned 26.2% less than men). The year is 2012, 16 years later; women now earn 77.4 cents for every dollar men earn (ridiculously small 4.89% increase in 16 years of time) which means women still earn 22.6% less today. Atatürk was not only the greatest leader ever in Turkish history, but he was also the greatest reformer who envisioned that the human beings would greatly suffer if men are progressing at all costs while women are being oppressed.

Atatürk said "humankind is made up of two sexes, women and men. Is it possible for humankind to grow by the improvement of only one part while the other part is ignored? Is it possible that if half of a mass is tied to earth with chains that the other half can soar into skies?" Improving lives of women in every aspects of life is not only beneficial to everyone, but it is also cost effective in many ways which was well said by Jane Austin that "give a girl an education and introduce her properly into the world, and ten to one but she has the means of settling well, without further expense to anybody. With few exceptions, females earn less than males with similar levels of educational attainment. For all levels of education, average earnings of females between the ages of 30 and 44 range from 51% of those of males in Korea to 88% in the partner country Slovenia. However, for females with below upper secondary education in New Zealand and the United States and for those with an upper secondary education in the Czech Republic, the earnings gap has closed by more than 10 percentage points over the past decade" (OECD, 2009, p. 137). Kelly and Elliott (1982) asked the question "...how education affects women and can be made to improve women's lives recognizing that schooling throughout the Third World in the context of social system that oppress women." Unfortunately, most of the improvement, whether we talk about closing the earnings gap between men and women or we try dealing with the problems of oppression of women, has been largely seen in developed countries and sadly these issues are still very much alive in under developed or developing countries. Audrey Hepburn described the power of education and what it is capable of accomplishing when used effectively better than anyone could have said it; "a quality education has the power to transform societies in a single generation, provide children with the protection they need from the hazards of poverty, labor exploitation and disease, and give them the knowledge, skills, and confidence to reach their full potential."

2. Review of the Main Concepts

Robert B. Zoellick, President of the World Bank Group 2010, said: "Improved learning leads to better jobs, greater productivity, and higher incomes in every society."¹⁴ Barbara Ischinger, Director for Education, points out "education has always been a critical investment for the future, for individuals, for economies and for

¹⁴ The World Bank report, "Education Year in Review 2010" Available online: <http://go.worldbank.org/JVGHUHPQLC0>

societies at large.”¹⁵ The World Bank understands the critical role of tertiary education and its vital part in development of countries and their economies: “Knowledge and advanced skills are critical determinants of a country's economic growth and standard of living as learning outcomes are transformed into goods and services, greater institutional capacity, a more effective public sector, a stronger civil society, and a better investment climate. Good quality, merit-based, equitable, efficient tertiary education and research are essential parts in this transformation. Both developing and industrial countries benefit from the dynamic of the knowledge economy. The capacity for countries to adopt, disseminate, and maximize rapid technological advances is dependent on adequate systems of tertiary education. Improved and accessible tertiary education and effective national innovations systems can help a developing country progress toward sustainable achievements in the Millennium Development Goals, particularly those goals related to all levels of education, health, and gender equity.”¹⁶

Table 4: Total Public Expenditure on Non-Tertiary Education (2006-2012)¹⁷

Year	GDP in billions USD	Government Budget in billions USD	MEB Budget in billions USD	MEB % in GDP	MEB % in Government Budget
2006	505.6	116.6	11.1	2.18	9.47
2007	562.1	136.7	14.2	2.53	10.42
2008	633.7	148.4	15.3	2.41	10.30
2009	635.1	174.8	18.6	2.93	10.63
2010	735.8	191.3	18.8	2.56	9.84
2011	854.3	208.4	22.7	2.66	10.91
2012	950.7	233.9	26.1	2.75	11.16

Although recent reforms and increased government expenditure on education in Turkey have been instrumental for creating an environment where higher education attainment is highly encouraged, but there is still a lot more yet to be achieved because Turkey continues to have the lowest numbers in education statistics when it is compared against the 29 OECD member and 7 OECD partner countries. For instance, the 2012 budget of the MoNE as part of the GDP (2.75%) happens to be the lowest amongst the OECD countries' average 6.1%. The Turkish government's expenditure on education has increased year after year from 2006 to 2012, which is an important indication that shows how Turkey as a nation is committed to improving education at all levels. Except the tiny increase from 2009 to 2010, which was only 1.07%, the average government's expenditure on education has increased more than 18% annually. Even though the US and most countries in Euro zone were greatly affected by the 2008 global financial crisis, Turkey began to feel shocks of the crisis as of 2009 and this was when the government started taking precautionary measurements which had reduced the education spending considerably. OECD (2009) reported that tertiary education accounts for nearly one-third of the combined OECD expenditure on educational institutions (1.9% of the combined GDP). Relative to GDP, the United States spends over three times more on tertiary education than Italy and the Slovak Republic and nearly four times more than Turkey and the partner countries Brazil and the Russian Federation. Turkey spends less than 1% of its GDP on tertiary education (0.89%). OECD also said that more people are attending colleges and universities than ever before which attracts private investments in tertiary education. “For all levels of education combined, public and private investment in education increased in all countries by at least 10% between 1995 and 2006 in real terms, and increased on average by 44% in OECD countries” (p. 209). As mentioned before, due to the adverse effects of the global financial crisis, Turkey's government expenditure on education in 2010 was reduced significantly to little over 1% (1.07%), surprisingly the government's spending on tertiary education was not affected considerably, which still managed to increase 6.67% from 2009 to 2010. All the other years, tertiary education expenditure has increased more than 10% each year (average 14% per year).

¹⁵ Editorial remarks made by Barbara Ischinger, Director for Education, OECD, 2009. Education at a glance 2009: OECD indicators

¹⁶ See the World Bank, “Tertiary Education (Higher Education)” Available on: <http://go.worldbank.org/HBEGA0G2P0>

¹⁷ Source: MEB (MoNE) 2011 & 2012 numbers are estimates. \$1 = 1.50TL exchange rate has been used for conversions.

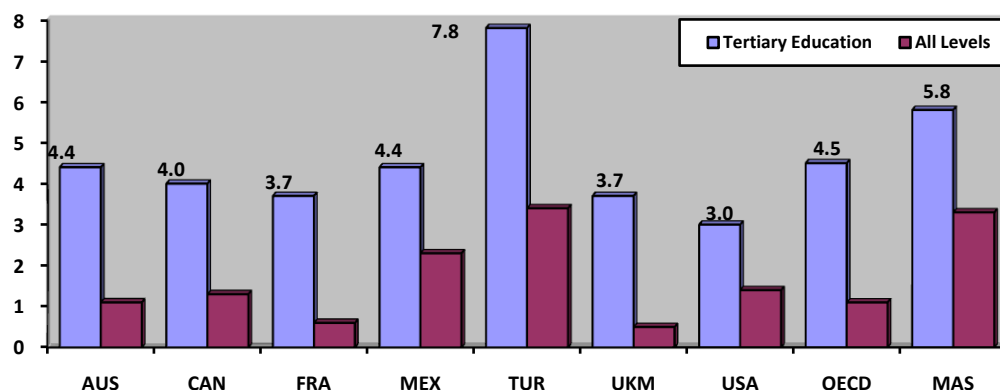
Table 5: Total Public Expenditure on All Levels Including Tertiary Education (2006-2012)¹⁸

Year	MEB Budget in billions USD	Tertiary Budget in billions USD	udget – All Levels in billions USD	% of Government udget – All Levels	% of GDP education levels
2006	11.1	3.90	15.00	12.81	2.96
2007	14.2	4.39	18.59	13.63	3.31
2008	15.3	4.88	20.18	13.58	3.18
2009	18.6	5.85	24.45	13.98	3.85
2010	18.8	6.24	25.04	13.10	3.41
2011	22.7	7.67	30.37	14.59	3.56
2012	26.1	8.50	34.60	14.79	3.64

The World Bank (2007) claims that the IRR to tertiary education continues to increase as countries become more interested and aware of the fact that education, if used effectively, can produce knowledge and skills which then can be used to create new technologies and innovative products to generate positive economic activity (p. 5). A challenging task lies in front of Turkey as it attempts to meet the education standards of the European Union (EU) and the OECD both of which require that education should be flexible, effective, affordable, and available meaning easily accessible to a wide range of people who desire to attain degrees of higher education. The percentage of secondary degree holders in the 20-24 age group people in Turkey is so low that it is not even half of the EU target (85%), according to the World Bank only 40 percent of 20-24 year olds had a secondary degree in 2005 (p. 5). There is another concerning problem that the number of public and private universities in Turkey are not sufficient in numbers to provide an opportunity of higher education to nearly two million students who take the national university-entry exam from which only 20 percent become eligible to study at a four-year university, and the remaining one and a half million students try their chances the following year along with the new addition of students entering the system after graduation from secondary education. Although there are problems with the quality of education in Turkey where educational attainment and much needed skills are low compared to the EU and the OECD countries, earnings increase as the education levels do and secondary and tertiary education still generate positive returns.

Figure 1: Annual average growth in 25-64 year-old population between 1998 and 2006¹⁹

Percentage of tertiary education



The percentage of tertiary education in 25-64 year olds during 1998-2006 has grown the largest in Turkey than any country in the OECD. According to the recent statistics, tertiary education enrollment rate in Turkey has grown average 8% per year for the last five years (2007-2011) and about 5% per year five years before that (2002-2006). Turkey's very young population along with considerable increase in the number of higher education institutions within a couple of decades can be shown as the main reasons behind the huge growth in tertiary education enrollment. The official Turkish Statistics Institute (TurkStat) reported that little over 50

¹⁸ Source: MEB (MoNE) 2011 & 2012 numbers are estimates. \$1 = 1.50TL exchange rate has been used for conversions.

¹⁹ Education at a glance, OECD 2009: OECD indicators. p42. Turkish data has been calculated by the author using MoNE numbers

million people (50, 346,979) belong to the 15-64 age groups, which are about two thirds of the country's total population²⁰ (74,724,269 at the end of 2011).

Table 6: Distributions of Monthly Salary (in TL), Education and Gender for the Urban Wage-Employed, 1994²¹

Gender	Illiterate No School	Some School No Diploma	Primary Education	Secondary Education	Vocational High School	University Tertiary
Male	504	582	659	834	1,117	1,609
Female	341	382	390	585	821	1,353

As Turkey progressed and economically prospered over the years, especially since 2001, wages have increased as well but not as much as people would have expected. Turkey remains to have the lowest wages amongst the OECD or the EU countries. The country's growth in GDP has not translated into growth in wages where minimum government reported official monthly salary is still under \$400 USD per month. Turkey's performance in all levels of education plus its introduction of reforms and important policies to make education attainable and accessible are seen as key to Turkey's successful inclusion in the EU. Wage gap between men and women is a worldwide problem, but it gets worse in Turkey as shown in table 1.6 where women earn less money in every category. Based on table 6 data, women make 49.6% less than men all the way up to secondary education. With the attainment of vocational high school diploma and tertiary education degree, the gap in earnings narrows a bit, 36.1% and 18.9% respectively.

Table 7: Distributions of Monthly Salary (in USD), Education and Gender for the Urban Wage-Employed, 2008²²

Gender	Illiterate No School	Primary Education	Secondary Education	College-2yr Tertiary	University-4yr Tertiary	Master's Tertiary	PhD Tertiary
Male & Female	454	696	780	790	1,221	1,413	3,679
Education and Gender for the Urban Wage-Employed (\$1 = 1.5 TL is used for conversion)							
Female	24	660	3,060	1,032	3,612	324	108
Male	72	2,688	4,932	1,032	4,872	300	192

Out of the 22,908 participants in the survey, 8,820 of them were females who on average earned \$853 USD per month compared to men earning \$1,067 USD monthly, which was 25% more wages than women. Table 7 shows wage increases over the years in Turkey; the increase in earnings is quite large in some areas such as what PhD holders are making per month (PhD holders participated in the survey all work for private institutions where salaries are much higher than government institutions which is around 3,500 TL), but the increase in minimum wage over the years has been a laughing matter, around average 3.0-4.0% increase per year. Nevertheless, small increase or big increase, earnings seem to go much higher with the attainment of tertiary education. Based on table 1.7 data, a PhD holder makes 2.5 times more than Master's; three times more than Bachelor's; and nearly five times more than somebody with a high school diploma. The US Census Bureau reported that a person with no high school diploma earned \$21,600 and paid \$4,300 to the government in taxes. The earnings jump considerably to \$30,800 with obtaining a high school diploma (an increase of 42.59). The real power of earnings comes with a bachelor degree, which makes about \$46,500; this is 23.7% higher than a college diploma and an amazing 115% more than somebody with a high school diploma. People with Masters' degree earn \$52,900. This means that a Master's degree holder makes \$6,400 (13.8%) more than Bachelor; \$15,300 (40.7%) more than college; and \$22,100 (71.8%) more than a high

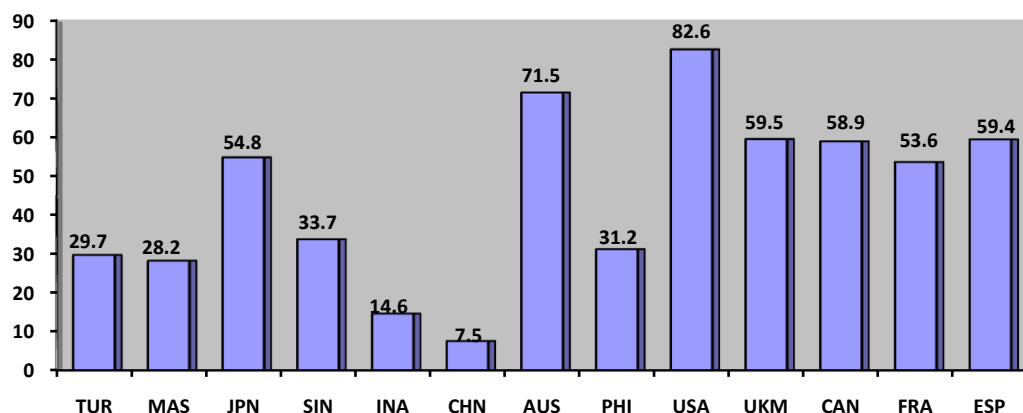
²⁰ Turkish Statistics Institute (TurkStat) reported Turkey's population as 74,724,269 million people at the end of 2011 of which 50.2% are males (37,532,954 million) and 49.8% are females (37,191,315 million). Close to 77% of Turkey's population lives in urban cities of which nearly 14 million people live in Istanbul which happens to be the largest city by population density in Turkey.

²¹ Source: Bircan (2004). TL is the abbreviation for 'Turkish Lira' which is the currency for Turkey.

²² Source: Taskinsoy (2008). Based on survey results by the author; 22,908 participated in the survey of which 14,088 (61.5% men), 8,820 (38.5% women), 12,204 (53.3% single), 10,368 (45.3% married), and 144 (0.63% divorced). Married people earn on average \$1,159 per month which is 38.1% more than single people who make \$839 monthly. Divorced people make on average \$903 a month which is 28.3% less than the monthly salary of married people and 7.6% more than the salary of single people.

school graduate. The top earner goes to the PhD holder (\$79,400) who makes \$26,500 (51.1%) more than Masters' and \$32,900 (70.6%) more than a Bachelor degree holder. In addition, a PhD degree on average brings close to four times more wages than a non-high school graduate. Except the United States (82.6% comes from more than 7000 higher education institutions) – highest in the world, the enrollment rate for tertiary education in the EU nations is around 60% which in a way can be interpreted as a sign or an indication of development, stability, and a great deal of economic prosperity. It seems that countries (i.e. the US, France, Germany, the UK, Spain, and Australia) with the best-educated human capital are also the ones leading in innovation, technological advancement, and high standard of living, which prove that there is a logical relationship between tertiary education and a country's further economic development. In the case of Australia, tertiary education enrollment rate is higher than the EU countries mainly because many people with either already tertiary education or interested in obtaining one go to Australia as immigrants.

Figure 2: Tertiary Education Enrollment Rates (%)²³



Turkey as a nation has been working very hard since day one as the new Republic to achieve a developed-nation status and it has been making remarkable progress in reforms and policies for decades now since the World War II era which are demanded and necessary for its bid to join the European Union, however Turkey still needs to do so much more to get to acceptable tertiary education enrollment rate as seen in the OECD countries. To accomplish this enormous and challenging task, Turkey must take a number of critical steps most important one of which is immediately coming up with a solution for the bottleneck issue that is negatively affecting students' attempts to attain a higher education degree. What is meant by 'bottleneck' is that every year in order to study in a university approximately two million students must take the national university-entry exam and only 20% of those students passing the exam successfully can be placed in universities by YÖK (The Higher Education Council). A major disconnect exists between the higher education (especially tertiary education) and the business environment in Turkey. An increasing number of companies are complaining about the facts that they have hard time finding qualified employees equipped with all necessary skill sets to enable them to compete better with countries such as China, Brazil, Thailand, and of course the EU countries. When the World Bank asked firms in Turkey how they rate education and skills, one third of Turkish firms rated education and skills as a major or very severe constraint in their business. Turkish firms also see the newly graduated students with tertiary education being weak in some of the basic computer and foreign language skills – mainly English and firms believe that graduates should have more practical experience. The main objective of close to seven hundred vocational (aka MYO in Turkish) higher education institutions in Turkey is supposed to provide individuals the necessary qualifications and skill sets needed for the country's development and changing labor market, but instead the MYO system in many ways is impractical, inefficient, and it does not provide students the skills they need.

²³ UNESCO; United Nations Human Development Program; OECD Education at a Glance: OECD Indicators 2003; TIMSS; OECD; OECD; UNESCO Institute of Statistics; UNESCO Institute for Statistics; OECD

3. Conclusion

Technological advancement through innovation is one of the key factors in the assessment of a country's development level, which is directly influenced by the quality of the human capital in that country. The quality of human capital is closely related to the quality of education received in public or private higher education institutions. It is not a coincidence that the United States is far ahead in innovation, scientific research, patents, and academically written and published articles than any other country in the world thanks to its amazingly huge number of more than 7,000 higher education institutions where education is easily and equally accessible by anyone. How many universities of a country make the world's top 500 or 200-university list is one of the criteria in the assessment of the quality of tertiary education in a country. The United States again leads the way by a great margin; 168 universities from the US made the top 500 list and 54 universities made the top 200 list (Germany and the UK are number 2 in the top 500 list with 40 universities each). Some countries feel very proud having even one university listed in the world's top 500 university list, three universities from Turkey made list; Middle East Technical University, Bilkent University, and Boğaziçi (aka Bosphorus) University. The research data provides enough information to conclude that the investment rate of return (IRR) to tertiary education is positive and even more significant immediately after graduation. Tertiary education not only provides benefits to individuals, but it also provides tangible and intangible benefits to governments and societies at large. The tangible part comes from more taxes paid and investments made by people with tertiary education (more earnings = more taxes); and the intangible benefits come from reduced crimes and dependency on government services by people with tertiary education because a number of recent research studies show that educated people have less tendency to use addictive substances and commit crimes; this way governments would spend less tax money on preventive (less police force and need for building prisons) and health programs. It is also observed that earnings increase as the education levels increase.

The earnings potential is substantially high after attainment of a Master's and PhD degrees, and working especially in private institutions. Although there are so many MYOs (2yr- college) in Turkey, the effectiveness and positive influence of these higher education institutions in potential wage increase is very minimal. It seems that Turkish firms value tertiary education starting with a 4yr-university degree more than lower level degree such as the Associate (aka AA) diploma received from a MYO. There are so many critical objectives that Turkey must achieve in order to create an education environment which will provide better and easier access to tertiary education. One of these critical objectives and maybe the most important one would be reorganizing and restructuring YÖK to improve its functioning in a way to foster better planning, effective governing, and useful policymaking. When wages and the cost of a university degree are compared, there is a sad and that more discouraging scenario in Turkey where the wages happen to be the lowest amongst the OECD countries and the university tuitions are incredibly high based on the living standards. One of the main strategies of YÖK is to increase tertiary education enrollment rate which, as discussed earlier, is significantly important in further economic activity and Turkey's successful entry into the EU as a permanent member. There are two milestones to be achieved to increase the tertiary enrollment rate; first, Turkey's MoHE has to do more to increase the secondary education graduate rate because currently it stands at 40% which is a disappointing half of 85% goal of the EU; second, Turkey, in partnership with banks and other financial institutions, needs to develop a well-functioning financial aid program to assist students in their financial aid needs. Without accomplishing these two milestones, Turkey's tertiary education enrollment rate will always lag behind the EU or the OECD countries, therefore its economic development to earn the developed-nation status.

References

- Baum, S. & Payea, K. (2004). College Board: Education Pays 2004. The Benefits of Higher Education for Individuals and Society. www.collegeboard.com
- Bircan, F. (2004). Essays on Education in Turkey: Private Tutoring and Returns to Schooling. Ph.D. Thesis under preparation. Department of Economics, Middle East Technical University
- Commentary. (2010). On Issues of Higher Education and Research. The University of Auckland, 6.

- Committee for Economic Development. (1998). America's Basic Research: Prosperity through Discovery. Available online: http://ced.issuelab.org/research/listing/americas_basic_research.
- Education at a Glance, OECD. (2009). OECD indicators. 13, 42, 137, 208, 218, 223,
- Ischinger, B. (2009). Director for Education, OECD, 2009. Education at a glance 2009: OECD indicators
- Joronen, K. & Astedt, K. P. (2005). Family Contribution to Adolescent Subjective Well-being. *Int J Nurs Pract.*, 11, 125-133.
- Kelly, G. P. & Elliott, C. M. (1982). Women are Education in the Third World: Comparative Perspectives. State University of New York Press, Albany. ISBN 0-87395-619-2, p. 70
- MoNE – Ministry of Higher Education. (2012). National Education Statistics 2011-2012. Available online: <http://www.meb.gov.tr/>
- Mandelson, L. (2009). Universities Value to Economy Increase – UUK Report. Available online: www.universitiesuk.ac.uk/Newsroom
- Resnick, M., Bearman, P. S. & Blum R. W. (1997). Protecting Adolescents from Harm: Findings from the National Longitudinal Study on Adolescent Health. *JAMA*, 278, 823-832
- Reinherz, H. Z., Giaconia, R. M. & Paradis, A. D. (2007). Family Matters: The Importance of Family Social Support, Feeling Valued and Family Cohesion in Promoting Positive Adolescent Development. Boston: Simmons Longitudinal Study, Simmons College School of Social Work.
- Trostel, P. A. (2008). High returns: Public investment in higher education. Federal Reserve Bank of Boston. Spring 2008. Available online: www.bos.frb.org/commdev/c&b/2008.
- Taskinsoy, J. (2012). The Return of Investment on Tertiary Education in Malaysia. Presented at the ICEIM 2012 – International Conference on Education and Information Management Potential for Business Innovation (June 15-17, 2012).
- Taskinsoy, J. (2008). The Effects of Higher Education on Wages: Evidence from Turkey. *Istanbul Aydin University*, 3(12).
- Turkish Statistical Institute (TurkStat). Available online: <http://www.turkstat.gov.tr>
- Trostel, P. A. (2008). High returns: Public investment in higher education. Federal Reserve Bank of Boston Spring 2008. Available online: www.bos.frb.org/commdev/c&b/2008.
- U.S. Census Bureau, 2004, PINC-03
- UNESCO; United Nations Human Development Program; UNESCO Institute of Statistics; UNESCO Institute for Statistics
- World Bank Report. (2010). 'Education Year in Review 2010. Available online: <http://go.worldbank.org/JVGUHPQLC0>
- World Bank Report. (2007). Tertiary Education (Higher Education). Available online: <http://go.worldbank.org/HBEGA0G2P0>