RESEARCH ARTICLE/ARAŞTIRMA MAKALESİ

INEQUALITY IN EDUCATION AMONG TURKISH YOUNG INDIVIDUALS, 1988-2020

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Abstract

This paper studies the changes in education inequality in the youth population (15-29 age group) in Turkey using the Household Labour Force Survey data for the 1988-2020 period. The average year of schooling is calculated to investigate the changes in the level of educational attainment, and standard deviation in years of schooling and education Gini coefficient are calculated to examine how within-group education inequality changes over time. These statistics are calculated for young men and young women separately to also find out how gender inequality in educational attainment and education inequality changes over time. The findings of this study show that the average years of schooling increases for both young men and young women in Turkey while education inequality measured by the Gini coefficient decreases for both groups between 1988 and 2020. This seems to reflect the positive implications of the expansion in compulsory education for both average years of schooling and education inequality. Average years of schooling is higher for young men while education Gini is higher among young women despite the closing of the gender gap in both measures over time.

Keywords: Education inequality, Youth, Labour market, Turkey

TÜRKİYE'DE GENÇLERDE EĞİTİM EŞİTSİZLİĞİ, 1988-2020

Öz

Bu makale, 1988-2020 dönemi Hanehalkı İşgücü Anketi verilerini kullanarak Türkiye'de genç nüfusta (15-29 yaş grubu) eğitim eşitsizliğindeki değişimi araştırmaktadır. Ortalama eğitim süresi, eğitim düzeyindeki

değişimleri değerlendirmek için standart sapma ve eğitim Gini katsayısı ise grup içi eğitim eşitsizliğini incelemek için hesaplanmaktadır. Bu istatistikler, genç kadınlar ve genç erkekler için ayrı ayrı hesaplanarak zaman içerisinde eğitim düzeyi ve eğitim eşitsizliğinde gözlenen toplumsal cinsiyet eşitsizliğinin nasıl değiştiği değerlendirilmektedir. Çalışmanın bulguları, Türkiye'de 1988-2020 yılları arasında hem genç erkekler hem de genç kadınlar için ortalama eğitim süresinin arttığını ve Gini katsayısı ile hesaplanan eğitim eşitsizliğinin ise azaldığını göstermektedir. Bu bulgular, zorunlu eğitimin artmasının hem ortalama eğitim süresi hem de eğitim eşitsizliği bakımından olumlu etkilerini yansıtıyor görünmektedir. Her ne kadar eğitimde toplumsal cinsiyet eşitsizliği zamanla azalsa da ortalama eğitim süresi genç erkekler için, eğitim Gini katsayısı ise genç kadınlar için görece daha yüksektir.

Anahtar kelimeler: Eğitim eşitsizliği, Gençlik, İşgücü piyasası, Türkiye

1. INTRODUCTION

Youth is very crucial for a country to enhance its economic capacity since young individuals have an economic impact and social pressure. Understanding the needs and problems of the youth is important to build a sound economic environment for both current and future generations. Transition from school to work is central to improving the economic conditions of the youth and enhancing their contribution to the economy. In this context, accumulating higher human capital, decreasing inequalities in education, building closer relationships between educational institutions and industry are all important to make this transition smoother. Gender gaps in youth population are documented across almost all measures of educational and labour market statuses (Gökşen, Filiztekin, Smith, Çelik, Öker and Kuz, 2016). The gender dimension to school to work transition is therefore important and needs to be taken into consideration.

One of the difficulties that young individuals face after graduation is high unemployment during their transition from school to work. This is common for all countries around the world. From a macro level perspective, unemployment is due to structural failures of combining demand and supply in the labour market. From a micro level perspective, obtaining the first job after graduation is individual's first experience with the search process and takes longer time compared to someone with existing work experience. Additionally, not having found a job in a reasonable amount of time compared to their peers may discourage young individuals, and this may lead them to leave the labour force and become part of the youth population not in education, employment, or training (NEET). Social norms and stereotypes may also prevent young individuals, especially young women, from entering the labour market after graduation.

Examining the factors that affect young individuals' transition from school to other labour market statuses is important to improve the economic and social conditions of the youth. Among the youth, young women are more likely to be unemployed and more likely to be in NEET status than young men. Education is central to understanding the transition from school to work and the differences between young women and young men. Education is also critical for economic development as a

major determinant of a country's human capital stock. Both increasing education level and decreasing inequalities in education help foster economic development and provide individuals with equal opportunity in economic and social life.

Despite the considerable improvements in both the quantity and quality of education over time, education inequality has been continuing in Turkey. Yanık-İlhan & Aydıner-Avşar (2021), Yanık-İlhan & Aydıner-Avşar (2013), Yanık-İlhan (2012) and Tomul (2011) are major studies that examine education inequality in Turkey. None of them focuses on the youth population and investigates education inequality from the perspective of school to work transition. In this paper, we fill this gap in the literature and examine how education inequality changes over time for the youth population (ages 15–29) in Turkey, given its role in understanding the transition from school to work. We use the Turkish Household Labour Force Survey (HLFS) data from 1988 to 2020 to this end. We first calculate the average years of schooling (AYS) to measure the gap in educational attainment. We then calculate standard deviation in years of schooling and education Gini coefficient to measure within-group inequality. We make these calculations for total youth population, young women, and young men, respectively, to find out any gender differences, and discuss the implications of changes in education system for these figures. We also present a discussion of inequalities in access to distance education during the Covid-19 pandemic and examine the trends in internet usage and access across age groups and regions in Turkey in this context.

Following this introduction, section 2 presents an overview of education inequality concepts and its links to other forms of inequalities. Section 3 presents a discussion of the labour market participation of youth population both globally and in Turkey, and gives a short overview of the education system in Turkey. Section 4 introduces education inequalities by using different statistics. Section 5 presents education inequalities during the Covid-19 pandemic. Finally, section 6 concludes the paper by drawing some policy recommendations to reduce inequalities in education in the youth population, and support their smooth transition from school to work.

2. EDUCATION INEQUALITY AND OTHER FORMS OF INEQUALITIES

Increasing education levels and lowering education inequality both support economic development and provide individuals with equal opportunity in economic and social life. The private benefits of education include higher individual earnings and better social status for an individual. The social benefits refer to the positive spillover effects of education onto the society such as increased labour productivity and the benefits of having informed and socially responsible citizens.

Education inequality is highly interrelated with income inequality for several reasons. First, education is a key determinant of skill distribution and earnings. Second, education system influences the extent to which family background plays o role in one's educational attainment hence shapes income distribution. For example, in a society with a high-quality and accessible education system, family background

would play a relatively small role in explaining income distribution. In the opposite case, where family background is a key determinant of one's access to education opportunities, then education system can exacerbate existing inequalities in the society and lead to intergenerational transmission of disparities (Duman, 2008).

There is evidence for Turkey that the lowest income quintile has the lowest level of schooling, and hence education inequality is closely linked with income inequality. There were two trends that made the link between education inequality and income inequality strong in Turkey over time: the decline in education's share in total public expenditure, and the rise in the share of education spending on tertiary education. Especially the rise of tertiary education at the expense of lower levels of education mostly benefits the rich, who can afford sending their children to college with high out-of-pocket spending (Duman, 2008). Gender and family background factors such as household wealth, secondary or higher educational attainment of parents and family size are also important in understanding education inequality in Turkey (Ferreira and Gignoux, 2010).

Education inequality also has implications for gender inequality in the society. Gender gap in education adversely affects women's bargaining power in the household and position in the labour market. Gender inequality in education results in higher fertility and negatively affects household investment in the education and health of children (Blumberg, 2004). It implies overinvestment on less-talented men in comparison to able women and negatively affects productivity and economic growth (Boschini, 2004). Individual decision to get education and family's ability to do so are highly constrained by the economic and social environment, and therefore call for policy interventions to reduce gender gap in education (Berik et al., 2009).

3. LABOUR MARKET STATUS OF THE YOUTH POPULATION

There have been structural changes around the world since the late 1990s which have directly affected the dynamics of school to work transition. The expansion of higher education around the globe led to delayed adulthood, replacing old models of transitions from school to work. Many young people now stay in education after finishing high school as university education is seen as a necessary step to get a good job. Together with the expansion of vocational training in many countries, the current young generation has become the most educated generation on record. Education and training have replaced the old model of adulthood in the form of graduating from high school and getting a job at the age of 16 or 17 around the world (France, 2017). We first look at the changes in youth population's participation in the labour market at the global level and then examine the situation in Turkey.

3.1. Global Trends in Youth's Labour Market Status

Globally, changes in youth labour market indicators are in line with broad changes in the socioeconomic context for the youth. The labour force participation rate of young people (aged 15–24) has declined globally between 1999 and 2019. While this trend in labour force participation rate reflects the growth of secondary and tertiary education, it also reflects the substantial number of young people who are in

NEET status (corresponds to one-fifth of the youth globally). Young women are twice as likely as young men to be in NEET status. The gender gap in NEET status is striking in regions such as Southern Asia and the Arab States, where young women face social and cultural barriers to pursuing education or working outside the house (ILO, 2020).

The full potential of the NEET population is not utilized because they do not gain income and experience or enhance their education or skills even though many of them, especially young women, contribute to the economy through their unpaid work. There has been no significant decrease in the youth NEET rate in any region of the world since 2005 (ILO, 2020). It should be noted that young individuals are not equally vulnerable in terms of educational and employment opportunities. Vulnerability to being in NEET status is directly related to factors such as one's family background, gender segregation in the labour market, and the role of nationality/ethnicity (Rodriguez-Modroño, 2019).

For those in employment, young individuals are more likely to be employed in casual, temporary or part-time work than other groups, and hence face a delay in accessing well-paid and secure employment conditions. In this regard, underemployment, and not just unemployment, is an important issue for the youth as many graduates work in positions well below their skill level or in part time work (France, 2017). For example, globally 13 per cent of the young population in employment endure extreme poverty (defined as living on an income below US$1.90 per day), and 17 per cent live in moderate poverty (an income below US$3.20 per day). Three-fourths are in informal employment with higher rates in sub-Saharan Africa and Southern Asia. Wage inequality is also higher among young workers than among prime-age workers despite some improvement following the 2008 global economic crisis (ILO, 2020).

Young individuals also endure higher unemployment rates than adults as also discussed in the introduction. Globally, 13.6 per cent of the youth labour force is unemployed and there are significant differences across world regions. It ranges between under 9 per cent in Northern America and sub-Saharan Africa to 30 per cent in Northern Africa. Young women have higher unemployment rates than young men in most subregions of the world (ILO, 2020).

3.2. Youth in the Turkish Labour Market

Youth represents an untapped potential in many developing countries including Turkey. The share of young individuals (ages 15-24) in total population was 15.4 per cent in 2020, whereas the ratio of the population over 64 years of age was 9.5 per cent in the same year. This shows that Turkey has a young population and a demographic gift to design a sustainable pension scheme. Turkey also enjoys a window of opportunity with higher shares of younger cohorts in the working-age population (ETF, 2020).

The fertility rate was 1,76 per cent and the replacement rate was 2,1 percent in Turkey in 2020. This implies that the demographic window of opportunity is going to close soon in Turkey. Indeed, despite having a high share of young population, Turkey has been experiencing a decline in the youth

dependency ratio (i.e., the share of population at ages 0–24 per 100 population at ages 25–64), which was measured as 78.6 in 2020. Turkey is also projected to experience a sharp decline in the proportion of youth population over the longer term (up to 2040), according to the population projections carried out by the United Nations' Department of Economic and Social Affairs (UN-DESA) (ETF, 2020). Turkey should therefore benefit from its demographic window of opportunity before it closes.

Turkey however falls behind the EU average in various measures of school to work transition and youth integration in employment. For example, the share of young individuals (aged 15-24) in NEET status was close to 20 per cent for young men and 35 per cent for young women in Turkey in 2019; both ratios were around 10 per cent for the EU on average (ETF, 2020). For those in education, early school leaving or dropout rate, which is measured as the percentage of youth aged 18–24 with at lower secondary education who are no longer in education or training, is 30 per cent in Turkey; this is also much higher than the EU average of around 10 per cent (ETF, 2020). This is an important issue to address to mitigate the risk of social exclusion among early school leavers.

Among the 15-24 age group, unemployment rate was around 6 per cent in 1990 and between 8 and 15 per cent in the 2000s (Yanık-İlhan, 2012). It increased to 21 per cent in 2021, implying that Turkey is far from benefiting its demographic window of opportunity. Youth unemployment rate was higher than the EU average overall; and unemployment was more prevalent among young women than young men in Turkey in 2019 (ETF, 2020).

There is a large gender gap also in youth employment in Turkey. In 2019, the share of employed young men in total young male population (15-24 ages) was close to 45 per cent while the same ratio was only above 20 per cent for young women in Turkey. There is a much lower gender gap in youth employment in the EU on average. In terms of youth employment, a relevant indicator is employment rate of recent graduates (students who graduated at the upper secondary and tertiary levels, ISCED 3–8), measured over a period from one to three years after graduation by means of labour force surveys. Accordingly, the ratio was below 70 per cent for young men and around 50 per cent for young women in Turkey in 2019 whereas the same ratio was around 80 per cent for both young men and young women on average for the EU. Foundational skills measured by the PISA scale in reading, mathematics and science is the main area in which Turkey performs close to the EU average thanks to the significant improvement it recorded between 2015 and 2018 (ETF, 2020).

In terms of job-related skills, around 50 per cent of upper secondary students were enrolled in vocational education and training (VET) programmes in Turkey. VET is important because most of the labour demand is on mid-level qualifications. However, these programmes need to be developed further to increase their relevance for the labour market, for example, through stronger collaboration with the private sector, dual education modalities to deliver VET, upgrading of school workshops and equipment, and training of trainers, teachers, and instructors (ETF, 2020). The incidence of overqualification is also

an issue in the Turkish labour market. One in three workers with tertiary education works in lower-skilled positions in Turkey. This implies waste of human capital, as highly educated workers do not use their real potential. On the contrary workers with mid-level qualifications (ISCED 3–4) manage to get better matched positions (Eurostat, 2018).

3.3. Turkish Educational System

There have been several developments in the education system in Turkey over time. The first one is the increase in in compulsory education first from five to eight years in 1997, and then to twelve years in 2012. The primary and secondary education levels were combined under a single title of 8 years duration. This was then transformed into a structure of 4+4+4 covering primary, secondary, and high school levels separately. The direct effect of an increase in the duration of compulsory education is an increase in AYS in the population. An indirect effect is the delay in the transition from school to work which is relevant for our study. This also may lead to decreased unemployment rate since there will be a lower rate of labour force participation.

Tertiary education calls for specific attention given the increasingly knowledge-driven structure of the global economy and the importance of tertiary education for the modernization of economies. Increasing the share of those with tertiary education brings both private benefits in the form of higher returns and social benefits through increased labour productivity at the economy level. At the same time, expansion of tertiary education may fuel unemployment as those with tertiary education tend to have higher unemployment rates than those with lower level of education in developing countries. Expansion of tertiary education may also increase inequality as university education is mostly accessible by households in higher income brackets in most developing countries (Shimeles, 2016).

Tertiary education has expanded significantly in Turkey over time. Figure 1 shows the number of public and foundation universities, which has increased significantly in Turkey over time. In the 2020-2021 academic year, there were 129 state universities, 74 foundation universities, and 4 foundational vocational training schools, resulting in a total of 207 tertiary education institutions in Turkey.
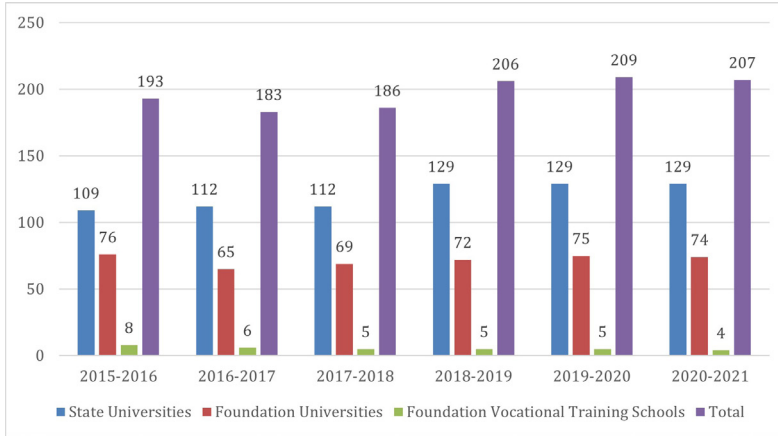
Figure 1. Number of universities by type of institution
Source: Council of Higher Education Statistics (accessed on 21 April 2022).

Figure 2 presents the number of university students by sex of student over a longer period. The substantial rise in the number of students attending a university could be easily seen in the figure. While there were only around 1.5 million university students in the 2000-2001 academic year, the same figure was around 8.2 million in the 2020-2021 academic year. It is also observed that the gender gap in the number of university students closed over time. The gender parity index, which measures the ratio of the number of female university students to that of male students attending a university, increased from 0.69 to 0.97 in the same period. Hence almost full gender parity is achieved in terms of the gender composition of university students in Turkey.
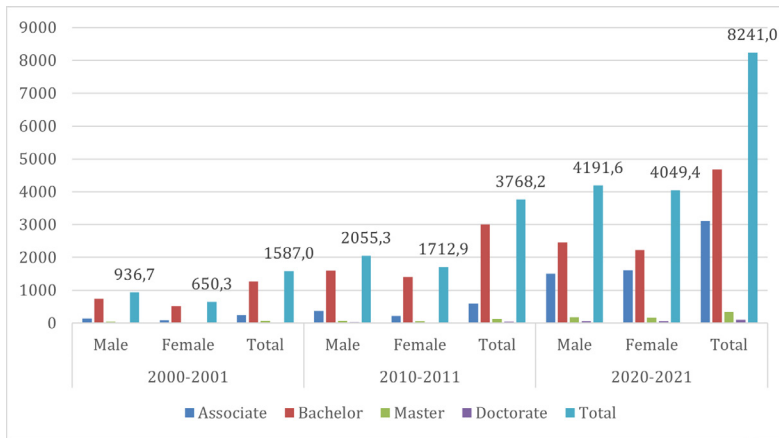
Figure 2. Number of university students by sex (thousands)
Source: Council of Higher Education Statistics (accessed on 21 April 2022).

To sum up, increasing years of schooling, expanding opportunities in higher education and increased access to information technologies all affect education inequality. These changes cause variations in the labour market composition as well. They affect not only human capital composition but also human capital inequalities, especially for young individuals. Therefore, it is important to examine different measures of education inequalities over time to better understand the implications of these changes in education system for education inequality.

4. EDUCATIONAL INEQUALITIES AMONG YOUNG INDIVIDUALS

4.1. Average Years Schooling, Education Gini, Standard Deviation

In this section, we examine the inequalities in education in the youth population by calculating the average years of schooling (AYS), standard deviation in years of schooling, and education Gini coefficient. We define the youth as those between the ages of 15 and 29.[1] Initial investigation of the data shows that the AYS among 15-29 age population increases from 5.09 to 10 years during the period of 1988–2020 (Figure 3). Education Gini coefficient decreases from 0.28 to 0.16 for the same period; hence, education inequality measured the Gini coefficient decreases in the youth population in Turkey over time (Figure 4). On the contrary, standard deviation in years of schooling increases for the same period (Figure 5). This can be expected since standard deviation is based on central tendency (i.e., deviation from the mean) and the Gini coefficient is a general measurement of dispersion.
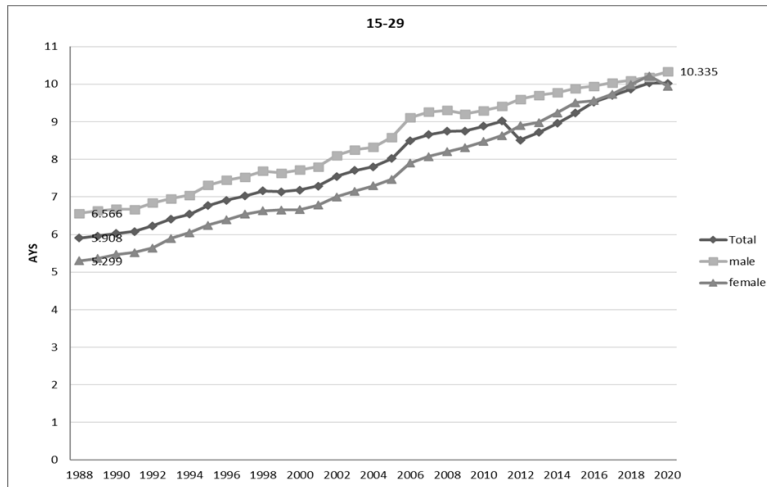
Figure 3. Average Years of Schooling by Gender, 15-29
Source: Authors' calculations based on TURKSTAT HLFS database.

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[1] We use the 15-29 age category to define the youth population, unlike the conventional definition of 15-24 age group mainly because school to work transition is not completed fully for many young individuals in Turkey by the age of 24. Compulsory military service is one of the major reasons behind this delay in school to work transition in Turkey.
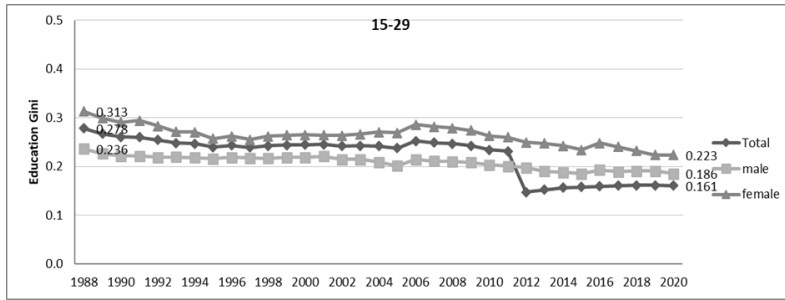
Figure 4. Education Gini by Gender, 15-29
Source: Authors' calculations based on TURKSTAT HLFS database.
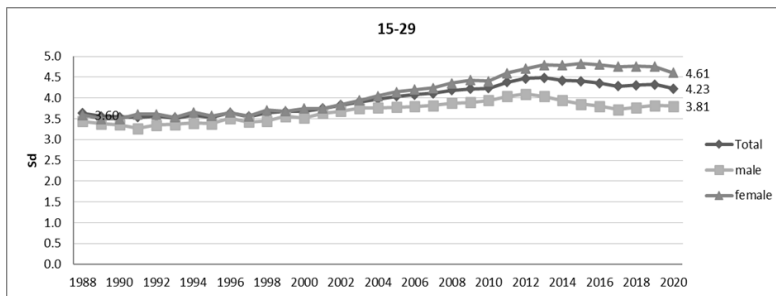

Figure 5. Standard Deviation by Gender, 15-29
Source: Authors' calculations based on TURKSTAT HLFS database.

Educational attainment is higher for young men than it is for young women in Turkey for the entire period. The AYS of men increases from 6.6 years in 1988 to 10.3 years in 2020 while the same figure increases from 5.3 to 10 years for women (Figure 3). The change in AYS for both men and women follow a similar trend over time. The gender gap in AYS gets smaller especially after 2008. This seems to be due to the extension of high-school education from three to four years in the 2005–2006 school year. This change would benefit girls more than boys as girls are more likely to leave school when it is not compulsory. Indeed, Yanık-İlhan (2012) shows that the increase in compulsory education benefits girls more than boys in Turkey.

Contrary to the case of AYS, education Gini coefficient is higher for women than it is for men during the entire period of 1988–2020 (Figure 4). This is valid for education inequality measured by standard deviation in years of schooling as well (Figure 5). Thus, educational inequality among women is higher than it is among men. Education Gini coefficient decreases from 0.23 to 0.19 for men while it decreases from 0.31 to 0.22 for women. The gender gap in education Gini decreases until 2006, then increases especially by 2012, and stays stable afterwards.

We next divide the age group 15-29 into three sub-groups, namely 15-19, 20-24 and 25-29, to see if there is any difference between younger and older cohorts in the youth population. We find the highest AYS for the 20-24 age group, the lowest education Gini coefficient and the lowest standard deviation in years of schooling for the 15-19 age group (see the figures in the Appendix). This is valid for all the studied years. For the 20-24 age group, the AYS of men increases from 6.7 years in 1988 to 11 years in 2020 while the same figure increases from 5.4 to 11.4 years for women. For this age group, the increase in AYS for women is higher than it is for men. In addition to that, education Gini coefficient decreases, and standard deviation increases for women in the 20-24 age group. This means that deviation from the mean is increasing while dispersion is decreasing.

To sum up, for all young individuals, there is an increase in educational attainment measured by the AYS and a decrease in education inequality measured by the education Gini coefficient. However, standard deviation is increasing until 2006 then decreasing for the age groups 15-19 and 20-24. For the age group 25-29, the trend is nearly flat until 2004, then it shows an increasing trend until 2012 followed by a decreasing trend.

Although having an increase in AYS for the young individuals who are at their transitions from school to work is crucial for economic development, having within-group inequalities in education will lead to inequalities in labour market outcomes. These inequalities will additionally lead to unequal opportunities for these young individuals.

Across the globe, including in Turkey, the Covid-19 pandemic led to a shift in the mode of delivery in education from face to face to distance education. This has further exacerbated the inequalities in access to education due to unequal and limited access to information technologies such as the internet and electronic devices. Therefore, in the next section, we present a review of the trends in the use of information technologies among young individuals in Turkey. This is important since inequalities in the use of information technologies lead to inequalities in education outcomes.

5. INEQUALITIES IN DISTANCE EDUCATION DURING THE COVID-19 PANDEMIC

Following the emergence of the Covid-19 pandemic in March 2020, distance learning has come on the scene around the world. This has led to an increase in the use of information technologies among children (6-14 ages) and young individuals (15-24 ages) for both communication and distance learning purposes. Note that distance education is seen as an alternative path for learning especially for higher education and for individuals who were not able to get education during their childhood in the normal times. During the Covid-19 pandemic, it has become the main mode of delivery, as a substitute for face-to-face education, for all school children and young individuals attending a university. This also required a process of adaptation to the new situation for both students and teachers and professors.

The Ministry of National Education opened the Education Information Network (EIN or known as EBA in Turkish) to facilitate this process. Between 23 March-19 June 2020, there were 3.1 billion clicks. EIN has

become the 10th most visited website in Turkey. In addition to that, EIN has also become the 3rd most used education website worldwide (Milli Eğitim Bakanlığı, 2020). The number of students who actively use EBA during distance education has reached approximately 7.4 million. EIN reached 23.8 billion clicks between March 2020 and June 2021 according to Ministry of National Education. More than 14.1 million students actively used EIN for educational purposes.

We next look at the prevalence of use of information technologies and gender inequalities in it to better understand how equal it is to access distance education in Turkey. Young individuals tend to use information technologies to a greater extent than older generations worldwide including in Turkey. According to the Household Information Technologies Usage Survey (HITUS) in Turkey, young individuals used information technologies more than other age groups during the 2004-2012 period.

We also look at gender differences in usage of the internet among those in the 16-24 age group for the 2004-2021 period (Figure 6). Young women's internet usage rate is lower than that of young men in Turkey. The share of those that use the internet in the 16-24 age group increased from 15.9% in 2004 to 94.1% in 2021 for young women. The same rate increased from 38.3% in 2004 to 97.2% in 2021 for young men. Hence, the gender gap in internet usage closed over time for the young population in Turkey. One can say that youth in education did not face severe inequality in their access to distance learning tools, however, in order to be sure about it, more detailed analysis should be done. For example, if there are more than one young individual who are in education in a household, then there might be issues due to slow connectivity. In addition, this internet usage may be through smart phones and not by computers since having cellular phones are more common as computers are more expensive than cell phones. Note that, accessing distance education via smart phones is not as efficient as it is via computers.
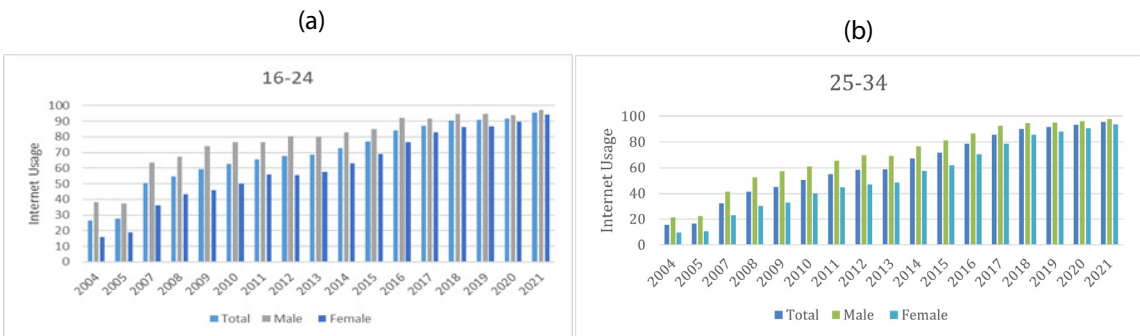
(a)   (b)

Figure 6. Internet Usage by Age Groups
Source: Authors' calculations based on TURKSTAT HITUS survey.

Besides access to the internet, it is also necessary to have an information technology equipment such as a laptop computer or a tablet to access distance learning. Figure 7 presents the share of households that own a given information technology equipment in Turkey. The share of households having a smart phone has been increasing over the investigated years, reaching 99.3% in 2021. The share of households with a desktop computer increases until 2011, then it starts to decrease. On the contrary, the share of households with a laptop computer has increased over time. This shows that laptop computers have replaced desktop computers over time (Güler et al., 2017). Overall, this figure shows that smart phone ownership is widespread in Turkey while there are significant inequalities in access to computers in Turkey. This also leads to inequalities in accessing distance learning since desktops and laptops are more efficient tools for distance learning than smartphones.
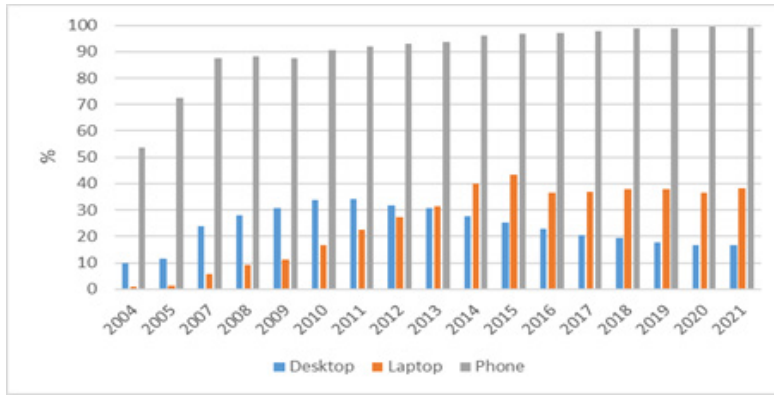

Figure 7. The Ownership Ratio of Information Technologies in Households, 2004-2021
Source: Authors' calculations based on TURKSTAT HITUS database.

These figures above show that despite widespread access to the internet in the youth population, ownership of computers is less equal and might have contributed to increased education inequality during the Covid-19 pandemic. There are also regional inequalities in internet access and usage in Turkey. Tables 1 and 2 present internet access and internet usage ratios at the NUTS-1 level. In 2021, Istanbul followed by West Anatolian, Southeast Anatolian, and East Marmara regions had the highest ratios of internet access (97%, 94%, 94% respectively). The West Black Sea region had the lowest ratio in internet access (85%) closely followed by the East Black Sea region (88%). As it is seen from the tables, there are not big differences in internet access across different regions. Standard deviation of internet access by region decreases from 12 to 4. However, the variation of internet usage is higher than the variation in internet access. For the case of internet usage, standard deviation is 9 at the beginning while it increases to 11 and then decreases to 6 in 2021. Internet usage is more crucial than internet access in terms of using the internet for education purposes.

years	Turkey	TR1 İst	TR2 West-Marmara	TR3 Eagen	TR4 East Marmara	TR5 West Anatolian	TR6 Mediterrenian	TR7 Middle Anatolian	TR8 West Blacksea	TR9 East Blacksea	TRA Northeast Anatolia	TRB Middle East Anatolia	TRC Southeastern Anatolia	standard deviation	mean
2011	43	57	43	39	57	48	36	49	33	40	22	25	21	12	39
2012	47	61	50	46	61	57	40	41	39	33	42	36	22	12	44
2013	49	63	59	47	57	52	44	47	40	35	45	38	27	10	46
2014	60	75	64	57	62	59	58	55	44	63	48	44	53	9	57
2015	70	81	67	65	72	74	70	64	56	61	52	66	66	8	66
2016	76	89	70	69	77	80	78	72	69	69	72	71	70	6	74
2017	81	91	71	78	80	84	82	77	77	77	73	77	72	6	78
2018	84	90	75	81	84	84	87	83	78	81	78	83	81	4	82
2019	88	96	80	86	89	92	89	89	80	84	88	89	81	5	87
2020	91	96	86	91	92	93	91	87	81	87	87	90	87	4	89
2021	92	97	86	90	94	94	91	90	85	88	87	90	94	4	90
Standard deviation	18	15	14	19	14	17	21	18	20	21	22	25	27		
Mean	71	81	68	68	75	74	70	69	62	65	63	64	61		

Table 1. Internet Access by Region, 2004-2011
Source: Authors' calculations based on TURKSTAT HITUS database.

Years	Turkey	TR1 İst	TR2 West-Marmara	TR3 Eagen	TR4 East Marmara	TR5 West Anatolian	TR6 Mediterrenian	TR7 Middle Anatolian	TR8 West Blacksea	East Blacksea	TRA Northeast Anatolia	TRB Middle East Anatolia	TRC Southeastern Anatolia	standard deviation	mean
2011	45	56	44	46	52	51	42	42	37	43	35	32	27	9	42
2012	47	61	44	50	56	57	43	42	39	33	32	34	29	11	43
2013	49	61	52	50	55	58	44	46	40	40	33	31	35	10	46
2014	54	64	53	55	58	59	53	51	46	52	40	38	39	8	51
2015	56	67	59	57	59	62	53	51	50	52	40	40	43	9	53
2016	61	72	59	59	65	68	62	59	55	53	49	45	48	8	58
2017	67	79	64	66	68	76	68	65	61	61	49	53	49	9	63
2018	73	84	70	73	77	80	72	69	66	68	52	60	58	9	69
2019	75	87	72	76	78	83	75	77	70	67	61	63	58	9	72
2020	79	89	78	80	83	85	78	77	70	73	68	68	64	8	76
2021	83	91	78	81	85	88	81	80	76	80	68	75	77	6	80
standard deviation	13	12	12	13	12	13	15	14	14	14	13	16	15		
mean	63	74	61	63	67	70	61	60	55	56	48	49	48		

Table 2. Internet Usage by Region, 2011-2021
Source: Authors' calculations based on TURKSTAT HITUS database.

5. CONCLUSIONS

Education inequality is a crucial issue due to its implications for economic development and its interaction with other forms of inequalities: gender, income, regional and labour market. Educational attainment and low education inequality are critical for the youth population especially for their smooth transition from school to work. We examine the changes in both educational attainment and education inequality for the youth population (15-29 age group) in Turkey using the Household Labour Force Survey data for the period of 1988-2020. We calculate the average years of schooling (AYS) to measure educational attainment, and standard deviation and education Gini coefficient to measure education inequality. We also examine the implications of the Covid-19 pandemic for education inequality. Specifically, we look at indicators on information technologies usage since inequalities in using information technologies affect one's ability to access distance education. Therefore, inequalities in using information technologies have an indirect effect on education inequalities in a society.

Major findings of the study are as follows. Educational attainment measured by the AYS increases and education inequality measured by the education Gini coefficient decreases over time among the youth

in Turkey. There are some disparities by different age groups and gender. Educational attainment is higher among young men and education inequality is higher among young women in Turkey for the entire period. The gender gap in AYS gets smaller especially after 2008; the gender gap in education Gini decreases until 2006, increases between 2006-2012, and stays stable afterwards. It seems to be the fact that the increase in compulsory education has benefited young women more than young men contributing to the narrowing of the gender gap in education.

There are implications of these findings for school to work transition. Expansion of educational attainment implies that transition from school to work will be at older ages in Turkey. Decreases in education inequality is expected to lead to a fall in inequalities in the labour market outcomes including in transition from school to work. Therefore, one can expect that transition from school to work will be smoother in Turkey over time. It should also be noted that many other factors affect transition from school to work, including quality of education, macroeconomic fluctuations, and opportunities in the labour market.

A closer look at data on information technologies revealed that the youth use information technologies to a great extent than older generations as expected. Young individuals have very high rates of internet usage and the gender gap in it closed over time; smartphone ownership is also widespread in Turkey. However, there are inequalities in accessing more efficient tools of distance learning such as desktop and laptops computers. There are also regional inequalities in the use of information technologies adding an extra dimension to be considered by policymakers.

Overall, the findings of this study show that expansion of compulsory education have contributed to an increase in educational attainment as expected, and a fall in within group education inequality for both young women and young men in Turkey over time. These have implications for the youth's school to work transition with delayed employment, and more equal opportunities in the labour market following the decline in education inequality. Our findings could guide policy makers while formulating solutions about the education system in relation to changes in compulsory education duration and means of education delivery.

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APPENDIX
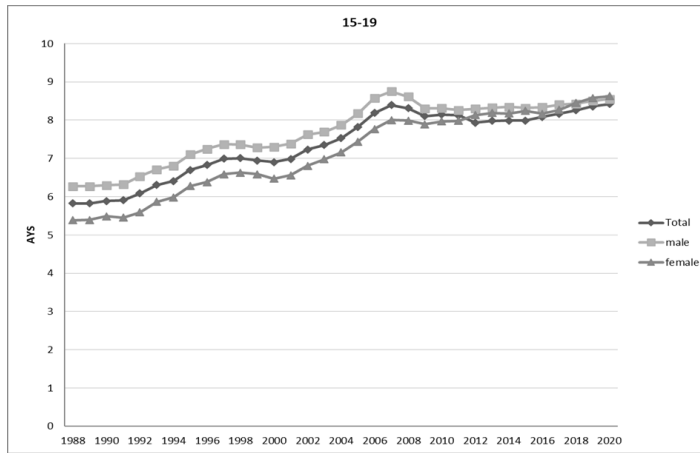
Figure A.1. Average Years of Schooling by Gender, 15-19
Source: Authors' calculations based on TURKSTAT HLFS database.
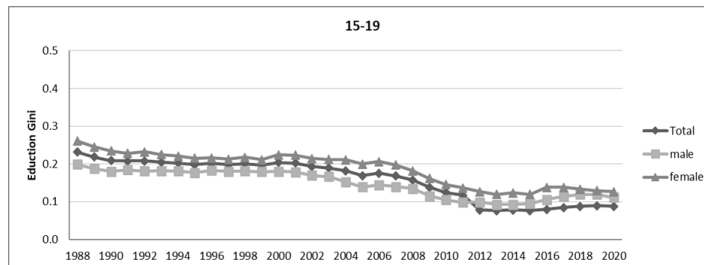
Figure A.2. Education Gini by Gender, 15-19
Source: Authors' calculations based on TURKSTAT HLFS database.

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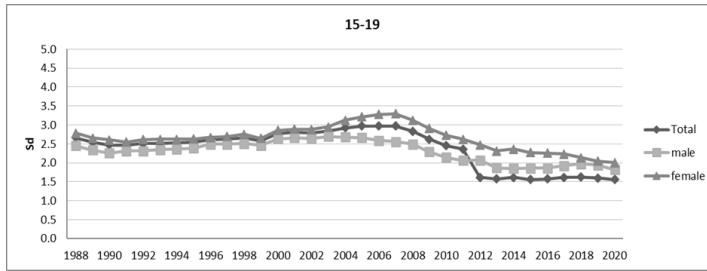
Figure A.3. Standard Deviation by Gender, 15-19
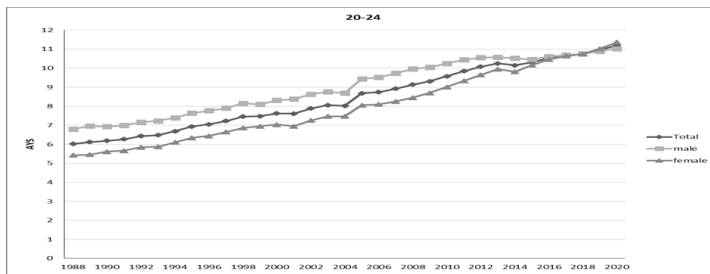**Source:** Authors' calculations based on TURKSTAT HLFS database.

Figure A.4. Average Years of Schooling by Gender, 20-24
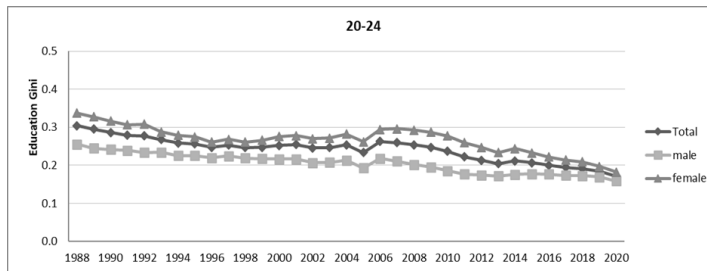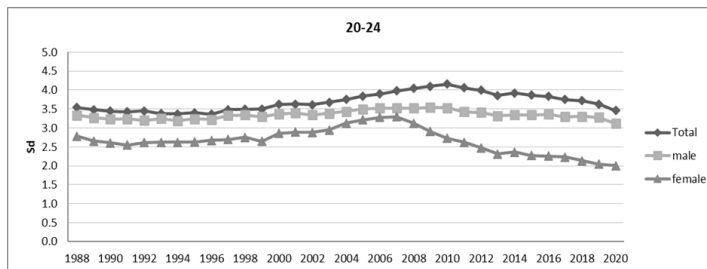**Source:** Authors' calculations based on TURKSTAT HLFS database.

Figure A.5. Education Gini by Gender, 20-24
Source: Authors' calculations based on TURKSTAT HLFS database.

Figure A.6. Standard Deviation by Gender, 20-24
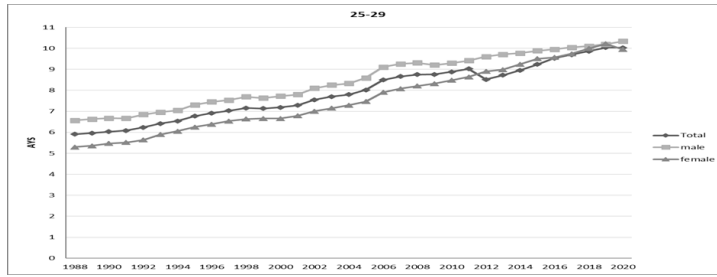**Source:** Authors' calculations based on TURKSTAT HLFS database.

Figure A.7. Average Years of Schooling by Gender, 25-29
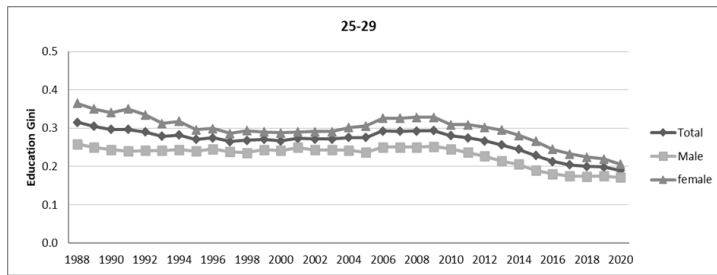**Source:** Authors' calculations based on TURKSTAT HLFS database.

Figure A.8. Education Gini by Gender, 25-29
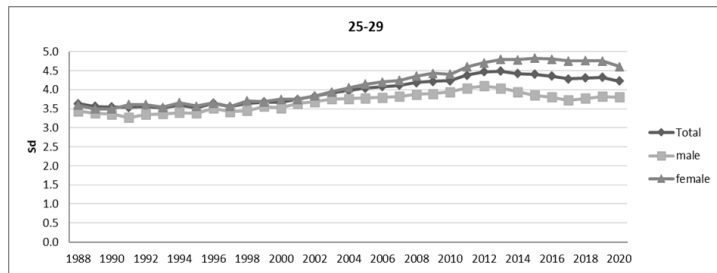**Source:** Authors' calculations based on TURKSTAT HLFS database.

Figure A.9. Standard Deviation by Gender, 25-29
Source: Authors' calculations based on TURKSTAT HLFS database.