

Apple Doesn't Fall Far: Intergenerational Education Mobility in Turkey

Erkan Duman^a,

^a World Bank, Turkey, erduman@alumni.sabanciuniv.edu, <https://orcid.org/0000-0002-6585-6665>

ARTICLE INFO

Research Article

2021, Vol. 3(2), 51-65

e-ISSN 2667-5927

Article History:

Received: 12.06.2020

Revised: 20.02.2021

Accepted: 05.03.2021

Available Online: 30.04.2021

JEL Code: I21, J13, J24

Keywords: *intergenerational mobility, education, human capital*

Apple Doesn't Fall Far: Intergenerational Education Mobility in Turkey

Abstract

This study presents an in-depth review of the literature on intergenerational education mobility. The issues regarding consistent estimation of mobility coefficients as well the proposed solutions are elaborately discussed. In the light of the discussions, the strength of the intergenerational schooling association in Turkey is analyzed for father-son and father-daughter samples separately using a pooled sample of pairs living in the same household in any of the years between 2003 and 2011. The results suggest large persistence in intergenerational schooling—paternal and maternal correlation coefficients are 0.56 and 0.59 for sons, 0.63 and 0.73 for daughters—regardless of the gender of the child. The large mobility correlations may ask for the government to intervene in breaking the harmful schooling link across generations.

To cite this document: Duman, E. (2021). T Apple Doesn't Fall Far: Intergenerational Education Mobility in Turkey. BILTURK, The Journal of Economics and Related Studies, 3(2), 51-65.doi: 10.47103/bilturk.836623

1. Introduction

Johnson and Stafford (1973) and Leibowitz (1974) conclude that parental schooling has a positive causal impact on their children's educational attainment which implies that children who have high educated parents are more likely to acquire more years of schooling compared to children of low educated parents, holding all other things constant. In the version of human capital theory by Ben-Porath (1967), educational attainment plays an important role in determining individuals' lifetime earnings. In the light of this argument by Ben-Porath (1967), findings of Johnson and Stafford (1973) and Leibowitz (1974) can be interpreted as children of high educated parents have higher earnings potential due to their accomplishment of higher levels of schooling compared to children of low educated parents. Thus, lucky children of high educated parents—as a child cannot choose his/her parents among the available candidates—are more likely to live a prosperous life compared to those children of low educated parents. Long term consequences of a strong intergenerational schooling association may be devastating for the society and for economic growth. Therefore, it is important to quantify the strength of the intergenerational schooling link and to understand whether the intergenerational schooling relation is causal. If there is intergenerational persistence, governments may need to intervene in order to provide equality of opportunity and resultingly improve life standards of children of low educated parents by providing the families the means to make investments in their children's human capital or by investing directly to the targeted children in terms of schooling and other human capital inputs (Shea, 2000).

The intergenerational schooling correlation may be biased since the intergenerational schooling association may be partly driven by omitted variables like parents' income. High educated parents are more likely to be wealthier than low educated parents as they have accumulated more human capital which in turn pays higher rents in labor market, and those wealthy parents have more resources to invest in their children's human capital. High educated parents due to their higher income may provide a better environment for their children to be successful. Therefore, the educational inequality in children's generation which in turn results in income inequality in children's generation when they become adults may arise partly owing to the income inequality in parents' generation. Maybe parental schooling which is argued by Leibowitz (1974) to reflect parental skill in parenting, and parents' time allocation to their children does not matter for children's educational attainment as much as it is argued in the intergenerational schooling literature. Mayer (2010) surveys the literature on the relation between parental income and children's educational attainment and moreover, presents the findings of studies on the intergenerational income mobility. Mayer (2010) suggests that children from poor families compared to children from rich families are more likely to drop out of high school and those who achieve to graduate from high school are less likely to enroll in or graduate from college. In addition, the resulting

educational inequality between children from poor families and children from rich families may contribute to the income inequality when these children become adults and this hypothesis is consistent with the findings surveyed in Mayer (2010) that children from poor families are more likely to remain poor when they become adults compared to children from rich families. Concludingly, parental income may play an important role in children's schooling and in children's standard of living when they become adults. Mayer (2010) reviewing the literature concludes that a 10% increase in parental income results in 0.024 to 0.104 additional years of schooling for the child. Plus, a 10% increase in parental income is associated with a 2% increase in child's income when he/she becomes an adult. Mayer (2010) suggests that in order to prevent children of poor families to grow up poor, the society should provide education, training and services that maximize the employability of such children. Consistent with this idea, Sylwester (2000) using a cross section of countries concludes that increasing public education expenditures reduces income inequality within a country. It is most logical to agree with Shea (2000) that it is important to distinguish correlation from causality in intergenerational schooling and in intergenerational income mobility studies in order to assess the impact of policies that redistribute income among parents or invest in children's human capital directly.

This study presents an in-depth survey of the recent methodological advancements in consistent estimation of intergenerational education mobility. This article sheds light on an important issue that has long term consequences on the society and on income inequality and contributes to the scarce literature on intergenerational education mobility in Turkey by presenting regression coefficients that reveals the strength of association between parents' and their offspring's education using pooled Household Budget Surveys spanning years 2003-2011.

In the next section I overview the literature and discuss the issues of and proposed solutions to consistent estimation of intergenerational mobility coefficients. The rest of the paper follows as: in section 3, I describe the dataset used to estimate intergenerational education mobility coefficients in Turkey and present some descriptive statistics. In section 4, results are presented, and section 5 concludes.

2. Literature Review and Estimation Issues

Observing that higher educated parents have higher educated children, it is natural to ask, because of the reasons I explained before, whether this relation is causal. The literature is typically divided into two parts: studies that examine the intergenerational schooling association and studies that try to find causal relations.

The main problem in identifying causality is the ability bias. More able parents may obtain more schooling compared to less able parents and if earnings or schooling ability is genetically transmitted to their children, higher educated parents who are more able will be more likely to have more able children, who will eventually obtain more schooling. So, the intergenerational schooling association actually captures the impact of genetically transmitted ability. Secondly, among mothers with the same ability, those who have higher education may have children who have higher education due to assortative mating. This is an assumption that says people marry those who are more like them. So, under this assumption, more educated mothers will marry more educated fathers, who may be more able and again due to genetic transmission of ability, their children may be more able and obtain more schooling.

To identify the causal impact of parental schooling on children's educational attainment three methods are stressed in the literature. Firstly, a sample of monozygotic (identical) twins for fathers or mothers is used to control for the children's unobserved heritable endowments. It is assumed in the literature that a child's endowments are stochastically determined by his parents' endowments. So, children of monozygotic female twins inherit the same endowments from their mothers because their mothers are identical twins and it is assumed that identical twins have the same genetic codes and the same abilities. Similarly, the children of identical male twins inherit the same endowments from their fathers. Therefore, differencing identical female twins' children's educational attainment regression equations, we get rid of mother's heritable earnings (or schooling) endowments since in the literature the intergenerational schooling relation is assumed to be a linear one. Still, the father's heritable endowment biases the schooling coefficients of both parents.

$$S_{ij}^c = \gamma_0 + \gamma_1 S_{ij}^p + v_{ij}^c \quad (1)$$

This is the OLS regression that is run to find the impact of parental schooling on children's educational attainment. S_{ij}^c represents child i 's total years of schooling from family j and S_{ij}^p represents child i 's parents' total years of schooling. In the literature, this equation is estimated using only one parent's years of schooling or simultaneously adding both parents' educational attainments separately into the equation or summing up the total years of schooling of parents and adding it to the equation as the variable of interest. Holmlund, Lindahl, and Plug (2011) review the literature on parental educational impact on children's educational attainment and state the pros and cons of introducing the parental education in one of these three methods to the equation. According to Holmlund, Lindahl and Plug (2011), introducing only one of the parent's years of schooling each time and estimating the intergenerational schooling link for father's and mother's one by one will cause biases in the estimates. Their argument is that if only one of the parent's schooling is introduced and the spouse's educational attainment matters for their children's

years of schooling, omitting the spouse's education due to assortative mating will bias the parent's (i.e., the one whose years of schooling is introduced to the equation) schooling estimate. Assortative mating assumption makes it clear that parents' years of schooling are correlated. So, the estimated parental education coefficient (i.e., only one of the parents) captures both the effect of the given parent's education and the spouse's education. Introducing both parents' schooling eliminates the bias due to assortative mating; however, because of the correlation between parents' schooling, multicollinearity makes it difficult to interpret the parents' schooling coefficients. To counteract the multicollinearity problem the literature proposes summing up the father's and mother's schooling and introducing it as the variable of interest which makes the assumption that father's and mother's schooling has the same partial effect on their children's education. Therefore, it is like adding father's and mother's schooling separately at the same time to the regression equation. So, assortative mating is accounted for. Furthermore, since the schooling of father and mother is not introduced separately at the same time, there will be no multicollinearity problem and the estimate will be more precise. Holmlund, Lindahl and Plug (2011) state that the studies covered in their paper which control for assortative mating (i.e., include both parents' schooling at the same time separately) except for Behrman and Rosenzweig (2002) study, find the same partial effect for father's and mother's schooling. Leibowitz (1974) in her study on top 1% scoring school children from Stanford-Binet or Terman IQ tests from grade 3 to grade 12 in California concludes that for the sample of boys, mother's and father's schooling has the same partial effect on their schooling, and for the sample of girls, mother's schooling seems to have a higher partial effect compared to father's schooling; however, this difference is not significant at 5% level. Her estimations control for assortative mating as well. The evidence provided makes it reasonable to introduce the summed-up schooling of the parents into the equation, still attention needs to be paid since it is not guaranteed that regardless of the differences in social norms and educational environments in various study contexts the partial effect of father's and mother's schooling will be the same.

In (1), if the intergenerational transmission of ability is not accounted for, then the intergenerational schooling link will be merely an association. Holmlund, Lindahl and Plug (2011) summarize the twin studies and when the unobservable heritable endowments are not accounted for, the estimated partial effects for father's and mother's schooling are both positive and significant regardless of whether assortative mating is accounted for or not. When unobserved ability of the children is accounted for by making use of twin fathers or twin mothers samples except for Behrman and Rosenzweig (2002) study, there seems to be a positive and significant effect of father's schooling whereas there is no effect of mother's schooling, again

regardless of whether assortative mating is accounted for or not. Behrman and Rosenzweig (2002) find a significant and positive impact for father's schooling and a significant and negative effect for mother's schooling regardless of the control status for assortative mating. In more recent cohorts, however, with the increase in females' educational attainment, mother's schooling seems to have a low but positive significant effect on their children's schooling. In the studies where the intergenerational ability transmission is accounted for, both father's and mother's schooling coefficients decrease, plus mother's schooling coefficient becomes insignificant. Therefore, heritable endowments seem to bias the intergenerational schooling coefficients upwards. This result is consistent with the expectation that heritable endowments of the children are positively correlated with those of their parents and children's schooling via this correlation in endowments is also positively correlated with their parents' schooling. Thus, heritable schooling endowments confound the intergenerational schooling link upwards.

The second method in the literature to correct for ability bias is to use the link between adoptive parents and adopted children. The identification in studies which use adoptive parents and adoptive children as their samples comes from the lack of the intergenerational ability transmission since the adoptive parents and the adopted children do not share common genes. It is natural to expect no correlation in abilities of adoptive parents and adopted children. (1) is run separately for adoptive parents and their own children (i.e., not adopted ones) and for adoptive parents and their adopted children. We expect to find upward biased intergenerational schooling estimates when the regression is run for adoptive parents and their own children due to the presence of intergenerational transmission of ability. However, as I explained before, the intergenerational schooling estimates will be ability bias free when the regression is run for adoptive parents and their adopted children. The intergenerational schooling estimates for adopted children are found in the literature to be less than the ones for own children (not adopted), thus justifying the upward bias generated by the confounder–genetically transmitted ability. Holmlund, Lindahl and Plug (2011) state that the unobserved heritable endowment biases the parental schooling estimate upward by a fraction of 50% of its actual value. When assortative mating is controlled for in adopted children studies, mother's schooling has a low but significant positive partial effect on their adopted children and father's schooling has a larger positive significant partial effect. The difference between twin parents and adopted children studies is that in twin studies mother's schooling is found to have no effect whereas in adopted children studies mother's schooling is found to have a low but positive significant effect on children's schooling.

Lastly, there are some IV studies that try to exploit an exogenous variation in the schooling of the parents to identify a casual intergenerational schooling effect. Since parental schooling is endogenous in child's educational attainment equation, an instrument is needed to capture the part of the variation in parent's schooling that is uncorrelated with his/her own heritable endowment (as mentioned before

the child's endowments are stochastically determined by his/her parents' endowments). In the literature, mostly the instrument used was a compulsory schooling reform that affects some cohorts and do not affect other cohorts or affects some regions earlier than the other regions. Black, Devereux and Salvanes (2008) use changes in compulsory schooling laws introduced in different Norwegian municipalities at different times with a span of 14 years from 1959 to 1973. The Norwegian schooling reform increased compulsory schooling from 7 years to 9 years. By means of this schooling reform instrument, Black, Devereux and Salvanes (2008) estimate the local average treatment effect on those children whose parents would not have increased their schooling if they would not be forced by the reform. Complying parents are similar to other parents on any other characteristics but their age, municipality of birth and of course extra two years of schooling thanks to the Norwegian schooling reform. However, it is important to stress that estimated LATE (local average treatment effect) is valid for compliers, whereas for always takers (who would have obtained higher education regardless of being affected by the reform or not) and never takers (who would not increase their schooling even in the presence of the enforcement of the reform) instrumental variable estimate would not reflect the true impact. Black, Devereux and Salvanez (2008) using the whole sample find imprecise and insignificant intergenerational schooling estimates. When they restrict their sample to those parents who do not have more than nine years of schooling, their results gain in precision. Of course, some of the parents who have more than nine years of schooling might not have achieved that if the reform was not bidding, so restricting the sample to those parents with no more than nine years of schooling ignores some of the exogenous variation present in parental schooling that may be important in explaining children's schooling. Nevertheless, Black, Devereux and Salvanez (2008) assume that the instrument has little bite for those parents acquiring more than nine years of schooling. Black, Devereux and Salvanez (2008) find no effect for father's education but positive and low significant effect for mother's education. It is important to remember that these effects are averaged among low educated parents. Maybe parental schooling is transmitted differently and most likely better among higher educated parents. High educated parents and low educated parents may differ in their perceptions of education and in their expectations from education. High educated parents may value education more and therefore, stress the importance of education more in the home. Thus, some researchers investigate the parental schooling impact among high educated parents. Carneiro, Meghir and Parey (2013) focus on grade repetition as the outcome and use variation in higher education. They use tuition fees and college location in US to capture exogenous variation in schooling of those higher educated parents. Maurin and McNally (2008) also focus on grade repetition as outcome but use year-by-year change in the quality of university entrance exams in France to capture exogenous variation in schooling of higher educated parents.

Both studies suggest that higher parental education reduces the probability of grade repetition. However, Holmlund, Lindahl and Plug (2011) criticize these studies because of the weakness of the instruments (tuition fees and college location) or their too much dependence on year-by-year variation. Holmlund, Lindahl and Plug (2011) take the results of Black, Devereux and Salvanez (2008) most seriously.

Holmlund, Lindahl and Plug (2011) apply the procedures presented above to Swedish register data. For twin parents and adopted children, father's schooling has a positive and significant effect whereas mother's schooling has a lower positive significant effect. Their instrumental variables estimation results suggest no effect for father's schooling but a positive and significant effect for mother's schooling on compliers (those parents with no more than 9 years of schooling with the assumption that parents with more than nine years of schooling is less affected by the reform).

As a result of twin parents, adopted children and IV studies, it seems that a portion of intergenerational schooling link is established by causal parental schooling but whose education matters is a question. Twin parents and adopted children studies suggest that paternal education is more important whereas IV studies suggest that maternal education is more important.

3. Data and Descriptive Statistics

This paper uses data from cross-sectional household budget surveys, "Hanehalkı Bütçe Anketi" conducted by Turkey's national statistical agency (TÜİK). Nine waves of data from the household budget surveys are pooled together covering the years from 2003 to 2011 in order to increase variation. Each survey is representative at urban, rural and national levels. The surveys contain information on demographic characteristics including the last finished schooling level, current and previous employment status, wages earned in last 12 months, earnings both in cash and in-kind from last 12 months, expenditures and household asset ownership. The pooled cross-sectional data set contains information on 98,568 households.

Our purpose in this study is to investigate the education mobility in the population. To achieve our goal, parents and their children should be identified in the sample. Since the data used is not longitudinal, children who left a household and form their own households cannot be matched with their parents. However, the data set allows us to match parents and children if they live in the same household. Nevertheless, the sample constructed by choosing the households where parents and their children live together may be a highly selected sample and may not be representative of the population.

Table 1 gives the descriptive statistics for children who have non-missing information on last finished schooling level and who have fathers with non-missing information on last finished schooling level. The samples constitute of sons and daughters who are between ages 25 and 34. The descriptive statistics are given for

the oldest son or oldest daughter present in the household and their matched fathers. Choosing the oldest son or oldest daughter is to preserve independence across observations and to reduce potential life-cycle bias as individuals in their early ages may have less earnings or wages due to having less experience (Zimmerman, 1992). Annual wages and annual earnings are reported in December 2011 Turkish Lira.

Table 1: Descriptive Statistics

Variables	Sons Sample		Daughters Sample	
	Dads	Sons	Dads	Girls
Age	57.32	28.54	57.67	28.56
Annual wages	15,339	10,916	14,801	11,067
Annual earnings	16,350	10,720	16,770	10,136
<i>Education^j:</i>				
No qualification	0.097	0.021	0.077	0.059
Low level	0.762	0.501	0.724	0.435
Middle level	0.085	0.32	0.118	0.268
High level	0.054	0.156	0.079	0.237
<i>Occupation^k:</i>				
Top executive and managerial	0.163	0.069	0.180	0.039
Professional	0.020	0.053	0.029	0.152
Assistant professional	0.027	0.061	0.040	0.115
Clerical	0.022	0.058	0.032	0.196
Service and sales	0.058	0.155	0.069	0.113
Farmer and livestock workers	0.418	0.189	0.330	0.198
Craftsmen and foremen	0.100	0.179	0.123	0.055
Operatives	0.086	0.119	0.096	0.042
Unskilled labor	0.100	0.113	0.097	0.085
Married	0.97	0.45	0.97	0.10
No. Of siblings	-	2.25	-	2.39

Notes: The descriptive statistics are for sons and daughters who have non-missing education information and who have fathers with non-missing education information. (j) No qualification represents individuals who are illiterate. Low level represents individuals who are junior high school graduates or have less than junior high school level education. Middle level represents individuals who have high school diploma. High level represents individuals who have 2 year or 4 year university or master's or PhD diploma. (k) Professions are categorized according to ISCO 88. Sons sample consists of 8,046 father-son pairs. Daughters sample consists of 3,890 father-daughter pairs. The descriptive statistics for sons and girls are for the oldest son and oldest daughter in the household. Annual wages and earnings are in December 2011 Turkish Liras.

In both samples, the mean age for oldest sons and oldest daughters as well mean age of fathers seems to be similar. The mean annual wage for sons is slightly less than the mean annual wage for daughters. Fathers in daughters' sample earn less wages on average than fathers in sons' sample. It is interesting to observe the change in educational attainments across fathers' and sons' generations, similarly across fathers' and daughters' generations. In fathers-sons sample, fathers with lower secondary education or less than lower secondary education constitute 76% of all fathers. 8% of the fathers have high school education and only 5% have education level over high school. 10% of fathers do not know how to read and write. Illiteracy rate significantly decreases to 2.1% in sons' generation. The share of sons with lower secondary education or less than lower secondary education is significantly less than the corresponding figure for their fathers. The high school share increases from 8% to 32% moving from fathers' generation to sons' generation. Lastly, the share of high-level education tripled in sons' generation. Similar patterns arise for fathers-daughters sample with an important difference; fathers' in daughters' sample have lower share of illiteracy and low-level education and have higher shares of middle level and high-level education compared to fathers in sons' sample. In fathers-sons sample, 42% of all fathers work as a farmer or livestock worker which most likely implies that these families are located in rural areas. Corresponding figure for fathers-daughters sample is around 33%. Since the occupational opportunities in rural areas are not that much in number compared to urban areas and on average occupations in rural areas may pay less wage compared to occupations in urban areas, the fathers in fathers-sons sample have on average lower annual earnings compared to fathers in fathers-daughters sample. As expected, a low share of daughters is married in fathers-daughters sample.

4. Results

In this section I estimate the intergenerational education mobility coefficients using fathers-sons and fathers-daughters samples separately. Data limitations restrict me to run simple OLS regressions of child schooling attainment against paternal and maternal education and prevent me to apply robust methods explained in section 2. Therefore, the results presented in this section reveal intergenerational education mobility associations. The estimated regression equation is the following:

$$S_{ij}^c = \gamma_0 + \gamma_1 S_{ij}^p + \gamma_2 A_{ij}^c + v_{ij}^c \quad (2)$$

This regression equation differs from (1) by adding the age of the child on the right-hand side. Since the sample includes father-child pairs in which the child is between 25 and 34, unobserved cohort differences may confound the intergenerational schooling link. The additional control for the child's age accounts for the cohort effects on intergenerational mobility.

Table 2 presents the intergenerational education mobility estimates for fathers-sons sample with both parties having non-missing information on their educational attainment. The educational attainment variable for both fathers and sons is an ordinal variable with 11 distinct values. Although the dependent variable (son's education) is not a continuous variable, OLS estimation method was used to estimate the intergenerational correlation in education. Ordered logit estimation method is another method commonly used to estimate treatment impacts when the dependent variable is an ordinal variable. However, in our context using ordered logit estimation method complicates interpreting the coefficients. First two columns add paternal and maternal schooling separately while the last column accounts for assortative mating by controlling both parents' schooling simultaneously. When assortative mating is not accounted for, the intergenerational correlation in education for fathers and sons is 0.56 and the intergenerational correlation in education for mothers and sons is 0.59. This result may suggest using the total of father's and mother's education as a suitable way to control for assortative mating and to avoid multicollinearity problem. However, educational attainment variable is an ordinal variable and summing father's and mother's corresponding educational attainment values do not have any meaning. When assortative mating is accounted for, father's education coefficient decreases to 0.42 and mother's education coefficient decreases to 0.26 which justifies that omitting spouse's educational attainment results in estimating upward biased intergenerational education mobility coefficients for the left behind parent. The estimated mobility correlations are in line with those national correlations found in Aydemir and Yazici (2019)¹.

Table 3 presents the intergenerational education mobility estimates for fathers-daughters sample with both parties having non-missing information on their educational attainments. The results are similar with the fathers-sons sample results presented in Table 2. The coefficient estimate for father's education in column (1) suggests large persistence in schooling across generations. Furthermore, daughters' educational attainment is found to have stronger correlation with their mothers' schooling in column (2). When assortative mating is accounted for, the partial effects of father's and mother's education are estimated

¹ The mobility correlation between father's (mother's) and their offspring's is estimated to be 0.564 (0.532) by Aydemir and Yazici (2019).

to be the same as in Holmlund, Lindahl and Plug (2011) and Leibowitz (1974). The coefficient estimates of both parents' drop significantly in column 3 and are in line with its counterparts from sons' education regressions. A comparison of sons' and daughters' education regressions implies that both paternal and maternal education is more strongly associated with their daughters' education compared to their sons' education.

In both samples the age of the child is inversely related with his/her highest achieved schooling. Besides coefficients of age, education mobility coefficients are highly statistically significant at 1% in both samples.

Table 2: Intergenerational education mobility estimates (sons)

DEPENDENT VARIABLES			
OLS results			
VARIABLES	(1)	(2)	(3)
	son's education	son's education	son's education
father's education	0.556*** (0.0120)		0.424*** (0.0153)
son's age	-0.321*** (0.0557)	-0.335*** (0.0593)	-0.257*** (0.0567)
mother's education		0.593*** (0.0160)	0.267*** (0.0192)
Control for assortative mating	No	No	Yes
Observations	8,046	7,764	7,764
R-squared	0.219	0.158	0.234

Notes: Standard errors are in parentheses. *** p<0.01

Table 3: Intergenerational education mobility estimates (daughters)

DEPENDENT VARIABLES			
OLS results			
VARIABLES	(1)	(2)	(3)
	girl's education	girl's education	girl's education
father's education	0.630*** (0.0171)		0.422*** (0.0211)
girl's age	-0.305*** (0.0881)	-0.319*** (0.0921)	-0.248*** (0.0876)
mother's education		0.737*** (0.0220)	0.422*** (0.0262)
Control for assortative mating	No	No	Yes
Observations	3,890	3,741	3,741
R-squared	0.264	0.237	0.310

Notes: Standard errors are in parentheses. *** p<0.01

5. Conclusion

This study presents an in-depth review of the literature on intergenerational education mobility. The issues regarding consistent estimation of mobility coefficients as well the proposed solutions are elaborately discussed. In the light of the discussions, the strength of the intergenerational schooling association in Turkey is analyzed for father-son and father-daughter samples separately. Pooled cross-sections of Household Budget Surveys (from 2003 to 2011) are used to create the sample of father-child pairs that live in the same household. For both samples three specifications are estimated: i) child's schooling is regressed on father's schooling, ii) child's schooling is regressed on mother's schooling, and iii) child's schooling is regressed on both parents' schooling. Each specification includes controls for cohort effects which may confound the intergenerational schooling association. The results suggest large persistence in intergenerational schooling regardless of gender of the child which compares to the national correlations found by Aydemir and Yazici (2019). A comparison of the results with mobility correlations from a large set of countries in Hertz et al. (2008) implies that educational attainment is less mobile across two generations in Turkey than most of the countries in their sample. The larger persistence in daughters sample may reflect segregation in parental attitudes towards their children's schooling based on the gender of the child. There may be large regional disparities in intergenerational schooling association in Turkey due to regional differences in social norms and attitudes towards acquiring schooling. Further work may address the presence and causes of regional disparities in intergenerational education mobility as well the drivers of national persistence in intergenerational schooling. The national correlations found in this study may require the government to intervene in breaking the harmful schooling link across generations by providing equality of opportunity.²

² In additional analysis, I show that parental income explains a large portion of the education mobility correlations which suggests that wealthy families may invest more in their children's schooling and may provide better opportunities compared to poorer families.

References

- Acosta, P. (2006). Labor supply, school attendance, and remittances from international migration: the case of El Salvador. *World Bank Policy Research Working Paper*, No. 3903.
- Aydemir, A. and Yazici, H. (2019). Intergenerational education mobility and the level of development, *European Economic Review*, 116, issue C, p. 160-185.
- Behrman, J. R., and Rosenweig, M. R. (2002). Does Increasing Women's Schooling Raise the Schooling of the Next Generation? *The American Economic Review*, 92(1): 323-334.
- Ben-Porath, Y. (1967). The Production of Human Capital and the Life Cycle of Earnings. *Journal of Political Economy*, 75(4): 352-365.
- Black, S. E., Devereux, P. J., and Salvanes, K. G. (2008). Staying in the Classroom and out of the Maternity Ward? The Effect of Compulsory Schooling Laws on Teenage Births. *The Economic Journal*, 118: 1025-1054.
- Carneiro, P., Meghir, C., and Patey, M. (2013). Maternal Education, Home Environments, and the Developments of Children and Adolescents. *Journal of European Economic Association*, 11: 123-160.
- Johnson, G. E., and Stafford, F. P. (1973). School Returns to Quantity and Quality of Schooling. *The Journal of Human Resources*, 8(2): 139-155.
- Hertz, T., Jayasundera, T., Piraino, P., Selcuk, S., Smith, N. and Verashchagina, A. (2007). The Inheritance of Educational Inequality: International Comparisons and Fifty-Year Trends. *The B.E. Journal of Economic Analysis & Policy: Vol. 7: Iss. 2 (Advances), Article 10*.
- Holmlund, H., Lindahl, M., and Plug, E. (2011). The Casual Effect of Parents' Schooling on Children's Schooling: A Comparison of Estimation Methods. *Journal of Economic Literature*, 49(3): 615-651.
- Leibowitz, A. (1974). Home Investments in Children. NBER Chapters, in: *Economics of the Family: Marriage, Children, and Human Capital. National Bureau Research*, 432-456.
- Maurin, E. and McNally, S. (2008). Lon-Term Educational Returns of 1968 to the Angry Students. *Journal of Labor Economics*, 26(1): 1-33.
- Mayer, S. E. (2010). Revisiting an Old Question: How Much Does Parental Income Affect Child Outcomes? *Focus*, 27(2): 21-26.
- Shea, J. (2000). Does Parents' Money Matters? *Journal of Public Economics*, 77: 155-184.

Duman, E. (2021). Apple Doesn't Fall Far: Intergenerational Education Mobility in Turkey. *BILTURK, The Journal of Economics and Related Studies*, 3(2), 51-65. doi: 10.47103/bilturk.836623.

Sylwester, K. (2000). Income Inequality, Education Expenditures, and Growth. *Journal of Development Economics*, 63(2): 379-398.

Zimmerman, D. J. (1992). Regression Toward Mediocrity in Economic Stature. *The American Economic Review*, 82(3): 409-429.