Does School Quality Equally Affects Males' and Females' Intergenerational Educational Mobility?

Matan Gdaliahu and Ayal Kimhi*

Abstract

We quantify the role of school quality in promoting intergenerational educational mobility of males and females in Israel. We estimate school quality on the basis of the achievements of students in the high-school matriculation exams conditional on their socioeconomic background. School quality is found to have a quantitatively important and statistically significant positive effect on the gap in years of schooling between females and their mothers. No such effect was found for males. This gender gap indicates that the fact that there is a gender gap in educational attainment in favor of females may originate, at least in part, in higher-quality schools. To the extent that differences in school quality reflect differences in the quality of teaching and management, this highlights the important role of enhancing the quality of the public education system in order to promote equality of opportunity and narrow the socioeconomic gaps among population groups. Regardless of that, the education system should find ways to improve the intergenerational educational mobility among males, which is currently lower than among females.

February 2025

Key words: intergenerational educational mobility, school quality, gender gap.

---

* The authors are a graduate student in Economics and a Professor of Agricultural Economics, respectively, at the Hebrew University of Jerusalem. Ayal Kimhi (corresponding author) is also vice president of the Shoresh Institution for Socioeconomic Research. The study was conducted in the Central Bureau of Statistics' Research Room, based on the files prepared by the Labor and Welfare Section. The authors thank the staff of the Central Bureau of Statistics for their assistance in the compilation and use of the data file. Comments and suggestions by seminar participants at the Hebrew University and University of Strasbourg, and by participants in the 13th annual ESPAnet conference on Social Policy as an Intergenerational Sustainability, are appreciated.

Introduction

Income inequality is one of the most studied topics in economics, yet there is no consensus about what constitutes an "optimal" level of inequality. By contrast, the importance of inequality of opportunity is much widely agreed upon. This is partly because the justification for equality of opportunity is based on a positive approach, while income equality involves normative considerations. However, as opposed to income inequality, inequality of opportunity is more difficult to measure. A proxy measure for equality of opportunity is intergenerational mobility. A more equal distribution of economic or social achievements in the children's generation compared to the parents' generation indicates that the prevailing patterns of intergenerational mobility are consistent with equality of opportunity.

While most studies of intergenerational mobility focus on the income or wealth of children compared to that of their parents, this paper focusses on educational mobility, for several reasons. First, education is known to be the strongest predictor of lifetime income (Krueger 1968; Goldin and Katz 2008) and is more accurately measurable than lifetime income. Second, it is widely agreed upon that education has positive externalities and is therefore provided publicly in many countries. Hence, the degree to which educational opportunities are equal is very important for policy making. Finally, many studies have shown that intergenerational educational mobility often leads to intergenerational income mobility (Meghir and palme 2005; Blanden, Gregg & Macmillan, 2007; Björklund and Salvanes, 2011; Kristian and Rasmus, 2021).

Black, Devereux and Salvanes (2005) showed, using data from Norway, that the positive association between parents' and children's education is mostly due to the fact that higher-ability parents tend to have higher-ability children. Still, parents' decisions on investments in children and residential choices, as well as public policy, can potentially affect children's human capital as well. Becker and Tomes (1979) claimed that poor families invest less in their children's education because the returns on education are lower for the poor. In contrast, Galor and Zeira (1993) claimed that poor families are in a poverty trap that forces them to underinvest in their children's human capital. This justifies subsidized public schooling. But even if the state provides free education, it does not necessarily imply that all children get the same quality of education. For example, Black (1999) showed that parents are willing to pay in order to put their children in better schools. Hanushek & Woessmann (2008) showed that the quality of education is much more important for human capital than its quantity. Deming et al. (2014) showed that the quality of secondary schools has considerable impact on higher-

education achievements. Borman & Dowling (2010) as well as Boulifa & Kaaouach (2022) found that school attributes account for almost 40% of the variance in pupils' achievements. For Israel, Gould, Lavy & Paserman (2011) showed that the quality of elementary schools has considerable impacts on secondary-school achievements.

Israel provides public education for all children from age 3 to 18, and there are relatively few private schools in the country. However, as reflected in the achievements of Israeli pupils in international exams such as PISA, the quality of education is quite low compared to other developed countries (Ben-David and Kimhi 2021). Moreover, the achievement gaps within Israel are strikingly high. These gaps have an important socioeconomic component. For example, as of 2018, 73% of high-school students living in municipalities with above-average socioeconomic status were eligible for a matriculation certificate that enables admission to universities, compared to 48% in other municipalities.

Still, at least the quantitative measures of education have improved greatly over the generations. This is not surprising given that Israel is an immigration country, and many immigrant parents arrived in the early years of statehood with no or little formal education. Free public education was provided since 1949, so the children of those parents reached higher levels of educational attainment. Matras and Weintraub (1976) showed that most of the children born in the 1950s had higher years of schooling than their parents, but still found that children's education was positively correlated with parents' education. Later, Rotman, Shavit & Shalev (2015) showed that the positive correlation between parents' income and children's years of schooling weakened between 1995 and 2008. Data from the 2018 Social Survey show that 50% of people whose parents had no more than secondary education have academic degrees.

In order to identify the importance of the quality of education to intergenerational educational mobility, we propose a proxy for school quality. A given school is considered to have a higher quality than another school if its students do better in matriculation exams, provided that the students in the two schools have similar socio-economic backgrounds. This is supported by the findings of Kirkebøen, (2022), who derived a measure of school quality based on exam scores. Higher school quality could be a result of additional funding provided by the municipality on top of state funding, better teachers, or better management. We cannot identify any of those channels with our data. Many studies showed that student achievements are affected by teacher qualifications (e.g., Darling-Hammond, 2000; Harris and Sass, 2011; Gerritsen, Plug and Webbink, 2017). Card & Krueger (1992) found that school quality affects

future outcomes. However, Card and Krueger (1996) found mixed evidence on the impact of school resources on student achievements. Card, Domnisoru, and Taylor (2022) used teacher salaries to proxy for school quality, and found that it affected student achievements. Cascio and Lewis (2022) showed that increasing teacher salaries in black schools accounted for mealy all the gains in black educational attainment. McNally, Schmidt and Valero (2022) found that structured school management practices mattered for educational outcomes, especially for students from low-income backgrounds.

After estimating school quality, we estimate the effect of school quality on intergenerational educational mobility. We find that school quality is indeed important for educational mobility, with the difference between the highest and lowest quality school being roughly equal to the average gap in years of schooling between pupils and their same-sex parents.

Methodology and data

We derive a proxy for secondary-school quality as a school fixed effect in a regression of matriculation achievements on socioeconomic variables. Specifically, we estimate the equation

$$(1) \qquad Y_{ij} = \beta_0 + \beta_1 X_{ij} + \alpha_j School_j + u_{ij};\ i = 1,\ldots,I(j);\ j = 1,\ldots,J$$

where Y_{ij} is the level of achievement of pupil i out of $I(j)$ pupils at school j, X_{ij} is a vector of explanatory variables, $School_j$ is a school dummy, and u_{ij} is an error term. The estimated values of α_j (j=1,…,J) serve as a proxy for school quality.

Subsequently, we estimate the effect of school quality on intergenerational educational mobility using the equation

$$(2) \qquad EM_{ij} = \gamma_0 + \gamma_1 X_{ij} + \gamma_2 \alpha_j + v_{ij}$$

where EM_{ij} is the difference in years of schooling between the pupil and his/her same-sex parent, X_{ij} is a vector of explanatory variables as before, α_j is the estimated proxy for school quality, and v_{ij} is an error term. We allow the educational mobility to be gender-specific: we estimate separate equations for boys vs. their fathers and girls vs. their mothers.

We use anonymous administrative data for all Israeli citizens born between 1978 and 1985, about a million individuals. The data include matriculation exam information (number of study units and grade in each subject, and matriculation eligibility), the school's educational

stream (state, state religious, independent), the pupil's study track (academic or vocational), locality of residence when in secondary school, and parents' demographic and socioeconomic characteristics.[1] Each individual was assigned a peripherality ranking for the locality of residence.[2]

Parents' characteristics include marital status and the number of siblings of each pupil, measured when the pupil was in the last year of secondary school, as well as continent of birth. Data also exist on the wage percentile of each parent within the general gender-specific wage distribution, for the year in which the individual was 17 years old.

For each pupil, there is an indicator of the last school he or she attended. For 19% of the pupils there was no school indicator. Those with school indicators came from 2,705 different schools. More than half of those schools were elementary schools or middle schools, so the pupils in those schools apparently did not continue to high school. Another group of schools were ultra-orthodox schools, most of which do not offer matriculation exams to their male pupils. Other schools had less than 30 pupils taking matriculation exams. A small number of schools did not report parents' education. Pupils from all these schools were not included in the estimation. Altogether, the estimation included 521,438 pupils, about 52% of the relevant population, who studied in 737 different secondary schools (708 pupils per school on average).

Empirical implementation and results

Estimating school quality

For estimating equation (1), the dependent variable, the level of achievement, was constructed as the first common factor of five achievement indicators. This factor accounts for 97% of the variance of the indicators. Table 1 describes the indicators and their factor

[1] Neither the parents' data nor the matriculation exam data include information on 7% of the relevant cohorts who immigrated to Israel after completing their secondary school studies. These observations were excluded from the analysis.

[2] The peripherality score for each local authority is computed as a simple average of two components. One is the potential accessibility index, calculated in terms of the local authority's proximity to each of the local authorities in Israel and their population sizes, while the other is proximity to the Tel Aviv district boundary. The potential accessibility index A_i of local authority i is calculated as $A_i = \sum_{j=1}^{J} P_j / d_{ij}^{1.19}$, where P_j is the population of local authority j, J is the number of local authorities, and D_{ij} is the distance in kilometers between the center of local authority i and the center of local authority j, where d_{ii}=3 (Tsibel 2009).

loadings. The calculated values of the first factor were divided by their maximum value so that they are all not larger than 1.

Table 1. Achievement indicators and their factor loadings

Achievement indicator	Factor loading
Matriculation eligibility	0.8485
Number of STEM study units	0.9509
Number of non-STEM study units	0.9469
Average grade in STEM subjects	0.7720
Average grade in non-STEM subjects	0.8916

Note: STEM matriculation subjects include mathematics, physics, chemistry, biology, agriculture, computer science, electronics, control systems, chemical technology, mechanics, electronic systems, electric systems, command systems, and technological sciences.

Table 2 lists the explanatory variables used in the estimation of equation 1 and provides their sample means. The nationality variables are based on a mix of nationality and religion information. The nationality split is between Arab Israelis and Non-Arabs. The Non-Arabs are then split by religion into Jewish and others. The others are mostly immigrants from the former USSR who are not Jewish but have some Jewish background that entitled them to Israeli citizenship. The Jewish group is then split into ultra-orthodox and others, where this split is only relevant for female pupils. Ultra-orthodox boys and girls study in separate schools, and very few of the male ultra-orthodox schools offer matriculation exams. The peripherality levels relate to the locality of residence when the pupil was 17 years old, and range from 1 (most peripheral) to 4 (most central). The immigrant dummy variable indicates individuals who were born outside of Israel. All other variables relate to the parents' socio-economic status. Since not all individuals have records on both parents, we have included dummy variables for the existence of data on each of the parents. All variables related to non-existent parents were assigned zero values. For each parent, we included a set of indicators for the continent of birth, where Asia and Africa as well as Europe and America are grouped together. There is a separate category for those born in the former USSR. These are excluded, in turn, from the other categories. The base category includes those born in Israel. Another dummy variable indicates parents who were not married to each other when the individual was 17 years old. We also include the number of siblings of the individual when he/she was 17 years old. The parents' income is reported as a percentile in the gender-specific income distribution of parents, for each year between 1999 and 2007. We used the average percentile

over the 9-year period. Income was reported for about three quarters of parents, and hence we have included dummy variables for parents who reported their income. Finally, we include the years of schooling of both parents, and a set of dummies for the individuals' year of birth, and, most importantly, the school dummies (not shown in Table 2).

Table 2. Explanatory variables and their sample means

Explanatory variable	Sample mean
Arab nationality	0.174
Other nationality	0.015
Peripherality level 1	0.121
Peripherality level 2	0.414
Peripherality level 3	0.186
Immigrant	0.108
Father identified	0.983
Father's origin Asia or Africa	0.216
Father's origin America or Europe	0.098
Father's origin former Soviet Union	0.094
Father's origin unknown	0.017
Mother identified	0.994
Mother's origin Asia or Africa	0.177
Mother's origin America or Europe	0.090
Mother's origin former Soviet Union	0.102
Mother's origin unknown	0.006
Unmarried parents	0.115
Number of siblings	3.218
Father reports income	0.770
Father's income percentile	41.259
Mother reports income	0.745
Mother's income percentile	37.451
Mother's years of schooling	11.853
Father's yeas of schooling	12.208
Birth-year dummies	Yes
School dummies	Yes

Table 3 reports the matriculation achievements regression (equation 1) results. Starting from the bottom, we find that pupils' achievements are positively related to parents' income and education, which is not surprising. The mother's years of schooling seem to be more important to school achievements than the father's years of schooling, a result that has been obtained in may previous studies. Achievements are lower when the parents are unmarried, and they decline with the number of siblings. Some coefficients do not have the expected signs. For example, we find that pupils in the Arab sector, as well as those in the periphery

and immigrants, do better than their counterparts. This is most likely due to multicollinearity, as in those population groups, parents tend to have lower income and schooling. We are not concerned about multicollinearity among those variables because we are only interested in the coefficients of the school dummies.

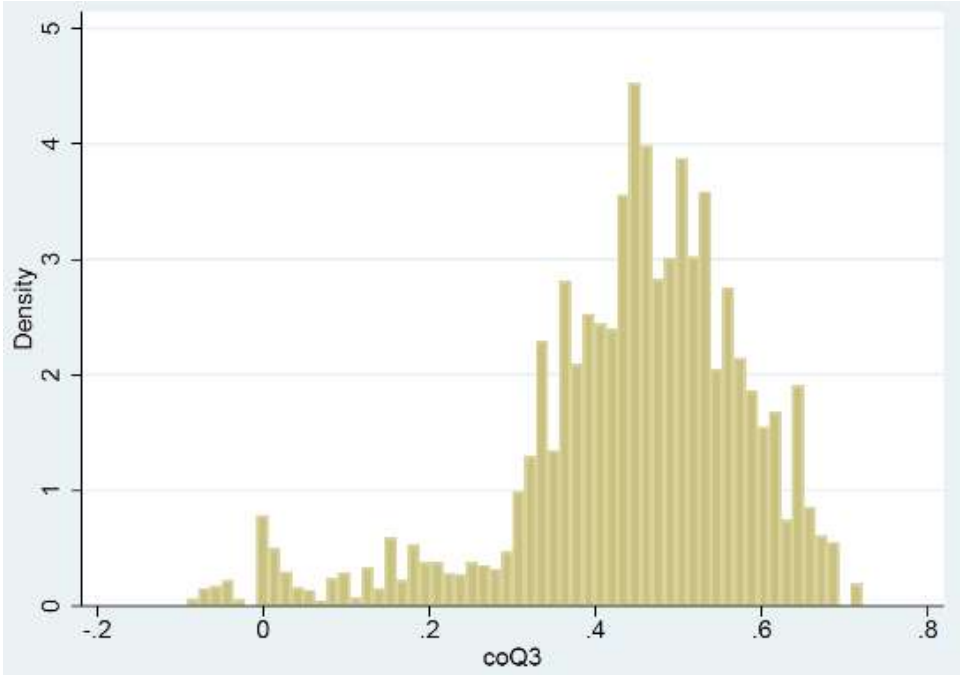
Table 3. Achievement regression results

Explanatory variable	Coefficient
Ultra-orthodox	-0.006**
	(0.003)
Arab nationality	0.020***
	(0.004)
Other nationality	-0.056***
	(0.003)
Peripherality level 1	0.019***
	(0.002)
Peripherality level 2	0.014***
	(0.002)
Peripherality level 3	0.014***
	(0.002)
Immigrant	0.018***
	(0.001)
Father identified	-0.018
	(0.045)
Father's origin Asia or Africa	-0.006***
	(0.001)
Father's origin America or Europe	0.002*
	(0.001)
Father's origin former Soviet Union	0.009***
	(0.002)
Father's origin unknown	-0.005
	(0.045)
Mother identified	-0.008
	(0.103)
Mother's origin Asia or Africa	0.002*
	(0.001)
Mother's origin America or Europe	0.003**
	(0.001)
Mother's origin former Soviet Union	-0.002
	(0.002)
Mother's origin unknown	0.028
	(0.103)
Unmarried parents	-0.035***
	(0.001)

gNumber of siblings	-0.006***
	(0.000)
Father reports income	-0.047***
	(0.001)
Father's income percentile	0.001***
	(0.000)
Mother reports income	-0.023***
	(0.001)
Mother's income percentile	0.001***
	(0.000)
Mother's years of schooling	0.009***
	(0.000)
Father's yeas of schooling	0.005***
	(0.000)
Birth year dummies	Yes
School dummies	Yes
Constant	-0.101
	(0.112)
Observations	525,577
R-squared	0.458

The estimated school fixed effects serve as a proxy for school quality. The sample distribution of their values is shown in figure 1.

Figure 1. The sample distribution of the estimated school fixed effects



Estimating intergenerational educational mobility

As mentioned above, intergenerational educational mobility is measured as the difference in years of schooling between the pupil and his/her same-sex parent. This is the dependent variable in equation 2. We estimate equation 2 separately for males and females. The sample means and the estimation results are in table 4.

Table 4. Intergenerational educational mobility regression results

	Female		Male	
Variable	Mean	Coefficient	Mean	Coefficient
Intergenerational educational mobility	2.423		1.789	
School quality	0.456	0.630***	0.450	-0.081
		(0.045)		(0.054)
Ultra-orthodox	0.03	-1.762***		
		(0.038)		
Arab nationality	0.18	2.954***	0.18	2.047***
		(0.020)		(0.025)
Other nationality	0.014	-0.781***	0.018	-0.840***
		(0.054)		(0.057)
Peripheriality level 1	0.121	0.160***	0.13	0.246***
		(0.022)		(0.025)
Peripheriality level 2	0.427	-0.096***	0.43	-0.061***
		(0.016)		(0.019)
Peripheriality level 3	0.193	-0.081***	0.19	-0.088***
		(0.018)		(0.022)
Immigrant	0.112	-0.393***	0.104	-0.591***
		(0.027)		(0.032)
Unmarried parents	0.118	-0.202***	0.113	0.205***
		(0.020)		(0.023)
Number of siblings	3.131	0.116***	2.976	0.086***
		(0.004)		(0.004)
Other parent identified	0.983	0.279***	0.994	0.289***
		(0.046)		(0.086)
Other parent's origin Asia or Africa	0.222	0.953***	0.172	0.784***
		(0.017)		(0.020)
Other parent's origin America or Europe	0.093	-1.137***	0.09	-1.052***
		(0.023)		(0.026)
Other parent's origin former Soviet Union	0.101	-0.103***	0.099	0.049
		(0.027)		(0.033)
Other parent's origin unknown	0.017	0.312***	0.006	0.688***
		(0.081)		(0.064)

Other parent reports income	0.774	-0.235***	0.757	-0.122***
		(0.021)		(0.024)
Other parent's income percentile	41.461	-0.004***	39.233	-0.008***
		(0.000)		(0.000)
Constant		1.823***		1.819***
		(0.056)		(0.093)
Observations		269,329		236,310
R-squared		0.187		0.123

We find that intergenerational educational mobility is lower for ultra-orthodox females, and higher among the Arab minority. We have no good explanation for the former result, but the latter result is probably due to the relatively low educational attainment of the Arab parents (Gdaliahu, 2021). This indicates a convergence of the distribution of years of schooling compared to that of the parents. The effects of studying in the periphery are mixed. Studying in the most remote areas leads to the higher educational mobility, and studying in the most central areas leads to the second-highest educational mobility. This indicates that the spread of years of schooling is lower compared to that of the parents, but its distribution becomes more polarized. Immigrants have a lower intergenerational mobility than natives, especially among males, raising concerns about young immigrants catching up with the natives. Girls (boys) whose parents were not married to each other when they attended high school tend to have a lower (higher) intergenerational educational mobility, indicating the important role of growing up with both parents on educational attainment of girls. We do not have an explanation of the opposite effect for boys. The impact of the number of siblings on intergenerational educational mobility is positive. Again, we do not have a n explanation for this somewhat counter-intuitive result.

Intergenerational educational mobility is higher among those whose parents immigrated from an Asian or African country, and lower among those whose parents came from European or American countries. This again indicates convergence of years of schooling compared to the parents, because parents from the former (latter) group have relatively low (high) years of schooling (Gdaliahu, 2021). Females whose parents came from the former Soviet Union have a lower intergenerational educational mobility, but for males the corresponding coefficient is not statistically significant. A higher position in the income distribution of the opposite-sex parent reduces the intergenerational educational mobility. This may be due to the strong association between a parent’s schooling and income, combined with a positive assortative

mating on education in the parents' generation.[3] In other words, a relatively high income of the opposite-sex parent indicates a relatively high educational attainment of the same-sex parent, making it more difficult for the child to achieve higher levels of education than the parent.

Summary and conclusion

Upward intergenerational educational mobility is associated with equality of opportunity and contributes to socioeconomic mobility in general, and income mobility in particular, and is therefore important for reducing socioeconomic gaps. In this paper we highlighted the role of school quality in promoting intergenerational educational mobility in Israel, which has one of the highest levels of inequality in the developed world. We estimated school quality on the basis of the achievements of each school's pupils in the matriculation exams conditional on their socioeconomic background. We found that school quality has a quantitatively important positive effect on intergenerational educational mobility in the case of females, but not in the case of males. This is consistent with the earlier findings of Deming et al. (2014), that "girls respond to attending a better school with higher grades and increases in college-preparatory course taking, while boys do not."

To the extent that differences in school quality reflect differences in the quality of teaching and management, this highlights the important role of enhancing the quality of the public education system in providing equality of opportunity and closing socioeconomic gaps among population groups. In that sense, our results are consistent with Arold, Hufe and Stoeckli (2022), who found that teacher quality mitigates the association between educational attainment and genetic endowments.

The results also indicate convergence in years of schooling compared to the parents' generation. This is reflected in the higher mobility observed among population groups whose parents have relatively low educational attainment, such as Arabs, those who immigrated from an Asian or African country and those living in remote areas. This constitutes a favorable sign of the potential equalizing impact of the public school system in a relatively unequal country such as Israel. However, the fact that some population groups such as immigrants enjoy lower intergenerational educational mobility indicates that there is still a

[3] Bingley, Cappellari and Tatsiramos (2022) showed that parental educational assortative mating has an important role in the intergenerational transmission of human capital.

need for improvement. It would also be beneficial for the education system to put an emphasis of improving the quality of the relatively low-quality schools, specially given the fact that school quality may be correlated with the socioeconomic status of the community in which it is located.

The fact that school quality does not enhance intergenerational educational mobility among males is of course a puzzle that deserves further research. The fact that younger females have higher educational attainments than young males could stem, at least in part, from those studying in the relatively high-quality schools. The education system must find ways to enhance the educational attainment of males who study in the relatively high-quality schools as well.

One shortcoming of our analysis is the assumption that pupils (or their parents) do not select schools based on unobservable ability. Unfortunately, our data do not allow modeling of school choice. We will try to control for school selectivity by focusing n small localities in which there is a single secondary school.

References

Arold, B. W., Hufe, P. & Stoeckli, M. (2022). Genetic endowments, educational outcomes and the mediating influence of school investments. CESifo Working Paper No. 9841.

Becker, G. S. & Tomes, N. (1979). An equilibrium theory of the distribution of income and intergenerational mobility. Journal of political Economy, 87(6), 1153-1189.

Ben David, D. & Kimhi, A. (2021), Economics of education in Israel: Inputs, outputs and performance," In Avi Ben Bassat, Reuben Gronau and Asaf Zussman (eds.), The Israeli Economy, 1995-2017: Light and Shadow in a Market Economy, Cambridge University Press, pp. 433-463.

Bingley, P., Cappellari, L. & Tatsiramos, K. (2022). Parental assortative mating and the intergenerational transmission of human capital. Labour Economics, 77, 102047.

Björklund, A. & Salvanes, K., G. (2011) Education and family background: mechanisms and policies. Handbook of the Economics of Education 3, 201-247.

Blanden, J., Gregg, P. & Macmillan, L. (2007). Accounting for intergenerational income persistence: noncognitive skills, ability and education. The Economic Journal, 117.(519)

Black, S. E. (1999). Do better schools matter? parental valuation of elementary education. The Quarterly Journal of Economics, 114(2) 577-599.

Black, S. E. & Devereux, P. J. (2005). Why the apple doesn't fall far: understanding intergenerational transmission of human capital. The American Economic Review, 95(1), 437-449.

Borman, G. D. & Dowling, M. (2010). Schools and Inequality: A Multilevel Analysis of Coleman's Equality of Educational Opportunity Data. *Teachers College Record* Volume 112(5), 1201-1246.

Boulifa, K. & Kaaouachi, A. (2022). The Relationship between the School Resources index; Gender; Age and Mathematics Achievement in TIMSS 2019 survey: Multilevel analysis. Procedia Computer Science, 201, 738-745

Card, D., Domnisoru, C. & Taylor, L. (2022). The intergenerational transmission of human capital: evidence from the golden age of upward mobility. Journal of Labor Economics, 40(S1), S39-S95.

Card, D. & Krueger, A. B. (1996). School resources and student outcomes: an overview of the literature and new evidence from North and South Carolina. Journal of Economic Perspectives, 10(4), 31-50.

Card, D., & Krueger, A. B. (1992). Does school quality matter? Returns to education and the characteristics of public schools in the United States. Journal of political Economy, 100(1), 1-40.

Cascio, E. U. & Lewis, E. G. (2022). Money Matters Redux: School Quality and the Black-White Gap in Educational Attainment. Unpublished manuscript, Dartmouth College.

Darling-Hammond, L. (2000). Teacher quality and student achievement. Education Policy Analysis Archives, *8*, 1-1.

Deming, D.J., Hastings, J.S., Thomas, J.K. & Douglas, O. S. (2014). School choice, school quality, and postsecondary attainment. The American Economic Review. 104(3), 991-1013.

Galor, O. & Zeira, J. (1993). Income distribution and macroeconomics. The Review of Economic Studies. 6(1), 35-52.

Gdaliahu, Matan (2021). The Influence of School on Intergenerational Mobility in Israel. M.Sc. Thesis, Department of Environmental Economics and Management, the Hebrew University of Jerusalem.

Gerritsen, S., Plug, E. & Webbink, D. (2017). Teacher quality and student achievement: Evidence from a sample of Dutch twins. Journal of Applied Econometrics, 32(3), 643-660.

Goldin, C. & Katz, L.F. (2008). Transitions: career and family life cycles of the educational elite. The American Economic Review. 98(2), 363-69.

Gould, E. D., Lavy, V. & Paserman, M. D. (2011). Sixty years after the magic carpet ride: the long-run effect of the early childhood environment on social and economic outcomes. The Review of Economic Studies, 78(3), 938-973.

Hanushek, E. A. & Woessmann, L. (2008). The role of cognitive skills in economic development. Journal of Economic Literature. 46(3), 607-668.

Harris, D. N. & Sass, T. R. (2011). Teacher training, teacher quality and student achievement. Journal of Public Economics, 95(7-8), 798-812.

Kirkebøen, L. J. (2022). School value-added and long-term student outcomes. CESifo Working Paper No. 9769.

Kristian, B. K. & Rasmus, L. (2021). The making and unmaking of opportunity: educational mobility in 20th Century- Denmark. IZA Discussion Paper No. 14135.

Krueger, A. O. (1968) Factor endowments and per capita income differences among countries. The Economic Journal. 78(311) 641-659.

Matras, J. & Weintraub, D. (1976). Intergenerational mobility in Israel. The Economic Quarterly 90, 254-269 (Hebrew).

McNally, S., Schmidt, L., & Valero, A. (2022). Do Management Practices Matter in Further Education? CESifo Working Paper No. 9694.

Meghir, C. & Palme, M. (2005). Educational reform, ability, and family background. The American Economic Review, 95(1), 414-424.

Rotman, A., Shavit, Y. & Shalev, M. (2015). Nominal and positional perspectives on educational stratification in Israel. Research in Social Stratification and Mobility, 43 17-24.