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Educational mobility in developing countries

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Abstract: This paper reviews the small but growing literature on intergenerational educational mobility in the developing world. Education is a critical determinant of economic well-being, and it predicts a range of non-pecuniary outcomes such as marriage, fertility, health, crime, and political attitudes. We show that developing nations feature stronger intergenerational educational persistence than high-income countries, in spite of substantial educational expansion in the last decades. We consider variations in mobility across gender and region, and discuss the macro-level correlates of educational mobility in developing countries. The paper also discusses the literatures on (i) concepts and measures of educational mobility, (ii) theoretical perspectives to understand educational persistence across generations, (iii) the role that education plays in the economic mobility process, and (iv) differences in the type and quality of education as vehicles for intergenerational persistence, and it applies these literatures to understand educational mobility in the developing world.

Key words: Educational mobility, developing countries, educational expansion, private schools, gender differences in education, equality of opportunity, economic development

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1 Introduction

Educational mobility captures the association between parents' and adult children's schooling attainment. Along with measures of occupational and economic mobility, it provides valuable information about equality of opportunity in society. A strong association signals that the chances to attain formal schooling are largely determined by the advantages of birth. A weak association suggests that everyone, regardless of family educational resources, has similar chances to attain high (or low) levels of schooling.

While much mobility research focuses on occupational and economic indicators such as earnings, income, occupational class, or occupational status, schooling is a distinct and important socio-economic domain. Educational attainment is the main predictor of earnings in contemporary societies, and the earnings returns to schooling are greater in developing than in wealthy countries (Psacharopoulos and Patrinos 2018). Educational attainment has intrinsic value, and it predicts a range of non-pecuniary outcomes including health, longevity, fertility, marriage and parenting, crime, political participation, and attitudes, in both the developing and the developed world (Cutler and Lleras-Muney 2008; Lochner 2013; Omariba 2006; Oreopoulos and Salvanes 2011).

As well as being a relevant outcome in its own right, educational attainment plays a central role in the process of intergenerational economic and occupational mobility. Education has been found to be the main vehicle both for economic persistence across generations and for intergenerational mobility (Hout and DiPrete 2006). Education is the main vehicle for persistence because advantaged parents are able to afford more and better education for their children. Education is at the same time the main vehicle for economic mobility because most of the variance in educational attainment is not tied to social origins.

Studying educational mobility also has practical advantages compared with economic mobility. Most people complete their education in their early adulthood. As a result, measures of educational attainment among adults at a single point in time provide highly valid and stable information about completed schooling. This contrasts with measures of earnings, which can vary widely from year to year. As a result, researchers need to obtain multiple measures over time for each individual in order to approach a stable measure of 'permanent earnings' (Friedman 1957).

Furthermore, questions about educational attainment are usually not perceived as sensitive by survey respondents, and they have good recall, refusal, and reliability properties. This is particularly advantageous when information about parents' education is retrospectively reported by adult children, which is the case of most surveys in the developing world.

Because of these practical advantages, intergenerational educational mobility has been measured in many countries of the world, including developing and wealthy nations. An early cross-country assessment of mobility across cohorts born from the 1930s to the 1970s included 42 countries (Hertz et al. 2008). A recent update considered 148 nations, with good representation across all continents and level of economic development (World Bank 2018).

Researchers have found substantial variation in intergenerational educational mobility across the world, with Northern European countries usually featuring the highest levels of mobility, and Latin American countries until recently featuring the lowest levels. Even if the exact rankings vary somewhat depending on the measure used (more on this later), these country rankings closely resemble rankings based on intergenerational earnings mobility, suggesting a close association between these measures. Both economic and educational mobility are closely related to economic

inequality in cross-sectional comparisons across countries, such that the Great Gatsby curve applies to both measures. In fact, the few analyses that have explicitly compared measures of educational and economic mobility have found a strong although by no means perfect correlation between the two (Björklund and Jäntti 2011; Blanden 2013).

Even if basic descriptive analyses of educational mobility are available for a large number of developing countries, the study of educational mobility in the developing world has been limited. First, the study of mechanisms for the intergenerational educational association is largely restricted to wealthy countries, as is the literature on intergenerational persistence in terms of the quality—and not just the quantity—of schooling. Second, there is only a small literature on the association between mobility and macro-level factors such as economic development and public educational spending, as well as on the impact of economic crises on educational mobility in developing countries. Moreover, this literature is scattered and focused on some countries in the developing world, such as Latin American nations, India, and South Africa.

This review will consider the trends and patterns of educational mobility in the developing world. We will explicitly compare these patterns with the developed world whenever possible, in order to gain analytical insight and to examine the relevance of context. The review is organized as follows. Section 2 examines concepts and measures of educational mobility. Section 3 examines theoretical approaches to accounting for the mechanisms of intergenerational educational persistence. Section 4 reviews patterns and trends of intergenerational educational mobility around the world, with an emphasis on developing regions. The section also examines differences in mobility by gender and macro-level correlates of educational mobility. Section 5 focuses on the relationship between educational and economic mobility, and the role of education in the intergenerational transmission of economic advantage. Finally, section 6 moves beyond the quantitative dimension of education in terms of qualifications obtained or years of schooling completed, and considers its qualitative dimension in the context of intergenerational mobility, with a focus on educational quality and sectors.

2 Concepts and measures in the study of intergenerational educational mobility

Educational mobility captures the association between parents' schooling attainment and their children's schooling attainment. A basic clarification is important at the outset. The notion of educational mobility does not capture education as human capital, a multidimensional vector of outcomes that includes cognitive skills, socio-emotional skills, and physical and mental well-being. Rather, we focus on schooling attainment—the amount of formal schooling attained by individuals. Schooling attainment is a central input into the production of human capital, particularly cognitive development, but it is certainly not the only one.

Two types of mobility provide complementary information. Absolute mobility captures the total observed change in educational attainment across generations. Overall change across generations is driven by both educational upgrades affecting the entire population over time, and the allocation of education based on parents' education net of overall upgrade. Typical measures of absolute mobility include the proportion of individuals with higher levels of educational attainment than their parents (upward mobility) and those with less attainment than their parents (downward mobility). Relative mobility, in turn, captures the association between parents' and children's education net of any change in the distribution of schooling across generations.

The analysis of educational mobility tends to focus on relative mobility. This is understandable given that this measure provides a more direct assessment of equality of opportunity in society. However, educational expansion provides an important impetus for absolute educational mobility as experienced by individuals, particularly in contexts, such as developing countries, where access

to formal education has expanded greatly across cohorts. For example, Brazilians born in 1990 attained on average 10 years of schooling. In contrast, their parents attained on average only six years of schooling (Leone 2017). This substantial gain in terms of upward mobility might be entirely consistent with no increase in relative mobility if, in a context in which everyone benefits from educational expansion, the allocation of educational gains remains as strongly tied to parents' education as before.

2.1 How is educational mobility measured?

The specific measures of absolute and relative educational mobility depend on how educational attainment is operationalized: either as a continuous measure of the total number of years of schooling completed, or as a set of ordered categories that capture educational milestones such as completing primary education, continuing into secondary school, completing secondary school, etc. This categorical classification assumes that educational attainment is not a continuous accumulation of years of schooling, and that the effect of attaining one additional year might vary dramatically across levels.

2.2 Years of schooling

When educational attainment is operationalized as years of schooling, mobility is measured by means of a linear regression coefficient or a correlation coefficient linking parents' and adult children's schooling. These measures provide simple summary accounts that are easy to obtain and interpret. Their validity is based on the assumption that the intergenerational educational association is linear, which may be an oversimplification in some contexts (for example, there is evidence that the association might be stronger among parents with high levels of education).

The main difference between the intergenerational educational regression (IER) coefficient and the intergenerational educational correlation (IEC) coefficient is that the former is affected by the dispersion of parents' and children's education, and the latter nets out the dispersion in both generations, creating a standardized metric that ranges between -1 and +1. The correlation coefficient is obtained by multiplying the regression coefficient by the ratio of the standard deviations of parents' schooling and children's schooling.

Both measures provide valuable, complementary information. The IER has a straightforward interpretation. It captures the average change in an adult child's years of schooling associated with each one-year increase in the parents' schooling. For example, an IER of 0.6 indicates that for each additional year of parents' education, children's education is expected to increase by 0.6 years on average. The IEC, in turn, uses the metric of the standard deviation. An IEC of 0.4, for example, indicates that for each standard deviation increase in parents' schooling, children's schooling is predicted to increase on average by 0.4 standard deviations. Even though it is less intuitive, it has been claimed that the IEC is more stable and less prone to bias than the IER (Emran et al. 2018).¹

The distinction between the IER and the IEC is not merely a statistical detail, and it is particularly important when one is comparing mobility across countries or over time. A common finding in the literature is that, across cohorts, the IER declines while the IEC remains constant.² Given that

¹ Furthermore, measures that link ordered ranks of educational attainment in both generations may provide an even more robust measure than the IER or IEC when data are incomplete (Emran and Shilpi 2017).

² Hertz et al. (2008) elaborated on this finding, showing empirically that at least between the 1930s and the 1980s, the dispersion of parents' schooling increased monotonically across cohorts, while the dispersion of adult children's schooling followed an inverted-U pattern: increase and then decrease. As a result, the ratio of these measures of

the IEC nets out the influence of changes in the dispersion of education across generations, such a departure between measures suggests that the decline in the intergenerational association captured by changes in the IER is entirely driven by changes in the distribution of schooling of parents and/or children across cohorts, without any change in the net association over time. We advocate using both indicators whenever possible to understand the factors driving the change in educational mobility over time.

2.3 Educational categories

Education can also be operationalized as an ordinal variable based the completion of subsequent educational milestones such as entering formal education, completing primary education, continuing to secondary education, completing secondary education, etc. This approach reflects the fact that attainment of specific degrees or levels of schooling is particularly important for economic or other outcomes, and is more realistic than a linear accumulation of years of schooling. In most countries, for example, attaining a secondary-school qualification or a college degree is a critical milestone associated with much greater economic returns than having the same number of years of schooling without the qualification or degree, likely because of the signalling function of educational credentials, a phenomenon called the sheepskin effect (e.g., Hungerford and Solon 1987).

When education is measured as an ordered categorical variable, measures of mobility are based on transition matrices cross-classifying the educational attainment of parents and children, and mobility is analysed using a simple row or column per cent distribution or more complex log-linear models (Hout 1984). These methods can separate change in the distribution of education across generations from the net association between parents and children, providing an assessment of relative mobility. The categorical version of education also allows the analysis of educational attainment as a set of discrete conditional transitions such as primary entry, primary completion conditional on primary entry, secondary attendance conditional on primary completion, etc. (Mare 1980).

Most cross-country studies of intergenerational educational mobility treat educational attainment as a continuous variable and use the regression or correlation coefficient to capture associations, but a small literature focuses on categorical measures—specifically, on the probability that children will reach a particular educational level—to examine specific national cases. Categorical measures of education have been used to examine mobility in Malaysia (Lillard and Willis 2006), Chile (Torche 2005), four Latin American countries (Marteletto et al. 2012), and countries in the Middle East and North Africa (MENA) region (Assaad et al. 2019).

2.4 How to measure parents' education?

Many surveys collect information on both fathers' and mothers' education, which raises the important but neglected question about how to measure parental education in order to examine intergenerational mobility. Most empirical analyses use the dominance approach (Erikson 1984), selecting the parent with the highest level of attainment. This choice is based on the assumption that the educational advantages provided by parents are defined by the highest level of human capital within the family. It is possible, however, to argue that the parent with less education is more relevant for children's attainment, under the assumption that family dynamics adjust to the lowest common denominator in terms of schooling resources. Another alternative is to use a joint

dispersion increased among more recent cohorts, resulting in a constant correlation even as the regression coefficient was declining.

approach (Sorensen 1994), which combines the educational attainment of both parents. Most commonly, this strategy is implemented by taking a simple average of years of schooling of both parents, under the implicit assumption that both parents contribute equally to the child's attainment. A more sophisticated version of this approach computes the weights for each parental indicator such that the relative contribution of the variables to explain the variation in the dependent variable is taken into account (Lubotsky and Wittenberg 2006).

Another criterion to select how to measure parental education is the gender of the parent. Many studies suggest that mothers are more influential than fathers on children's educational attainment given that they spend more time with children, particularly at early ages. This approach has been used in both the developing and the developed world (Behrman and Rosenzweig 2002; Haveman and Wolfe 1995; Schultz 1993). Yet another approach suggests that it is the education of the same-gender parent that is more influential for children, which would suggest using a measure of the father's schooling for sons and the mother's schooling for daughters.

Naturally, a simpler and more comprehensive alternative would be to include both the father's and the mother's educational attainments separately, if available, to predict the child's educational attainment. The drawback of this approach is that it moves researchers away from single, straightforward, and easily comparable measures of intergenerational association, towards an attempt to capture the partial association between several domains of social origins and the adult child's educational attainment (and even worse, to interpret these associations causally as if they were effects). If the objective of the mobility measure is to produce a single statistic that can easily be compared across place and time, then using one single measure of parental education is recommended. Given that there is not yet clear consensus about which version of parental schooling is preferred—and reason to believe the best measure depends on context—we suggest using several measures if available, and evaluating whether the results are sensitive to this choice.

2.5 When to measure children's education?

Most analyses of educational mobility consider only respondents in their mid-20s or older, to increase the chances that they have completed their educational career, and to reduce right-censoring of the education measure. However, it is also possible to evaluate mobility among younger respondents who are still in school and who are co-residing with their parents. In this case, education is measured as timely grade progression, for example as the difference between the number of years of school the children would have completed if they had entered school at the normative age and advanced one grade every subsequent year, and the number of years of school that they have actually completed (e.g., Behrman et al. 1999).

Even if this approach does not capture the final completed schooling of young people, it has two important advantages for the study of intergenerational educational mobility in the developing world. First, it does not require intergenerational data from panel surveys, or retrospective reports of parental education by adult respondents. Rather, it only requires survey information on the educational attainment of all household members, which is usually available in the roster of household surveys in the developing world. Second, because this measure of mobility captures educational attainment among children and adolescents, it provides information about recent mobility trends and their determinants. This is particularly relevant in developing countries that have experienced vast and rapid educational upgrading and policy changes with a potential impact on mobility.

Note that the use of co-residential parent-child dyads to measure educational mobility needs to be restricted to children younger than the normative age at which children leave the parental household, which is usually in late adolescence. If older co-resident children are included in the

analysis, this induces the risk of bias insofar as children who continue to live with parents after late adolescence might not be a representative sample of their cohort. Emran et al. (2018) show that co-residence bias affects IER much more strongly than it does IEC. Selection bias induced by selecting co-resident children beyond their late adolescence is a concern even if the sample is restricted to children who are young adults (Francesconi and Nicoletti 2006).

2.6 Sibling correlations

Parent-children associations are not the only way to describe the extent of family influences on children's education. The association of the educational attainment of siblings provides an alternative measure of the influence of the family and community where individuals have grown up. We do not review this literature in this paper, however.

3 What accounts for intergenerational educational persistence? Theoretical approaches

The standard model for understanding intergenerational mobility was formulated by Becker and Tomes (1979, 1986) and recently expanded by Solon (2004). In this model, parents invest in the future success of their children in response to credit constraints and the child's observed ability and other endowments. Although the Becker and Tomes model refers to income mobility, it can be easily extended to educational mobility.

Based on the Becker and Tomes approach, economists have distinguished a variety of possible pathways accounting for educational persistence across generations. These include (Björklund and Salvanes 2011):

- i. Genetic transmission: more highly educated parents have higher levels of endowments that are consequential for education, such as cognitive ability, and pass them to their children.
- ii. Socialization: parents' norms and values that are consequential for educational attainment, such as time preferences, can be passed to children through socialization.
- iii. Financial resources: more educated parents have more economic resources that can be used to alleviate borrowing constraints and the opportunity costs of education.
- iv. Choice and attainment: parents' educational choices may directly affect children's choices, and parents' attainment may raise the marginal productivity of children's education.

Sociological approaches expand the Becker and Tomes model in several directions, including the examination of the sociocultural determinants of academic performance, the sources of intergenerational persistence, and the factors driving mobility (or lack thereof) in contexts of massive educational expansion.

3.1 Sociocultural determinants of academic performance

Sociological theories of reproduction focus on structural factors, and in particular power dynamics, to explain the role of the educational system in society. These approaches argue that the educational system serves as an institutional device for the intergenerational persistence of economic advantage. This approach emphasizes the role that school systems play in preventing educational mobility and reproducing the status quo. For example, Bowles and Gintis (1976) discuss the role that schools play in socializing children from different socio-economic backgrounds into hierarchical social roles, which they are expected to take based on their social origins, and which are functional to capitalism.

Probably the most influential approach to reproduction in education is Bourdieu's (Bourdieu 1977a, 1977b; Bourdieu and Passeron 1973). Bourdieu claims that schools provide a powerful vehicle to legitimize and maintain the unequal socio-economic structure by transforming social class distinctions into educational distinctions represented as emerging from merit, and by channelling children of different social origins into different positions. Specifically, schools reward and redefine as merit the cultural capital that upper-class students build naturally at home and less privileged students lack (Bourdieu and Passeron 1973). These critical approaches remind us of the limits of educational expansion, and of the educational system more generally, as an institutional strategy to foster mobility.

3.2 Sources of intergenerational educational persistence

Boudon (1974) introduced the distinction between primary and secondary effects to explain the strong association between parents' resources and children's educational attainment. Primary effects express the association between individuals' socio-economic background and their academic performance measured by standardized test scores or grades. Secondary effects capture class-based choices net of students' academic performance. Children of poorly educated parents will choose to leave school earlier than their peers from more advantaged backgrounds, even if they have the same levels of academic performance.

Primary effects are determined by cognitive and other endowments, financial resources, socialization, and the effect of parents' schooling on the productivity of children's investments in schooling. In turn, secondary effects refer to differential choices driven by class-based perceptions about the necessity of attaining a given level of schooling, the pay-off of educational attainment, the opportunity costs of remaining in the education system, and the probability of success if students remain. *Ceteris paribus*, children in disadvantaged families will consider it less essential or taken-for-granted to attain higher levels of education, and they will perceive the pay-off of educational attainment and the probability of educational success as lower, and the opportunity costs as higher, than their more advantaged peers.

Research in advanced industrial countries shows that secondary effects play a substantial role in explaining educational persistence, accounting for up to half of social-class differentials in educational attainment (Jackson 2013; Jackson et al. 2007). There are only a few studies distinguishing primary and secondary effects in the developing world. In the case of Egypt, Jackson and Buckner (2016) found that test score differences (primary effects) were more relevant than secondary effects for track placement in secondary education. However, secondary effects were much more relevant in explaining socio-economic inequality in the transition to university. In Brazil, Marotta (2017) found that secondary effects predicted about half of the inequality in secondary-school completion. It is likely that the relevance of secondary effects varies by gender, but at the moment studies on the topic in the developing world have not considered differences between men and women.

The relevance of secondary effects in developing countries points to factors such as educational aspiration, access to information and guidance, self-esteem, and self-efficacy as potentially critical obstacles to attaining higher levels of schooling among disadvantaged children, even those with high educational performance. As shown by research in the Indian context, interventions promoting these non-cognitive skills appear to have been able to improve educational attainment among poor children (Krishna and Agarwal 2017; Krishnan and Krutikova 2013).

Although it is not possible to offer a systematic comparison of primary and secondary effects between developed and developing countries, the existing studies suggest that secondary effects play as critical a role in the persistence of educational advantage across generations in developing

countries as they do in high-income countries. They also have important practical implications. In many countries, attempts to address inequalities in educational attainment have focused on gaps in educational performance measured by test scores or grades. These policies are based on the presumption that the best way to reduce inequalities in educational outcomes between poor and wealthy households is to reduce inequalities in performance, and they may have led to an excessive emphasis on high-stakes testing (see e.g., Heubert and Hauser 1999). The relevance of secondary effects suggests that equalizing test scores is only one component of an effort to foster intergenerational educational mobility.

The distinction between primary and secondary effects raises the question of the factors that account for socio-economic differences in choices given similar levels of academic performance. Breen and Goldthorpe (1997) suggest that class-based educational choices are driven by the attempt to avoid downward occupational and economic mobility. Given that the thresholds that define downward mobility vary by social origins, students whose parents have higher levels of education will have stronger incentives to complete more advanced levels of schooling, while leaving the educational system earlier will be more acceptable to lower-class students. This hypothesis highlights that parents provide an important referent for comparison when children are making educational decisions, and it suggests that individuals are driven by the comparison with their parents as much as, or more than, by the comparison with their peers in the same cohort.

As shown by Mare and Chang (2006) in a comparative study of Taiwan and the United States, whether parents make a particular educational transition is a critical determinant of whether their offspring make that transition. The effect of parents' educational transitions varies, however, across context. In the United States, this effect is independent of the sex of the parent and offspring. In Taiwan, in contrast, the effect of parents' educational transitions is mostly confined to fathers and goes mostly to sons. If Taiwan is representative of developing countries characterized by deeper levels of gender inequality, the gender heterogeneity of this finding suggests that as education expands rapidly in developing countries, and thus children acquire much higher levels of schooling than their parents, the stronger patterning of individual attainment based on parents' attainment among sons than daughters may serve as a barrier for sons, and provide a stronger avenue of mobility for daughters.

3.3 Intergenerational persistence in the context of educational expansion

The substantial educational expansion experienced over the 20th and early 21st centuries in most countries around the world was expected to reduce the association between parents' and children's schooling, equalizing educational opportunity. Furthermore, many countries implemented reforms explicitly intended to equalize access and completion, such as constructing schools, reducing fees, and extending the number of years of compulsory education.

The fact that these expectations did not materialize (see e.g., Shavit and Blossfeld 1993) led scholars to attempt to understand the mechanisms of intergenerational persistence in the context of rapid expansion. The maximally maintained inequality (MMI) approach (Raftery and Hout 1993) was formulated as an explicit attempt to answer a question posed by findings in several industrialized countries: why is it that educational expansion and egalitarian reforms have not reduced intergenerational educational persistence more?

MMI asserts that an expansion in the educational system that does not specifically target the less advantaged classes provides new opportunities for all children. On average, children of advantaged classes have more economic and cultural resources, perform better in school, have higher aspirations, and are more acquainted with the educational system; in short, they are 'better prepared than are others to take advantage of new educational opportunities' (Ayalon and Shavit 2004: 106).

Therefore, only when the advantaged classes have reached saturation at a particular level of education—i.e. transition rates at or close to 100 per cent—will other sectors of society benefit from educational expansion. Only in these cases will educational expansion contribute to the reduction of socio-economic inequality in educational opportunity (Raftery and Hout 1993).

According to MMI, a decline in inequality can be reversed. If, for example, an educational reform pushes expansion at the secondary level, but this expansion is not coupled with a growth of similar magnitude at the college level, the increasing number of secondary-school graduates will cause a bottleneck, leading to competition for scarce college places. The advantaged classes will have the upper hand in that competition, which may lead to growing inequality at the college level. Evidence suggesting this process of inequality reduction reversal was found for the Russian case during the late Soviet and post-Soviet periods (Gerber 2007; Gerber and Hout 1995).

Policy reforms intended to provide educational opportunities can also have unintended consequences, resulting in declines in mobility. In the case of China, for example, an educational reform in 1986 established nine years of compulsory education in an attempt to raise the educational levels of the most disadvantaged children. However, fiscal decentralization tightened the link between local economic resources and educational access at the local level. To compensate for budget restrictions, local governments in poor areas passed costs on to families in the form of increased tuition fees. In the context of the economic growth fostered by the economic reform of 1978, parents with higher levels of education experienced an increase in the economic returns to their schooling, and were able to increase their investment in their children's education, exacerbating the influence of parents' schooling on children's educational attainment (Emran and Sun 2015).

The MMI approach is complemented by the effectively maintained inequality (EMI) perspective (for the original formulation, see Lucas 2001; see also Ayalon and Shavit 2004; Breen and Jonsson 2000). The EMI approach criticizes the MMI perspective for ignoring the simple fact that educational systems are not one-dimensional. Rather, they include several branches at each particular level—for instance, academic and vocational education, or college preparatory and non-college preparatory tracks. EMI argues that when saturation is reached at a particular level, and inequality in attainment declines, vertical inequality may be replaced by horizontal inequality, i.e. socio-economically advantaged families will be able to obtain specific educational credentials within a particular level of schooling that provide them with enhanced opportunities for further attainment.

The EMI approach emphasizes the institutional organization of different educational systems and the extent to which it provides opportunities for the persistence of educational attainment. It focuses on tracking, a relevant dimension of inequality in the advanced industrial world. In addition to tracking, sources of differentiation within a particular educational level prevalent in the developing world include the distinction between private and public schools. We discuss horizontal inequality as a potential source of intergenerational mobility in section 6.

Finally, a recent line of research extends the understanding of mobility from two-generation parent-child dyads to a multigenerational population-level analysis, and shows the value of incorporating demographic factors such as marriage and fertility into the understanding of persistence across generations. In a seminal paper, Mare and Maralani (2006) showed that the beneficial population-level influence of women's schooling on the educational attainment of the next generation was partially offset by the fact that more highly educated women bore fewer children (and so were under-represented in the offspring's generation), and was enhanced by the more favourable marriage partners of educated women.

4 Intergenerational educational mobility in developing countries: empirical findings

International comparative studies of intergenerational educational mobility consistently indicate that developing countries feature less mobility than their advanced industrial peers, and that the gap has persisted or even increased over time. The seminal study by Hertz et al. (2008) pooled survey data for individuals aged 20 to 69 across 42 countries between 1994 and 2004. They measured the association between parents' education, measured as the average years of schooling of the father and mother, and adult children's completed schooling, using regression and correlation coefficients, which provide comparable and straightforward measures of mobility (see section 2 for a discussion of the strengths and limitations of these measures).

Hertz et al.'s (2008) findings showed that Latin America and Africa were the least mobile regions of the world. The unweighted average of the IER coefficient reached 0.79 in Latin America and 0.80 in Africa.³ Selected developing countries in Asia featured an average regression coefficient of 0.69. At the other extreme, Nordic countries exhibited the highest levels of mobility with a regression coefficient of 0.34, and the average across Western and Northern European countries and the United States was 0.54.

In terms of change over time, the global average trend suggested a substantial increase in mobility across cohorts. The regression coefficient dropped from more than 0.7 among those born in 1930 to less than 0.6 among those born in 1980. In contrast, the correlation coefficient remained constant at approximately 0.4 over this period. As explained in section 2, the lower value of the IEC compared with the IER indicates that the variance of parents' schooling was lower than the variance of children's schooling over the entire period. Furthermore, the ratio of the variances increased as education expanded, compensating for the decline in the IER. In substantive terms, Hertz et al.'s (2008) findings suggest that the increase in mobility across cohorts was entirely due to the changing variance of the schooling distribution of parents and children over time, rather than to a change in the net intergenerational educational association.

Hertz et al.'s (2008) analysis has recently been updated and expanded in the World Bank (2018) volume *Fair Progress*. This volume offers an impressively comprehensive evaluation of educational mobility across cohorts born between the 1940s and the 1980s across 148 economies that comprise 96 per cent of the world's population. The authors consider relative and absolute mobility. They use a quantitative version of educational attainment, measure association by means of the IER and IEC, and operationalize parental education using the dominance approach as the maximum level of education attained by the parents.

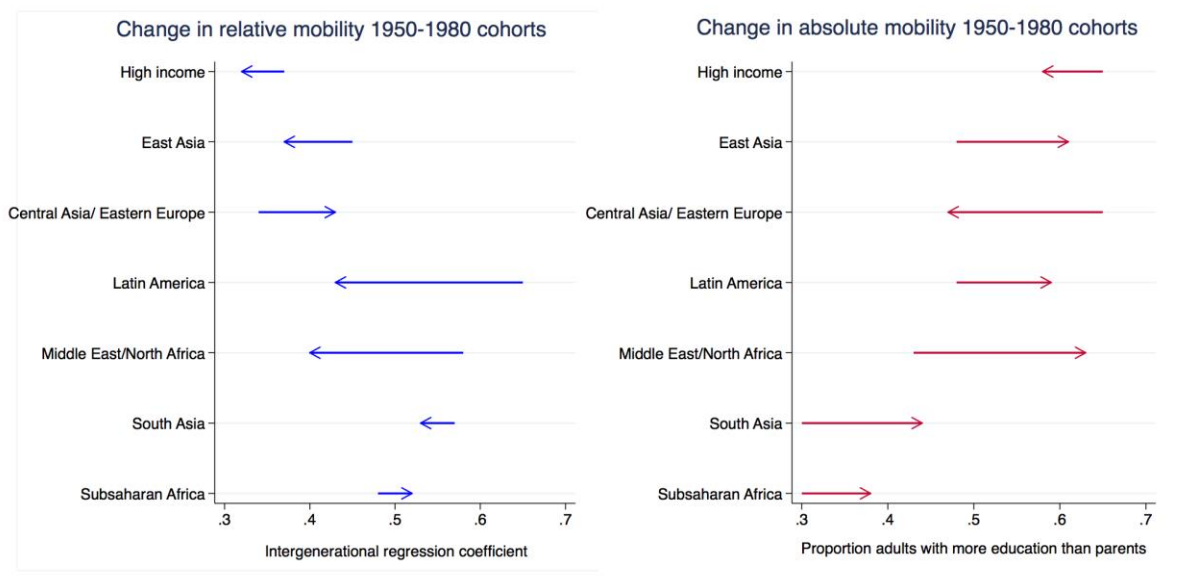
The authors examine educational mobility separately for developing and high-income regions. The developing world includes most nations in East Asia and the Pacific, Eastern Europe and Central Asia, Latin America and the Caribbean, MENA, South Asia, and sub-Saharan Africa. High-income economies include countries in Western Europe, Canada, the United States, Australia, and New Zealand. They also include some countries in East Asia (Japan, Taiwan, Singapore, Korea), Eastern Europe (Latvia, Slovenia), and Latin America (Chile, Uruguay). If the country is coded as high-income, it is not included in its region.

Overall, the analysis indicates sharp differences in mobility levels and trends between developing and wealthy countries. In terms of absolute mobility, the authors find an increase in the proportion

³ But note that only four African countries (or regions within countries) were included. Given this very small sample size, the findings for Africa were only suggestive.

of children with more education than their parents in the developing world, from 40 per cent among those born in the 1950s to 50 per cent in the 1960s birth cohort, but stagnation thereafter. For high-income countries, absolute upward mobility actually declines, from a peak of 65 per cent of children having more education than their parents among those born in the 1950s to about 60 per cent among the 1980s birth cohort. While upward mobility is still much higher in high-income countries, these trends emphasize convergence driven by a ceiling on the expansion of educational attainment in wealthy nations (Figure 1, left-hand panel).

Figure 1: Change in relative and absolute mobility of 1950–80 cohorts, across regions



Note: Relative mobility measured by IER. Higher values indicate less mobility. Absolute mobility measured by the proportion of adults who have higher levels of educational attainment than their parents. Regional averages are not weighted by population and exclude high-income economies (if any). The figure does not include economies for which estimates are available only for the 1980s cohort.

Source: World Bank (2018: Figure 3.3).

In terms of relative mobility, the authors find a decline in the IER, signalling increased mobility in both high-income countries and the developing world. The IER dropped slightly from 0.48 to 0.45 between the 1950s and the 1980s cohorts in the developing world—most impressively in Latin America and MENA. In high-income economies, the decline in the IER was larger, from 0.37 to 0.32, resulting in a growing gap in relative mobility between developing and wealthy countries. When the IEC coefficient is used as an alternative measure of relative mobility, the authors find a significant drop in high-income countries, but persistence or even increase in the intergenerational association in the developing world (see World Bank 2018: Figure B3.1.1).

Together, these findings yield several important conclusions. First, absolute upward mobility is converging between developing and wealthy countries, driven by the still massive educational expansion in the developing world. Second, there is a growing gap in relative educational mobility between wealthy and developing countries, regardless of whether the IER or the IEC is used. Third, the increase in relative mobility in the developing world—particularly impressive in Latin America and MENA, the regions that used to be the least mobile in the past—is largely driven by changes in the dispersion of schooling of parents and children across cohorts, rather than by the net intergenerational association. Fourth, among younger cohorts born in the 1980s, mobility is lowest in sub-Saharan Africa and South Asia, the regions that also have the lowest levels of educational attainment in the world. A combination of low average educational attainment and limited mobility is a worrying trend for these regions.

4.1 Educational mobility across regions of the world

The literature on educational mobility in specific developing countries or regions is a valuable extension of cross-national comparisons, which helps us to understand the relevance of economic and institutional contextual factors for educational opportunity. Unfortunately, this literature is relatively limited and restricted to specific countries.

Latin America

The longest tradition in the study of educational mobility can probably be found in Latin America. A landmark study by Behrman et al. (2001) examined intergenerational educational mobility in four countries (Brazil, Colombia, Mexico, and Peru) using the intergenerational regression coefficient. They found mobility to be much more limited in Latin America than in the United States using both metrics. The association of years of schooling between parents and adult children was approximately 0.5 in Mexico and Peru, and approximately 0.7 in Brazil and Colombia, compared with 0.35 in the United States. At the same time, the IER declined for cohorts born between the 1940s and the 1970s.

Sibling correlations of years of schooling also show very limited mobility in Latin America. Using the United States as a benchmark, Dahan and Gaviria (2001) examined the correlation among siblings in terms of their probability of being above the average educational attainment for their age. They found correlations ranging from 0.34 in Costa Rica to 0.59 in El Salvador, much higher than the correlation of 0.21 found in the United States. Behrman et al. (2001) closely replicated these findings. These studies confirm that Latin American nations used to feature very low levels of mobility, apparently even lower than countries with similar levels of development.

More recently, Daude and Robano (2015) and Neidhofer et al. (2018) have extended the comparative analysis of intergenerational educational association to virtually all Latin American countries, and Leone (2017) has offered a detailed analysis of the Brazilian case. The findings from these studies about trends over time are extremely consistent with the findings of Hertz et al. (2008) and the World Bank (2018): the intergenerational association measured by the regression coefficient has declined across cohorts in Latin America, but the intergenerational correlation has remained constant or declined minimally.

South Asia

A small literature has examined educational mobility in India and Pakistan using representative samples of adult children and retrospective information about parents. For India, Emran and Shilpi (2015) and Azam and Bhatt (2015) have found a substantial increase in educational mobility across cohorts born between the 1940s and 1980s based on the IER, but little change using sibling correlations or the IEC. Both the IEC and sibling educational correlations show a persistently low level of mobility between 1991 and 2006, even lower than in Latin America.

Cheema and Naseer (2013) find that while Pakistan has benefited from substantial educational expansion and the growing availability of schools in the last decades, the most disadvantaged households in rural regions have experienced very limited upward mobility. This finding offers an important warning about the limits of policies that alter the supply of education without changes in its demand by disadvantaged populations.

There is also a larger literature based on samples of parents and children residing in the same household in India and other South Asian countries (Hnatkovska et al. 2013; Jalan and Murgai 2015; Maitra and Sharma 2010; Sinha 2018), samples affected by other sources of selectivity such

as excluding young people who are in school or children younger than a certain age (Choudhary and Singh 2017; Ranasinghe and Hartog 1997), or samples with insufficient information to assess their representativity and quality (Tiwari et al. 2016). Two common themes emerge from this literature. First, in the case of India, Scheduled Castes and Scheduled Tribes experience less educational mobility than the rest of the population, although the gap has closed over time. Second, in several South Asian countries including India, Pakistan, and Nepal, occupational mobility appears to be more limited than educational mobility, and the gains in upward educational mobility experienced by disadvantaged groups have not translated into occupational mobility gains. These findings suggest that growing educational opportunity is not sufficient to guarantee occupational equalization. Third, at least one study in Sri Lanka indicates that children of more affluent families seem to derive more benefits from the free education policy than children of disadvantaged groups (Ranasinghe and Hartog 1997), a finding consistent with the MMI approach reviewed in section 3. This finding casts doubt on the effectiveness of the free education policy as a sufficient strategy to promote social mobility. All these results, however, should be taken as suggestive, given the potential for bias emerging from the use of co-resident parents and children.

East Asia

Several studies examine trends in intergenerational educational mobility in China and find signs of declining mobility over time. Fan et al. (2015) find declining mobility between urban cohorts born before and after 1970, particularly among women. Using a census of co-resident parents and children in urban China, Magnani and Zhu (2015) also find a decline in mobility for both sons and daughters between 1990 and 2000. Furthermore, Li and Zhong (2017) find that, in the context of rapid educational expansion, the association between parents' cadre membership and children's educational attainment has declined, but the association between parents' and children's education has increased over time. The authors speculate that this decline in mobility might be due to the fact that since the beginning of economic reforms in 1978, cadre selection has relied increasingly heavily on educational attainment.

The finding of declining educational mobility in China in a context of economic development and market reform is not unquestioned, however. Chen et al. (2015) find a U-shaped trend in intergenerational educational persistence among cohorts born between 1930 and 1985 in urban China. The persistence falls among cohorts educated after the Communist revolution of 1949, but rises again among cohorts educated during the reform era in the 1970s. In addition, Emran and Sun (2015) find that educational mobility has increased for women but decreased among men (more on this gender disparity later). In contrast to South Asia, limited educational mobility has been accompanied by massive upward occupational mobility, suggesting that industrialization and market reform have opened up occupational opportunities beyond the influence of educational expansion. Further research evaluating differences across data sources and statistical techniques might help us to find the sources of the discrepancies across studies.

Another important topic in the context of China is differences in mobility across the urban-rural divide. Golley and Kong (2013) find a wide gap in mobility between urban and rural populations, with rural children more likely to experience downward educational mobility than their urban peers. Using a sample of co-resident parents and children, Guo et al. (2019) find different effects of educational expansion policies in rural and urban populations. The compulsory education law of 1986 and the college expansion policy of 1999 promoted upward mobility in urban areas, but did not favour mobility in rural areas. This finding again highlights demand-side barriers to educational mobility among rural households.

Sub-Saharan Africa

A recent study evaluates trends in educational mobility over five decades in nine sub-Saharan African countries (Azomahou and Yitbarek 2016). The authors examine levels, trends, and patterns of intergenerational persistence of educational attainment among cohorts born from the 1930s to the 1980s. Consistent with cross-national comparisons around the globe (Hertz et al. 2008; World Bank 2018), they find an increase in mobility in all the countries examined using the IER (of a log-transformed version of years of schooling) as their measure of mobility, particularly after the 1960s, which coincides with drastic changes in educational systems and a huge investment in human capital accumulation in the region following independence. Nevertheless, the education of parents remains a strong determinant of educational outcomes among children in all the countries. However, the IEC suggests stability over time, again supporting the claim that growing mobility is predicated on a change in the dispersion of schooling across generations, rather than changes in the net intergenerational association.

As in the South Asian region, a worrying finding in sub-Saharan countries is that the increase in absolute upward educational mobility driven by educational expansion has not resulted in a commensurable increase in occupational mobility (for an analysis of Kenya and Tanzania, see Knight and Sabot 1986; for a study of Ethiopia, see Haile 2018). Furthermore, Knight and Sabot (1986) find that in Kenya, the substantial expansion of primary schooling has resulted in a stronger association between social background and secondary-school students' educational performance and school quality, a finding consistent with the MMI and EMI hypotheses outlined in section 3.

A small literature exists on the South African case which highlights the sharp differences in mobility between blacks and whites. Research shows that educational mobility is lower among blacks than whites, and particularly low among black boys who are poor (Nimubona and Vencatachellum 2007). Using sibling correlations in timely educational progress, Louw et al. (2007) find an increase in educational mobility in South Africa between 1970 and 2001 among both blacks and whites. The gaps in the quantity and quality of education across races remain very large, however. The mobility deficit of the black South African population has also been found for earnings mobility (Piraino 2015), contributing to the wide economic disparities between racial groups.

4.2 Gender and educational mobility

The conventional wisdom about gender differences in education states that the gender gap in favour of males is still large in the developing world. However, trends from the 1970s and the 2000s show enormous change, with women's educational attainment reaching parity or even surpassing men's in many developing countries (Grant and Behrman 2010; Hill and King 1993). As enrolment levels within countries have increased, the gender gap has consistently closed (Wils and Goujon 1998). In the early 21st century, girls have caught up with or exceeded boys in terms of primary educational attainment in the vast majority of developing countries, although gaps favouring boys still persist at the post-secondary levels in many poor nations (Assaad et al. 2019; Azomahou and Yitbarek 2016; Jayachandran 2015).

The gaps in educational attainment between boys and girls have been attributed, at least partially, to a marked parental preference for sons over daughters in many nations. Researchers have documented gender-unequal intrahousehold allocations of resources critical for educational attainment, such as nutrients, in contexts such as India and China (Song and Burgard 2008; Thomas 1996). It appears that girls living in rural areas are particularly handicapped (Lillard and Willis 2006). These patterns are not universal across the developing world, however: in some

contexts, including very traditional and low-income societies, rough equality in investments between sons and daughters appears to be the norm (Kevane and Levine 2003; Mulder et al. 2019).

Two caveats are relevant when considering uneven parental investments in resources critical to schooling, or schooling itself, between sons and daughters. First, the unequal allocation of household resources in favour of sons may be changing rapidly, driven by growing returns to schooling among women. For example, Rosenzweig and Zhang (2013) find that returns to schooling in the urban labour market are higher among women than men in China, and that they are rising along with rising levels of schooling. The authors suggest that these trends are driven by a comparative advantage of women in ‘skill’ versus ‘brawn’ occupations in the context of substantial economic development and structural change since the 1980s. Second, when one is examining differences in parental investments and transfers by gender, it is important to consider the entire family portfolio. For example, a study in rural Philippines found that daughters received lower parental investments in terms of education and land transfers than sons; however, they were compensated with other non-land assets (Quisumbing 1994).

A handful of studies examine intergenerational educational mobility by gender in developing countries. Several of them report a stronger intergenerational educational association among women than men (for India, see Emran and Shilpi 2015; for China, see Emran and Sun 2015; for nine sub-Saharan African countries, see Azomahou and Yitbarek 2016; for South Africa, see Thomas 1996). Some of these studies, however, have found substantial change over time towards convergence across genders. For example, Emran and Shilpi (2015) find an increase in mobility using the intergenerational correlation and sibling models among daughters but not sons between the early 1990s and 2006. In China, the intergenerational educational association remained stable among daughters but increased among sons between 1988 and 2002, likely driven by growing direct costs and opportunity costs of schooling in the context of growing economic opportunities (Emran and Sun 2015). This observed convergence in the level of intergenerational educational association across genders suggests an equalization of parental investments in these two national contexts.

Researchers have found greater mobility among daughters than sons in other developing countries. Such findings characterize rural China (Emran and Sun 2015), Brazil (Leone 2017), and the Philippines (Dacuycuy and Dacuycuy 2019). The reasons for the mobility differences between men and women vary across national contexts. In the case of Brazil, Leone (2017) found that the higher mobility of daughters than sons was driven by their higher probability of attaining post-secondary education, regardless of social origins. In the Philippines, Dacuycuy and Dacuycuy (2019) found that sons’ mobility deficit could be accounted for by the stronger influence of low-educated/non-working mothers on the school progression of sons than daughters. More research is certainly needed to advance a systematic understanding of gender differences in mobility across different national contexts.

4.3 Macro-level factors and educational mobility

A small literature examines the association between the national economic and institutional context and educational mobility by relying on cross-country (and to a lesser extent, over time) comparisons in the developing world. To date, this literature has mostly focused on Latin American and African countries. The existing studies find a positive association between educational mobility and several macro-level factors including the mean level of schooling in the country, the level of income inequality, economic development, and the strength of financial markets (Behrman et al. 1999; Dahan and Gaviria 2001; Neidhofer et al. 2018).

In the case of sub-Saharan Africa, a study by Alesina et al. (2019) considering 26 African countries finds that colonial investments in the transport network and missionary activity are associated with upward mobility. Mobility is also higher in areas with more vibrant economic development, including regions close to the coast and national capitals, rugged areas without malaria, and regions that were more economically developed at independence. Given that many of these factors characterized the region decades or centuries ago, the policy implications are not immediately obvious.

Interestingly, the association between public expenditures in education and educational mobility is very weak, at least in the Latin American and African cases (Behrman et al. 1999; Dahan and Gaviria 2001; Knight and Sabot 1986; Neidhofer et al. 2018). This contrasts with comparisons across industrialized countries, which show that educational spending is positively related to mobility (Blanden 2013). A likely explanation for this weak association is that governments in Latin America and Africa allocate a large portion of their educational budgets to higher education. Spending on higher education, particularly on undergraduate training, tends to benefit more affluent families whose children remain in school longer, so it provides a hefty subsidy to the upper class (Birdsall 1996). In fact, when public spending on different educational levels has been considered, researchers have found that primary and secondary spending is indeed positively associated with mobility, but spending on tertiary education is negatively associated with mobility (Neidhofer et al. 2018).

4.4 Economic crises and educational mobility

Developing countries suffer deeper and more frequent economic downturns than wealthy ones, making the question about the effect of the economic cycle on educational attainment and mobility particularly important. Much research examines the effect of economic crises on educational attainment (for an excellent summary, see Ferreira and Schady 2009). However, these studies tend to focus on the effect of crises on the mean level of educational attainment, rather than on the allocation of education by parental resources (e.g., McKenzie 2003; Skoufias and Parker 2006).

The few studies that examine the effect of the macroeconomic context on intergenerational educational persistence in developing countries consistently find a negative effect of economic crises on mobility. Economic decline during the 1980s resulted in decreased mobility in Mexico (Binder and Woodruff 2002) and across four Latin American countries (Torche 2010). By the same token, the economic crisis that started in the late 1990s in Argentina appears to have resulted in lower educational mobility (Rucci 2004). Examining the consequences of the 1998 crisis in Indonesia, Thomas et al. (2004) found that it resulted in lower investments in children's education, most dramatically among the poorest households. Conversely, post-crisis economic growth resulted in increased mobility in Latin America (Marteleto et al. 2012). The decline in mobility resulting from economic recession is particularly strong at the secondary and post-secondary levels, which are non-compulsory in many developing countries.

This decline in educational mobility associated with economic crisis is driven not only by tighter financial constraints among poorer households, but also by increased educational attainment among advantaged families. It appears that in the developing world, economic crises produce different effects on educational attainment for poor and wealthy households. A positive substitution effect results in educational gains among the wealthy, whereas a negative income effect results in losses among the poor (Ferreira and Schady 2009). The end result is a stronger influence of social origins on educational attainment among the cohorts affected by economic contraction.

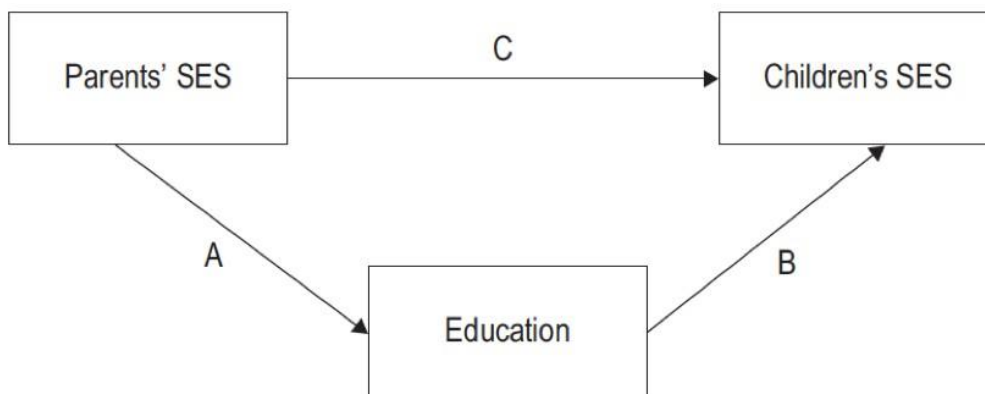
5 The role of education in the intergenerational transmission of socio-economic advantage

So far, this review has focused on educational mobility. This is a relevant topic in its own right, but education is also important as a mediating factor in the process of economic mobility. There is a long research tradition in sociology that examines the role that education plays in the process of socio-economic mobility.

In the 1960s, the status attainment tradition showed that education was both the main mechanism for intergenerational persistence and the main vehicle for mobility (Blau and Duncan 1967; Hout and DiPrete 2006). This dual role, which puzzled researchers when it was first documented, is easy to explain. Education is a central vehicle for reproduction because advantaged parents are able to afford more schooling (and better schooling, a topic we discuss in the next section) for their children, which in turn pays off in the labour market and other markets. Education is also the main vehicle for mobility because factors other than parental advantage account for most of the variance in educational attainment, thus weakening the link between socio-economic origins and destinations.

As proposed in the seminal book *The American Occupational Structure* (Blau and Duncan 1967), the total socio-economic association between parents and adult children can be decomposed into the pathway mediated by educational attainment and a direct pathway that is net of education. The education pathway includes the association between parents' socio-economic standing and individual educational attainment ('inequality of educational opportunity'), and the association between educational attainment and adult children's socio-economic position ('returns to education'). These pathways are indicated by arrows A and B respectively in Figure 2.

Figure 2: The role of education in the socio-economic mobility process



Note: SES: socio-economic status.

Source: author's illustration.

The direct pathway that is net of education captures multiple factors, such as the direct inheritance of property, variations in the probability of marrying and assortative mating patterns by social origins, the use of family-based social networks or cultural capital for occupational placing, and the transmission of personality traits, among many others. It is indicated by arrow C in Figure 2.

A particularly important concern is the role that educational attainment plays in the intergenerational stratification process in the developing world. Given the high earnings returns to schooling that characterize developing countries (Psacharopoulos and Patrinos 2018), education

is likely to play a pivotal role in intergenerational reproduction. So far, the evidence is scarce, but existing studies suggest variation across regions. In Latin America, the mediating role of education appears to be strong, perhaps even stronger than in the advanced industrial world (Torche 2014). In contrast, Assaad and Saleh (2018) and Binzel and Carvalho (2017) show that growing educational mobility across cohorts in Jordan and Egypt respectively has not resulted in more income mobility, suggesting that the educational pathway plays a limited role in economic mobility, and offering a word of caution about the strategy of focusing on equalizing educational attainment to improve socio-economic mobility.

The evidence also suggests that the role of education in the economic mobility process may vary by gender. Gender variation could emerge from parents investing more in the schooling of their sons than of their daughters (Behrman 1988; Song and Burgard 2008), from different returns to schooling for men and women (DiPrete and Buchmann 2006; Dougherty 2005; Montenegro and Patrinos 2014), or from gender variation in the portion of the intergenerational economic association that is not mediated by education.

To date, evidence of gender differences in the role of education for economic mobility is very limited in the developing world. A relevant study in rural Philippines found that the intergenerational income association was entirely accounted for by parental investments in capital—education, health, and landholdings—among sons. In contrast, a direct intergenerational income association was found among daughters, even after their educational attainment and other types of capital were accounted for, suggesting the use of social capital and the direct transfer of assets among women, probably related to finding a ‘good’ husband (Bevis and Barrett 2015). In the case of Mexico, the role of education in intergenerational economic persistence is similar for sons and daughters (Torche 2015). Both national cases diverge from high-income countries such as the United States and United Kingdom, where the mediating role of education and occupation appears to be more important for daughters than for sons (Blanden et al. 2014). The heterogeneity of findings suggests the need to consider other developing nations to understand patterns of gender variation.

Some analysts have claimed that a strong mediating role of education in the process of economic persistence is good news: the transmission of advantage net of education reflects processes that refer to pure ascription. However, the strong mediating role of education could create a situation of ‘inherited meritocracy’ intergenerational persistence, legitimized and naturalized by educational attainment when in fact the situation emerges from the strong barriers that disadvantaged families in the developing world face to access quantity and quality in education (Torche 2014).

Sociologists have further explored the possibility that the direct intergenerational association that is unmediated by education varies by the level of education of the respondent. Empirical analysis has shown that the net intergenerational socio-economic association is weaker among individuals who obtain college degrees than among those with lower levels of schooling. This finding has been obtained in the United States (Torche 2011), some European countries (Breen and Jonsson 2007; Falcon and Bataille 2018; Vallet 2004), and at least one developing country, namely Brazil (Torche and Ribeiro 2010).⁴

This finding has been interpreted as indicating that higher educational levels are more meritocratic in the sense that college graduates are allocated to segments of the labour market in which meritocratic selection is more prevalent and origin characteristics count for less, insofar as higher

⁴ Both Torche (2011) and Falcon and Bataille (2018) find a re-emergence of the intergenerational association among individuals who attain graduate degrees, however.

qualifications are a powerful signal for employers, leaving little leeway for social network effects (Breen and Jonsson 2007).⁵

Alternatively, the weaker intergenerational persistence among college graduates could be due to unobserved selectivity among those who make it into higher education—think in particular of the positive selectivity of students from disadvantaged origins who are able to persist in the educational system in spite of the obstacles. Research in the United States case offers conflicting findings about the role of unobserved selectivity in the meritocratic power of a college degree (Karlson 2019; Zhou 2019). This question has important implications. If the markets faced by college graduates are indeed more meritocratic, expanding college access and graduation will, *ceteris paribus*, increase mobility. An indication of this trend has been found in the United States (Pfeffer and Hertel 2015) and European countries (Breen 2010). If, in contrast, the heightened mobility of college graduates is due to unobserved selectivity, expanding college will most likely reduce selectivity and thus not result in increased mobility. With the exception of Brazil, we do not have empirical information on the intergenerational economic association across levels of schooling in the developing world, but this is a question worth examining.

6 Mobility and the qualitative dimension of educational attainment

Following the literature, this review has concentrated on the quantitative dimension of educational attainment, measured as the number of years of schooling completed or the attainment of specific qualifications such as a secondary-school certificate or college degree. However, substantial heterogeneity in the type of education obtained exists at each educational level. Depending on the national context, the heterogeneity is organized in terms of tracks (e.g., vocational versus academic), types of institution (e.g., private versus public), institutional prestige, and field of study, among other dimensions (Gerber and Cheung 2008).

These sources of heterogeneity provide a vehicle for intergenerational persistence if advantaged families are able to access the most beneficial and lucrative sectors within each level. It is possible, then, that a portion of the intergenerational economic transmission that is not mediated by the quantitative dimension of schooling is instead mediated by its qualitative dimension, if advantaged parents are able to purchase access to better schools or better tracks within a school.

To date there is a very limited literature on the qualitative sources of educational stratification and their effect on mobility in the developing world. Research suggests that a critical source of stratification is the distinction between private and public schools at primary and secondary levels. In most developing countries, free public education coexists with private schools. In some contexts, such as Latin America, private schools cater mostly to the elite and charge hefty fees. In other contexts, such as India, private schools are mostly ‘low-fee’ and have lower costs per student than public schools, due to teacher wages much lower than those determined by minimum-wage regulations (Kingdon 2017).

In contexts where private schools cater to the elite, private school pupils usually (and not surprisingly) have higher test scores, as well as higher transition rates to post-secondary education, than those in public schools. A relevant empirical question is whether these advantages are driven by value added by the schools, or simply reflect the more advantaged composition of pupils

⁵ The strong intergenerational economic association among graduate degree holders in some contexts questions this interpretation, however.

attending private schools and peer effects, without any additional value being provided by the institutions.

The public-private divide may provide a powerful avenue for intergenerational persistence, even in contexts where educational attainment at a particular level is universal. In fact, as predicted by the EMI approach, horizontal sources of stratification become increasingly prevalent as access becomes universal and advantaged parents search for alternative strategies to favour their children. For example, Marteleto et al. (2012) found that the association between social origins and educational attainment declined across cohorts in Brazil and Chile, while the association between origins and the probability of attending expensive private schools increased. Given that private schools predict better educational outcomes, this suggests a transformation in the sources of educational inequality.

A small literature examines the effect of private-voucher schools on students' achievement in the developing world. This research is relevant given that voucher schools are examined as potential alternatives to increase educational access and quality in developing countries. So far, research has focused on two case studies: Colombia and India. In Colombia, several large municipalities operated a secondary-school voucher programme in the 1990s, targeted at low-income students. Analyses of the effects on achievement by comparing voucher lottery winners and losers show a positive impact of voucher schools on students' test scores and secondary completion (Angrist et al. 2002, 2006). Two caveats are in order, however. The renewal of the voucher was conditional on grade completion, providing a strong incentive for students to avoid grade repetition. Also, lottery winners usually supplemented the voucher with private funds, potentially inducing confounding by the volume of private funds in the observed relationship between private school attendance and educational outcomes Urquiola (2016).

In the case of India, a private foundation made a large number of school vouchers available in the state of Andhra Pradesh. Voucher allocation was randomized at the village level, and at the individual level within villages. Lottery winners were found not to have better test scores in five of the six subjects measured, and somewhat better scores in one of them (Muralidharan and Sundararaman 2015). There was also evidence of a lower cost of private schools, suggesting they were substantially more cost-effective (Kingdon 2017) (for similar evidence for Pakistan, see Andrabi et al. 2008).

Another relevant question is the general equilibrium effect of private schools on overall educational inequality. Examining the privatization of the educational system in the 1980s in Chile, Torche (2005) and Hsieh and Urquiola (2006) found that the establishment of a private-voucher system in 1981 induced non-random sorting across school types in the form of 'cream-skimming', with more socio-economically advantaged families migrating to the private-voucher system, leaving behind more homogeneously disadvantaged families in the public system. The overall effect of the transformation was a growing gap across types of school and the probability of graduating from secondary school, without an increase in overall educational performance in the country.

Beyond the public-private divide, there is very limited research on the role of educational type and quality on intergenerational mobility in developing countries. This question is enormously important, however. School quality is highly stratified, and it predicts economic outcomes. Furthermore, net of students' achievement, students are much less likely to drop out of high-quality than low-quality schools (Hanushek et al. 2008) in the case of Egypt. This finding redefines the way the question about quality is usually formulated in the developing world: as a trade-off with school quantity (expanding available slots versus improving quality). By showing that high-quality schools are more efficient at retaining students in the educational system and producing

learning, this finding suggests that improving quality also achieves the goal of retaining students in school, i.e. increasing quantity. We expect that the study of school quality, type, and other domains of horizontal stratification will become increasingly central as educational systems continue to expand, and primary and secondary schooling increases across the developing world.

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