

Beyond Poverty Escapes - Social Mobility in Developing Countries: A Review Article

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Abstract: While social mobility in advanced economies has received extensive scholarly attention, crucial knowledge gaps remain about the patterns and determinants of income, educational and occupational mobility in developing countries. Focusing on intergenerational mobility, we find that estimates often differ greatly for the same country, depending on the concept and measure of mobility used, on variable constructions and on the data-set utilized. There is also wide variation in mobility across regions and social groups. We discuss data and income and other variable measurement challenges when agriculture and the informal sector absorb most of the workforce and illustrate why occupational classifications and widely used mobility measures may perform less well in such settings. Factors beyond those featuring in the literature on advanced economies are plausible determinants of social mobility, particularly of what we call moderate and large ascents (and descents), in developing country contexts. We highlight the lack of in-depth understanding of the multiple and often localized hurdles to such more pronounced progress. Similar knowledge gaps exist for large descents, which give rise to particularly profound concerns in low income settings. We report and touch on the implications of suggestive findings of a disconnect between educational and occupational mobility. Innovative research requires critical engagement with theory and with methodology, identification and data challenges that may overlap or deviate notably from those encountered in advanced economies.

JEL Codes: O12, J24, J62

Keywords: Inequality; Intergenerational mobility; moderate and large ascents; downward mobility; methodological challenges.

I. INTRODUCTION

Concerns about rising inequality have engendered a renewed interest in social mobility - defined as “the ability to move between different levels in society or employment usually from a lower to a higher social class”¹ - especially in the developing world. There are disagreements about what constitutes social mobility, but there is broad agreement that in a just society all people should “have a roughly equal chance of success regardless of the economic status of the families to which they were born” (Sawhill and McLanahan 2006: 4).²

Pioneered by Sorokin’s (1927) monograph, sociological studies of social mobility in the West took off in response to David Glass’s (1954) landmark study of intergenerational mobility in Great Britain. The research surge within economics and political science is more recent. Among economists, the bulk of this scholarly effort has been dedicated to the study of industrial country settings, utilizing increasingly sophisticated large-scale data-sets that combine links across generations with in-depth information on earnings (income), education levels, and occupational status. Intergenerational mobility has remained at the centre of this emergent literature which has produced a variety of methodological advances and options for comparing parent and offspring achievements (e.g Solon 1999; Black and Devereux 2011; Blanden 2013). While economists working on advanced economies prefer income- or earnings-based analysis, sociologists have prioritized changes in occupational status. Following Duncan (1961), hierarchies of occupational groups have been constructed for the Western world, based on weighted averages of the mean level of earnings and education for a given class of occupations (Blanden 2013). Sociologists have also focused on social class, particularly in Europe, with class positions determined by

employment relations, for instance, distinguishing between employers, self-employed workers, and employees, with further sub-categorizations (Erikson and Goldthorpe 1992, 2002).³

While development research has added much to our understanding of movements out of poverty, and the fragile and often marginal nature of such ascents (Krishna 2010, 2013; Dercon 2005; Addison, Kanbur, and Hulme 2009), social mobility in developing countries has not been studied in the same depth and extent.⁴ In an important new initiative, the World Bank (2018) examines social mobility in 148 industrialized and developing countries, with caveats and limitations to the analysis, as the authors recognize and we discuss later.

Further and when gauged as intergenerational steps on an income, occupational or educational ladder, what we describe as moderate or large *individual* ascents (e.g. Krishna 2010; Chetty, Hendren, Kline and Saez 2014), along with exceptional social mobility achievements by *nations*, are neither well documented nor well understood.⁵ However, studies of social mobility in developing countries are beginning to emerge, instigated, perhaps, by concerns over rising inequality.

In our review of this nascent literature and its roots in traditions and methods of studying social mobility in the West (e.g. Torche 2014), we assess the state of knowledge about the patterns and determinants of intergenerational income, educational and occupational mobility in developing countries. We find that mobility estimates may differ greatly for the same country, depending on the concept and measure of mobility used, on the data-set utilized and on whether income, education or occupational status progress is considered.⁶ We also find wide variation in social mobility patterns across regions and social groups.

This notable spread in results points to genuine disparities in opportunities but also to variation in research practice and quality. Greater conceptual clarity and research practice

coherence are therefore, we suggest, necessary. Our review highlights at least four major differences between Western and developing country settings that scholars studying social mobility should be cognizant of:

- (1) Factors beyond those conventionally considered in the literature on social mobility in the West – i.e. parental endowments and returns to human capital investment – are expected to be more important in developing country contexts: credit constraints, information constraints, peer and role model effects, and location (in particular, rural-urban differences) are some examples.
- (2) Methodological considerations of at least four kinds: (a) should any of the six main types of social mobility (Fields 2006) be prioritized when studying developing countries?; (b) do conventional mobility measures perform satisfactorily in low income settings?; (c) are standardized occupational classifications, developed to study social mobility in the West, relevant and useful for researching developing countries?: (d) measurement challenges for key variables: e.g. estimating (permanent) income for parent and offspring generations in contexts where agrarian and informal sectors predominate.
- (3) The more severe consequences of some mobility patterns in low income-settings: for downward mobility, descents into poverty or deeper into poverty are two examples. Less obvious is a disconnect between educational and occupational mobility which may be more pronounced, harder to correct and a source of greater friction and instability in developing countries.
- (4) Limited availability of sufficiently granular and nationally representative panel and other data-sets and of reliable and economy-wide official records such as annual income tax returns.

The remainder of this article is organized as follows. Section II reviews the theoretical literature on the concepts and determinants of intergenerational mobility. Section III reviews the empirical literature on income, educational and occupational mobility in developing countries, presenting findings, and pointing to inconsistencies. Section IV elaborates on the methods and measures developed in the West and their applicability to the analysis of low income contexts. While selection bias, arising on account of samples that exclude parents and children who are not co-resident, has been examined in some depth (Azam and Bhatt 2015; Shahe Emran, Green and Shilpi 2017), we examine other frailties in applying traditional methods to developing country contexts; in particular, we discuss limitations of persistence measures, widely utilized in the emerging developing country literature. Section V provides a summary of the state of knowledge and makes suggestions about how to fill the knowledge gaps about the patterns and drivers of social mobility in the Global South.

CONCEPTS AND DETERMINANTS OF SOCIAL MOBILITY

We first discuss concepts of mobility and then review the theoretical literature on the determinants of social mobility.

Concepts of Mobility

Fields (2006) discusses six commonly used concepts of mobility : i) time-dependence – or persistence - measures the extent to which economic status in the past determines economic status at present; ii) positional movement – or relative mobility - which e.g. measures changes in economic or social ranks, centiles, deciles or quintiles from one generation to the next; iii) share movement, which arises when an individual’s share of total income changes (not applicable to occupational or educational mobility); iv) directional movements, which measure by how much,

in absolute terms, an individual moves up or down in income, occupational ranking or educational attainment; v) income flux, which measures the size of the fluctuations in individuals' incomes, and vi) mobility as an equalizer of longer-term incomes, which involves comparing inequality of income at one point in time with inequality of income over a longer time period. As Fields (2006) shows, each indicator captures different aspects of mobility – for example, a person can observe positional or relative upward mobility even if her income does not change (so there is no directional upward mobility), provided that others' income deteriorate sufficiently.

While the above six concepts can be applied both to intragenerational and intergenerational mobility, for intergenerational mobility time-dependence – or persistence - also known as “mobility as origin independence” (Ferreira et al. 2013) has been most widely used: accordingly, there is greater intergenerational mobility when parents' position and economic status is a less important determinant of the future position of offspring. The Intergenerational Earnings Elasticity and the most popular measures of intergenerational educational and occupational mobility in developing countries are persistence measures, as discussed later.

Which of these concepts are suitable for measuring social mobility in developing country contexts? As explained below, concepts of mobility that depend on accurate measurement of income such as income share, income flux and mobility as equalizer of long-term incomes are particularly problematic. This leaves three concepts of intergenerational mobility that we discuss in Section IV: persistence, positional (relative) mobility and directional (absolute) mobility.

Determinants of Mobility

The workhorse theory of the determinants of intergenerational mobility is Becker and Tomes (1979) (BT from now), and Solon's (1999) and (2004) subsequent modifications. BT focuses on parental investment in their children's human capital and family endowments as the main determinants. An extensive literature has examined its implications for Western countries (see Black and Devereux 2011). We begin by discussing the applicability of this model for developing countries. We then review a fast-growing literature on neighbourhoods and social mobility, mostly based on evidence from the United States. While these theoretical perspectives provide valuable insights about some determinants, also in low and middle income country contexts, they fail to provide a sufficient understanding and account of the social barriers to intergenerational mobility in the developing world. We extend our discussion of the drivers of social mobility by highlighting the role of social and cultural factors such as peer and role model effects.

Human Capital Investment and Parental Endowments

In the BT model, parents decide how much of their income to consume and how much to invest in their children's human capital. As Durlauf (2006) remarks, a key driver of intergenerational persistence in these models is the negative effect of low income upon investment in the education of children. Parental investment is also increasing in the returns to human capital investment – that is, parents invest more in their children's education when the pay-off is higher – as well as in the degree of altruism of the parent – that is, the parent's weighting of the child's future earnings relative to current consumption (Solon 2004). Further, social mobility is a function of the strength of the intergenerational transmission of the parent's endowments to the

child's endowments, where endowments could be genetic or non-financial capital such as ethnic or social capital. For example, cultural values that parents pass on to their children that are not correlated with parental income may explain why children of low earning immigrants achieve high earnings. Cultural capital and learned behaviours, differing between elite and non-elite families, also influence individuals' life chances (Bourdieu 1986; Kusserow 2012).

In developing country contexts, empirical micro studies find a significant association between parental background, particularly their income and education, and investment in the human capital of children (Strauss and Thomas 1998, 2008, Behrman and Knowles 1999, Dunn 2007, and Orazem and King 2008).⁷ However, a recent study using cross-national cohort panels in Ethiopia, India (Andhra Pradesh only), Peru and Vietnam that followed children from 6 to 18 months to about 8 years did not find a large effect of parental schooling and consumption (as a proxy for income) on poverty and inequality in the human capital accumulated in the next generation (Behrman et al. 2017). A straightforward application of BT to a low income context may thus be misleading, given the lack of efficacy of human capital investment arising from low quality schools (e.g. Solon 2004) and the credit and other constraints that limit parental investment in their children's human capital.

Credit Constraints

A key assumption of the Becker-Tomes model is a perfect capital market, so that parents who wish to invest in the education of their children, can do so by borrowing against the future income of their offspring. In more recent models (e.g. Banerjee and Newman 1993), capital market imperfections constrain the amount poor households can borrow, restricting their ability to move into occupations that require high initial investment. Mookherjee and Ray (2010) show that with large entry costs (in terms of educational investment and training) to higher end

occupations, intergenerational inequality can persist and lock children of poor parents out of “prized” occupations (doctors, engineers, lawyers, etc.) that require large human capital investments for entry. Research in Western contexts has examined, but not generated strong evidence in support of the credit constraint hypothesis (Grawe 2004; Solon 2004; Mazumdar 2005; Heckman and Mosso 2014). This lack of support is less plausible in low income settings, where credit markets are more likely to fail due to informational constraints and the lack of collateral among poor households (Stiglitz 1989). There is limited research on whether borrowing constraints impede social mobility in developing countries. In a study which focused on poverty reduction and with a credible strategy for identifying the impacts of relaxing credit constraints, Burgess and Pande (2005) find that state-led bank branch expansion in rural India led to significant rural poverty reduction.

Neighbourhood Effects

While the BT model focuses on the role of family origins including parental endowments for social mobility, community origins may also affect children’s ability to move up the occupational, educational or income ladder (Solon 1999). A recent literature on the drivers of social mobility in the United States highlights how neighbourhoods may influence children in numerous ways: through peer influences, role-models and enforcement of social norms by adult residents of the community, and through neighbourhood institutions (including school quality)” (Solon 1999, p. 1790). For example, Chetty et al. (2014) find that large ascent prospects varies substantially across regions in the United States: high mobility areas tend to have less residential segregation, less income inequality, better primary schools, greater social capital and more stable families. A related paper by Chetty et al. (2016) use the Moving to Opportunity experiment in

the United States which offered randomly selected families housing vouchers to move from high poverty housing projects to lower poverty neighbourhoods to show that such movement increased college attendance and earnings for children who moved: the effects were most pronounced among children who were exposed to better neighbourhoods at an early age.

In developing countries, neighborhood effects are likely to be more salient given within country differences in the provision of public goods, and in the quality of primary schooling, as well as the concentration of poverty among socially marginalized groups, who are often located in more remote areas. In a regression model with neighbourhood fixed effects, Shahe Emran and Shilpi (2015) identify large neighbourhood effects and compelling rural-urban contrasts in India. Such studies need to be leavened with other choice-set constraints, agroecological conditions (e.g. Palmer-Jones and Sen 2003) and isolation and remoteness (Krishna 2017). These and other granular contextual attributes may impede (or assist) mobility in low income settings (Li and Rama 2015). For example, Munshi (2011) shows how newly established community networks in the Indian diamond industry allowed for relatively high intergenerational mobility by improving information flows and reducing commitment problems associated with risky business activity.⁸ Similarly, Banks (2010) and Dhillon, Iversen and Torsvik (2017) show how social networks are essential for accessing jobs in the information-constrained contexts of urban Bangladesh and India.

Peer Influence and Role Model Effects

As components of neighbourhood effects, peer influence and role models are likely to be particularly relevant in developing countries. Several studies have emphasized how peer influence and role models, including via the mediation of aspiration formation, affect social mobility. Appadurai (2004: 68-70) notes how better off individuals tend to ‘*have a more complex*

*experience of the relationship between a wide range of ends and means, because they have a bigger stock of available experiences... Poorer members have a more brittle horizon of aspirations... and a thinner, weaker sense of pathways.*⁹ In the same vein, Ray (2006) suggests that ‘*Individual desires and standards of behavior are often defined by experiences and observation*’. In Dalton et al.’s (2014) model, poverty imposes additional external constraints on the poor who are more likely to suffer from aspirations failure. This leads to a self-fulfilling equilibrium where low aspirations lead to low effort, which in turn reinforces low aspirations, generating persistent intergenerational inequality. Pasquier-Doumer and Brandon (2015) find evidence of poverty influencing aspiration formation in a cohort of children aged 8, 12 and 15 years in Peru where high aspirations positively affects a child’s language acquisition. This suggests that aspirations failure provides an additional channel for intergenerational inequality; by exacerbating the effect of socio-economic background on educational achievement, low aspirations further depress career possibilities. A person’s behavior is conditioned by the experiences of other individuals in the cognitive neighbourhood and these experiences may be all-important. To illustrate, while social learning among farmers can be strong (Foster and Rosenzweig 1996), such learning often involves tweaks to cultivation practices within locations and production systems with which these farmers are deeply familiar.

In contrast, moderate or large educational or occupational ascents are harder to achieve and acquire that an individual takes new and unfamiliar pathways, for which little guidance is available at home or in its immediate vicinity; local schools rarely have alumni in high positions outside the farming sector. How a person gets on the ladder to becoming a software engineer is an unknown fact in rural and low income settings, particularly where formal education is being acquired for the first time. The hurdles to higher education – illiterate parents, poor-quality

education, credit constraints, lack of supportive influences in one's neighborhood, and non-availability of sources of information and guidance about how alternative career pathways are shaped and operate - are typically multiple and formidable, especially in rural areas. For first-generation learners, ascent opportunities depend, on information but also, as Krishna (2010, 2017) carefully documents, on mentors who can advise, provide information, and step in and offer psychological and other support when this is required, indicating a sustained and comprehensive role for social networks.¹⁰ An innovative example of such integrated supports is Jensen's (2012) bundling of job vacancy information with recruitment services with the intent of facilitating entry into outsourcing jobs for women from rural north India. Similarly, Krishnan and Krutikova (2013) find that a long-term NGO intervention targeting non-cognitive skills among children and adolescents from Mumbai slums, led to increased self-esteem and self-efficacy, to success in school-leaving examinations and improved initial labour market outcomes.

II. WHAT DO WE KNOW ABOUT SOCIAL MOBILITY IN DEVELOPING COUNTRIES?

In this section, we review the empirical literature on income, educational and occupational mobility, paying particular attention to the data challenges that confront researchers working on social mobility in developing countries.

Income Mobility

In economics, the intergenerational elasticity of earnings (IGE) has been the empirical workhorse and can be estimated as follows¹¹:

$$y_1 = \alpha_1 y_0 + u_i \quad (1)$$

where y_0 is the natural log of parental earnings (often father) and y_1 is the corresponding earnings for offspring (often son). α_1 is the IGE. The sensitivity of α_1 estimates to measurement errors in parental earnings or income (attenuation bias) and to other estimation challenges have been extensively discussed by Solon (1999) and Black and Devereux (2011).¹² The following estimates, selected from Blanden (2013), and presented in a condensed and simplified manner in Table 1, illustrate the range and inter-country variation in IGE estimates from industrial countries:

INSERT TABLE 1 HERE

With a zero value implying no relationship between parent and offspring outcomes, the overall message is that intergenerational mobility in Latin America is low, that the US performs poorly when compared with other industrial countries and that mobility in Scandinavia is high. Increasingly demanding data requirements and contextual attributes (more below) make earnings-based analysis of intergenerational mobility in developing countries particularly challenging.

Two less information-intensive and therefore more popular variants of (1) are, firstly:

$$Y_1 = \beta_0 + \beta_1 Y_0 + u_i \quad (2)$$

where β_1 is the intergenerational regression coefficient (IGRC): in (2), Y_0 captures parental educational or occupational achievement while Y_1 is the corresponding category for offspring.¹³

The (often preferred) alternative, the intergenerational correlation coefficient (IGC), is given by:

$$\rho = \beta_1 \left(\frac{\sigma_0}{\sigma_1} \right) \quad (3)$$

where σ_0 and σ_1 are the standard deviations of occupational or educational achievements in the parent and child generation.¹⁴ While the literature cited above focuses on estimation problems, data limitations – especially for income, earnings or asset-based mobility - are more acute in developing countries.

For IGE estimation, the consensus position is that single-period observations are insufficient to capture an individual’s income or earnings level: year on year data are required to credibly approximate permanent income (Solon 1999; Black and Devereux 2011). Comparing Canada, the United States and Sweden, Corak, Lindquist and Mazumder (2014) have access to 30 years of earnings data for Swedish and five years of data for Canadian fathers. Social mobility estimates may change substantially if single-year replace multi-year averaged income estimates (Mazumder 2005).¹⁵ The same could – but need not – happen when occupational status is measured using a ten year average of father’s occupation (Mazumder and Costa 2015). Educational comparisons are more straightforward since a person’s level of education is less likely to change during adulthood.

Another complication with single period data arises from the desirability of comparing fathers and sons (or mothers and daughters) at a similar stage in their life cycles. This is pertinent to earnings and occupational categories whenever career progress represents a genuine prospect. Another hurdle to reliable income mobility estimates is the difficulty of defining and measuring income. The precision with which income can be measured when most people have a fixed paycheck rapidly disintegrates in countries with dominant agrarian sectors and sizeable informal sector employment. Incomes may also fluctuate dramatically from year-to-year (Shahe Emran

and Shilpi 2015) when incomes depend on rainfall or are made up of a mélange of shifting occupations practiced by multiple household members. While scholars studying advanced economies can access administrative records, including tax returns and social security data (e.g., Chetty et al. 2014 and Anand and Segal 2017), such data are not available or have little coverage within poorer countries. Similarly, classifications of occupational status can be blurry-edged and tendentious.¹⁶ The prestige and pay scales of different occupations move upward and downward as a society transforms, making some comparisons across people of different generations or countries less meaningful (e.g. Ganzeboom and Treiman 1996; Blanden 2013).

Hnatkovska, Lahiri and Paul's (2012) study of intergenerational wage convergence across social groups in India illustrates some of these data challenges, while adding another concern. While the number of households in each of the five successive National Sample Survey Organisation (NSSO) rounds their analysis is based on is about 120,000, the father-son pairs containing wage observations is limited to 7,000-9,000 individuals (at most 4,500 households) and thus to a highly select sample in each round. Contextual features that make income harder to measure and data limitations restrict the scope for credible wage and income based study of intergenerational mobility in developing country settings.¹⁷

Further and since earnings or income-based recall is not meaningful, studies of social mobility in Latin America have relied exclusively on cross-sectional samples of adult populations with retrospective questions about educational and occupational attainments of the parent generation (Torche 2014).

Additional questions are induced by downward mobility. Studies of poverty dynamics show that not everyone is moving up. While some individuals and groups move upward over time, in absolute or relative terms, others move downward simultaneously. Of particular research

interest is the seemingly high prevalence of absolute descents in low income settings (Motiram and Singh 2012; Iversen, Krishna and Sen 2017). The prevalence of and reasons for such descents, need as careful attention as the different factors associated with upward mobility (Krishna 2010).

Educational mobility

Educational data give rise to fewer concerns since most people achieve their highest educational level by a certain age. For adult children it is usually straightforward to compare education with that of a parent, which is one reason why the World Bank (2018) can present estimates for intergenerational educational mobility for 148 countries and income mobility estimates for a much smaller group. Cross-sectional data combined with sufficiently granular retrospective questions can yield the information required (Blanden 2013; Torche 2014). Analytical complications arise on account of ceiling effects, since few individuals have more than 21 years of education, and because a large fraction of the parent generation in developing countries has zero years of education. Further, while years of schooling are often available from large-scale surveys, cognitive skill and human capital formation are harder to capture. The quality of education varies e.g. across urban and rural areas within developing countries (Hanushek and Woessman 2009; World Bank 2018) and with the educational offerings accessed by students from elite and non-elite families (Alon 2009; Muller 2015). This matters since much could happen to educational quality - and unevenly across the school types children from well and less well to do households attend – from one generation to the next.

In practice, especially when parents and children live far apart, matching up parent-child pairs represents a logistical hurdle: many nationally representative data sets only facilitate

analysis of co-resident father-son pairs. In Azam and Bhatt's (2015) analysis using the Indian Human Development Survey (IHDS) (round I), this coresidence restriction cuts feasible father-son comparisons by about two thirds. Shahe Emran, Greene and Shilpi (2017) consider the implications for mobility estimates: while IGRC-based analysis using coresident data substantially inflates mobility estimates, the IGC bias is less pronounced.¹⁸ These caveats should be kept in mind when interpreting results.

Studying India and using data from the National Family and Health Survey (NFHS) (Round 2, 1998-99), Jalan and Murgai (2008) treat as suggestive their finding of declining educational persistence by birth cohort for both men and women: while mobility improvement is consistent across social groups, mobility is lower for rural girls. Exploring similar questions, but using IHDS (Round 1, 1992-93), Maitra and Sharma (2009) report strong educational progress over time: women gain the most with divergence for Muslims and Scheduled Tribes. Using NFHS data (Round 1 and 3) and focusing on the 16-27 age group, Shahe Emran and Shilpi (2015) find a sharp IGC decline to 0.508 for urban (upper and lower caste) daughters from 1993 to 2006 and persistence elsewhere. Their findings for sons are at odds with Azam and Bhatt (2015) who – based on IHDS round 1 – find IGRC decline by cohort and IGC persistence (0.53): the latter is explained by increased persistence at the upper and reduced persistence at the lower end of the educational distribution for fathers.

Educational mobility can also be captured by convergence in educational progress across social groups. Lacking information on years of education, Hnatkowska et al. (2013) define educational categories and merge secondary and higher education into a single category. Given the limited progress into tertiary education for individuals from rural and minority backgrounds, this accentuates similarity in educational gains by more advantaged and historically

disadvantaged groups (Scheduled Castes (SC) and Scheduled Tribes (ST)) in India.¹⁹ The categories also treat educational progress from 'literate below primary' to 'primary' on par with improvements from 'primary' to 'middle'. The choice of categories may thus inflate convergence through variable construction since minority parents are less educated at the outset.

Comparing educational mobility in Brazil, Columbia, (urban) Mexico and Peru, Behrman, Gaviria and Szekely (2001), using the years of schooling of the parent with most education, report IGRC estimates of 0.7 for Brazil and Columbia and 0.5 for (urban) Mexico and Peru. They find considerably larger upward mobility from the bottom than downward mobility from the top.

Given the spread and inconsistency in the above findings, which reflect the variation in measures and data-sets used, Hertz et al. (2007) take care to ensure comparability of data-sets in their analysis of intergenerational educational mobility in 42 countries: their global verdicts about educational mobility over time depend on whether the IGC or the IGRC was used: while the IGRC suggested reduced persistence (and increased mobility), the IGC pointed towards a status quo. Figure 1 reports IGC based estimates of intergenerational educational mobility for selected countries in Asia, Africa and Latin America in Hertz et al's sample. Most striking is the strong persistence and low intergenerational educational mobility in all the Latin American countries. The situation in Africa and Asia is more mixed, with China and Ethiopia showing a relatively high rate of educational mobility while Indonesia, Pakistan, Egypt have lower educational mobility.²⁰

For Latin America, Ferreira et al. (2013) find a notable decline in the inequality of opportunities for educational attainment in the 2000s: children who were disadvantaged by parents' lower educational levels, lower income or by ethnic minority background were less

likely to be delayed in schools than in the 1990s. They find more educational mobility progress in countries with better teachers, more accountable and transparent school systems and a mixed system of public funding with private provision. A less optimistic and more general finding is reported by the World Bank (2018: 3): “*mobility from the bottom half of the education ladder to the top quartile has fallen over time in developing economies, whereas persistence at the bottom has increased.*”

INSERT FIGURE 1 HERE

Occupational mobility

For the occupational rankings that social mobility analysis rests on, historians and others prefer the Armstrong classification system, which assigns a person to one out of five social classes and occupational categories (Armstrong 1972; Long 2013: 7-8). In the sociology literature, the two main contributions, developed to facilitate international comparisons, are Erikson, Goldthorpe and Portocarero (1979) and Ganzeboom and Treiman (1996). While the former is based on class categories, the latter draws on the ILO’s International Classification of Occupations (ISCO88) with its nine main occupational groups (Table 2).²¹

INSERT TABLE 2 HERE

Motiram and Singh (2012) use the official National Classification of Occupations for India (2004), with its local adjustments to ISCO88 and compress occupational categories down to four. They find higher mobility in urban areas and pronounced immobility in low-skilled, manual occupations. Unable to discern upward mobility differences across social groups, they observe exceptionally high downward mobility among SCs/STs. Using the same data-set as Motiram and

Singh, but a more granular occupational classification, Azam (2015) analyses occupational mobility using the so-called Altham statistic. He finds progressive occupational mobility by birth cohort and that mobility among SC/STs born during 1965-84 exceeds mobility among higher castes. Using data from five successive NSSO-rounds, Hnatkovska, Lahiri and Paul (2013) report occupation switch probabilities for three digit occupational categories. For the period under study, the switch probability for SC/STs increases from 0.33 to 0.42: for others the increase is from 0.3 to 0.39. Results for two or one digit occupational categories switches are fewer but not reported. While the findings of the last two overlap, these three studies reiterate how different variable definitions and social mobility measures often generate contradictory results.

The last two studies we report on are restricted by a major but avoidable constraint: the five country Africa comparisons in Bossuroy and Cogneau (2013) lacks a sufficiently granular occupational classification for the parent generation:²² this limits their otherwise interesting analysis to farm to non-farm occupational shifts. A similar constraint limits Shahe Emran and Shilpi's (2013) occupational mobility comparison of Nepal and Vietnam.

Bossuroy and Cogneau (2013) develop a Harris-Todaro-type farm-non farm sector model of intergenerational occupational mobility. They report on structural mobility – i.e. general upward mobility due to a change in the occupational structure - and its causes (e.g. non-farm job growth) and use odds-ratios to isolate relative mobility (see footnote 32): they also provide testable predictions about the determinants of relative mobility. They observe higher relative mobility in Ghana and Uganda, more persistence in Cote d'Ivoire and Guinea and strong persistence in Madagascar. The latter is attributed to educational persistence. Shahe Emran and Shilpi (2013) report the (marginal) effect of mother's non-farm participation on daughters which

is 0.45 in Nepal and 0.4 in Vietnam. For father-son, the estimates are 0.23 in Nepal and 0.2 in Vietnam.

How useful are international occupational classifications and standards for studying social mobility in developing countries?²³ In ILO's ISCO88 classification, elementary occupations feature at the bottom of a hierarchy of nine main occupational groups (Table 2 and footnote 21), each horizontally disaggregated into two and three-digit sub-categories. A key organizing principle is the skill requirement of a job and the intention is to offer a classificatory scheme that robustly discerns progress. In otherwise important work, Ahsan and Chatterjee (2017) (see below), suggest that India's National Classification of Occupations (NCO) facilitates rankings of the 335 three-digit occupations in their estimation sample thus supporting a highly granular analysis of occupational mobility.²⁴ While the ranking of ISCOs nine main occupational categories is transparent and open to discussion, it is hard for a three-digit ranking to escape serious ad hoc concerns. To illustrate, how do the skills of a small-scale "farmer" rank and compare with those of a driver, a cook or a nanny – all employed by private households – or with an informally trained plumber or auto mechanic? The typically informal skill acquisition in low income settings is strikingly different from the formalized and certified processes in industrial countries, making meaningful comparison harder. Further and at least as important for ranking is the status of a job: an informal sector job with high skill content would often be deemed inferior to a routine and low-skill, but permanent government or formal private sector job. For occupational mobility analysis, these distinctions matter: as noted above, Hnatkowska et al. (2013) report occupation switch probabilities for three digit occupational categories: however, and as the above examples suggest, whether a switch is up or down can be very hard to tell.

While we have drawn attention to the limited knowledge about the prevalence and determinants of moderate and large ascents in developing country settings, there are challenges associated with measuring small ascents (or descents), too. A key insight is the tradeoff with trying to push occupational disaggregation too far. For meaningful inference, compressing the analysis to a few main (e.g. Motiram and Singh 2012) and more aggregated and transparent sub-categories may be the most sensible strategy.²⁵

Table 3 provides a summary of studies of intergenerational mobility that have mainly used nationally representative data-sets and of the data sources, the social mobility measures used, the main findings and our interpretation of methodological concerns. For reasons explained above, studies of educational and occupational mobility dominate. What main lessons do Table 3 and the preceding discussion convey? The first is that estimates are highly sensitive to the data-set, variable construction and the mobility measure used: second and partly a reflection of this sensitivity, findings for the same country and for the same type of mobility often point in different directions. A third lesson is that some of the most widely used social mobility measures may not deliver transparent and meaningful results: Hertz et al.s (2007) 0.10 IGC estimate for Ethiopia (footnote 21) is instructive in this regard. Section IV provides more evidence and explanations for these shortfalls.

INSERT TABLE 3 HERE

IV. METHODOLOGY AND MEASUREMENT: PROPERTIES AND SHORTFALLS

As discussed, concerns about the most popular measures of persistence – the IGC and the IGRC – have focused on the selection bias when analysis is restricted to coresident, mainly father-son pairs. While IGRC-based analysis of coresident data substantially inflates mobility estimates, the IGC bias is less pronounced (Shahe Emran, Greene and Shilpi 2017).²⁶ A fundamental concern, noted by Iversen (2018), is the failure of the IGC and the IGRC to distinguish between *moving ahead* and *moving away from*: in industrial country settings, lower parent to offspring transmission may capture the offspring autonomy intended: however, *moving away from* – in the sense of being different from – enters normatively more charged terrain in developing country settings. As the following examples of occupational and educational mobility in India illustrate, this takes on special significance if downward mobility is pervasive.

Occupational and educational mobility: persistence measure (IGRC and IGC) frailties

Using the data-set (IHDS, round 2) and the occupational categories of Iversen, Krishna and Sen (2017)²⁷, figure 2 provides histograms of occupational differences for rural and urban father-son pairs. A positive difference demarcates occupational progress:²⁸ 46 % of rural and 35 % of urban sons are in the same occupational category as their father. In rural areas, descents strongly dominate ascents with occupational progress observed for about 20 % of father-son pairs. In urban areas, ascents dominate descents with occupational progress for 38.5 % of father-son pairs. As Iversen (2018) documents in depth, the numerically predominant rural descents are into manual labourer jobs – which in the context of India – often implies descents into poverty. Paradoxically, a class of such descents pull the rural IGRC and IGC coefficients downward: while occupational choices different from the parent generation square with notions of offspring autonomy and a progressive cleavage between parents and offspring in the West, the

consequences here are very different: a higher prevalence of a class of poverty descents translate into more social mobility for the most popular persistence measures.²⁹

The comparison with rural and urban educational mobility for the same father-son pairs in figure 2 finds lower persistence. 23.3 % of urban and 29 % of rural sons are in the same educational category as their father:³⁰ however, and in contrast to occupational mobility, educational ascents strongly dominate descents: the ascent percentage for father-son pairs is 71.8 % in urban and 66.8 % in rural India.

INSERT FIGURE 2 HERE

INSERT FIGURE 3 HERE

Another comparison of rural, urban and figures 2 and 3 shows that substantive educational mobility has not translated into equivalent occupational progress. On the contrary, there have been notable occupational setbacks.

INSERT TABLE 4 HERE

If we compare the rural IGRC and IGC estimates for occupational and educational mobility (Table 4), differences are small and all estimates suggest considerable intergenerational progress. As figures 2 and 3 illustrate, these coefficient values have little meaning as summary measures of educational and occupational mobility in rural India. These frailties of persistence measures underscores the need for more caution in their use.

Positional movements (rank-rank and odds ratios)

The early sociological literature on economic development and social mobility, reviewed in Goldthorpe (1985), provided limited support to the notion that a process of development bolsters positional movements in addition to its impacts on what Bussoroy and Cogneau (2013) call

structural change and emphasize the value of filtering out. The concept of positional movement (which compares the child's rank for a given distribution of children to the parent's rank in the same distribution of parents) has considerable intuitive appeal.³¹ Its main drawback is that the granularity such ranking requires is best provided by income or earnings data which, as discussed, are seldom available for developing country contexts. While occupation based analysis could be an option, the ad hoc concerns associated with fine-grained occupational rankings in low-income contexts, also discussed above, pose a major hurdle.

Torche (2013) and Bussoroy and Cogneau (2013) emphasise how odds ratios are simple to derive, robust to the econometric concerns that plague the IGRC and IGC and offer sharp insights about opportunities for progress from modest origins to desirable destinations.³² Crucially, odds ratios can also be derived for a small number of occupational categories (Bussoroy and Cogneau *ibid.*). While otherwise attractive, one limitation is that unlike the IGRC and IGC, odds ratios are not nationally representative summary measures.

Directional (absolute) mobility: Large and small ascents and descents

While small changes are common and can be picked up in large-sample studies, keeping the above caveat about granular occupational classifications in mind, much less is known about moderate or large ascents (e.g. Chetty, Hendren, Kline and Saez 2014; Clark 2014; Iversen et al. 2017) and the empirical underpinnings of such more substantive progress. Questions of interest include: how common is it for offspring of a manual labourer to become a business executive or a medical doctor? Do such moderate or large ascent prospects vary with location or by social or class identity? What are the prospects for holding on to a higher level across generations once the higher level has been secured? Research into these questions is scattered and preliminary.³³

Snapshots from a sample of 20 villages in Karnataka, India show, for instance, that during a 10 year period and from a total population of about 60,000 people, 397 individuals graduated from high school. Two became engineers, four became lawyers and one became a medical doctor. While more people made it into middle level occupations which include respectable careers as school teachers, police constables or army soldiers, the small number of large ascents is a grim predicament (Krishna 2010). Nationally representative data from the Indian Human Development Survey (IHDS 2) tell a similar story (Motiram and Singh 2012; Iversen et al. 2017 and section IV): occupational persistence is considerably stronger in rural areas while large ascent prospects are higher in cities and among individuals from forward castes. Location may make a bigger difference than previously acknowledged in influencing individual starting and ending positions. A growing body of literature points to the widening rift between rural and urban areas in, for example, China (Cheng and Dai 1995); South Africa (Louw, van der Berg and Yu, 2007); and the five African countries examined by Bossuroy and Cogneau (2013). Even in a rapidly transforming economy such as China, where there has been a large increase in opportunities in urban areas with the growth of the manufacturing sector, Wu and Treiman (2007) show a clear rural-urban divide with low social mobility among rural male residents unable to obtain urban hukou status. Li and Zhao (2017) find that even with parental and own educational qualifications and Communist Party membership controlled for, ethnic minority men of rural hukou origins were behind others in access to professional-managerial positions. Similar stark rural-urban differences in social mobility has been found for India (Iversen et al. 2017).

Paralleling the distinction between large and small ascents is the distinction between upward and downward mobility. Preliminary observations suggest a high prevalence of large descents for China and India (e.g. Xu et al. 2003; Wu and Treiman 2007; Iversen et al. 2017).

For India, Iversen et al. (2017) find large occupational descents to be much more prevalent than e.g. in Victorian Britain: such descents are more common in rural areas (section IV) and among individuals of minority background. For the latter, the assumption that holding on inter-generationally to a higher level on the occupational ladder is not supported by the available data. While this resonates with insights from the study of poverty dynamics, it also matters for thinking about affirmative action policies: if the likelihood of failure to sustain higher educational or occupational achievements correlates strongly with social identity, the capacity of e.g. a quota system to support social transformations may be more limited than acknowledged so far.

The case for better, more robust and more transparent measures

The above discussion points to the need for social mobility measures that are more robust to developing country contextual features. Alternative summary measures, with a few applications in poorer country settings, are sibling correlations (Shahe Emran and Shilpi 2015) and the Altham statistic (Azam 2015). Given the experiences so far, the properties, strengths and possible weaknesses of such alternatives need careful, upfront scrutiny.

Another alternative, focusing on shorter term rather than intergenerational progress or setbacks is to use earnings or income data from household panel surveys (Chatterjee, Murgai and Rama 2016). Collected independently in each round, these data do not, for obvious reasons, suffer from the reliability concerns that plague attempts to recover income or earnings information retrospectively. Using a synthetic panel for India, Dang and Lanjouw (2015) consider mobility between three ‘classes’ – ‘the poor’, ‘the vulnerable’ and ‘the middle class’ – covering different (and short) time periods and by social identity. Once meaningful class demarcations are set – and there are weaknesses – with middle class defined as about double the

poverty line - one can define moderate and large ascents (and descents) and study the attributes of households and locations that facilitated up- (and downward) mobility. Compared to much of the above, this is compellingly transparent.

Other short panels capture intragenerational mobility. Fields and Sanchez Puerta (2010) and Fields et al. (2015) use panels of individuals for selected Latin American countries to examine whether the growth in labour market earnings of the lowest earners diverge from higher earners over time and do not find evidence of such divergence.³⁴ Another line of inquiry involves collecting retrospective information on asset holdings (e.g., Krishna 2010). While this may yield results that are less precise and less fine-grained than those based on measurements of income, such methods, for investigating some questions about intergenerational change may be among the best currently available.

Other issues: the disconnect between educational and occupational mobility

Figures 2 and 3 suggest a notable disconnect between educational and occupational mobility. The quality of education, a person's location, gender or other identity could make it harder to translate educational into labour market gains.

Valuable clues are provided by Ahsan and Chatterjee (2017): sons living in urban districts with more intense trade liberalization exposure are more likely to be in a better occupation than their father: as above, educational investment alone is not enough to secure occupational progress: matched educational and occupational progress is only observed in urban districts with a trade liberalization induced increase in the employment share of high-skill occupations.

Further, the connection between education and other achievement may not be regular and continuous, and there may be thresholds, going beyond which may be necessary for attaining e.g. significant income gains. With advancing mechanization and robotization in production processes worldwide, the demand for highly educated individuals has risen relative to that for people with lower education levels, increasing the “college premium” sharply (Brynjolfsson and McAfee 2014; Carr 2014).

V. SUMMARY OF MAIN FINDINGS AND DIRECTIONS FOR FUTURE RESEARCH

We end with a short summary of the main findings and some suggestions for future research. The somewhat naïve empirical use of social mobility measures that may not perform well in developing country settings has, together with questionable variable construction and problems of selection bias contributed to findings that often are contradictory. On social mobility causes, we noted that while parental endowments and human capital investment are important, also in developing countries, credit constraints, peers, role models and locational factors also matter, reflecting market failures in credit markets and lack of information about and local experiences with the pathways to moderate and large educational and occupational ascents. Strong support mechanisms are required for mitigating the sharp economic and social opportunity cleavages that often are spatially distributed in developing countries. The evidence on the determinants of social mobility remains weak, given the paucity of longitudinal studies and the presence of tough identification challenges (see below)

As discussed, the inter-generational income elasticity (IGE) has been the empirical workhorse in social mobility research covering the West. The less information-intensive IGRC and IGC are persistence measures of social mobility that while widely used in developing

country research, may provide less stable and more misleading estimates than acknowledged so far. While odds-ratios have wellknown and attractive properties, they are not national level summary measures.

Other social mobility measures have the potential to improve understanding of occupational or educational intergenerational mobility in studies using nationally representative data. The Altham statistic (Azam 2015), the Lieberman (1975) net difference index of occupational mobility (e.g . Li and Heath 2016)) and sibling correlations (Bjorklund, Lindahl and Lindquist 2010; Shahe Emran and Shilpi 2015) are three examples. While these measures could be less sensitive to data patterns typical of low income settings, more effort should be invested to explore their properties and suitability.

The suggestive disconnect between educational and occupational mobility in figures 2 and 3 raises additional questions. Is this disconnect stronger for some social groups or for e.g. some levels of education? Is it harder to mitigate in developing country settings ? If so, major educational mobility achievements may not represent or take longer to become the social or economic leveller it is often portrayed as and expected to be. More careful analysis of the disconnect and the contributions of e.g. education quality, social identity and location is thus required.

The prevalence of large descents – sons of professional fathers becoming manual or agricultural labourers – is especially pronounced, in India, for example, among SCs and STs. The notion that affirmative action suffices to cement occupational progress across generations needs careful re-examination.

Research on developing countries should provide new and sharper evidence on the drivers and inhibitors of social mobility in general and of moderate and large ascents, in

particular. While work on correlates of mobility is valuable and continues to play a lead role also in mobility research on the United States (Chetty et al. 2014), data and methodological approaches that facilitate causal inference could combine structural models (as in Heckman and Mosso 2014), experimental methods that test the role of aspirations (and role models) in personal development (as in Ghosal et al. 2015), combination interventions as in Jensen (2012) and longitudinal studies that track the long term effects of interventions during childhood (see Attanasio 2015). The variation in exposure to new neighbourhoods and environments across siblings provides a particularly promising avenue for causal identification (Chetty, Hendren and Katz 2016).

Panel data sets of the sophistication required for analysing social mobility in developing countries are unlikely to become available soon. Two remedial strategies are, first, to use shorter panels, drawing on lessons from the study of poverty dynamics to obtain clues about moderate and large ascents (and descents) not from one generation to the next but at the level of households as in Dang and Lanjouw (2015).

A second strategy is to introduce new methods of assessing the extent and drivers of social mobility. For instance, the composition and social origins of a country's CEOs or those of its legislative leaders; examining intake in its most prestigious educational institutions; comparative examinations of the destinations reached by age-specific cohorts from diverse source communities and so forth. Krishna (2014) looks within engineering colleges in India that are of different quality levels, identifying the social origins of students who secure admissions in each quality category. Similarly, Fuller and Narasimhan (2007) and Upadhyya (2007) study the social origins and educational pathways of newly recruited software engineers. By examining the characteristics of individuals who are able to reach these desirable destinations – and by

identifying the key obstacles these individuals were able to overcome - such inquiries among the “outliers” help advance the frontiers of knowledge about social mobility. Learning from practice is another promising option. A number of organizations have arisen in different parts of the developing world that in different ways are helping raise career aspirations and achievements among young adults in disadvantaged situations. Their modes of operation vary – for instance, mentorship plus referral networks plus cultural capital building - or supplementary education plus career-relevant information plus peer group support (Krishna and Agarwal 2017). Researchers can use these operations as the loci for investigating critical policy-relevant questions: what is the value added of a particular chain of factors? For what kinds of intake – for children who lack which prior factors – is each mode of intervention most helpful? For which demographic can social mobility be most effectively promoted by focusing upon what particular chain of factors?

In these and other ways, advancing the study of social mobility in developing countries is not only a feasible enterprise but one that has considerable value for academic researchers seeking to understand, and policy makers looking to give a boost to, social mobility. Divides of income and wealth are becoming sharper as a global elite has come into being amid a host of people still living on the margin of poverty. Not only in India, but in other populous developing countries, “islands of California [exist] amid a sea of Sub-Saharan Africa (Dreze and Sen 2013). Policy makers ought to be concerned, for “rising inequality in well-being does not simply increase relative deprivation; it also threatens the social solidarity of societies in ways that portend growing social conflict” (Barnes and Hall 2013: 231).

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Table 1. Income mobility: Selected Industrial and Middle Income Countries

	IGE
Brazil	0.52
USA	0.41
Germany	0.24
Sweden	0.24
Canada	0.23
Denmark	0.14

Source: As reported in Blanden (2013).

Table 2. Major Occupational Classifications: ISCO88

<i>1000</i>	<i>Legislators, Senior Officials and Managers</i>
<i>2000</i>	<i>Professionals</i>
<i>3000</i>	<i>Technicians and Associate Professionals</i>
<i>4000</i>	<i>Clerks</i>
<i>5000</i>	<i>Service Workers and Shop and Market Sales Workers</i>
<i>6000</i>	<i>Skilled Agricultural and Fishery Workers</i>
<i>7000</i>	<i>Craft and Related Trades Workers</i>
<i>8000</i>	<i>Plant and Machine Operators and Assemblers</i>
<i>9000</i>	<i>Elementary Occupations</i>

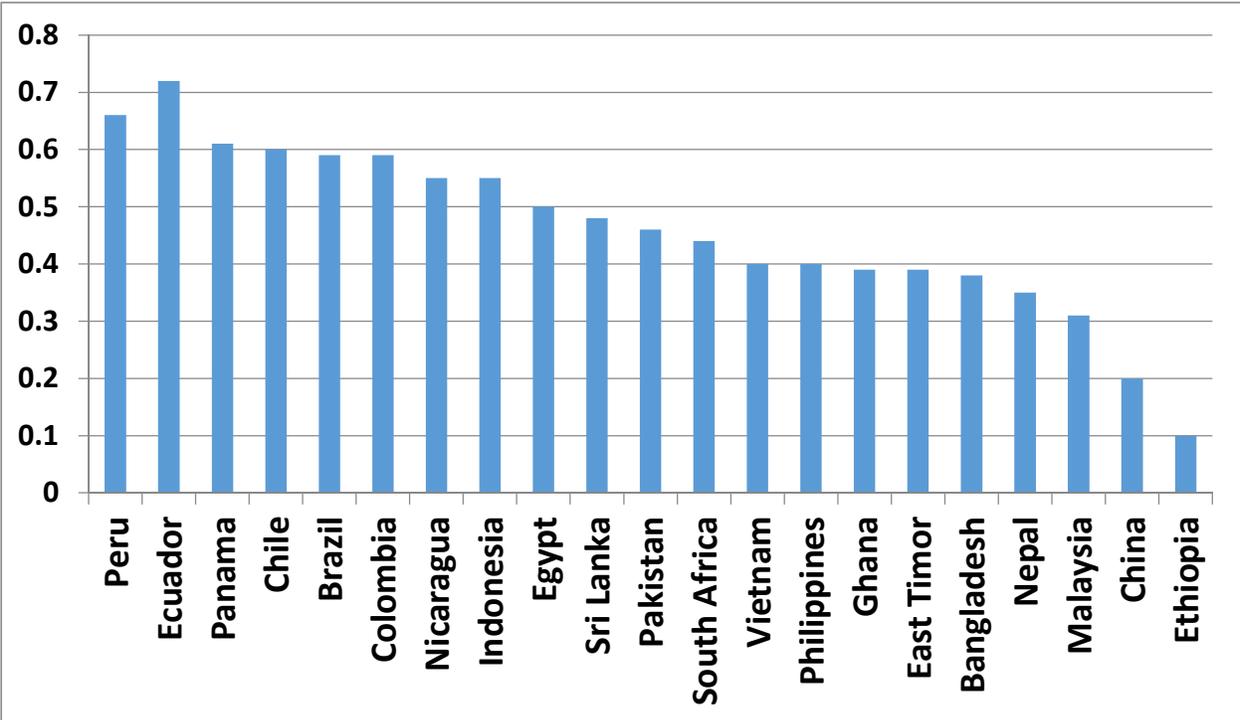
Source: Ganzeboom and Treiman (1996).

Table 4

	IGRC Rural	IGRC Urban	IGC Rural	IGC Urban
Education	0.342***	0.297***	0.276***	0.371***
Occupation	0.369***	0.385***	0.312***	0.372***

Note: OLS with state dummies and robust standard errors. *** significant at 1 % level.

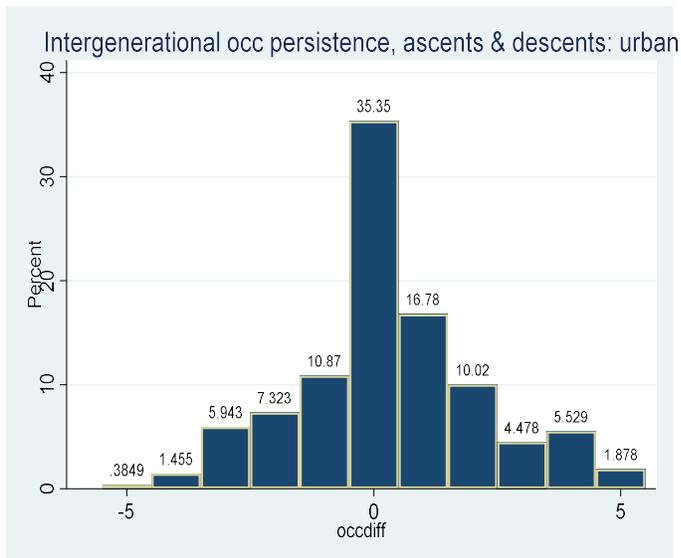
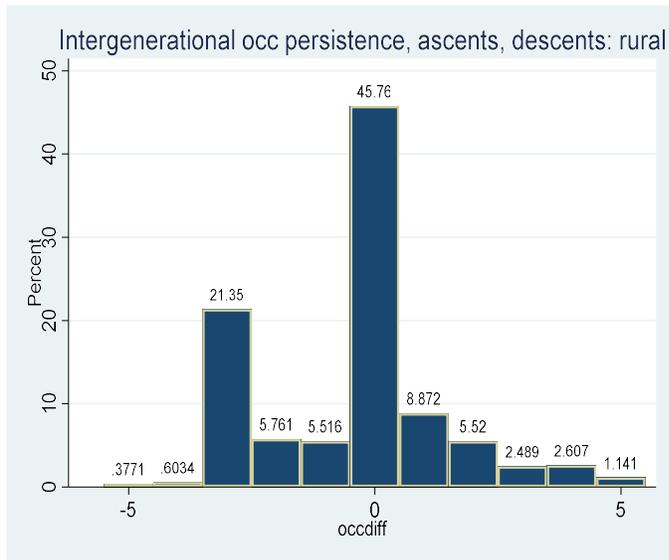
Figure 1: Countries Ranked by Average Parent-Child Schooling Correlation, Ages 20-69



Note: South Africa: only KwaZulu-Natal province; Bangladesh: only Matlab province; China and Ethiopia: only rural individuals.

Source: Hertz et al. (2007).

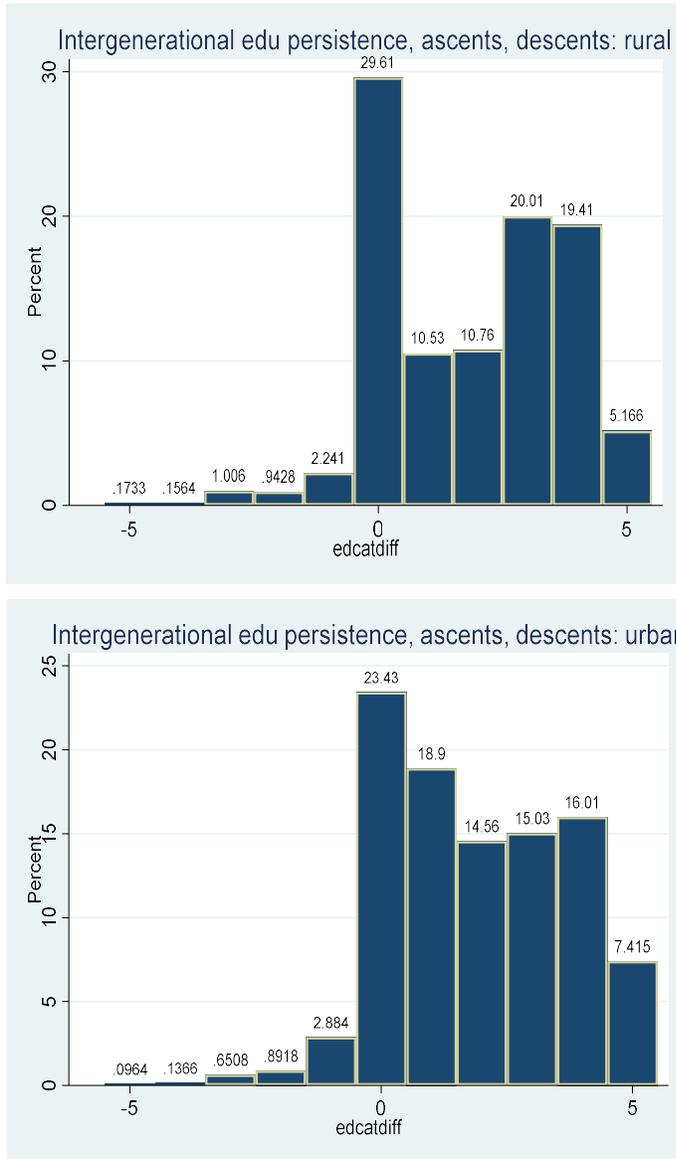
Figure 2: All India: absolute difference in occupational category for father-son pairs



Note: Occdiff is the son’s occupational category (1-6) minus the father’s occupational category (1-6). Category 6 is ‘professional’ and category 1 is ‘agricultural or other manual labourer’. See endnote 27 for further details.

Source: our calculations, using IHDS-2.

Figure 3: All India: absolute difference in educational category for father-son pairs



Note: Edcatdiff is the son's educational attainment minus the father's educational attainment. See endnote 31 for educational category definitions.

Source: our calculations, using IHDS-2.

ENDNOTES

¹ <https://www.collinsdictionary.com/us/dictionary/english/social-mobility>

² Social mobility is closely related to the equality of opportunity concept proposed by John Roemer, who argues that “an individual’s expected level of achievement should be ‘a function only of his effort and not of his circumstances’” (Roemer 2000: 21).

³ See Bertaux and Simpson (1997) for an informative discussion.

⁴ Black and Devereux’s (2011) excellent review expands on and offers an update of Solon (1999). Social mobility research covering the UK and the United States has been particularly rich in thematic spread and in comparing present with past (e.g. Long and Ferrie 2013). Blanden (2013) presents useful methodological and international comparisons, while Torche (2014) reviews the literature on Latin America.

⁵ As discussed below, this argument is valid whether we consider relative or absolute intergenerational mobility. Torche (2013), Blanden (2013) and Chetty et al. (2014), among others, elaborate on this absolute/relative distinction. Long range upward mobility is the sociology equivalent of ‘large ascent’.

⁶ While some “empirical analysis shows widely different results for class/occupational status mobility when compared with earnings/income mobility” (Torche 2015: 49), others report closer alignment between these different facets of social mobility (Blanden 2013).

⁷ Bevis and Barrett (2015) also find clear gender differences in how parental incomes and endowments affects their children’s human capital formation and income using longitudinal data from rural Philippines– they find that mothers transmit human capital equally and significantly to both sons and daughters, father’s human capital is less important to children in general.

⁸ This resonates with the emphasis on geographic variation in Chetty et al (2014).

⁹ A study covering 18 Latin American countries which revealed ‘how widely separated the various socioeconomic strata are in terms of their expectations of social mobility’ (ECLAC 2007: 20). See also Barr and Clark (2007) and Mani, Mullainathan, Shafir and Zhao (2013).

¹⁰ An experiment conducted in rural Ethiopia that involved exposure to a one-hour documentary in which people from similar backgrounds to the treatment group narrated their life stories of how they improved their economic status found significant improvements in individuals’ aspirations measured six months later (Tanguy et al. 2014). There was also better use of financial tools related to savings and credit and positive effects on the number of children enrolled in school and on total spending on children’s education in the treatment group as compared to the control group This suggests a causal link between exposure to potential role models and social mobility.

¹¹ After removing the intercept term, taking deviations from population means (e. g. Black and Devereux 2011).

¹² An alternative solution to this classical measurement error problem, discussed by Blanden (2013), is to use an instrumental variable technique.

¹³ While most developing country research has used data on fathers and sons, some studies average parental educational achievements (Hertz et al 2007) or report estimates for both daughters and sons (Shahe Emran and Shilpi 2015). It is customary in (1) to add age controls for lifecycle variations in earnings (Solon 1999) and to estimate (2) separately by birth cohort (e.g. Hertz et al 2007; Azam and Bhatt 2015) to discern changes over time.

¹⁴ ρ is thus a measure of standardized persistence (Hertz et al 2007; 13). (2) and (3) overlap if achievements dispersions in the parent and offspring generation are identical, which is unlikely.

¹⁵ Note that Chetty et al. (2014) found limited IGE estimate sensitivity to the number of years used to measure income in the United States.

¹⁶ Occupational classification carries its own perils. See our discussion under the ‘occupational mobility’ heading below.

¹⁷ Regional or small sample nationally representative studies, e.g. Bevis and Barrett (2015) and Lambert, Ravallion and van de Walle (2014) are exceptions.

¹⁸ As the IGC is the product of the IGRC and the ratio of standard deviations of parent/child attainment, co-residence truncation biases the ratio of the standard deviations downwards, mitigating the upward bias in the IGRC.

¹⁹ SC and ST from now on.

²⁰ Hertz et al’s (2007) IGC estimate for Ethiopia (0.10) suggests that rural Ethiopia in the mid-1990s had the highest educational mobility among the 42 countries in their study. This highlights the relevance of concerns over the effects of upper (ceiling) and lower boundaries for the years of schooling variable (e.g. World Bank 2018): in 1994, the mean years of schooling of the parent generation in rural Ethiopia was 0.12.

²¹ Below these nine groups there are three further levels: 28 sub major groups, 116 minor groups and 390 unit groups (Ganzeboom and Treiman 1996:205). In developing countries, a key occupational category is farming: cultivator heterogeneity is common, calling e.g. for distinctions among small, medium and large farmers (Armstrong 1972).

²² As noted above, easy to implement retrospective questions in national sample surveys can rectify these weaknesses.

²³ We are grateful to an anonymous reviewer for raising and illustrating the importance of this issue.

²⁴ The NCO is derived from ISCO with suitable adjustment to reflect the Indian context. The estimation sample is from the NSSO Employment/Unemployment Survey.

²⁵ Another variant to this theme is how to assign an occupational status rank to an individual whose livelihood strategy consists of being a farmer for one part of the day and a farm worker for another part of the day (during the sowing and harvesting seasons), a shopkeeper (most evenings), and an auto-rickshaw driver during the off-season? Should one consider only the self-reported principal occupation – or should the different occupations be combined into a weighted index?

²⁶ While more pronounced in Bangladesh, the magnitudes of the IGRC and IGC biases for coresident father-son pairings in India are estimated to be as low as 9 % and 2 %, respectively.

²⁷ (1) Agricultural or other manual labourer, (2) Lower status vocational occupations, (3) Higher status vocational occupations, (4) Farmers, (5) Clerical and others, (6) Professionals.

²⁸ Son's occupational category minus father's occupational category.

²⁹ One caveat from the above discussion, is that manual labour descents could be voluntary if the new job is a government or formal, private sector job: this seems more likely for urban such descents.

³⁰ The six educational categories are: (1) No schooling; (2) 1-2 years of schooling; (3) 3-4 years of schooling; (4) 5-8 years of schooling; (5) 9-12 years of schooling; (6) above 12 years of schooling.

³¹ Even for the United States, Chetty et al. (2014) show that rank-rank mobility measures provides more stable estimates than the log-log intergenerational earnings elasticity, especially when the child's income is zero (a possibility that is more likely to be encountered in developing countries).

³² The odds ratio is a widely used measure of relative mobility and captures mobility net of structural change. The odds ratio can be viewed as “the chances of an individual of origin class i being found in destination class j (where i may equal j) rather than any other single class or set of classes, relative to the chances of an individual of origin category i' being found in j , rather than in any other single or set of classes” (Breen 1985, p. 95). Unlike e.g. the IGRC and IGC, which provide summaries of social mobility in a given country, odds ratios do not provide an intuitive picture of overall social mobility at the country level.

³³ As mentioned above, one exception for educational mobility is the World Bank (2018) concluding that mobility from the bottom half of the education ladder to the top quartile has fallen over time in developing economies.

³⁴ See Fields (2011) for a review of the evidence on intragenerational income mobility for other developing countries.