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A Stairway to the Top? The Relationship Between Economic and Educational Intergenerational Mobility: Evidence from Mexico[1]

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This paper investigates the relationship between educational and economic positional intergenerational mobility in a developing country. Our findings suggest that individuals with upward educational positional mobility rank approximately two deciles higher in economic resources than those without such mobility, while those with downward mobility rank about one decile below those who do not experience educational positional mobility. For individuals starting at the bottom quintile of the economic distribution, experiencing upward educational positional mobility translates into a 15 pp lower probability of remaining there in adulthood than the reference group. In comparison, those who experience downward mobility have a 12 pp higher probability of remaining in the same quintile than the positionally immobile. The reverse pattern occurs in those who start at the top quintile. We find suggestive evidence that the link between positional educational and economic mobility is the changes in occupational status, as those who experience upward educational mobility are more likely to climb in the occupational status scale and when they do, they are also more likely to experience upward economic mobility than the rest of the population, even when they experience upward occupational mobility.

Keywords: intergenerational mobility, relative mobility, Mexico, education, occupational mobility

JEL Classification: J62, O15, I24, O54

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1. Introduction

Since the foundational work of Blau and Duncan (1967), Treiman (1970), and Erikson and Goldthorpe (1992), sociology has emphasized that intergenerational changes in a person's socioeconomic status stem from two distinct processes: positional mobility, which refers to changes in an individual's relative place in a distribution, and structural mobility, which arises from shifts in the distribution itself (e.g., occupational upgrading or educational expansion). Distinguishing between these two types of mobility enables a more nuanced understanding of the mechanisms behind intergenerational inequality and the social criteria by which resources and opportunities are allocated. In that regard, two key insights emerge from sociological research: first, that where someone falls in a distribution can shape life chances independently of the intrinsic characteristics associated with that position (Treiman, 1970; Bills, 2016). And secondly, that the overall social position of a person does not depend exclusively on one dimension, but on multiple ones that are interrelated to each other (Erikson and Goldthorpe, 1992; Bourdieu, 2021; Weber 1968).

Although slower to adopt this perspective, economics has increasingly recognized the importance of positionality in shaping economic outcomes, especially in the context of intergenerational inequality (Frank, 2005, 2016; Deutscher and Mazumder, 2023; Monroy-Gómez-Franco, 2023b). We seek to contribute to this interdisciplinary dialogue by analyzing the relationship between positional mobility in education and positional mobility in economic resources in the Mexican case. Specifically, we ask whether individuals who experience upward positional mobility in education also experience similar mobility in economic terms. We focus on a particular type of relative mobility, defined with respect to individuals who share the same educational origin. We classify a person as experiencing upward (or

downward) positional mobility when their educational gains, measured in years of schooling, exceed (or fall short of) the average gains observed among peers from the same parental education group.

This relative measure is grounded in two strands of literature: first, research on education as a positional good in contexts of generalized educational expansion (Bol, 2015; Di Stasio *et al.*, 2016; Ortiz and Rodríguez-Menés, 2015; Salata and Cheung, 2016); and second, the literature on inequality of opportunity (Roemer, 1998; Ferreira and Gignoux, 2011). In this context, even individuals who experience absolute upward mobility may not improve their relative standing if others with similar origins progress at the same or greater pace. Our definition of positional mobility can therefore be interpreted as a proxy for relative educational effort. This allows us to explore not only whether education is associated with economic mobility, but also whether greater relative effort in education is rewarded in terms of movement up the economic distribution.

In this paper, we find a positive relationship between our conceptualization of educational positional mobility and positional economic mobility in the Mexican case. Those who experience positional upward educational mobility are more likely to converge to a higher position in the distribution of economic resources than the rest of the population, the gap being equivalent to two deciles with respect to the positionally non-mobile population. In contrast, those who experienced downward positional educational mobility are expected to converge to a rank one decile below the positionally non-mobile. This association and the asymmetry observed between the effects of upward mobility compared to downward mobility are present across different quintiles of origin. Importantly, the difference in economic mobility between those who experience downward positional educational mobility

and the positionally immobile is not significant among those who start at the top of the economic distribution, suggesting that falling behind educationally is not penalized in economic terms for those with an economically privileged origin. Furthermore, we find suggestive evidence that occupational mobility links both dimensions and that educational overperformers experience occupational mobility more frequently. Moreover, their occupational mobility is more likely to translate into economic mobility than the rest of the population.

We also contribute to the literature on intergenerational mobility in multiple dimensions in developing countries, a subject that remains relatively understudied due to the scarcity of intergenerational data across multiple life domains (Emran & Shilpi, 2021). For instance, Núñez and Miranda (2011) analyze income and education mobility in Chile and find evidence of rising mobility in recent cohorts, particularly in education. Similarly, Garcia and Kassouf (2021) for Brazil and Majumder (2010) for India find greater intergenerational mobility in education than in occupation. Our study expands this literature by focusing on positional mobility, rather than absolute mobility, across education, occupation, and economic resources for the Mexican case.

The Mexican case provides a compelling context for analyzing the relationship between positional mobility in education and positional mobility in economic resources. First, as documented by Castañeda-Garza (2024) and De Rosa, Flores, and Morgan (2024), Mexico exhibits some of the highest and most persistent levels of income inequality in Latin America. Second, educational access and attainment expanded unevenly throughout the second half of the 20th century, resulting in widespread upward educational mobility (Urbina, 2017; Rodríguez, 2020). Third, upward occupational mobility also increased during this

period, driven by a structural shift from an agriculture-based economy to one centered on industry and services, which reshaped the occupational structure (Cortés and Escobar Latapí, 2005; Zenteno and Solís, 2007). Fourth, despite these trends, studies on intergenerational economic mobility find high levels of positional persistence (Vélez-Grajales and Monroy-Gómez-Franco, 2017; Campos-Vázquez, Delgado Barrera, and Vélez-Grajales, 2020; Monroy-Gómez-Franco, 2023b; Torche, 2015), echoing broader findings from the inequality of opportunity literature (Monroy-Gómez-Franco, 2023a). Together, these dynamics portray Mexico as a society where, although there is fluidity in education and occupational status, there remains an entrenched economic inequality shaped by high levels of inequality of opportunity and intergenerational persistence.

The combination of absolute intergenerational mobility in education and occupational status with high levels of positional persistence has led several researchers, both from economics and sociology, to study the relationship between the increase in educational attainment and economic or occupational mobility. For instance, Toro (2017) analyzes the evolution of the occupational status across age cohorts in Mexico between 2006 and 2016. The author finds that younger, more educated cohorts that entered the labor market after the 80s attain a lower occupational status in the labor market across all educational levels. Ake-Uitz (2022) analyses the relationship between the expansion of tertiary education and the economic positional mobility of the individuals exposed to such expansion, finding no relationship between the variables. Solis and Dalle (2019) find that absolute educational mobility does not attenuate the effect of the position of economic origin on the occupational trajectory of the person in Mexico. For a subsample of the beneficiaries of the Oportunidades cash transfer program, Yaschine, (2015) finds a similar relationship: absolute

intergenerational gains in educational attainment are not related to lower rates of intergenerational transmission of occupational status.

Our contribution is twofold. First, we provide an analysis of positional mobility across all three dimensions, education, occupation, and economic resources, using a unified conceptual framework. This allows us to assess how intergenerational gains or losses in educational rank are rewarded or penalized in terms of occupational and economic rank. It also differentiates us from the previous literature that uses absolute measures of educational mobility and positional measures of occupational or economic mobility. Second, by identifying overperformers and underperformers relative to their parental education rank, we link these categories to differential positional outcomes, offering a framework for understanding how relative effort in education is translated into economic status.

Delajara and Graña (2018) apply rank-rank regressions to each dimension using data from the 2011 EMOVI, thus obtaining positional mobility estimates on occupation, education, and economic resources.[4] However, unlike their study, we explicitly examine whether positional mobility in one domain (education) is associated with positional mobility in others (economic and occupational). We also introduce a methodologically distinct approach based on conditional educational attainment, rather than rank-rank regressions, allowing us to capture within-group variation in mobility trajectories and the differential rewards associated with educational over or underperformance. This is a key difference as

[4] It is worth mentioning that although Delajara and Graña (2017) provide regional estimates in the three dimensions, the data source they employ for their estimations it is not statistically representative at that level of analysis. Hence, their regional results are not necessarily representative of the actual regional patterns.

the paper by Delajara and Graña (2017) does not discuss the possible relationships across the dimensions they analyze and instead, treats them as equivalent life outcomes.

The rest of the paper is structured as follows. Section 2 situates the study within the broader Latin American literature. Section 3 presents the data sources and introduces our definition of positional educational mobility. Section 4 outlines the methods used to estimate mobility across dimensions. Section 5 presents the main results. Section 6 examines the robustness of the main results. Section 7 explores occupational mobility as a mechanism linking educational and economic outcomes. Section 8 concludes.

2. An overview of research on intergenerational mobility in Latin America

The literature on intergenerational mobility in Latin America has evolved along three main analytical dimensions: occupational mobility, educational mobility, and mobility in economic resources. Each strand has developed based on the specific types of data available and the disciplinary traditions from which they emerge, with varying degrees of cross-dialogue. As Torche (2014) explains, the main challenges concerning the data are the lack of intergenerational panel surveys that allow tracking life trajectories and the lack of access to intergenerational information from administrative records.

The earliest strand of this literature focuses on occupational mobility, particularly within the sociological tradition of occupational classes. As Filgueira (2001) and Torche (2014) explain, a key insight from this early literature was that the process of structural

transformation experienced by the Latin American economies between the 1940s and 1970s produced high rates of upward occupational mobility, as large segments of the population transitioned from agriculture to manufacturing and moved from rural to urban areas.

While this early literature emphasized the effects of structural transformation on upward mobility, subsequent research has examined how these patterns evolved in the aftermath of the economic crises of the 1980s and the shift to market-oriented reforms. Torche, (2005) for Chile, and Torche and Costa Ribeiro (2010) for Brazil find that the high rates of absolute mobility persisted during this period. However, the mechanisms differed: in the Brazilian case, mobility was driven by a decline in the intergenerational persistence of occupational status across the scale, while in Chile, mobility occurred mainly in the lower and middle parts of the occupational hierarchy, with strong persistence at the top limiting access for those born outside elite strata. A recent contribution to this strand of literature, Solis and Boado (2016), confirms these findings for the cohorts who entered the labor market after the 1980s in six Latin American countries (Argentina, Brazil, Chile, Mexico, Peru, and Uruguay). The volume shows that a common thread in most countries analyzed is the high rates of intergenerational persistence in the top occupational echelons, which limit the mobility of those rising from below.

The second major strand of literature has focused on educational attainment as the primary dimension of analysis. Seminal studies by Dahan and Gaviria (2001), Behrman *et al*. (2001), and Hertz *et al*. (2008) characterized Latin American countries as having substantially lower intergenerational mobility in education than developed countries, particularly in comparison with the United States. This early finding contrasted with the less pessimistic patterns observed in the occupational mobility literature. More recent research

based on richer data sources offers a more nuanced perspective. While there is still considerable intergenerational persistence at the extremes of the educational distribution, upward mobility has steadily increased across much of the continent throughout the second half of the 20th century (Celhay and Gallegos, 2025; Daude and Robano 2015; Muñoz, 2024; and Neidhöfer, Serrano, and Gasparini, 2018). As shown by Muñoz (2024) and Neidhöfer *et al*. (2018), individuals born in the 1980s experienced upward mobility rates from the bottom of the distribution more than three times higher than those observed for the 1950 birth cohort. As discussed by Torche, (2014) the increase in the rates of upward mobility coincides with the expansion of overall access to education in the region, although Leite and Silva da Cunha (2024) for Brazil and Torche (2005) for Chile, highlight that the educational systems in both countries continue to reproduce inequalities, resulting in relatively low rates of "rags-to-riches" trajectories (cases where individuals with parents lacking formal education attain complete tertiary education).

As data on income and economic resources becomes more readily available to researchers, a third branch of literature focused on the intergenerational transmission of economic status has developed in several countries in the region. Besides the original literature from the 1990s surveyed by Azevedo and Bouillon (2010), recent works by Leites *et al*. (2021) for Uruguay and Britto *et al*. (2022) for Brazil show that income intergenerational persistence is higher than in developed countries, even in the case of Uruguay which has the lowest level of income inequality in the region (De Rosa, Flores, and Morgan, 2024). In both cases, the authors find substantial income persistence at the bottom of the economic distribution, suggesting that the findings on absolute occupational and

educational mobility are not translating into sufficient relative gains to produce higher fluidity from the bottom to the top of the economic ranks.

The present paper takes up this challenge for the Mexican case, seeking to contribute to all three strands of the Latin American literature on intergenerational mobility by analyzing the relationship between positional mobility in education, occupation, and economic resources. Specifically, we focus on how relative overperformance or underperformance in educational attainment (measured in reference to peers sharing the same parental education) translates (or fails to translate) into changes in an individual's position in the occupational and economic resource distribution relative to their origin. In contexts like Latin America, where educational attainment has increased significantly across cohorts (Celhay and Gallegos, 2025; Neidhöfer, Serrano and Gasparini, 2018; Muñoz, 2024), these relative educational trajectories imply changes in positional status within the educational distribution that may carry important consequences for occupational and economic outcomes.

This approach dialogues with concerns in the Latin American literature regarding persistent barriers to the top echelons of occupational and income hierarchies, despite generalized improvements in access to education (Torche and Costa Ribeiro, 2010; Solís and Boado, 2016). In such settings, overperformers from more disadvantaged backgrounds may not be able to capitalize on their educational gains, while underperformers from privileged origins may avoid downward economic mobility despite being overtaken by their peers in educational terms. By linking relative educational performance to positional mobility in other dimensions, the paper offers a complementary perspective on how opportunity structures operate across domains in highly unequal societies.

3. Data

For our analysis, we pooled the samples from two retrospective surveys: the Encuesta ESRU de Movilidad Social en México 2017 (ESRU-EMOVI 2017) and the Modulo de Movilidad Social Intergeneracional 2016 (MMSI 2016). Both surveys use the same questionnaire to capture information on intergenerational social mobility across education, economic resources, and occupation. They are representative of the same population: the Mexican non-institutionalized population between 25 and 64 years old, both men and women. In contrast to other social mobility surveys that sample only household heads, ESRU-EMOVI 2017 and MMSI 2016 sample both household heads and non-heads of the households to obtain information that is representative of Mexican men and women between 25 and 64 years old. Furthermore, the surveys employ the same educational and occupational classification schemes.

The pooling of both samples has been employed in previous research on intergenerational mobility in Mexico: Delajara *et al*. (2022) use it to study regional differences in the intergenerational mobility rates across Mexican states, Monroy-Gómez-Franco (2023c) employs it to analyze the differences in intergenerational mobility rates between the Indigenous and non-indigenous Mexican populations, as well as analyzing the intragroup variability by skin tone. More recently, Monroy-Gómez-Franco, Vélez-Grajales, and Yalonetzky (2025) used it to examine differences in intergenerational mobility rates by skin tone and gender, while Campos-Vázquez and Gutiérrez-Dorantes (2024) use the pooled database to study differences in mobility rates by gender and state of origin in Mexico. A thorough discussion on the suitability of pooling both survey samples is present in Appendix

A of Monroy-Gómez-Franco, Vélez-Grajales and Yalonetzky (2025). We rely on the same dataset as the paper above.

One of the strengths of the surveys is that they include thorough information on the characteristics of the household inhabited by the respondents when they were 14 years old, in terms of access to public utilities, services, durable consumption goods and assets, and in terms of the composition and demographic structure of the household. Similarly, they include information on parental education, which is crucial for our interest in identifying the share of the Mexican population that experienced positional educational mobility. As we are interested in positional changes in educational attainment, we require a large sample that enables us to analyze with certain confidence the share of the population that overperforms most of the population in educational terms and those who underperform it. Given that the total sample size is 42,343 observations, the pooled sample fulfills this requirement.

It is important to note that, unlike other datasets used to analyze intergenerational mobility in developing countries, ESRU-EMOVI 2017 and MMSI 2016 do not rely on current coresidence to construct parent-children links. Instead, both surveys collect information on a sample of Mexican adults between 25 and 64 years old at the moment of the interview (2017 in the case of ESRU-EMOVI and 2016 in the case of MMSI) regardless of their current living arrangements. Respondents are asked about the educational and occupational characteristics of their parents or guardians and the characteristics of the households they inhabited at age 14. The retrospective design ensures that the sample is composed of both coresident and non-coresident children, thereby avoiding the co-residence bias in mobility estimates identified by previous literature in other developing countries (Emran and Shilpi, 2018; Emran, Greene, and Shilpi, 2018; Muñoz and Siravegna, 2023).

Although this design allows us to circumvent the issue of co-residence bias, it introduces the issue of recall bias.[5] Given that the respondents' reference point is when they were 14 years old, the temporal distance between the moment of the interview and the reference point can vary between 50 (for those 64 years of age) and 11 (for those 25 years of age) years. Both ESRU-EMOVI-2017 and MMSI 2016 seek to diminish the magnitude of recall bias by adopting several specific characteristics in the questionnaire design. The first is that the surveys set the reference point for the retrospective information during the teenage years. Research from neurosciences and psychology shows that events and situations that took place during that moment in a person's life are remembered more precisely than at other moments in a person's life.[6] A second precaution taken by the surveys is that the questions regarding the characteristics of the dwelling and the assets of the household only refer to their ownership or accessibility. This characteristic diminishes the burden placed on the person's memory, thus diminishing the space for inaccuracies in the answers.

To further diminish the effects of recall bias on our results, we restrict our sample to respondents between 30 and 50 years of age, homogenizing the distance between the reference point and the moment of the interview to 16-24 years. This implies that we focus on respondents at their prime working age, diminishing concerns regarding comparing individuals at different parts of their life cycle. Table A1 in the appendix shows the descriptive characteristics of both the total pooled sample and those of the sample of 30-50-year-old individuals. By restricting the age range of the respondents, we are also controlling

[5] Recall bias refers to the inaccuracies in the information reported by the respondent due to the distance between the moment of the survey's interview and the moment to which the reference point refers (Beckett *et al*. 2001; Bernard *et al*. 1984).

[6] On this issue, see Kilford, Garret, and Blakemore (2016).

for the effects of this shift in the educational distribution across time and focus on respondents who experienced the same type of educational system and educational opportunities.

Another limitation of the pooled sample is that it is only representative of the Mexican population at the national level, not allowing for disaggregation at the regional or state-wide levels. Although ESRU-EMOVI 2017 is representative at an aggregate region level, MMSI 2016 is not. Thus, the pooled database cannot accurately estimate the regional distributions and cannot be used to estimate intra-regional intergenerational mobility patterns.[7]

As mentioned above, the surveys only collect information about ownership of assets and durable goods and access to services and public utilities, not on their monetary value. Thus, we cannot use a pecuniary measure as a dimension for the analysis of intergenerational mobility. Instead, we rely on an index of economic resources for the origin and current households. The index is constructed using multiple correspondence analysis (MCA) to estimate the latent economic status of the origin and current households based on the ownership profile present in the information about the ownership and access to goods and services.[8] We employ MCA as all the variables corresponding to the ownership of durable goods and assets are binary variables and thus unsuitable for dimension reduction methods based on Euclidean distances, such as principal component analysis.

A characteristic of MCA is that the weights it assigns to each good or service reflect their relative frequency in the population and the associations between ownership of one item and ownership of others. Therefore, these weights are statistical and do not carry a welfare-

[7] On the issue of intra-regional mobility patterns and inter-regional comparisons, see Monroy-Gómez-Franco (2023b).

[8] For a thorough discussion of the different methods used for the construction of asset indexes and their robustness, see Poirier, Grépin, and Grignon (2020).

based interpretation. As a result, the index derived from MCA does not have a cardinal meaning and cannot be interpreted in terms of the absolute value of resources or well-being. Instead, the index provides a relative ranking of individuals according to their ownership profile of goods and services. Individuals who own more goods overall, particularly those goods that are less common and typically co-owned with other items, are placed higher in the distribution, while those who own fewer goods are placed lower. In this sense, we assume that a higher rank in the index reflects a greater command of economic resources. Accordingly, the index can be used to study positional intergenerational mobility (defined as changes in individuals' rank in the distribution), but not absolute intergenerational mobility (which would require cardinal information on economic resources or welfare).

Previous research has found that this type of index accurately approximates most of the distribution of other welfare variables, such as income and expenditure, without the need for a monetary valuation of the goods and services present in the household, losing predictive power at the extremes of the distribution. (Mckenzie, 2005; Filmer and Scott, 2012, Torres *et al*. 2025). Furthermore, studies on intergenerational mobility in Mexico have used this type of index as the outcome variable representing the economic status of the respondent at the origin and present. Particularly relevant are the studies by Monroy-Gómez-Franco and Velez-Grajales (2021), Monroy-Gómez-Franco (2023b, 2023c), and Aké-Uitz (2022), who used MCA to construct economic resources indexes to analyze social mobility patterns in Mexico.

Table B1 in the appendix shows the durable goods, services, and public utilities used in constructing the index. We rely on the same items as Monroy-Gómez-Franco (2023c) and Monroy-Gómez-Franco, Vélez-Grajales, and Yalonetzky (2025). To reduce the effects of life cycle bias in our estimations, we follow Monroy-Gómez-Franco (2023c) and estimate the

index for each ten-year cohort separately, thus allowing the weight assigned by MCA to each item to vary across cohorts and capture changes in the relative importance of each item. Based on this index, we rank the respondents against the other cohort members, producing a ranking of fifty quantiles. We selected fifty quantiles to retain granularity in the ranking without producing many ties that affected each quantile's density.

In the following section of the paper, we discuss how we define positional mobility in educational and economic terms and our method for identifying the population sets that experienced the different types of educational mobility.

4. Definition of overperformers and underperformers

As mentioned, we focus on studying the relationship between intergenerational positional mobility in education and intergenerational positional mobility in economic resources within the Mexican context. In other words, we are interested in examining how shifts in an individual's relative position in the distribution of educational attainment in relation to that of their parents correspond to changes in their position within the distribution of economic resources relative to that of their household of origin. Suppose there is a generalized increase in educational attainment across generations. In that case, shifts in an individual's relative position with respect to that of their parents necessarily imply that the gains in education made by the person are either above or below gains made by other members in the distribution. In other words, in the context of generalized positive absolute

educational mobility, positional educational mobility is produced by differences in the magnitude of the educational gain and the initial point in the distribution of the person.

As Urbina (2018) shows, the Mexican context in the second half of the 20th century is characterized by increases in access to education that coincide with gains in the average educational level of the population and positive educational mobility. Based on this, we draw on the insights from the previous paragraph to develop a categorization of the population that aims to proxy the different patterns of positional mobility in education. The first group corresponds to overperformers, who experienced upward positional mobility, while the second group consists of underperformers, who experienced downward mobility. In both cases, we define the gains as the number of years of education that the respondent achieved beyond the average attainment of their parents, restricting this to individuals who attained positive gains. Individuals whose attained education is lower than the average attainment of their parents—that is, who experience absolute educational decline—are excluded from the core analysis and treated separately in a robustness check. Although these individuals can be seen as extreme underperformers, we focus the main results on those who achieved at least some intergenerational progress in absolute terms, to better isolate variation in positional mobility among those who did not fall behind their parents.

Our approach draws inspiration from the literature analyzing the association between a person's relative position in the distribution of educational outcomes and their economic outcomes (Bol, 2015; Di Stasio, Bol, and Van de Werfhorst, 2016; Ortiz and Rodríguez-Menéz, 2015; and Salata and Cheung, 2016). Although the specific strategy to produce a relative measure of education differs across the cited papers, the underlying idea is to be able to capture the relative position of an individual in the distribution of education, proxied by

the years of education, highlighting that individuals at the bottom have a less valuable resource and individuals at the top are in a more advantageous position. These measures, however, are static in that they measure the relative position in the present and not the positional mobility in education experienced by the person. Our approach addresses this by sorting individuals according to the relative magnitude of their educational gain. If a person gained more (less) education years with respect to the educational attainment of their parents than the other members of the population at a similar position, that person moved upwards (downwards) in terms of their position of the education distribution, as they overtook others who began at a similar position of origin. Because of this, our classification in over-performers (the positionally upwardly mobile) and underperformers (the positionally downwardly mobile) departs from traditional notions of intergenerational mobility in education that refer to changes in the absolute level of education.

A key issue with this definition of under- and overperformers is the definition of the average gain to be used as a reference value to determine if a person is an under or an overperformer. We follow two approaches to determine such a value. The first one uses the total sample mean of the gains in educational attainment. An alternative is to use the conditional mean of the gain for each level of education attained by the parent with the highest attainment as a reference. This second approach results in defining the overperformers and underperformers with respect to other individuals who started from the same position in educational terms, reducing the penalization to those with more educated parents. Importantly, this approach interprets educational gains in positional terms—that is, not as absolute improvements, but as relative shifts within the hierarchy defined by one's origin. An overperformer is not just someone who studied more than their parents, but

someone who studied more than what is typical for people with the same parental education level. This second definition constitutes our primary definition in the presentation of our results. The next step is to define what can be considered above or below average. We define "above (below) average gains" as those above (below) one standard deviation from the value of the average gain. Individuals with a gain in years of education one standard deviation above (below) the average gain will be overperformers (underperformers).

The definition of under and overperformer that uses as a reference the average gain of those with the same parental educational attainment has another convenient theoretical characteristic. Considering the peers in terms of educational origin as the reference group allows us to interpret overperformers as those who exceed what is typical for their social origin, and underperformers are those who fall short. The individuals whose gains lie within one standard deviation of this origin-specific mean serve as a reference group—those who met, but did not substantially deviate from, the expected intergenerational trajectory. Conceptually, they represent those for whom positional rank is assumed to be preserved. In that sense, our approach is close in spirit to ranking individuals according to their relative effort with respect to those with a similar educational background (Roemer, 1998; Ferreira and Gignoux, 2011; Cappelen and Tugodden, 2007). Overperformers (underperformers) correspond to individuals who performed more (less) effort in the educational dimension than their peers. Hence, analyzing the economic mobility patterns of each of these groups implies analyzing whether the effort they performed in the educational dimension (represented by their positional mobility) is being recompensated proportionally. In that sense, we would expect the overperformers to be, on average, more economically upwardly mobile than the reference group, and the underperformers to be, on average, more economically downwardly

mobile than the reference group . By focusing on the conditional gains, our approach provides a complementary view on how stratified societies might prevent the translation of educational mobility into economic mobility, complementing the insights from more traditional analyses that focus on absolute changes in the level of education.

With this discussion in mind, Table 1 shows the average gain and the parental years of schooling of the three groups of interest (overperformer, underperformer, average group) under the two definitions of the relevant average gain.

As expected, the average gain of the overperformers is substantially larger than the average gain of the other population groups across all quantiles. Although for the first two quintiles of the distribution of economic resources, the difference in parental years of education and the average educational gain between the two definitions is not statistically significant, it is significant and increasing for the other three quintiles. This is evidence of the bias of the first definition against those who start from a higher part of the distribution of educational attainment. In the case of the underperformers, the pattern reverses: for the two top quintiles, both definitions identify sets with similar parental educational attainment and educational gain, but for the bottom three quintiles, the second definition identifies a group with a more considerable gain.

Table 2 shows the descriptive sociodemographic characteristics of each subgroup of interest (overperformers, underperformers, and the reference group) under the two definitions described above, and Table C1 shows the t-test regarding the statistical significance of the difference in the characteristics of the groups across definitions. The t-test compares the

overperformers (underperformers, reference group) as identified under definition 1 with the overperformers (underperformers, reference group) as identified by definition 2.

Table 1. Average gain and parental years of schooling of the different groups for analysis

A. Overperformers				
Quantile of origin	First definition		Second definition	
	Parental years of schooling	Gain in years of education	Parental years of schooling	Gain in years of education
Q1	1.20 (0.12)	12.00 (0.12)	1.28 (0.15)	12.29 (0.12)
Q2	2.11 (0.18)	11.78 (0.11)	2.80 (0.23)	11.69 (0.15)
Q3	2.54 (0.13)	11.78 (0.12)	3.71 (0.18)	11.33 (0.14)
Q4	3.25 (0.13)	11.65 (0.09)	4.77 (0.18)	10.79 (0.11)
Q5	4.60 (0.16)	11.61 (0.11)	7.53 (0.17)	9.30 (0.14)
B. Underperformers				
Quintile of origin	First definition		Second definition	
	Parental years of schooling	Gain in years of education	Parental years of schooling	Gain in years of education
Q1	1.91 (0.13)	0.77 (0.04)	1.68 (0.09)	1.40 (0.05)
Q2	4.17 (0.18)	0.86 (0.07)	3.34 (0.15)	1.53 (0.07)
Q3	6.61 (0.19)	0.87 (0.05)	5.31 (0.17)	1.21 (0 .07)
Q4	8.21 (0.19)	0.94 (0.05)	6.82 (0.21)	1.00 (0.06)
Q5	11.95 (0.18)	1.00 (0.04)	8.75 (0.28)	0.84 (0.09)
C. Reference Group				
Quintile of origin	First definition		Second definition	
	Parental years of schooling	Gain in years of education	Parental years of schooling	Gain in years of education
Q1	1.48 (0.05)	6.02 (0.06)	1.51 (0.06)	6.45 (0.05)
Q2	2.69 (0.09)	5.92 (0.05)	2.66 (0.08)	6.19 (0.05)

Q3	3.81 (0.08)	5.90 (0.05)	3.76 (0.08)	5.95 (0.07)
Q4	5.11 (0.10)	5.76 (0.05)	5.14 (0.08)	5.57 (0.07)
Q5	8.07 (0.13)	5.23 (0.05)	8.80 (0.15)	4.27 (0.06)

Note: Standard errors are calculated using the primary sampling unit as a cluster unit. Parental years of schooling refer to the average years of schooling of both parents when present or the years of school of the present parent. The gain in years of education refers to the difference between the educational attainment of the respondent and that of the parents. Only individuals with a positive difference in educational years are considered. Under the first definition, an overperformer is a person who achieved a gain in years of education at least one standard deviation above the total sample average gain; an underperformer is a person with a gain at least one standard deviation below the total sample average gain; and the average group corresponds to those with an educational gain inside the interval of one standard deviation below or above of the average gain. Under the second definition, an overperformer is a person who attained a gain in years of education at least one standard deviation above the average gain obtained by persons with the same parental educational attainment. An underperformer corresponds to a person with a gain in years of education, at least one standard deviation below the average gain obtained by persons with the same parental educational attainment. The reference group is the rest of the population.

Table 2. Descriptive characteristics of over and underperformers and overperformers, definitions 1 and 2

	Overperformers		Underperformers		Reference group	
	Definition 1	Definition 2	Definition 1	Definition 2	Definition 1	Definition 2
Number of household members at origin	6.54 (0.084)	6.199 (0.086)	6.400 (0.065)	6.809 (0.070)	6.676 (0.053)	6.657 (0.049)
Urban community of origin	0.639 (0.018)	0.707 (0.015)	0.586 (0.017)	0.470 (0.018)	0.568 (0.013)	0.579 (0.013)
Average age of the respondent	39.881 (0.183)	39.352 (0.167)	38.954 (0.139)	39.835 (0.134)	39.545 (0.069)	39.438 (0.071)
Women	0.515 (0.015)	0.491 (0.013)	0.530 (0.013)	0.550 (0.012)	0.544 (0.006)	0.546 (0.006)
At least one indigenous parent	0.131 (0.011)	0.104 (0.009)	0.157 (0.011)	0.191 (0.012)	0.134 (0.007)	0.132 (0.007)
Skin tone of the respondent						
Light skin tone	0.116 (0.012)	0.137 (0.013)	0.125 (0.008)	0.109 (0.007)	0.112 (0.005)	0.111 (0.005)

Intermediate skin tone	0.820 (0.013)	0.808 (0.013)	0.799 (0.009)	0.797 (0.009)	0.808 (0.006)	0.810 (0.006)
Dark skin tone	0.065 (0.009)	0.054 (0.008)	0.076 (0.006)	0.094 (0.007)	0.080 (0.004)	0.079 (0.004)
Region of origin						
North	0.142 (0.010)	0.153 (0.011)	0.161 (0.010)	0.147 (0.010)	0.154 (0.008)	0.155 (0.008)
Northwest	0.091 (0.009)	0.083 (0.008)	0.066 (0.006)	0.072 (0.005)	0.074 (0.005)	0.074 (0.004)
Center North	0.119 (0.010)	0.121 (0.011)	0.133 (0.010)	0.151 (0.011)	0.144 (0.008)	0.140 (0.008)
Center	0.364 0.020	0.395 0.022	0.374 (0.019)	0.335 (0.018)	0.388 (0.017)	0.391 (0.016)
South	0.285 (0.015)	0.248 (0.013)	0.266 (0.015)	0.295 (0.015)	0.241 (0.011)	0.240 (0.011)
Structure of household of origin (Presence of parents/legal guardians)						
No parents present	0.044 (0.006)	0.041 (0.008)	0.055 (0.005)	0.069 (0.006)	0.049 (0.003)	0.046 (0.002)
Single father	0.031 (0.005)	0.026 (0.005)	0.040 (0.005)	0.035 (0.005)	0.032 (0.003)	0.035 (0.003)
Single mother	0.126 (0.009)	0.142 (0.010)	0.149 (0.009)	0.146 (0.008)	0.150 (0.005)	0.148 (0.006)
Both parents present	0.798 (0.011)	0.787 (0.013)	0.752 (0.011)	0.746 (0.010)	0.766 (0.007)	0.769 (0.007)
Observations	3,034	3,476	3,848	3,956	15,917	15,367

Note: Cluster standard errors using the primary sampling unit as cluster. Only individuals with a positive difference in educational years are considered. Under the first definition, an overperformer is a person who achieved a gain in years of education at least one standard deviation above the total sample average gain; an underperformer is a person with a gain at least one standard deviation below the total sample average gain; and the average group corresponds to those with an educational gain inside the interval of one standard deviation below or above of the average gain. Under the second definition, an overperformer is a person who attained a gain in years of education at least one standard deviation above the average gain obtained by persons with the same parental educational attainment. An underperformer corresponds to a person with a gain in years of education, at least one standard deviation below the average gain obtained by persons with the same parental educational attainment. The reference group is the rest of the population. Communities with more than 2500 inhabitants are categorized as urban for the origin and current household. The population with at least one parent who spoke an indigenous tongue is considered the indigenous population. Light skin tone corresponds to the population that declares to have a skin tone corresponding to tones 1-3 of the PERLA scale; medium skin tone corresponds to the population that declares a skin tone corresponding to tones 4-6 of the PERLA scale and dark skin tone corresponds to the population that declares a skin tone corresponding to tones 7-11 of the PERLA scale. The North region consists of Baja California, Sonora, Chihuahua, Coahuila, Nuevo León, and Tamaulipas; North West consists of Baja California Sur, Sinaloa, Nayarit, Durango, and Zacatecas; the Center-North region is formed by Jalisco, Aguascalientes, Colima, Michoacán, and San Luis Potosí; the Center region is formed by Guanajuato, Querétaro, Hidalgo, Estado de México, Morelos, Tlaxcala, and Puebla; Mexico City is analyzed independently; Guerrero, Oaxaca, Chiapas, Veracruz, Tabasco, Campeche, Yucatán y Quintana Roo form the South region.

When comparing across groups, there are differences between the overperformers and the underperformers in terms of the share of indigenous persons who belong to each, with a larger share of underperformers having at least one indigenous parent. In contrast, the overperformers are more likely to have been in an urban community when they were 14. In terms of gender, there is a slight difference between overperformers and underperformers, with the overperformers less likely to be women. However, the difference is less than five percentage points. A similar difference is present in skin tone composition: the overperformers are likelier to have a light skin tone than the underperformers. Similarly, overperformers are more likely to come from dual-parent households than underperformers, but the difference is less than five percentage points. Figure C1 shows one of the first results of interest: the composition of the educational mobility groups by the quintile of origin of their members. Although underperformers are more frequently found at the bottom (34%) and overperformers at the top (28%), both groups are present across the distribution. Although our goal in this paper is not to analyze the determinants of who becomes an overperformer in educational terms, these differences suggest several factors determining that outcome. We leave a deeper exploration of this issue for future research.

In the following section, we describe the methods we employ to analyze the social mobility patterns of the overperformers, the underperformers, and the reference group.

5. Methods

As our interest is in exploring the relationship between positional educational and economic intergenerational mobility, we employ rank-based measures as our interest is in the relative position of an individual compared to the other members of the distribution and the changes in position that might occur across generations.[9] Specifically, we will use rank-rank regressions and transition matrices to characterize the intergenerational mobility patterns of the educational overperformers, underperformers, and the reference group.

5.1 Rank-rank regressions

Rank-rank regressions have become a staple for analyzing intergenerational positional mobility patterns since the work of Chetty *et al*. (2014). Rank-rank regressions (equation 1) serve to estimate the relationship between the rank or position (*R*) occupied by person *i* in the current (*t*) distribution of economic resources and the position occupied by their origin household (*t-1*) in the corresponding distribution of economic resources. The parameter β corresponds to the intergenerational persistence rate, which is the rate at which positions in the distribution of economic resources are transmitted from generation *t-1* to generation *t*. Following Chetty *et al*. (2014), the parameter α can be interpreted as the upward mobility rate of those at the bottom of the distribution of economic resources at *t-1*, and $u_{i,t}$ is a random term with $E[u_{i,t}] = 0$.

$$R_{i,t} = \alpha + \beta R_{i,t-1} + u_{i,t} \quad (1)$$

[9] A positive side effect of relying on rank-based measures is that, as Nybom and Stühler (2016) show, they are more robust to life cycle bias.

As Chetty *et al*. (2020) show, the parameters of rank-rank regressions estimated for different subgroups can interpreted as referring to the intergenerational mobility patterns of the subgroups along a shared distribution if the rankings for the origin and the current distributions are produced for the population as a whole. In that case, differences in the estimates of parameter α across subgroups imply that members of each subgroup who start at the bottom of the shared distribution have a different expected rank. Similarly, differences in the subgroup estimates of β imply differences in the intergenerational transmission of a position in the shared distribution. Based on this characteristic, we will estimate separate rank-rank regressions for our subgroups of interest: overperformers, underperformers, and the reference group. Namely, we will estimate equation 1a, in which *G* corresponds to the group to which individual *i* belongs.

$$R_{i,t} = \alpha^G + \beta^G R_{i,t-1} + u_{i,t} \; \forall i \in G \text{ (1a)}$$

Based on equation 1a, the mean rank at time *t* for individuals who are members of group *G* is given by $\overline{R^G}_t = \alpha^G + \beta^G \overline{R^G}_{t-1}$. Chetty *et al*. (2020) show that it is possible to derive the steady state of the mean rank iterating over multiple generations, which results in equation 2, assuming that $1 > \beta^G > 0$ and that sufficient periods passed:

$$\overline{y^{ss}} = \frac{\alpha^G}{1-\beta^G} \text{ (2)}$$

We estimate equation 1a for each group of interest using OLS and use the resulting estimates to calculate the groups' steady states. The results from the OLS regressions will allow us to estimate if there are differences in the persistence and expected upward mobility rates across the different experiences of educational positional mobility. At the same time,

the calculated steady states will help us to characterize the magnitude of those differences in terms of the expected rank achieved by the members of the different groups.

A limitation of rank-rank regressions is that, although they capture general mobility patterns, they do not reveal whether persistence varies by origin rank or the direction of positional change. Both aspects can be addressed using transition probabilities.

5.2 Transition probabilities and matrices

We estimate the transition matrices for the three groups of interest to analyze the heterogeneity in persistence rates by quantile of origin. The matrices show the different transition probabilities associated with the transition from state *o* (a quintile in our case) to state *j*, with *O* and *J* being the total number of possible states. In other words, transition probabilities are the conditional probability that person *i* is in position *j* at moment *t*, given that they were in position *o* at moment *t-1*. Formally:

$$P_{[j|o]} = \frac{N_o^j}{N_o} \quad (3)$$

Where $j = 1 \dots 5$ and $o = 1 \dots 5$ in our particular case. The corresponding 25 transition probabilities are then collected into a transition matrix with dimensions 5×5, which formally means:

$$M_{j,o} = \begin{bmatrix} P_{[1|1]} & \cdots & P_{[5|1]} \\ \vdots & \ddots & \vdots \\ P_{[1|5]} & \cdots & P_{[5|5]} \end{bmatrix} \quad (4)$$

6. Results

Table 3 presents the results from the rank-rank regressions. Panel A shows the unconditional persistence rate (β) and the intercept parameter (α) for each group of interest under the two definitions of the groups of interest. As the second definition is our preferred definition, we focus our discussion on those results.

Table 3. Rank-rank regression results
(Ranks defined as 50 quantiles)

Outcome variable: current rank	Total sample	Overperformers, def. 1	Underperformers def. 1	Reference group, def. 1	Overperformers, def. 2	Underperformers, def. 2	Reference group, def. 2
Rank of origin	0.615	0.499	0.689	0.604	0.526	0.549	0.601
	(0.009)	(0.027)	(0.015)	(0.011)	(0.027)	(0.017)	(0.011)
Intercept	10.38	17.42	6.337	10.44	17.60	8.324	10.52
	(0.281)	(0.938)	(0.460)	(0.313)	(1.020)	(0.427)	(0.320)
Observations	22,803	3,034	3,848	15,917	3,476	3,956	15,367
R-squared	0.391	0.246	0.529	0.380	0.298	0.364	0.379

Note: Sample weights employed. Standard errors are clustered at the primary sampling unit level. Only individuals with a positive difference in educational years are considered. Under the first definition, an overperformer is a person who achieved a gain in years of education at least one standard deviation above the total sample average gain; an underperformer is a person with a gain at least one standard deviation below the total sample average gain; and the average group corresponds to those with an educational gain inside the interval of one standard deviation below or above of the average gain. Under the second definition, an overperformer is a person who attained a gain in years of education at least one standard deviation above the average gain obtained by persons with the same parental educational attainment. An underperformer corresponds to a person with a gain in years of education, at least one standard deviation below the average gain obtained by persons with the same parental educational attainment. The reference group is the rest of the population.

The results from the first row of Panel A of Table 3 suggest that educational underperformers and overperformers identified by the second definition, on average, experience lower economic persistence than the reference group. Furthermore, Table D1

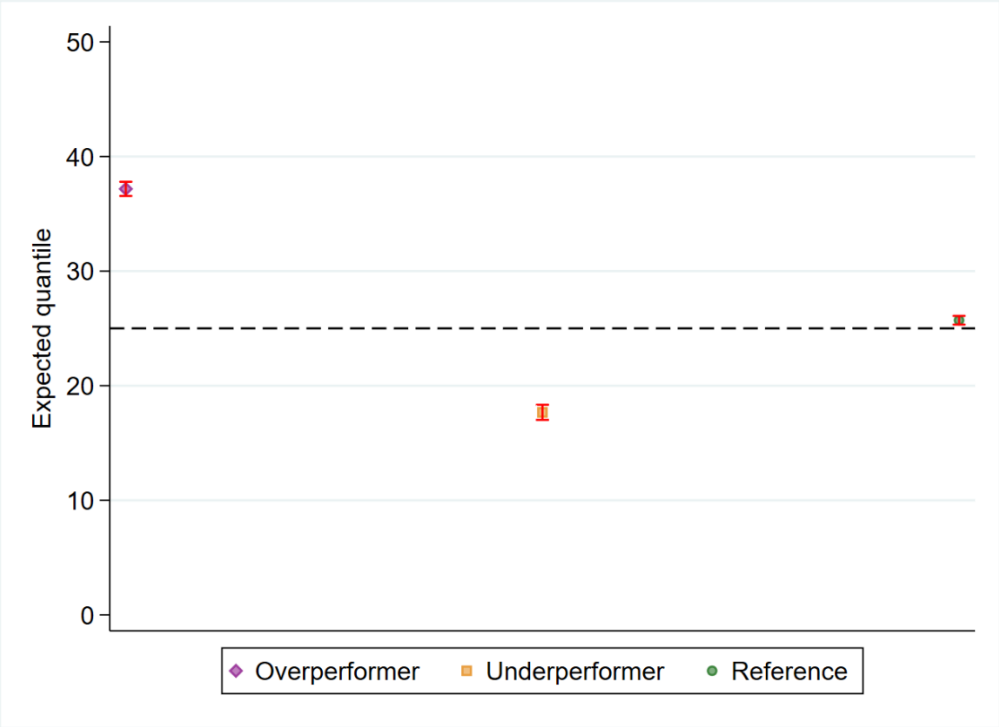
indicates that the difference in persistence rates between overperformers and underperformers is not statistically significant. This may seem surprising, as one might expect underperformers to exhibit greater persistence (less mobility) than overperformers. However, since the intergenerational rank persistence rate is non-directional, it is possible that both groups experience similar magnitudes of mobility but in opposite directions. This would correspond with a situation where overperformers rise in ranks within the economic distribution by capitalizing on above-average educational gains, while others surpass underperformers who are falling behind the average educational progress.

Similarly, the intergenerational rank persistence rate does not indicate the part of the economic resources distribution where the group is persisting. A partial answer to this issue can be inferred from the intercept parameters (α). The second row of Table 3 shows that the underperformers have a lower intercept, which implies that a person coming from the bottom of the distribution expects to attain a lower rank than an educational overperformer with the same origin in the economic resources distribution. The difference is statistically significant, as shown in Table D1, and economically relevant: it is equivalent to almost two deciles in the distribution of economic resources.

The estimated intercepts suggest differences in the long-run economic rank to which members of each group converge. To explore this in more detail, Figure 2 shows the expected steady-state rank for each group, calculated using Equation 2. The reference group (those with neither upward nor downward positional educational mobility) is expected to converge, on average, at the median of the distribution (marked by the horizontal dotted line). The underperformers in education are expected to reach the 18th (36th percentile), while the expected rank for educational overperformers is the 38th (76th percentile). This implies a 20-

quantile (40-percentile) gap between overperformers and underperformers. Notably, the gap between underperformers and the reference group (7 quantiles, 14 percentiles) is smaller than the gap between overperformers and the reference group (13 quantiles, 26 percentiles), suggesting an asymmetry: upward positional mobility in education yields a larger reward in terms of economic positional mobility than the penalty incurred by downward positional mobility in education.

Figure 1. Steady states for each subgroup (Definition 2)



Note: Calculated using information from Table 6 and Equation 3. Standard errors are calculated through bootstrapping with 1000 repetitions. An overperformer is someone who attained a gain in years of education at least one standard deviation above the average gain obtained by persons with the same parental educational attainment. An underperformer corresponds to a person with a gain in years of education, at least one standard deviation below the average gain obtained by persons with the same parental educational attainment. The reference group is the rest of the population. The corresponding figure for the groups according to the first definition is Figure D1. The horizontal dotted line represents the median of the distribution.

These results suggest a positive association between positional educational and positional economic mobility. However, due to the characteristics of the intergenerational rank persistence rate, we cannot assert if the relationship is the same across the whole distribution of economic resources or if there is heterogeneity by economic origin. Neither can we say if the underperformers also experience a drag of the same magnitude, independently of where they start. We analyze the transition matrices for the three groups of interest to answer these questions.

6.1 Transition matrices for over and underperformers

Table 4 shows the three groups' directional positional intergenerational mobility rates in the economic dimension. The directional mobility rates correspond to the probability that a respondent either moved upwards (upward mobility), downwards (downward mobility), or remained at the same position in the distribution of economic resources compared to that of the household they inhabited when 14 years old. Table C8 shows the T-tests corresponding to the differences in the mobility rates across the educational positional mobility groups.

Table 5. Directional mobility rates by group using the second definition
(Share of each group that experiences the type of mobility specified)

Direction of mobility	Overperformers	Underperformers	Reference
Upward mobility	0.380 (0.013)	0.273 (0.010)	0.312 (0.006)
Downward mobility	0.235 (0.012)	0.339 (0.011)	0.319 (0.006)
No mobility	0.385 (0.013)	0.388 (0.011)	0.369 (0.006)

Note: Standard errors are calculated using the primary sampling unit as the clustering unit. Each entry refers to the share of each group that experiences each type of mobility. Upward mobility refers to those currently

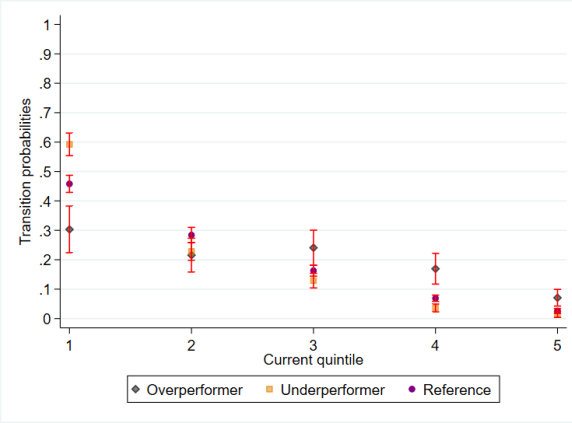
in a quintile above the quintile in which the household they inhabited at 14 was located in the distribution of economic resources. Downward mobility refers to those currently at a quintile below the quintile occupied by the household they inhabited at 14 years old. No mobility refers to those currently in the same quintile as their household of origin. An overperformer is someone who attained a gain in years of education at least one standard deviation above the average gain obtained by persons with the same parental educational attainment. An underperformer corresponds to a person with a gain in years of education, at least one standard deviation below the average gain obtained by persons with the same parental educational attainment. The reference group is the rest of the population.

As shown in the first row of Table 5, educational overperformers have a higher probability of experiencing upward economic positional mobility than underperformers and the reference group. The opposite pattern appears for downward mobility: overperformers are least likely to move downward, while the probabilities for underperformers and the reference group are similar. No statistically significant differences emerge in the rate of persistence across groups. These results for aggregate directional economic mobility align with the regression findings: educational overperformers are more likely to rise and less likely to fall in the economic resources distribution. The differences are statistically and economically significant: overperformers are 10 percentage points more likely to move upward than underperformers, and seven percentage points more likely than the reference group.

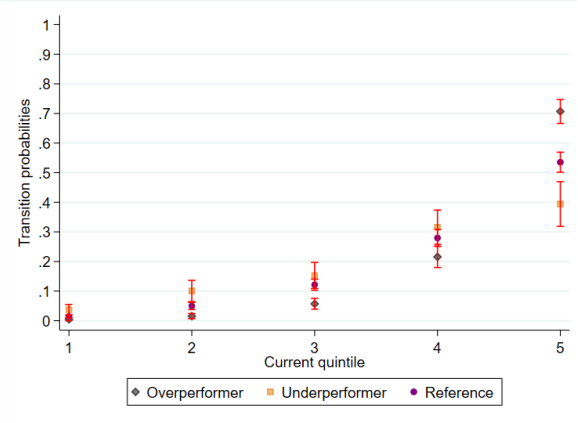
Figure 2 plots the transition probabilities for the three groups to examine variability in mobility rates by origin. Panel A shows transitions from the bottom quintile, while Panel B shows transitions from the top quintile of the economic origin distribution. Full transition matrices for each group appear in Tables E2, E4, and E6. Appendix E also includes the corresponding matrices using the first definition of educational over- and underperformance.

Figure 2. Transition probabilities by group and quintile of origin

A) Quintile of origin is the first quintile



B) Quintile of origin is the fifth quintile



Note: Based on the information in tables E2, E4 and E6. The figures show the 95% confidence interval in red. An overperformer is someone who attained a gain in years of education at least one standard deviation above the average gain obtained by persons with the same parental educational attainment. An underperformer corresponds to a person with a gain in years of education, at least one standard deviation below the average gain obtained by persons with the same parental educational attainment. The reference group is the rest of the population.

Among those starting at the bottom of the distribution, Panel 2A shows that underperformers exhibit the highest persistence: 60% remained in the bottom quintile by 2017, compared to 45% of the reference group and only 30% of overperformers. Furthermore, overperformers exhibit higher upward mobility rates than the other groups across all destination quintiles. In contrast, the reference group and underperformers have nearly identical transition probabilities to the second quintile and above. These results indicate that overperformers not only move upward more frequently but also tend to climb further up the distribution compared to their peers who did not exceed or fall short of average educational gains.

A parallel but opposite pattern emerges among those starting in the top quintile. 70% of overperformers remained at the top in 2017, compared to 55% of the reference group and 40% of underperformers. Similarly, the overperformers have the lowest downward mobility rates to any other distribution quintile. In contrast, the downward mobility rates to the fourth and lower quintiles of the reference and the underperformer groups are statistically not different. These results show that the overperformers consistently have the largest upward economic mobility rates, regardless of the quantile of origin, and the underperformers have the lowest upward economic mobility rates and the largest downward mobility when starting from the top.

These results complement the patterns observed in the expected convergence ranks. Individuals who experience upward educational positional mobility tend to attain higher positions in the economic distribution than those who do not. However, individuals with downward positional mobility in education resemble the reference group in their economic trajectories more than they differ from it. The asymmetry is especially pronounced in the case of downward mobility from the top of the distribution. This suggests that economic origin can buffer some of the potential economic penalties associated with falling behind one's educational peer group, attenuating the effects of downward positional mobility in education.

7. Robustness checks

To analyze the robustness of our results, we will employ a conceptually similar definition of overperformer and underperformer but based on the educational transitional

matrix of the population and incorporating a group of the population that we have not analyzed: those who experienced absolute downward educational mobility. Table F1 shows the transition matrix across educational levels, which we will use to define under and overperformers based on educational levels. Based on the transition probabilities shown, most of the population with parents with educational attainment below middle school attained middle school or high school, whereas those whose parents finished middle school or more completed high school, college, or more. Thus, we propose the following definition of overperformers: the set composed of the union of those with parents without formal education who attained high school or more and those with parents with complete primary school who completed college or more. Conversely, underperformers are the set composed of the union of individuals whose parents completed college and only completed middle school or less, those with parents who completed high school and who completed middle school or less, and those with parents who completed middle school and who only completed primary or less.

These alternative definitions of over- and underperformers identify individuals whose upward or downward mobility exceeds that of most of the population. This approach preserves the positional dimension of our educational mobility analysis while incorporating individuals who experienced absolute downward mobility. As shown in Tables F2–F4, the results, though less precise, mirror those from our baseline definitions. Overperformers remain significantly more likely to experience upward mobility or persist in the top quintile, while underperformers are more likely to experience downward mobility or remain at the bottom of the economic distribution.

As a further robustness check, we estimate the main results of the paper on two different subsamples: one composed of individuals between 30 and 39 years old, and another

with individuals between 40 and 50 years old. The goal of this robustness check (results presented in tables H1 and figures H1 and H2) is to analyze whether the results hold when considering a sample composed of individuals with more homogeneity in their age. Our results, albeit less precise than the main estimation, coincide with the findings presented in the main text.

8. The occupational trajectory of the over and the underperformers

The labor market serves as the primary channel through which education translates into economic outcomes. Accordingly, we would expect educational overperformers to be more likely to experience upward positional occupational mobility, while underperformers would be more prone to downward occupational mobility. This section explores whether such patterns are reflected in the data.

We employ the International Socio-Economic Index of Occupational Status (ISEI) developed by Ganzeboom, De Graf, and Treiman (1992) to measure occupational positional mobility. The ISEI assigns a score to each occupation in the International Standard Classification of Occupations (ISCO) based on income, education, and occupation characteristics derived from a sample of 16 countries. The index ranks occupations according to the score, with a higher score representing a higher socioeconomic status for that occupation. The index has been previously used in the literature to analyze occupational patterns in the Mexican case (for instance, by Toro, 2022). To impute ISEI scores to our data,

we use the crosswalk between the 2011 Mexican occupational classification and ISCO-08 codes developed by Monroy-Gómez-Franco (2021).

As López-Acevedo *et al*. (2021) show, Mexico's female labor force participation rate remains very low compared to other countries, approximating 50% during the second decade of the 21st century. This has implications for our data, as many mothers and female respondents do not have information about an occupation. For this reason, we restrict our analysis in this section to respondents who i) declare an occupation for themselves and ii) declare an occupation for at least one of their parents. We used the father's occupation to estimate the occupational mobility patterns if both parents worked.

Toro (2022) explains that the distribution of ISEI scores can change across two generations due to the structural change experienced by the economy. Due to this process, some occupations become less frequent while others become more frequent. To account for this, we follow Toro (2022) and recenter the ISEI score distributions for parents and respondents by subtracting the mean score of each generation's distribution. This transformation expresses each occupational score as a deviation from its generational mean and, thus, eliminates the change in the scores from parent to children associated with the process of structural change. As we are interested in positional mobility, we use the recentered scores to calculate the quintiles of each distribution and then estimate the transition matrices for each of our subgroups of interest (tables G1-G3). We use the transitions between occupational quintiles to calculate the occupational upward, downward mobility, and persistence rates.[10]

[10] Upward (downward) occupational mobility corresponds to the situation in which the respondent has an occupation located in a higher (lower) occupational quintile than the one their parent's occupation was

To test the association between being an overperformer or an underperformer and upward occupational mobility by the quintile of origin of the person, we estimate the following probit models. Upward mobility is defined as moving upwards at least one quintile in the occupational distribution with respect to the quintile of their parents. Equation 5 includes indicator variables for whether respondent *i* is classified as an overperformer ($Over_i = 1$) or underperformer ($Under_i = 1$). It also includes a set of binary indicators Qor_i^j , where each variable denotes whether the respondent *i* originates from economic quintile *j*. And QOc_i is a variable with five values depending on the occupational quintile of origin of respondent i. Given that we are interested in upward occupational mobility, we restrict our estimation sample to those who started below the fifth occupational quintile. The omitted category in the regression corresponds to individuals in the reference group (neither over- nor underperformers) from the lowest quintile of occupational origin.

$$P(Upward\ mobility = 1|X) = \Phi\big(\beta_1 Over_i + \beta_2 Under_i + \sum_{j=2}^{5} \Pi_j Qor_i^j + \sum_{j=2}^{5} \lambda_j (Qor_i^j\, XOver_i) + \sum_{j=2}^{5} \eta_j (Qor_i^j X\, Under_i) + \delta_1 QOc_i\big) \quad (5)$$

We also estimate a version of Equation 5 that includes additional controls: whether the respondent was born in an urban area, region of origin, skin tone, indigenous background, age, and age squared. Estimates from both the baseline and extended models are reported in Table G4. Tables G5 and G6 present the average marginal variation in the probability of experiencing upward occupational mobility by economic and occupational origin quintile, as well as by educational mobility group, based on the second definition of the categories of

located. The persistence rate refers to the share of respondents from each group that have an occupation in the same quintile as their parent's.

analysis. Across specifications, being classified as an overperformer is associated with a 34 percentage point higher probability of experiencing upward occupational mobility than the reference group. In contrast, underperformers are nine percentage points less likely to experience upward occupational mobility than the reference group. These findings are consistent with the interpretation that positional gains in education are positively associated with upward occupational mobility. This provides support for our proposed mechanism: individuals who exceed educational expectations relative to their background, hence experiencing upward educational positional mobility, tend to occupy more advantaged positions in the occupational scale, and consequently, in the distribution of economic resources.

To assess the final link in the proposed mechanism, we estimate a probit model in which the dependent variable is upward positional economic mobility and the key explanatory variable is upward occupational mobility. We estimate separate models for overperformers, underperformers, and the reference group. Table G7 presents the regression results, and Table 6 reports the corresponding marginal effects. As shown in Table 6, for overperformers, upward occupational mobility is associated with a 19 percentage point increase in the probability of experiencing upward economic positional mobility. In contrast, the magnitude of this association is notably smaller for underperformers and the reference group. This suggests that overperformers experience upward occupational mobility more frequently, and such mobility is also more strongly associated with gains in their economic position. Once again, we observe an asymmetry: the advantages linked to being an overperformer appear more substantial than the disadvantages related to being an educational underperformer.

Table 6. Marginal effects of experiencing upward occupational mobility on experiencing upward economic mobility by type of educational mobility experience

	Reference group	Overperformers	Underperformers
Without controls	0.107 (0.011)	0.193 (0.026)	0.081 (0.021)
With controls	0.099 (0.011)	0.190 (0.025)	0.087 (0.021)

Notes: Estimated marginal effects are based on Table F6. Delta method standard errors are reported in parenthesis. An overperformer is someone who attained a gain in years of education at least one standard deviation above the average gain obtained by persons with the same parental educational attainment. An underperformer corresponds to a person with a gain in years of education, at least one standard deviation below the average gain obtained by persons with the same parental educational attainment. The reference group is the rest of the population. The controls included are a dummy variable indicating if the person was born in a community with more than 2500 inhabitants and an indicator variable indicating if the person had at least one parent who spoke an indigenous tongue considered the indigenous population. Similarly, it includes series of dummy variables indicating the skin tone of the respondent, defined as follows: light skin tone corresponds to the population that declares to have a skin tone corresponding to tones 1-3 of the PERLA scale; medium skin tone corresponds to the population that declares a skin tone corresponding to tones 4-6 of the PERLA scale and dark skin tone corresponds to the population that declares a skin tone corresponding to tones 7-11 of the PERLA scale and a series of regional dummy variables where the North region consists of Baja California, Sonora, Chihuahua, Coahuila, Nuevo León, and Tamaulipas; the North West consists of Baja California Sur, Sinaloa, Nayarit, Durango, and Zacatecas; the Center-North region is formed by Jalisco, Aguascalientes, Colima, Michoacán, and San Luis Potosí; the Center region is formed by Guanajuato, Querétaro, Hidalgo, Estado de México, Morelos, Tlaxcala, and Puebla; Mexico City is analyzed independently; Guerrero, Oaxaca, Chiapas, Veracruz, Tabasco, Campeche, Yucatán y Quintana Roo form the South region.

9. Conclusions

In this paper, we show a positive association between educational positional mobility and economic positional mobility in the Mexican context. Individuals who achieve upward educational positional mobility are more likely to converge toward higher ranks in the distribution of economic resources compared to the positionally non-mobile, with an average gain of approximately two deciles. In contrast, those who experience downward educational positional mobility converge, on average, to a rank about one decile below the non-mobile

group. This asymmetry suggests that the economic gains from educational overperformance are larger than the economic penalties from underperformance. These patterns hold across different levels of economic origin. Individuals who underperform educationally but originate from the top of the economic distribution do not experience significantly lower economic mobility than their positionally non-mobile peers. We also find suggestive evidence that occupational mobility serves as a mediating mechanism between education and economic outcomes. Educational overperformers are more likely to experience upward occupational positional mobility, and among them, occupational advancement is more strongly associated with upward economic mobility than for the rest of the population. This implies that not only do overperformers move up the occupational ladder more frequently, but the economic returns to such occupational mobility are greater for them as well.

The positive link between educational and economic positional mobility supports prior research on the growing importance of one's place in the educational distribution as access expands (Bol, 2015; Di Stasio *et al*., 2016; Ortiz and Rodríguez-Menés, 2015; Salata and Cheung, 2016). While most of that literature analyzes static educational position, we examine changes in position relative to peers from similar origins. This dynamic approach allows us to assess whether mobility in one distribution is associated with mobility in another. In Mexico's context of generalized educational expansion (Urbina, 2017; Santiago, 2020) and declining occupational status at labor market entry (Toro, 2017), upward positional mobility in education still predicts upward economic mobility. This finding aligns with the notion that the value of education is not absolute, but positional, shaped by how scarce access to higher attainment remains (Bills, 2016).

Our finding that downward educational mobility leads to smaller economic losses for those from the top of the economic distribution suggests that economic origin can buffer the effects of underperformance. This undermines the educational system's role in fairly allocating rewards, as the penalties for falling behind differ by socioeconomic background. It underscores the importance of a multidimensional approach to social advantage (Bills, 2016). The result also echoes the logic of Maximally Maintained Inequality (Raftery and Hout, 1993), which holds that privileged groups maintain their relative status until their educational needs are saturated. In our case, persistent economic advantage despite educational underachievement suggests that entrenched inequalities weaken the meritocratic promise of education.

A possible interpretation of the evidence presented by Toro, (2017) with regards to the deterioration of the occupational status of more educated cohorts in the Mexican labor market and the evidence by Bleynat and Monroy-Gómez-Franco (2024) on the sustained fall of the monetary returns to tertiary education in Mexico is that decredentialization processes are taking place in the Mexican economy, where the expansion of tertiary education documented by Urrutia, (2017) reduced the signaling value of academic credentials (Araki, 2020). Our findings suggest a more cautious interpretation, as we find that upward positional educational mobility is still positively correlated with upward economic positional mobility. In other words, that relative effort in the educational system is still associated with economic rewards. Together, the evidence would suggest that although the absolute returns to tertiary education are falling, climbing up in positions in the educational distribution still implies gains in the economic distribution. Thus, more research is needed to assert that a full process of decredentialization is taking place in Mexico.

As with any study, our research has limitations that open important avenues for future inquiry. First, we do not examine whether the relationship between educational and economic positional mobility varies by gender, region of origin, or ethnicity. While Binkewicz (2024) finds no such variation by gender, more research is necessary. Second, the role of educational institutions in mediating mobility outcomes remains unexplored. Due to data limitations, we were unable to assess whether attending private versus public schools affects the positional economic returns to educational overperformance or underperformance. Investigating these institutional pathways would yield important insights for policy design, particularly in terms of reducing inequality of opportunity and improving the alignment between educational effort and economic reward.

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Appendix A. Comparison between restricted and unrestricted sample

Table A1. Descriptive statistics for total and restricted samples

Variable	Total sample	Restricted sample (30 to 50 years old)	T-statistic for the difference in means
Number of household members at origin	6.620 (0.041)	6.578 (0.047)	0.687
Urban community of origin	0.586 (0.013)	0.588 (0.013)	-0.099
Average age	41.581 (0.087)	39.406 (0.061)	20.521
Women	0.529 (0.003)	0.538 (0.005)	-1.608
At least one indigenous parent	0.137 (0.007)	0.136 (0.007)	0.096
Skin tone of the respondent			
Light skin tone	0.122 (0.004)	0.115 (0.005)	1.050
Intermediate skin tone	0.804 (0.005)	0.808 (0.005)	-0.614
Dark skin tone	0.074 (0.002)	0.077 (0.003)	-0.624
Parental educational attainment			
No formal education	0.608 (0.006)	0.605 (0.007)	0.368
Primary school	0.196 (0.004)	0.207 (0.005)	-1.770
Secondary School	0.108 (0.003)	0.105 (0.004)	0.792
High School	0.066 (0.003)	0.063 (0.003)	0.764
College or more	0.022 (0.001)	0.021 (0.002)	0.282
Respondent's educational attainment			
No formal education	0.130 (0.004)	0.096 (0.004	5.720
Primary school	0.178 (0.004)	0.166 (0.005)	1.926
Secondary School	0.315 (0.005)	0.361 (0.006)	-5.930

High School	0.230 (0.006)	0.234 (0.007)	-0.447
College or more	0.146 (0.005)	0.143 (0.005)	0.479
Structure of household of origin (Presence of parents/legal guardians)			
Non-parent household-head	0.056 (0.002)	0.051 (0.002)	1.632
Single father	0.035 (0.003)	0.034 (0.002)	0.326
Single mother	0.149 (0.003)	0.147 (0.004)	0.391
Both parents present	0.758 (0.005)	0.766 (0.006)	-1.023
Region of origin			
North	0.154 (0.008)	0.155 (0.008)	-0.183
North West	0.074 (0.005)	0.075 (0.005)	-0.069
Center North	0.141 (0.008)	0.139 (0.008)	0.146
Center	0.387 (0.016)	0.383 (0.015)	0.160
South	0.245 (0.010)	0.248 (0.010)	-0.220
N	42,343	24,193	

Note: Notes: Sample weights employed. Standard errors clustered at the primary sampling unit. The row of single mother (respectively father) households corresponds to respondents whose origin household was headed by a single mother (respectively father). Communities with more than 2500 inhabitants are categorized as urban for the origin and current household. The population with at least one parent who spoke an indigenous tongue is considered the indigenous population. Light skin tone corresponds to the population that declares to have a skin tone corresponding to tones 1-3 of the PERLA scale; medium skin tone corresponds to the population that declares a skin tone corresponding to tones 4-6 of the PERLA scale and dark skin tone corresponds to the population that declares a skin tone corresponding to tones 7-11 of the PERLA scale. The North region consists of Baja California, Sonora, Chihuahua, Coahuila, Nuevo León, and Tamaulipas; North West consists of Baja California Sur, Sinaloa, Nayarit, Durango, and Zacatecas; the Center-North region is formed by Jalisco, Aguascalientes, Colima, Michoacán, and San Luis Potosí; the Center region is formed by Guanajuato, Querétaro, Hidalgo, Estado de México, Morelos, Tlaxcala, and Puebla; Mexico City is analyzed independently; Guerrero, Oaxaca, Chiapas, Veracruz, Tabasco, Campeche, Yucatán y Quintana Roo form the South region.

Appendix B. Index of economic resources

Table B1. Goods and services included in the economic resources index

Good or service	Origin household	Current household	Good or service	Origin household	Current household
Overcrowded household	X	X	Bank account	X	X
Credit Card	X	X	Electricity	X	X
Landline	X	X	Cellphone		X
Toaster	X	X	Car	X	X
Stove	X	X	Refrigerator	X	X
Washing machine	X	X	Tablet		X
Access to potable water	X	X	T.V. Set	X	X
DVD Player / Cassette recorder		X	Video-game console		X
Cable T.V.		X	Owner of commercial venue	X	X
Microwave		X	Domestic service		X
Tractor		X	Owner of another dwelling	X	X
Computer		X	Owner of non-agricultural lands		X
Owner of the inhabited dwelling		X	Water heater		X
Internet		X			

Source: Monroy-Gómez-Franco (2023).

Appendix C. Identification of overperformers and underperformers

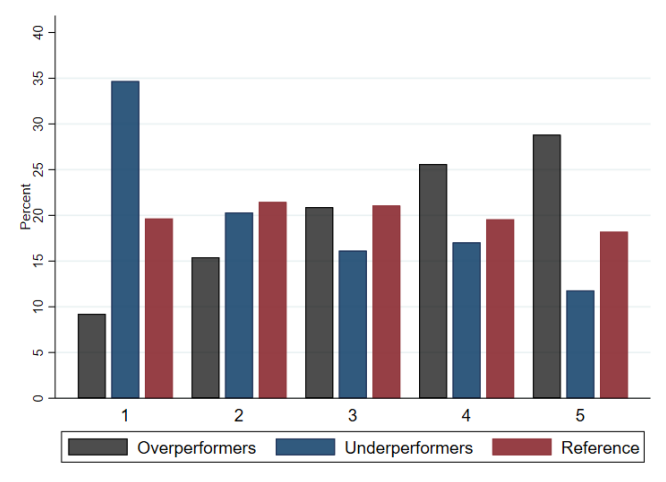
Table C1. T-test of equality of means across definitions of the different groups

	Overperformers	Underperformers	Referemce group
	T-test comparing across definitions.	T-test comparing across definitions.	T-test comparing across definitions.
Number of household members at origin	3.996	-6.064	0.348
Urban community of origin	-0.405	0.859	-0.152
Average age	2.883	0.853	1.545
Women	1.372	-1.130	-0.217
At least one indigenous parent	1.585	-2.608	0.232
Skin tone of the respondent			
Light skin tone	-1.187	1.329	0.128
Intermediate skin tone	0.786	0.175	-0.277
Dark skin tone	0.774	-1.543	0.112
Region of origin			
North	-0.859	1.252	-0.112
North West	0.563	-0.479	0.000
Center North	-0.083	-0.874	0.224
Center	-1.300	1.611	-0.148
South	2.176	-2.236	0.089
Structure of household of origin (Presence of parents/legal guardians)			
No parents present	0.384	-1.980	0.707
Single father	0.447	0.530	-0.447
Single mother	-1.012	0.223	0.232
Both parents present	1.000	0.545	-0.429

Notes: Constructed using information from Table 5 in the main text. Only individuals with a positive difference in educational years are considered. Under the first definition, an overperformer is a person who achieved a gain in years of education at least one standard deviation above the total sample average gain; an underperformer is a person with a gain at least one standard deviation below the total sample average

gain; and the reference group corresponds to those with an educational gain inside the interval of one standard deviation below or above of the average gain. Under the second definition, an overperformer is a person who attained a gain in years of education at least one standard deviation above the average gain obtained by persons with the same parental educational attainment. An underperformer corresponds to a person with a gain in years of education, at least one standard deviation below the average gain obtained by persons with the same parental educational attainment. The reference group is the rest of the population. Communities with more than 2500 inhabitants are categorized as urban for the origin and current household. The population with at least one parent who spoke an indigenous tongue is considered the indigenous population. Light skin tone corresponds to the population that declares to have a skin tone corresponding to tones 1-3 of the PERLA scale; medium skin tone corresponds to the population that declares a skin tone corresponding to tones 4-6 of the PERLA scale and dark skin tone corresponds to the population that declares a skin tone corresponding to tones 7-11 of the PERLA scale. The North region consists of Baja California, Sonora, Chihuahua, Coahuila, Nuevo León, and Tamaulipas; North West consists of Baja California Sur, Sinaloa, Nayarit, Durango, and Zacatecas; the Center-North region is formed by Jalisco, Aguascalientes, Colima, Michoacán, and San Luis Potosí; the Center region is formed by Guanajuato, Querétaro, Hidalgo, Estado de México, Morelos, Tlaxcala, and Puebla; Mexico City is analyzed independently; Guerrero, Oaxaca, Chiapas, Veracruz, Tabasco, Campeche, Yucatán y Quintana Roo form the South region.

Figure C1. Share of overperformers, underperformers, and the reference group per quintile of origin



Note: Sample weights employed. An overperformer is someone who attained a gain in years of education at least one standard deviation above the average gain obtained by persons with the same parental educational attainment. An underperformer corresponds to a person with a gain in years of education, at least one standard deviation below the average gain obtained by persons with the same parental educational attainment. The reference group is the rest of the population.

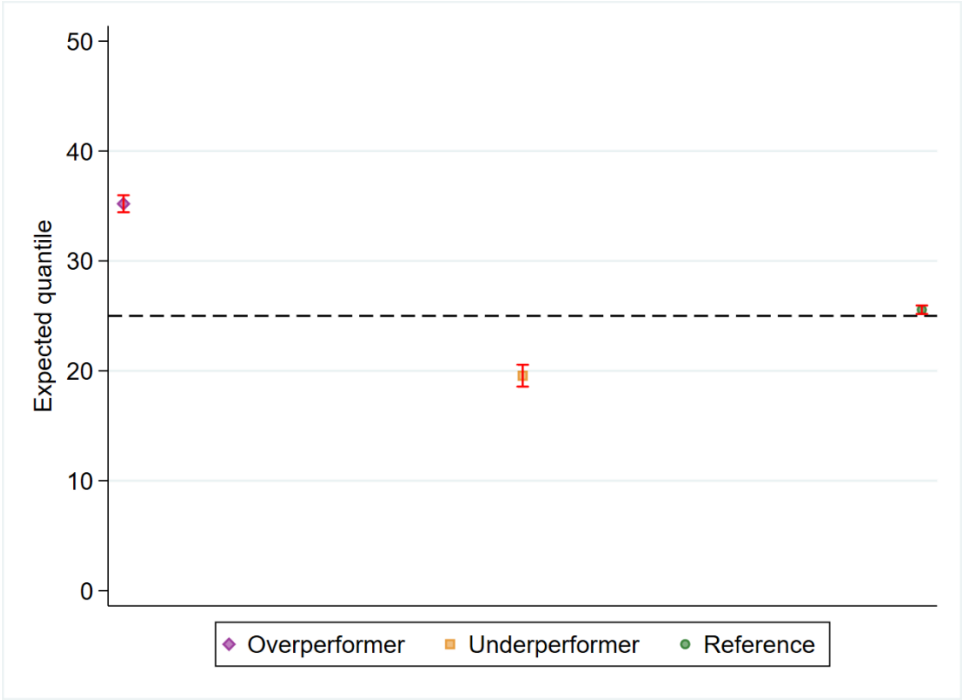
Appendix D. Z-tests for the equality of coefficients across regressions

Table D1. Z-Test for unconditional rank-rank regressions

	Definition 1			Definition 2		
	Over vs Under	Over vs reference	Under vs reference	Over vs Under	Over vs reference	Under vs reference
Comparison of intergenerational rank persistence rates (β)						
Difference in coefficient estimates	-0.19	-0.11	0.09	-0.02	-0.08	-0.05
Standard error of the difference in coefficient estimates	0.03	0.03	0.02	0.03	0.03	0.02
Z statistic	-6.15	-3.60	4.57	-0.72	-2.57	-2.57
Comparison of intercepts (α)						
Difference in coefficient estimates	11.08	6.98	-4.10	9.28	7.08	-2.20
Standard error of the difference in coefficient estimates	1.04	0.99	0.56	1.11	1.07	0.53
Z statistic	10.61	7.06	-7.37	8.39	6.62	-4.12

Note: Own calculations based on the information from Table 6.

Figure D1. Steady states for each subgroup (Definition 1)



Note: Calculated using information from Table 6 and Equation 3. Standard errors are calculated through bootstrapping with 1000 repetitions. an overperformer is a person who achieved a gain in years of education at least one standard deviation above the total sample average gain; an underperformer is a person with a gain at least one standard deviation below the total sample average gain; and the reference group corresponds to those with an educational gain inside the interval of one standard deviation below or above of the average gain. The horizontal dotted line represents the median of the distribution.

Appendix E. Transition matrices

Table E1. Transition matrix for the overperformers (Definition 1)

		Current quintile				
		Q1	**Q2**	**Q3**	**Q4**	**Q5**
Quintile of origin	**Q1**	0.307 (0.036)	0.219 (0.028)	0.246 (0.028)	0.165 (0.024)	0.062 (0.012)
	Q2	0.204 (0.034)	0.189 (0.028)	0.196 (0.025)	0.218 (0.029)	0.194 (0.033)
	Q3	0.072 (0.021)	0.171 (0.023)	0.236 (0.026)	0.261 (0.026)	0.260 (0.024)
	Q4	0.042 (0.021)	0.100 (0.016)	0.194 (0.022)	0.334 (0.029)	0.330 (0.031)
	Q5	0.007 (0.004)	0.021 (0.007)	0.090 (0.014)	0.241 (0.022)	0.642 (0.025)

Notes: Sample weights are employed. Transition probabilities are defined as the probability that a person with origin in quintile *q* (row) moves to quintile *p* (column). The sum across columns is equal to one. Standard errors are shown in parenthesis and are calculated using the primary sampling unit as a cluster unit. Quintiles are defined over the total distribution. An overperformer is a person who achieved a gain in years of education at least one standard deviation above the total sample average gain. Only respondents with positive educational gains are considered.

Table E2. Transition matrix for the overperformers (Definition 2)

		Current quintile				
		Q1	**Q2**	**Q3**	**Q4**	**Q5**
Quintile of origin	**Q1**	0.303 (0.040)	0.216 (0.029)	0.241 (0.030)	0.169 (0.027)	0.071 (0.014)
	Q2	0.176 (0.033)	0.190 (0.038)	0.191 (0.032)	0.221 (0.033)	0.222 (0.037)
	Q3	0.059 (0.017)	0.157 (0.022)	0.218 (0.026)	0.305 (0.029)	0.261 (0.023)
	Q4	0.038 (0.018)	0.078 (0.013)	0.189 (0.020)	0.306 (0.027)	0.388 (0.027)
	Q5	0.005 (0.003)	0.016 (0.004)	0.057 (0.009)	0.216 (0.018)	0.707 (0.021)

Notes: Sample weights are employed. Transition probabilities are defined as the probability that a person with origin in quintile *q* (row) moves to quintile *p* (column). The sum across columns is equal to one. Standard errors are shown in parenthesis and are calculated using the primary sampling unit as a cluster unit. Quintiles are defined over the total distribution. An overperformer is a person who attained a gain in years of education at least one standard deviation above the average gain obtained by persons with the same

parental educational attainment. Only respondents with positive educational gains are considered.

Table E3. Transition matrix for the underperformers (Definition 1)

		Current quintile				
		Q1	**Q2**	**Q3**	**Q4**	**Q5**
Quintile of origin	**Q1**	0.623 (0.022)	0.217 (0.018)	0.113 (0.015)	0.032 (0.006)	0.015 (0.007)
	Q2	0.434 (0.032)	0.235 (0.023)	0.236 (0.026)	0.075 (0.016)	0.021 (0.007)
	Q3	0.189 (0.025)	0.293 (0.028)	0.264 (0.026)	0.176 (0.025)	0.079 (0.014)
	Q4	0.062 (0.011)	0.179 (0.023)	0.289 (0.024)	0.270 (0.025)	0.199 (0.028)
	Q5	0.016 (0.004)	0.063 (0.013)	0.080 (0.011)	0.270 (0.018)	0.571 (0.025)

Notes: Sample weights are employed. Transition probabilities are defined as the probability that a person with origin in quintile *q* (row) moves to quintile *p* (column). The sum across columns is equal to one. Standard errors are shown in parenthesis and are calculated using the primary sampling unit as a cluster unit. Quintiles are defined over the total distribution. An underperformer is a person with a gain of at least one standard deviation below the total sample average gain. Only respondents with positive educational gains are considered.

Table E4. Transition matrix for the underperformers (Definition 2)

		Current quintile				
		Q1	**Q2**	**Q3**	**Q4**	**Q5**
Quintile of origin	**Q1**	0.592 (0.020)	0.228 (0.015)	0.129 (0.013)	0.036 (0.007)	0.014 (0.005)
	Q2	0.398 (0.028)	0.253 (0.020)	0.249 (0.022)	0.083 (0.015)	0.017 (0.005)
	Q3	0.212 (0.023)	0.294 (0.023)	0.272 (0.024)	0.159 (0.020)	0.064 (0.013)
	Q4	0.088 (0.015)	0.206 (0.025)	0.322 (0.029)	0.240 (0.026)	0.144 (0.024)
	Q5	0.037 (0.009)	0.100 (0.018)	0.153 (0.023)	0.316 (0.030)	0.394 (0.038)

Notes: Sample weights are employed. Transition probabilities are defined as the probability that a person with origin in quintile *q* (row) moves to quintile *p* (column). The sum across columns is equal to one. Standard errors are shown in parenthesis and are calculated using the primary sampling unit as a cluster unit. Quintiles are defined over the

total distribution. An underperformer corresponds to a person with a gain in years of education, at least one standard deviation below the average gain obtained by persons with the same parental educational attainment. Only respondents with positive educational gains are considered.

Table E5. Transition matrix for the reference group (Definition 1)

		Current quintile				
		Q1	**Q2**	**Q3**	**Q4**	**Q5**
Quintile of origin	**Q1**	0.466 (0.014)	0.281 (0.012)	0.162 (0.009)	0.066 (0.005)	0.025 (0.004)
	Q2	0.288 (0.016)	0.293 (0.013)	0.236 (0.015)	0.132 (0.011)	0.051 (0.007)
	Q3	0.124 (0.009)	0.255 (0.013)	0.263 (0.012)	0.253 (0.015)	0.105 (0.009)
	Q4	0.054 (0.006)	0.168 (0.011)	0.247 (0.013)	0.308 (0.012)	0.223 (0.013)
	Q5	0.015 (0.002)	0.047 (0.006)	0.124 (0.010)	0.273 (0.014)	0.542 (0.017)

Notes: Sample weights are employed. Transition probabilities are defined as the probability that a person with origin in quintile q (row) moves to quintile p (column). The sum across columns is equal to one. Standard errors are shown in parenthesis and are calculated using the primary sampling unit as a cluster unit. Quintiles are defined over the total distribution. The reference group corresponds to those with an educational gain within the interval of one standard deviation below or above the average gain. Only respondents with positive educational gains are considered.

Table E6. Transition matrix for the reference group (Definition 2)

		Current quintile				
		Q1	**Q2**	**Q3**	**Q4**	**Q5**
Quintile of origin	**Q1**	0.458 (0.015)	0.284 (0.013)	0.163 (0.009)	0.069 (0.005)	0.026 (0.004)
	Q2	0.300 (0.017)	0.291 (0.013)	0.233 (0.017)	0.134 (0.011)	0.051 (0.007)
	Q3	0.122 (0.009)	0.258 (0.014)	0.266 (0.011)	0.247 (0.014)	0.107 (0.010)
	Q4	0.051 (0.005)	0.172 (0.011)	0.246 (0.012)	0.321 (0.012)	0.211 (0.013)
	Q5	0.014 (0.002)	0.050 (0.006)	0.122 (0.010)	0.279 (0.015)	0.535 (0.017)

Notes: Sample weights are employed. Transition probabilities are defined as the probability that a person with origin in quintile q (row) moves to quintile p (column). The sum across columns is equal to one. Standard errors are shown in parenthesis and are calculated using the primary sampling unit as a cluster unit. The reference group corresponds to those with an educational gain within the interval of one standard deviation below or above the average gain of those with the same parental educational attainment. Only respondents with positive educational gains are considered.

Table E7. Directional mobility rates by group using the first definition
(Share of each group that experiences the type of mobility specified)

Mobility direction	Overperformers	Underperformers	Reference
Upward mobility	0.413 (0.014)	0.221 (0.010)	0.321 (0.006)
Downward mobility	0.250 (0.013)	0.350 (0.012)	0.311 (0.006)
No mobility	0.337 (0.013)	0.430 (0.012)	0.369 (0.006)

Note: Standard errors are calculated using the primary sampling unit as the clustering unit. Each entry refers to the share of each group that experiences each type of mobility. Upward mobility refers to those who are currently in a quintile above the quintile in which the household they inhabited at 14 was located in the distribution of economic resources. Downward mobility refers to those who currently are at a quintile below the quintile occupied by the household they inhabited at 14 years old. No mobility refers to those who are currently in the same quintile as their household of origin. An overperformer is a person who achieved a gain in years of education at least one standard deviation above the total sample average gain; an underperformer is a person with a gain at least one standard deviation below the total sample average gain; and the average group corresponds to those with an educational gain inside the interval of one standard deviation below or above of the average gain.

Table E8. T-test of the differences between directional mobility rates
(Second definition)

	Difference between overperformer and underperformer	SE	T-statistic	Difference between overperformer and reference	SE	T-statistic	Difference between underperformer and reference	SE	T-statistic
Upward mobility	0.107	0.017	6.418	0.067	0.014	4.721	-0.039	0.012	-3.292
Downward mobility	-0.104	0.016	-6.395	-0.084	0.013	-6.266	0.020	0.013	1.622
No mobility	-0.003	0.017	-0.169	0.016	0.014	1.162	0.019	0.013	1.534

Note: Standard errors are calculated using the primary sampling unit as the clustering unit. Based on data from Table 7. An overperformer is a person who attained a gain in years of education at least one standard deviation above the average gain obtained by persons with the same parental educational attainment. An underperformer corresponds to a person with a gain in years of education,

at least one standard deviation below the average gain obtained by persons with the same parental educational attainment. The reference group is the rest of the population.

Table E9. T-test of the differences between directional mobility rates
(First definition)

	Difference between overperformer and underperformer	SE	T-statistic	Difference between overperformer and reference	SE	T-statistic	Difference between underperformer and reference	SE	T-statistic
Upward mobility	0.193	0.017	11.238	0.093	0.015	6.195	-0.100	0.012	-8.506
Downward mobility	-0.100	0.018	-5.654	-0.061	0.014	-4.228	0.039	0.013	2.979
No mobility	-0.093	0.018	-5.206	-0.032	0.015	-2.204	0.061	0.013	4.526

Note: Standard errors are calculated using the primary sampling unit as the clustering unit. Based on data from Table C7. An overperformer is a person who achieved a gain in years of education at least one standard deviation above the total sample average gain; an underperformer is a person with a gain at least one standard deviation below the total sample average gain; and the average group corresponds to those with an educational gain inside the interval of one standard deviation below or above of the average gain.

Appendix F. Educational Levels Mobility

Table F1. Intergenerational education transition matrix

		Respondents' educational attainment				
		No-formal education	Primary	Middle school	High school	College or more
Parental educational attainment	No formal education	0.148 (0.006)	0.233 (0.006)	0.404 (0.007)	0.162 (0.007)	0.053 (0.003)
	Primary	0.025 (0.003)	0.109 (0.006)	0.401 (0.012)	0.310 (0.010)	0.155 (0.009)
	Middle School	0.009 (0.002)	0.026 (0.004)	0.241 (0.014)	0.408 (0.019)	0.316 (0.017)
	High school	0.004 (0.002)	0.004 (0.002)	0.109 (0.014)	0.374 (0.021)	0.508 (0.021)
	College or more		0.007 (0.006)	0.065 (0.017)	0.269 (0.032)	0.659 (0.036)

Note: Sample weights are employed. Standard errors are calculated using the primary sampling unit as a cluster unit. Transition probabilities are defined as the probability that a person with origin in level *q* (row) moves to level *p* (column). The levels refer to completed levels of education. The parental level of education corresponds to the educational level attained by the most educated parent present.

Table F2. Transition matrix for the overperformers (Definition 3)

		Current quintile				
		Q1	**Q2**	**Q3**	**Q4**	**Q5**
Quintile of origin	**Q1**	0.290 (0.035)	0.240 (0.028)	0.245 (0.026)	0.166 (0.023)	0.058 (0.012)
	Q2	0.200 (0.027)	0.205 (0.023)	0.212 (0.025)	0.224 (0.030)	0.158 (0.026)
	Q3	0.070 (0.014)	0.176 (0.020)	0.238 (0.024)	0.300 (0.022)	0.216 (0.020)
	Q4	0.035 (0.016)	0.092 (0.012)	0.222 (0.022)	0.345 (0.027)	0.306 (0.024)
	Q5	0.008 (0.004)	0.030 (0.007)	0.103 (0.014)	0.248 (0.018)	0.611 (0.022)

Notes: Sample weights are employed. Transition probabilities are defined as the probability that a person with origin in quintile *q* (row) moves to quintile *p* (column). The sum across columns is equal to one. Standard errors are shown in parenthesis and are calculated using the primary sampling unit as a cluster unit. Quintiles are defined over the total distribution. An overperformer is either a person who completed high school, given that their parents did not have any formal education, or a person who completed college, given that their parents completed primary school.

Table F3. Transition matrix for the underperformers
(Definition 3)

		Current quintile				
		Q1	**Q2**	**Q3**	**Q4**	**Q5**
Quintile of origin	**Q1**	0.354 (0.179)	0.394 (0.222)	0.252 (0.170)		
	Q2	0.265 (0.130)	0.378 (0.171)	0.121 (0.069)	0.202 (0.085)	0.034 (0.036)
	Q3	0.176 (0.062)	0.326 (0.095)	0.254 (0.075)	0.207 (0.086)	0.037 (0.037)
	Q4	0.117 (0.040)	0.186 (0.052)	0.224 (0.066)	0.327 (0.101)	0.146 (0.034)
	Q5	0.056 (0.025)	0.088 (0.033)	0.313 (0.071)	0.287 (0.059)	0.256 (0.050)

Notes: Sample weights are employed. Transition probabilities are defined as the probability that a person with origin in quintile *q* (row) moves to quintile *p* (column). The sum across columns is equal to one. Standard errors are shown in parenthesis and are calculated using the primary sampling unit as a cluster unit. Quintiles are defined over the total distribution. An underperformer is a person who either a) only completed middle school or less when their parents completed college or more, b) only completed middle school or less given that their parents completed high school, or c) completed primary or less given that their parents completed middle school.

Table F4. Transition matrix for the reference group
(Definition 3)

		Current quintile				
		Q1	**Q2**	**Q3**	**Q4**	**Q5**
Quintile of origin	**Q1**	0.513 (0.013)	0.264 (0.011)	0.147 (0.008)	0.054 (0.004)	0.022 (0.003)
	Q2	0.321 (0.016)	0.285 (0.012)	0.230 (0.012)	0.116 (0.009)	0.048 (0.007)
	Q3	0.141 (0.009)	0.265 (0.012)	0.267 (0.011)	0.227 (0.013)	0.100 (0.008)
	Q4	0.061 (0.005)	0.182 (0.010)	0.249 (0.011)	0.293 (0.010)	0.215 (0.012)
	Q5	0.017 (0.003)	0.051 (0.006)	0.109 (0.008)	0.266 (0.012)	0.557 (0.016)

Notes: Sample weights are employed. Transition probabilities are defined as the probability that a person with origin in quintile *q* (row) moves to quintile *p* (column). The sum across columns is equal to one. Standard errors are shown in parenthesis and are calculated using the primary sampling unit as a cluster unit. Quintiles are defined over the total distribution. The reference group is composed of those who are neither overperformers or underperformers.

Appendix G. Occupational Mobility

Table G1. Occupational mobility of the educational overperformers (Definition 2)

		Occupational quintile of the respondent				
		Q1	Q2	Q3	Q4	Q5
Occupational quintile of the father	Q1	0.116 (0.018)	0.228 (0.032)	0.102 (0.019)	0.224 (0.028)	0.331 (0.034)
	Q2	0.057 (0.013)	0.184 (0.043)	0.095 (0.022)	0.246 (0.030)	0.419 (0.043)
	Q3	0.050 (0.011)	0.167 (0.031)	0.065 (0.014)	0.290 (0.029)	0.428 (0.033)
	Q4	0.031 (0.008)	0.090 (0.015)	0.082 (0.013)	0.240 (0.025)	0.557 (0.031)
	Q5	0.035 (0.012)	0.065 (0.010)	0.063 (0.014)	0.208 (0.022)	0.630 (0.029)

Note: Sample weights are employed. Standard errors are calculated using the primary sampling unit as a cluster unit. Transition probabilities are defined as the probability that a person with origin in quintile *q* (row) moves to quintile *p* (column). We calculate quintiles using the distribution of the parents' and respondents' re-centered ISEI scores. An overperformer is someone who attained a gain in years of education at least one standard deviation above the average gain obtained by persons with the same parental educational attainment.

Table G2. Occupational mobility of the educational underperformers (Definition 2)

		Occupational quintile of the respondent				
		Q1	Q2	Q3	Q4	Q5
Occupational quintile of the father	Q1	0.537 (0.024)	0.275 (0.020)	0.084 (0.010)	0.087 (0.012)	0.016 (0.005)
	Q2	0.372 (0.027)	0.342 (0.029)	0.178 (0.024)	0.090 (0.015)	0.018 (0.005)
	Q3	0.255 (0.028)	0.323 (0.030)	0.176 (0.020)	0.192 (0.028)	0.054 (0.015)
	Q4	0.131 (0.019)	0.250 (0.033)	0.290 (0.035)	0.240 (0.027)	0.089 (0.018)
	Q5	0.172 (0.032)	0.288 (0.038)	0.147 (0.026)	0.233 (0.030)	0.160 (0.026)

Note: Sample weights are employed. Standard errors are calculated using the primary sampling unit as a cluster unit. Transition probabilities are defined as the probability that a person with origin in quintile q (row) moves to quintile p (column). We calculate quintiles using the distribution of the parents' and respondents' re-centered ISEI scores. An underperformer corresponds to a person with a gain in years of education, at least one standard deviation below the average gain obtained by persons with the same parental educational attainment.

Table G3. Occupational mobility of the educational reference group (Definition 2)

		Occupational quintile of the respondent				
		Q1	Q2	Q3	Q4	Q5
Occupational quintile of the father	Q1	0.385 (0.015)	0.274 (0.011)	0.144 (0.010)	0.132 (0.010)	0.064 (0.008)
	Q2	0.252 (0.016)	0.304 (0.017)	0.167 (0.012)	0.188 (0.013)	0.089 (0.010)
	Q3	0.180 (0.011)	0.312 (0.015)	0.184 (0.011)	0.203 (0.013)	0.122 (0.013)
	Q4	0.124 (0.010)	0.238 (0.016)	0.210 (0.015)	0.277 (0.015)	0.150 (0.013)
	Q5	0.086 (0.009)	0.182 (0.013)	0.123 (0.012)	0.262 (0.016)	0.347 (0.016)

Note: Sample weights are employed. Standard errors are calculated using the primary sampling unit as a cluster unit. Transition probabilities are defined as the probability that a person with origin in quintile q (row) moves to quintile p (column). We calculate quintiles using the distribution of the parents' and respondents' re-centered ISEI scores. The reference group is composed of those who are neither under nor overperformers.

Table G4. Probit regression on upward occupational mobility

Outcome variable: $P(Upward\ mobility = 1\|X)$	Without controls	With controls
Underperformer	-0.309 (0.047)	-0.305 (0.048)
Overperformer	1.033 (0.060)	1.034 (0.060)
Economic quintile of origin		

Q2	0.176 (0.057)	0.158 (0.055)
Q3	0.489 (0.052)	0.452 (0.057)
Q4	0.546 (0.061)	0.497 (0.066)
Q5	0.904 (0.072)	0.844 (0.082)
Occupational quintile of the parent	-0.531 (0.020)	-0.558 (0.020)
Observations	13,385	13,385

Notes: Sample weights are employed. Standard errors are calculated using the primary sampling unit as a cluster unit. Both regressions include a constant term. An underperformer corresponds to a person with a gain in years of education, at least one standard deviation below the average gain obtained by persons with the same parental educational attainment. An overperformer is someone who attained a gain in years of education at least one standard deviation above the average gain obtained by persons with the same parental educational attainment. The estimation sample comprises those with information on their occupational mobility patterns and individuals with a current occupational quintile below quintile five. The second regression includes the following control variables: A dummy variable indicating if the person was born in a community with more than 2500 inhabitants; an indicator variable indicating if the person had at least one parent who spoke an indigenous tongue is considered the indigenous population. Similarly, it includes series of dummy variables indicating the skin tone of the respondent, defined as follows: light skin tone corresponds to the population that declares to have a skin tone corresponding to tones 1-3 of the PERLA scale; medium skin tone corresponds to the population that declares a skin tone corresponding to tones 4-6 of the PERLA scale and dark skin tone corresponds to the population that declares a skin tone corresponding to tones 7-11 of the PERLA scale and a series of regional dummy variables where the North region consists of Baja California, Sonora, Chihuahua, Coahuila, Nuevo León, and Tamaulipas; the North West consists of Baja California Sur, Sinaloa, Nayarit, Durango, and Zacatecas; the Center-North region is formed by Jalisco, Aguascalientes, Colima, Michoacán, and San Luis Potosí; the Center region is formed by Guanajuato, Querétaro, Hidalgo, Estado de México, Morelos, Tlaxcala, and Puebla; Mexico City is analyzed independently; Guerrero, Oaxaca, Chiapas, Veracruz, Tabasco, Campeche, Yucatán y Quintana Roo form the South region. Upward mobility is defined as moving upwards at least one quintile in the occupational distribution with respect to the quintile of their parents.

Table G5. Marginal effect of being an educational overperformer or an underperformer on the probability of experiencing upward occupational mobility, including controls

	Total	Q1	Q2	Q3	Q4	Q5
Unconditional on parent's occupational quintile						
Overperformers	0. 339 (0. 019)	0. 272 (0. 043)	0. 342 (0. 049)	0. 355 (0. 031)	0. .332 (0. 030)	0. 306 (0. 032)
Underperformers	-0. 094 (0. 015)	-0. 096 (0. 021)	-0. 084 (0. 029)	-0. 080 (0. 035)	-0. 108 (0. 034)	-0. 081 (0. 048)
Conditional on parents belonging to the first quintile of the occupational distribution						
Overperformers	0. 250 (0. 014)	0. 289 (0. 036)	0. 307 (0. 031)	0. 250 (0. 019)	0. 230 (0. 021)	0. 156 (0. 021)
Underperformers	-0. 098 (0. 016)	-0. 132 (0. 030)	-0. 103 (0. 036)	-0. 082 (0. 037)	-0. 109 (0. 037)	-0. 062 (0. 039)

Notes: Estimated marginal effects are based on the estimates in Table F4, in the third column. Delta method standard errors are reported in parenthesis. . An overperformer is a person who attained a gain in years of education at least one standard deviation above the average gain obtained by persons with the same parental educational attainment. An underperformer corresponds to a person with a gain in years of education, at least one standard deviation below the average gain obtained by persons with the same parental educational attainment.

Table G6. Probit regression of upward occupational mobility on upward economic mobility

Outcome variable: $P(Upward\ economic\ mobility = 1\|X)$	Reference group	Overperformers	Underperformers
Without controls			
Upward occupational mobility	0.240 (0.049)	0.583 (0.093)	0.226 (0.088)
With controls			
Upward occupational mobility	0.245 (0.049)	0.579 (0.095)	0.269 (0.087)

Notes: Sample weights are employed. Standard errors are calculated using the primary sampling unit as a cluster unit. Both regressions include a constant term. An underperformer corresponds to a person with a gain in years of education, at least one standard deviation below the average gain obtained by persons with the same parental educational attainment. An overperformer is someone who attained a gain in years of education at least one standard deviation above the average gain obtained by persons with the same parental educational attainment. The estimation sample comprises those with information on their occupational mobility patterns and individuals with current occupational and economic quintiles below quintile five. The second regression includes the following control variables: A dummy variable indicating if the person was born in a community with more than 2500 inhabitants; an indicator variable indicating if the person had at least one parent who spoke an indigenous tongue is considered the indigenous population. Similarly, it includes series of dummy variables indicating the skin tone

of the respondent, defined as follows: light skin tone corresponds to the population that declares to have a skin tone corresponding to tones 1-3 of the PERLA scale; medium skin tone corresponds to the population that declares a skin tone corresponding to tones 4-6 of the PERLA scale and dark skin tone corresponds to the population that declares a skin tone corresponding to tones 7-11 of the PERLA scale and a series of regional dummy variables where the North region consists of Baja California, Sonora, Chihuahua, Coahuila, Nuevo León, and Tamaulipas; the North West consists of Baja California Sur, Sinaloa, Nayarit, Durango, and Zacatecas; the Center-North region is formed by Jalisco, Aguascalientes, Colima, Michoacán, and San Luis Potosí; the Center region is formed by Guanajuato, Querétaro, Hidalgo, Estado de México, Morelos, Tlaxcala, and Puebla; Mexico City is analyzed independently; Guerrero, Oaxaca, Chiapas, Veracruz, Tabasco, Campeche, Yucatán y Quintana Roo form the South region. Upward mobility is defined as moving upwards at least one quintile in the occupational distribution with respect to the quintile of their parents. All regressions include a constant term.

Appendix H. Sample partition

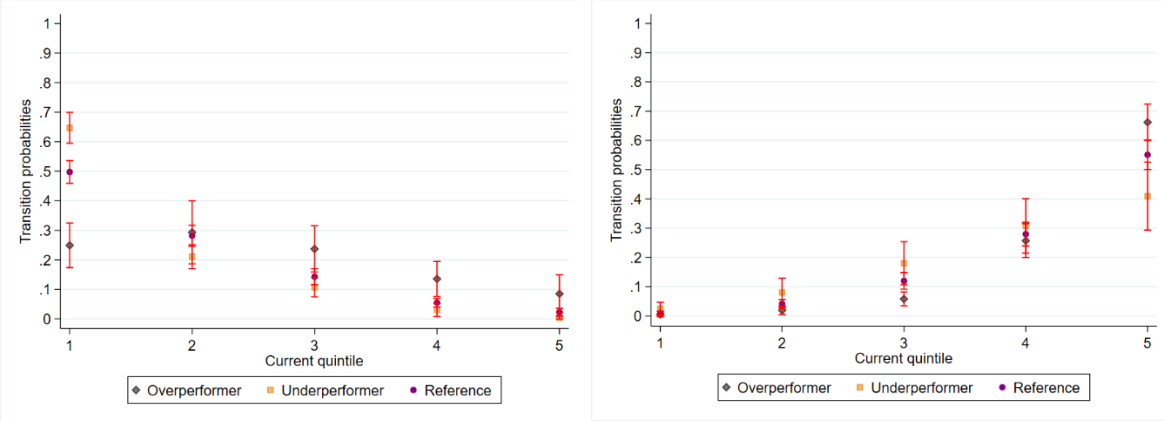
Table H1. Rank-rank regression results
(Ranks defined as 50 quantiles)

Outcome variable: current rank	Overperformers, (30-39 yo)	Underperformers (30-39 yo)	Reference (30-39 yo)	Overperformers, (40-50 yo)	Underperformers, (40-50 yo)	Reference (40-50 yo)
Rank of origin	0.562	0.617	0.643	0.499	0.507	0.568
	(0.032)	(0.025)	(0.015)	(0.035)	(0.023)	(0.013)
Intercept	15.69	6.571	9.577	19.70	9.347	11.23
	(1.228)	(0.613)	(0.441)	(1.352)	(0.533)	(0.402)
Observations	1,714	1,859	7,316	1,759	2,087	8,068
R-squared	0.349	0.433	0.421	0.285	0.326	0.358

Note: Sample weights employed. Standard errors are clustered at the primary sampling unit level. Only individuals with a positive difference in educational years are considered. Under the first definition, an overperformer is a person who achieved a gain in years of education at least one standard deviation above the total sample average gain; an underperformer is a person with a gain at least one standard deviation below the total sample average gain; and the average group corresponds to those with an educational gain inside the interval of one standard deviation below or above of the average gain. Under the second definition, an overperformer is a person who attained a gain in years of education at least one standard deviation above the average gain obtained by persons with the same parental educational attainment. An underperformer corresponds to a person with a gain in years of education, at least one standard deviation below the average gain obtained by persons with the same parental educational attainment. The reference group is the rest of the population.

Figure H1. Transition probabilities by group and quintile of origin, 30-39 years old sample

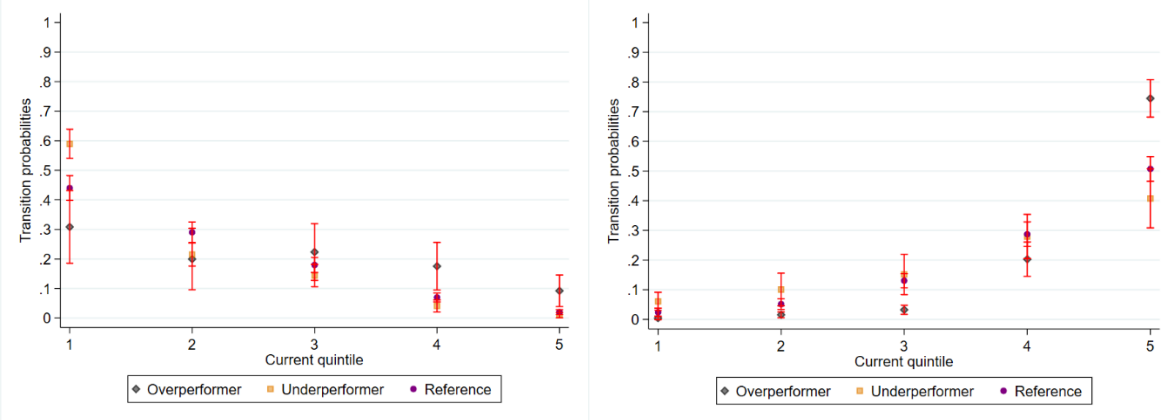
A) Quintile of origin is the first quintile B) Quintile of origin is the fifth quintile



Note: Based on the information in tables E2, E4 and E6. The figures show the 95% confidence interval in red. An overperformer is someone who attained a gain in years of education at least one standard deviation above the average gain obtained by persons with the same parental educational attainment. An underperformer corresponds to a person with a gain in years of education, at least one standard deviation below the average gain obtained by persons with the same parental educational attainment. The reference group is the rest of the population.

Figure H2. Transition probabilities by group and quintile of origin, 40-50 years old sample

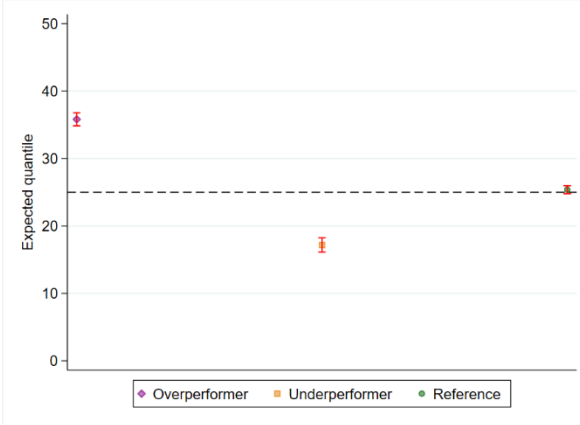
A) Quintile of origin is the first quintile B) Quintile of origin is the fifth quintile



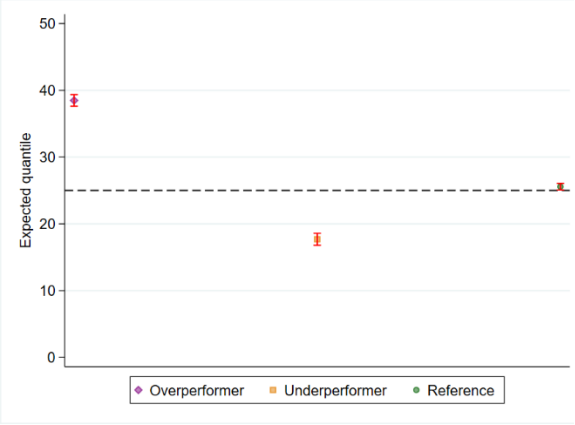
Note: Based on the information in tables E2, E4 and E6. The figures show the 95% confidence interval in red. An overperformer is someone who attained a gain in years of education at least one standard deviation above the average gain obtained by persons with the same parental educational attainment. An underperformer corresponds to a person with a gain in years of education, at least one standard deviation below the average gain obtained by persons with the same parental educational attainment. The reference group is the rest of the population.

Figure H3. Steady states

A) 30-39 years old sample



B) 40-50 years old sample



Note: Calculated using information from Table H1 and equation 3. Standard errors are calculated through bootstrapping with 1000 repetitions. An overperformer is someone who attained a gain in years of education at least one standard deviation above the average gain obtained by persons with the same parental educational attainment. An underperformer corresponds to a person with a gain in years of education, at least one standard deviation below the average gain obtained by persons with the same parental educational attainment. The reference group is the rest of the population. The horizontal dotted line represents the median of the distribution.