CÁTEDRA DE INVESTIGACIÓN
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Intergenerational Social Mobility and Inequality of Opportunity. A territorial approach in urban-rural territories Mexico.

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ABSTRACT

This paper seeks to contribute to the design of new public policies that take advantage of the linkages between small and medium cities and their rural hinterland to promote and sustain a socially inclusive economic growth, in the context of three of the great transformation that characterize rural-urban areas in contemporary Latin America: urbanization, structural change in employment, and agri-food system transformations. We focus on the social and spatial mobility of rural-urban territories of Mexico and the inequality of opportunity in the probability of achievement of certain socioeconomic position. Using an *ex-ante* approach of Inequality of Opportunity (IOp henceforth), we compare the weight of diverse circumstances (familiar and territorial) at age 14 in the contribution to the IOp. We explore what type of territorial and socio-economic environments are more conducive or alternatively barriers for the equality of opportunity.

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Introduction

The world is urbanizing, but it has not done so exclusively in large cities: almost half of the world's urban population reside in small and medium cities of up to five hundred thousand inhabitants, characterized by a strong functional relationship with surrounding rural areas (Source). In Mexico, approximatively 22% of the 2010 Census population belongs to these rural-urban areas or middle territories[1], moreover, an important part of the rural population lives at less than 90 minutes from an urban center (Berdegué and Soloaga 2018). The concept of rural-urban linkages reflects the increasing interconnection between rural and urban areas via reciprocal flows of people, goods, services, money and environmental services. The classical rural/urban division may define people's main place of residence, but no longer encompass the full spatial scope of people's livelihoods, for this reason, we will propose in this study others inventive territorial scope to apprehend these issues. For instance, the livelihoods of most rural households, including smallholder farmers, increasingly go beyond rural areas and depend on city jobs, and on goods or services obtained in urban areas. As the same, secondary towns specificities, between primary sector and urban economy, provide opportunities of economic, social and physical mobility (Ingelaere et al., 2018).

There is some evidence that rural-urban linkages can contribute to growth and poverty reduction (Berdegué et al., 2014; Christiaensen and Todo, 2014), but much still needs to be learned, in particular on the territorial mobility of actors, the fluidities in the social space and there interactions with the levels of inequality. Rural development policies have not internalized all these transformations, while urban development policies tend to have a metropolitan bias, either implicitly assuming that all cities are the same, or explicitly focusing on larger agglomerations. To this extent, there is a necessity of disaggregated studies with a territorial approach that focus on secondary towns and the middle rural-urban localities (Kanbur and Christiaensen, 2018). In this article, we focus precisely on middle territories of Mexico to study the social mobility and inequality of opportunity in the probability of achievement of certain socioeconomic position (in terms of education, wealth and occupation) for groups of persons and diverse territories.

Social mobility, as defined by Sorokin in 1927 corresponds to the movement of individuals within the social structure, and the study of these trends allows to quantify how much a condition of origin determines the status of an individual. This dynamic provides information, not only about the movements in the social sphere across time but also on inequality levels and their reproduction. The concept of equality of opportunity introduces notions of fairness and social justice in the study of social mobility. In particular, by identifying which circumstances at the age of 14 (when the individuals cannot be held responsible – Roemer, 1998-) contribute to the social reproduction and consequently are barriers to the equality of opportunity. Researches with data on developed countries demonstrate that people are more favorable to equality of opportunity (in the sense that it recompenses merit), rather than equality of outcomes (Breen, 2010). Some levels of inequalities appear to be justified if they cohabit with social mobility, and fairness influences individual behaviors (Brunori et al., 2013), promote wellbeing and favor macroeconomics

[1] Defined by Cazzuffi, Ibañez and Soloaga (2018) as localities of more than 500 habitants and less than 350 thousand inhabitants, who are part of a Functional Territory with a main city of between 15,000 and 380,000 habitants.

factors like growth (OCDE, 2018). If equality of opportunity is guaranteed then social mobility must permit the better allocation of the human capital and avoid the misuse of the talents. In particular, the school system is a vector of social mobility and vehicle an egalitarian ideal, but at the same time it tend to reproduce inequalities given the strong weight of familiar´s circumstances on the educational choices and success in school. If the social position and the social mobility perceived are largely subjective (Tunnel Effect of Hirshman, 1973, or dynastic perception of Pikketty, 1995), the intensity, the direction and the type of mobility within social structures is primordial for the social and political equilibrium (Benabou and Ok, 2001; Acemoglu et al., 2017). This way, quantifying dynamics of social mobility and inequality of opportunity for different groups and territories appear necessary, the diverse indicators act like a "canary in the mine" to anticipate the social tensions, when the entrenchment of inequalities and the lack of mobility turn unbearable.

This paper seeks to contribute to the design of new public policies that take advantage of the linkages between small and medium cities and their rural hinterland to promote and sustain a socially inclusive economic growth, in the context of three of the great transformation that characterize rural-urban areas in contemporary Latin America: urbanization, structural change in employment, and agri-food system transformations. We focus on the social and spatial mobility of rural-urban territories of Mexico and the inequality of opportunity in the probability of achievement of certain socioeconomic position. Using an *ex-ante* approach of Inequality of Opportunity (IOp henceforth), we compare the weight of diverse circumstances (familiar and territorial) at age 14 in the contribution to the IOp. We explore what type of territorial and socio-economic environments are more conducive or alternatively barriers for the equality of opportunity.

The data used are based on a novel multipurpose household survey (Survey on Territorial Dynamics and Wellbeing, 2018) of rural-urban functional territories of Chile, Colombia, and Mexico, designed and conducted by Rimisp – Latin American Center for Rural Development, Universidad Iberoamericana (Mexico) and Universidad de Los Andes (Colombia). Functional territories are defined as territories "with a high frequency of economic and social interactions between their habitants, organizations, and firms" (Berdegué, et al., 2011), which, because of that, have "more interaction or connection with each other than with outside areas" (Jones, 2016). The survey is representative of the population living in rural-urban functional territories, defined as cities between 15 thousand and about 500 thousand inhabitants, and their rural hinterland. In addition, it is also representative of the population living in rural-urban functional territories that have followed different trajectories over the past two decades in terms of inclusive growth: territories that have achieved inclusive growth; territories that have not grown but have managed to improve in social inclusion indicators; territories that have grown without social inclusion; and territories that have neither grown, nor improved social inclusion indicators.

The article is divided as follow. We synthetized in a first section the literature on the themes of interest, in particular studies at subnational level. Following the description of the data source and methodology used, we present the results in a fourth section. Results expose the middle territories characteristics and the heterogeneity between them in terms of social mobility in education, wealth and occupation. We construct a socioeconomic index that traduce social stratification and report the trends in social mobility and IOp across cohorts, between sexes, and different territories. We concentrate on the

weight of familiar circumstances, and territorial variables at the age of 14 and in the year of the survey (2018). Finally, we expose interesting findings about the spatial mobility fluxes between territories and the implications in terms of social mobility, inequality and their analysis.

Main findings are:

- Middle territories represent the 20% of the Mexican population and concentrate flows of spatial and social mobility.

- There is a strong upward structural mobility in education and occupation across cohorts. We observe the contrary tendency for the wealth and socioeconomic position as well as a slightly decrease of relative mobility.

- The level of inequality of opportunities between the different groups show a decrease between the oldest (65 years or more) and the youngest (25-34), nevertheless, this level is relatively stable for the 25-34 years, the 35-44 years and the 45-54 years cohorts

- A different approach than the traditional rural/urban disaggregation is relevant to assess territorial issues, we found significant differences in the achievement of a high socioeconomic position according to different size of the head-territory, the time distance to the head-territory, the size of the locality and the pattern of growth and inclusion of the territory.

- Our approach is relevant to identify barriers to the equality of opportunities in each territories and then adapt policies with a territorial vision.

- We found a strong weight of familiar circumstances (66%) in conytributing to IOp, while territorial variables explain about 15% of the IOp.

- Personal characteristics variables like sex and age represent until 20% of Iop. Women present lower achievement and upward social mobility than men due to a high rate of unemployment for women and underrepresentation in high occupational classes. Moreover, the limited possibilities of spatial mobility in addition to the high insecurity in Mexico penalize and disincentive the research for job opportunities, above all for rural and peripheral inhabitants.

- An increasing size of the head-territory permits to reduce the inequality suffered by being in rural zone (comparing to urban).

- The capital cultural approximated through the education of parents have more influence on the socioeconomic position of children in urbanized territories.

- The migrations flows reinforce inequality between territories.

- Migrations variables are determinants of the inequality in the wealth dimension, there is also a relation between education level, occupation and migration reflecting the lack of opportunities in some territories.

- We found that changing from rural to an urban area is associated with upward social mobility and changing from urban to rural with downward mobility. As the same, moving to an area with Head-

Territory of different size, another pattern of development, and moving or working in another municipality increase significantly the social mobility.

- Professional mobility approximated through the percentage of persons working in another municipality shows differential access between sex and households of different quintiles, in particular for the lack of vehicle ownership. This professional mobility is associated with higher level of education and quintile of wealth.

- Social mobility, inequality levels, place and migrations must be analyze together.

Literature review

In spite of absolute increases in wellbeing indicators, the Mexican society is still highly stratified with a low degree of social mobility across generations. Vélez-Grajales et al. (2013) report that persistence in the lowest quintile is as high as 48 % for general socioeconomic status (a combination of assets, occupation and education). For education, results show that 28 % of adults with unschooled parents are also unschooled or have incomplete elementary education. Behrman and Vélez-Grajales (2015), using a log-log specification found a higher persistence of wealth across generations (coefficient 0.6) than education or occupational status (coefficients 0.33 and 0.21, respectively).

There are many cross-national analyzes on the themes of social mobility and IOp (Brunori et al., 2013; Roemer et al., 2003; Ferreira and Gignoux, 2008) and also an incipient set of within-country analysis (Dahl and DeLeire, 2008 and Chetty et al. 2014 for the case of USA; Corak. 2017 for the case of Canada). Results show divergence in the levels of opportunity observed in various territories characterized by the urban-rural area of residence, the size of the territory or their regional limits. For example, Chetty et al. (2014), using administrative records for more than 40 million individuals, present measures of intergenerational income mobility for various commuting zones in the United States and found significant heterogeneity. In Canada, Corak (2017) estimated the intergenerational income mobility with disaggregation of four clusters of Census Divisions and documents correlations between the social mobility and the characteristics (poverty, inequality, migration) of the same territories in the Census.

Due to data constraints, the majority of studies for the case of Mexico were done for the national level, or, at most, with a distinction for rural-urban levels. Exceptions to this are recent work by Velez-Grajales et al. (2018), Delajara and Graña (2018) and Perreira and Soloaga (2016). Delajara and Graña (2018) analyze the intergenerational association in relative ranks occupied by individuals within the national distribution following a methodology similar to Chetty el al. (2014) for wealth, occupation and education. They found higher mobility in the North and North-Center regions, and that mobility is driven by upward mobility for children of the bottom percentile, whereas the South region presents lower relative mobility than the national average. Vélez Grajales et al. (2018) also observed diversity of trajectories in the intergenerational mobility when considering the 32 states of Mexico. Pereira and Soloaga (2016) presented measures of multidimensional poverty and IOP in Mexico, comparing years 1990, 2000 and 2010 with a disaggregation at municipality level and for four sizes of common labor areas (Functional

Territories). Results express an evident regional heterogeneity, with a lower level of economic wellbeing and higher social privation in states of the South, which they identified as "in poverty and opportunity traps". They conclude that territorial factors contribute to explain observed IOp from 20% (for poverty, education and housing conditions) up to 60% (for some home services).

The following is an introduction based on the state of art of the literature that will define the concepts used and adopted in this study.

The flows of absolute mobility are divided into two dimensions: structural mobility and exchange mobility (or circulation or also relative). The structural mobility is the part of the mobility explained by the transformations of the overall environment (Goldthorpe, 1980), the other part of the mobility is the exchange mobility (isolated from the structural effect) that focuses on individuals who switch positions. The difference in the marginal distributions between generations (generally parents and children) permits to observe the structural mobility (Willis, 2008). In the theme of the education and occupational class, a large part of the mobility corresponds to the structural mobility observed between generations. The changes in the social structure such as the decline in the percentage occupied in the primary sector, are due to changes in the demand and supply of goods or services (for example the strong advancement in the educational coverage of the population, Willis, 2008), or to technological changes. In another case where parents and children have the same marginal distributions, we can look at mobility "free from structural mobility" and as a purely relative concept (Formby et al., 2004), which implies a "zero-sum process" (Modai-Snir and van Ham 2017). In this case, there is no structural mobility and if one individual experiment absolute upward mobility another one must experiment downward mobility (Willis, 2008). On the opposite, if there are only structural mobility and no exchange effect, all individuals could experiment upward (or downward) mobility. In the wealth dimension, we can both focus on the structural changes (for instance inflation) or the exchange mobility constructing quintiles of wealth for parents' generation and children generation. In this last example, 20% of the population is classified in each quintile and the same marginal distributions are observed between both generations, nevertheless, desegregating the results by cohort or different groups this assumption (same marginal distributions) does not stand.

There are different measures of mobility, and as Fields (2010) underlined, the different mobility indices proposed in the literature measure distinct mobility concepts. One common approach for measuring intergenerational social mobility is the intergenerational elasticity (IGE) calculated with a regression that considers current advantage (for example log of income, or level of education) as a function of the advantage at the origin. The higher the elasticity, the lower the intergenerational mobility, since it means that parents´ advantages drive children´s advantages. This way, Neidhofer (2018) propose for Latin-Americans countries an adapted measure of intergenerational elasticity comparing parents and children difference between their school achievement and the average of the group with similar characteristics in age, cohort, sex, and country.

Among others, some indicators are based on mobility tables. This instrument offers a large choice of measures of absolute and relative mobility and presents more advantages than the IGE approach by providing information for subgroups and about asymmetric patterns across the distribution (Richey and Rosburg, 2015). For instance, the proportion of the population that experiments mobility (different outcome than their parents) or immobility (same outcome than their parents), as well as the percentage of

upward or downward mobility (Ricardi Morgavi, 2016). We can also estimate the percentage of the population of a specific class (or condition) of origin, that experiments mobility to each class of destination (outflow distribution) (Velez Grajales et al. 2018). An alternative measure can be the average variation between origin and destination (Chetty et al., 2014). The absolute upward mobility definition in this approach corresponds to the average rank estimated for children with parents in the bottom of the distribution, generally the 0th and 25th percentile. Literature dissociates the absolute from the relative mobility, both concepts provide relevant measures and indicators to reflect the flows and obtain information about the evolution of inequalities (Cilliers and Fourie, 2017). There are different ways to look at mobility in relative terms and its measurement depends on the subgroups on which to emphasis. A first way is centering on the difference in the average positions (ranks) occupied in *t+1* between children of parents at the bottom (0^{th}) and top (100^{th}) of the distribution in *t* (Chetty et al., 2014). Another measure in relative terms is to compare the probability for individuals from different origins to end up in a specific destination (outflow distribution) calculating odds-ratios.

Concerning inequality, Roemer (1998) works contribute to the philosophical literature on inequality and justice developed by Dworkin (1981a, 1981b) about notions of choice and circumstance (Kanbur and Wagstaff, 2014). Roemer proportionated a definition of IOP where the access to an advantage (education level, wealth or occupational status) depends on the circumstances and effort of an individual. The circumstances are for example the family background or the neighborhood environment and are elements "*for which the society in question does not wish to hold individuals responsible*." The level of effort is the totality of actions that an individual spends to reach an objective, it contains factors "*for which the society does hold the individual responsible*." Hence, the policy (instrument) search to compensate individuals with disadvantageous circumstances in order to reach the equality of opportunity (defined as the objective). This last one is recognizable when "*all those who expend the same degree of effort, regardless of their type, have the same chances of achieving the objective*" (Roemer, 2004).

The anterior introduces the notions of the *ex-ante* and *ex-post* approach of IOp (Fleurbaey and Peragine, 2009). The *ex-ante* approach looks at the inequality between groups with the same circumstances; meanwhile, the *ex-post* approach focuses on the inequalities between individuals with the same level of effort. The second one aims at equalizing the prizes for the same level of effort, ability or preferences; the inequality is justified if it reflects a dissimilar effort. In both approaches, the inequality explained by circumstances must be removed. Thus, if the *ex-post* equality of opportunities is achieved, but some individuals did not prefer this opportunity or did not want to spend the effort, then the equality of outcome will not be reached. We understand that to adopt an *ex-post* approach, there are a need for information that can reflect the effort, ability or preferences (Fleurbaey and Peragine, 2009; Wendelspiess Chávez Juárez, and Soloaga, 2014). In this article, we will focus on *ex-ante* Inequality of Opportunity and analyze the circumstances that determine it.

Data

We collected data that are representative of the population living in rural-urban functional territories of Mexico[2]. The information from the Survey on Territorial Dynamics and Wellbeing in Mexico (2018) was collected between January and May of 2018[3]. Data are representative for the population in localities of more than 500 habitants and less than 350 thousand inhabitants and who are part of a functional territory where the bigger city has between 15,000 and 380,000 habitants. They are also representative for three levels of functional territories defined by the population size of the biggest city, and for four types of growth-inclusion trajectories. The latter is identified as Quadrants in a graph that has growth in the *x*-axis, and inclusion (i.e., lower poverty and inequality levels) in the *y*-axis (Table 1). Thus, samples of 1,000 households were collected for each Quadrant: territories that have achieved inclusive growth (Quadrant 1, inclusion & growth); territories that have not grown but show improved social inclusion indicators (Quadrant 2, inclusion & no-growth); territories that neither has grown, nor improved social inclusion indicators (Quadrant 3, no-inclusion & no-growth); and, finally, territories that have grown without social inclusion (Quadrant 4, growth & no-inclusion). In each Quadrant, the sample randomly selected 500 households in rural areas and 500 households in urban areas.

Despite that the total sample of the survey is from 4375 households (and thus respondents), we only conserve respondents between 25 and 70 years old, and that at the age of 14 was living with their mother, their father or both of them. In this way, the sample for this study is 3346 observations, and due to *missings* value in some variables, the number of observations can vary in the analysis. The average age of respondents is 46 years and only 5% have more than 65 years. The 46% are women and 47% live in an urban area. Characteristics of the sample are presented in Table 2.

Methodology

The motivation of the paper is to address the role of territorial variables on intergenerational mobility and inequality of opportunity. The variables refer to a location in which the respondent grew up at the age of 14 years old and in 2018. The territorial aspects are the area of residence (rural or urban) defined with a threshold of 15,000 habitants, the size of the locality, the size of the head-city, living in the head-city or the hinterland, time-distance to the head territory, and finally the pattern of growth and reduction of inequality (Quadrants).

The dimensions of interest to study social mobility are education, wealth and occupation. In another time we construct a Socioeconomic Index (SE) that reflect these three dimensions. The advantages are defined as follows. For educational level, we use the number of years of schooling and a five-class classification: i) without studies or incomplete elementary school; ii) complete elementary school; iii) complete secondary; iv) complete high school; and v)more than high school. The wealth dimension is approximated through an asset index of the household at age of 14 and comes from a principal component analysis for the following assets: drainage system, clean water and piped water, toilet inside the house, fridge, stove, and television. Quintiles and percentiles of wealth are constructed on the basis on this index. The occupational classification is encouraged by a schema of four macro-classes presented by Solis (2019) and inspired by Erikson and Goldthorpe (1992). These ordered classes allow an analysis of vertical

[2] The same survey was also applied in Chile and Colombia.
[3] See Cazzuffi, Ibañez and Soloaga (2018) for a full description of the data set.

mobility and are ranked as: i) not skilled and farmers; ii) skilled manual workers; iii) employees nonmanual, merchants and artisans; iv) employers and services sector. To end with, the socioeconomic index is created conserving the first dimension of a principal component analysis according to the educational group, wealth quintile, and occupational class.

We use information from respondents of the survey and that of their parents[4]. As follows, we use different approaches observed in the literature on this thematic, considering that, they permit to answer different research questions. To study social mobility, we combine a methodology by size transition matrices, intergenerational elasticity and by rank-rank change. To describe the thematic of inequality we concentrate on probit regression of the probability to achieve some advantages, we finally use the inequality of opportunity approach to derive some conclusions. Table 3 shows a summary of the approaches used in this paper.

- The first approach is the one related to the analysis of transition matrices between respondents and their parents through a classification of the level of advantage in education, wealth and occupation. Transitions are identified as the off-diagonal frequencies: the further away are destination categories from that of the origin, the more mobility there is. This methodology allows us to describe the intergenerational mobility and immobility (also known as "persistence"). We also look at the direction of the mobility through the proportion of upward and downward mobility at the national level and in the different territories. We construct column stochastic matrices (columns refer to parents) at the national level and for each territorial disaggregation. We will focus on this type of matrices, and some specifics cells similarly to Corak (2017). The "cycle of intergenerational poverty" represents the probability for children of parents in the lowest group to have also targeted this group (persistence). The indicator is called P1:1 and the information is read in the first cell in the first column and line. For its part, the "intergenerational cycle of privilege" represents the persistence in the highest group and reads in the higher column and row. Finally, the movement "rags to riches" is the probability for a son of the lower group of having as a target the highest group and read on P1:5. In this paper, we use some synthetic measurements that show educational mobility, but too easy exposition, we do not delve in issues such as stochastic dominance (Richey and Rosburg, 2015).

- The second approach estimates the relationship between the ranks of parents' in the total distribution with that of children's[5]. This approach is known as rank-rank correlations and we generate for each parent as well as for each respondent the percentile ranks in the national distribution. Equation 1 presents the Ordinary Least Squares regression where Ric is the position of the respondent in the distribution of all respondents, and Pic the rank of the parent of the respondent in the distribution of all parents. We explore territorial issues by measuring relative and absolute mobility at territorial level. This methodology is similar to Chetty et al. (2014) who estimate measures of the relationship between the rank of children and parents in different Commuting Zones.

[4] We use indiscriminately "respondents" or "children" to identify the people interviewed, whereas the previous generation is identified as "parents".

[5] This approach was applied for the case of United States of America by Dahl and Deleire (2008) and by Chetty et al. (2014), among others. Delajara and Graña (2018) used a similar analysis for the case of Mexico.

$$Ric=\alpha c+\beta cPic+ \varepsilon ic \text{ (Equation 1)}$$

This methodological approach proportionate a definition of the absolute upward mobility as the average rank attains by children with parents at the bottom of the national distribution, in particular, those who were ranked in the 0th percentile rank and the 25th percentile rank[6]. The relative mobility definition adopted is "*the difference in outcomes between children from top vs. bottom income families*" (Chetty et al., 2014), where the outcomes represent the average position (rank), the bottom position the 0th percentile rank and the top position the 100th percentile rank.

- Another methodology to estimate measures of intergenerational elasticity in different territories is used by Neidhofer (2018). Instead of calculating relative positions in the national distribution, they are calculated by comparing the level of the advantage of an individual with the average of his group with nearest characteristics (sex, age, and cohort) (see equation 2).

$$y_i^o = (Y_i^o - \overline{Y^o}) \ /\overline{Y^o} \text{ (Equation 2)}$$

The relative position of the father of the informant is also calculated according to their sex and age (see equation 3).

$$y_i^p = (Y_i^p - \overline{Y^p}) \ /\overline{Y^p} \text{ (Equation 3)}$$

An OLS regression is performed between the relative position of the child (y_i^o) and that of the parent (y_i^p), as shown in equation 4. The coefficient β1 approximates the degree of persistence between the relative position of the children and their parents. Thus, the lowest coefficient values involve more relative mobility, since the influence of the origin is less. In equation 4, X represents the variables of personal characteristics (age and sex). This last methodology provides a measure of mobility may be more appropriate, since it identifies the relative position taking into account age and sex.

$$y_i^o = \alpha + \beta 1.\, y_i^p + \beta 2.\, X_i + \varepsilon_i \text{ (Equation 4)}$$

- In the fourth approach, a probit model estimates the probability to achieve an advantage *Y* in Socioeconomic position (composite index of educational, wealth and occupational relative position), for person *i* that lives in territory *j*, according to personals characteristics (Pij), familiar circumstances (Cij), territorial aspects (Tj) and migration variables (Mi) of the respondent at age of 14 (see Equation 5 and Table 4). The three dependent variables are the probability to end up in a percentile superior to the 40th, 25th or 10th. The anterior permits to observe which variables are determinants (statistically significant) in the probability to achieve these levels, in particular, if all things being equal the territorial variables have a significant effect.

[6] The rationale for this is that the 25th percentile is the average of the bottom half and is commonly used in the literature (Chetty et al., 2014; Delajara and Graña, 2018; Heidrich, 2017).

Probability ($Yij=1|X$) $=f(\alpha+\beta 1Pij+\beta 2Cij+\beta 3Tj+\beta 4Mj+uij)$ (Equation 5)

- In the last approach, based on the literature of Inequality of Opportunity developed by Roemer (2003, 2004) and applied, among others, by Paes de Barro et al. (2009) and Wendelspiess Chávez Juárez and Soloaga (2014), access to "advantages" in education, wealth, occupation and socioeconomic rank are estimated. The probit approach relates the advantages to personal, household´s, and location´s characteristics that are beyond children´s control, and calculates the probability of access to the advantages by type of household (e. g., parent´s schooling and occupation, rural area residence, single-parenting household), controlling also for children´s age and sex. Combinations of variables generate "*k*" different groups of individuals which, in turn, following Equation 2 will render different probabilities of achieving a given advantage *p(Xk)*. The distance of the probability for each of the "*k*" types of the household to the population's average of a given advantage, indicates the degree of Inequality of Opportunity, captured by the Dissimilarity Index (DI) shown in Equation 6 (Paes de Barro et al., 2009). We then estimate the contribution of each one of the circumstances variables to the level of IOp, by means of the Shapley decomposition (Chantreuil and Trannoy, 1999).

$$DI = \frac{1}{2\bar{p}} \sum_{k=1}^{m} |p(x_k) - \bar{p}| f(x_k) \text{ (Equation 6)}$$

Results

Middle Territories in Mexico

The sampling frame of the Survey on Territorial Dynamics and Wellbeing 2018, is provided by urban-rural or Middle-Territories of Mexico. Middle-Territories refer to localities of more than 500 and less than 350,000 habitants, and additionally who are part of a Functional Territory with a chief town of more than 15,000 and less than 380,000 habitants. In the following sections, the article concentrates exclusively on the Middle-Territories of Mexico, but prior to this, it is important to describe these territories and define the similarities and differences with smalls and larges territories. To do this, we need to resort on external sources like the 2010 Census of Population (INEGI), the Module of Intergenerational Social Mobility 2016 (INEGI) and the Survey ESRU of Social Mobility in Mexico (ESRU-EMOVI 2017, Centro de Estudios Espinosa Yglesias).

According to 2010 Census of Population, the urban-rural territories include approximatively 24 millions of persons in 6 millions of households and represent the 22% of the 112 million of inhabitants in the Mexican population in 2010 (Table 5). The population in localities between 1,000 and 350,000 habitants (Middle Size Localities) represent the half of the Mexican population, the small-rural population in localities of less than 1,000 habitants the 15% of the population and 35% live in cities of more than 350,000 habitants (Large Urban). Hence, middle size localities have more habitants than the sampling frame of our survey, effectively, lot of middle size localities are not included in our sample because they belong to a functional territory with a head-territory bigger than 380,000 habitants. Other difference is that our sampling frame includes 70% of urban population, while the Middle Size Localities are composed at

55% of urban and 45% of rural population. The explication to the latter is that our sampling frame also excludes a lot of small localities.

Despite these dissimilarities, we observe characteristics extremely similar between the Middle-Territories (sampling frame) and Middle Localities in terms of demography, housing characteristics, school assistance, working population and access to health services. Firstly 30% of the population has less than 15 years, and the elderly population (more than 65 years) represents the 6% of the total (Table 5). Small-Rural areas have a higher percentage of dependent population (58% with less than 15 or more than 65 years) compared to large urban (66%) or middle (63%). Descriptive statistics also reflect the phenomena of rural emigration to middle or large urban zones given that only the 72% of the large urban population was born in the same state, as against 92% in Small-Rural areas and 85% for Middle-Territories and Middle-Localities.

Small-Rural localities have poorest housing conditions (7% without electricity and 36% without drainage), and lower school assistance than large urban, whereas the middle-size localities have intermediate results between the two. Indeed, the housing characteristics are very similar between Middle-Territories and Middle-Localities and the 92% have access to drainage and 88% to clean water[7]. There is also a perfect similarity in the percentage of the population between 15 and 17 years old that assist to school, the proportion of population economically active[8] (47%), or unemployed[9] (4,4%). The small-rural population has a higher percentage of the population economically active (55%) and a slightly lower rate of unemployed population (4.2%) than the large urban (respectively 43% and 4.7%) or the middle. Finally, results show a polarize access and quality of health services, firstly, the 37% of the large urban population do have access to healthcare services through social security[10], while 34% of the middle localities and only 32% of the population of localities of less than 1,000 habitants does. Secondly, small rural areas are characterized by a much higher percentage of beneficiaries from health services through the social program *Seguro Popular* (47%), compared to Middle (27%) or Large-Urban (10%). If the enlargement of the program helps to reduce the percentage of population in social privation for access to health services (Coneval, 2018), evaluations stressed out the need to improve the availability, accessibility, use and quality of the health services assumed by the *Seguro Popular* given that beneficiaries report difficulty of access, lack of human resources, materials, as well as a low perceived quality (Coneval, 2018). Moreover, the authors affirm that the increase in the coverage of social programs tends to disincentive the affiliation to formal social security from employers and employees (Levy, 2008).

[7] Within or outside of the house field

[8] The economically active population refeer to the population of 12 years or more that work, search a job, or have a job but do not work in the reference week (ITER, INEGI).

[9] The unoccupied population refeer to the population of 12 years or more and 120 years or less that do not work but search for a work in the week of reference (ITER, INEGI).

[10] Refeer to persons with the right to recibe health care in public or private health institution like the *Instituto Mexicano del Seguro Social (IMSS), el Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado (ISSSTE e ISSSTE estatal), Petróleos Mexicanos (PEMEX), la Secretaría de la Defensa Nacional (SEDENA), la Secretaría de Marina Armada de México (SEMAR), el Sistema de Protección Social en Salud* o other.

We then compare characteristics in educational achievement and quintile of assets of our survey to two other sources: ESRU-EMOVI and MMSI. The percentage of the population between 25 and 64 years that complete secondary, high school or undergraduate is very similar between the three surveys once applying the same sampling frame (Table 6). The results of the ESRU-EMOVI and MMSI in educational achievement are lower if we apply the same sampling of the EDTYB (middle territories) than the total sample or the rest of the sample. The explication is that the rest of the sample has an overweight of urban population with higher advantages at origin and destination. Effectively, as we can see in Table 7, the educational achievement as well as the quintile of wealth at destination increase with the size of the locality.

We present forward detailed results of social mobility, but we must underline here that the percentage of absolute upward mobility in education (Table 8) and wealth (Table 9) is slightly higher and the percentage of downward mobility is lower in Middle Territories of EMOVI and MMSI than in the rest of the sample. In the dimension of spatial mobility, we regrettably don't dispose of data to compare if these Middle-Territories have different patterns of spatial mobility than small and large territories, this is, displacement to work or migration, but this theme must be analysis in future research.

Education, Wealth and Occupation

We describe the trends of social mobility and IOp for the educational, wealth and occupational dimension.

Education

In the educational dimension, there is an important absolute upward mobility between generations. Mobility tables and transition matrices let perceive that 67% of the respondents have a higher level of education than their parents, in particular, mobility from two levels or more (approximately 40%) (Table 10). Half of the respondents declare a level of education superior or equal to secondary school whereas only 18% of their parents reach a similar level (Table 11). The trap of opportunities, defined as the percentage of respondents whose parents have completed less than primary school and who achieve a similar level, have decreased between the oldest cohort (40-59 years old) and the youngest (25-39 years old) from 26% to 13% and this improvement is more intense for women than for men. Despite that, the proportion of women with a level of education superior to secondary school still remains lower than for men. For example, 16% of the men between 25 and 45 years old continue their studies next High School and only 6% of women do.

The persistence for children of parents with more than high school in the same level of education has increased (from 52% to 65%), consequently, there is an advancement in the educational coverage and this trend is conducted by strong structural mobility. In spite of this, the probability from going rags to riches, namely the percentage whose fathers do not complete primary school and that study more than high school, remained constant between generations (7%) and is lower for women than for men. Indicators of absolute upward mobility for the most disadvantaged at origin (Chetty et al., 2014) confirm an increase between cohorts. We also observe that relative mobility between children with origin in the percentile 0 and 100 (Chetty et al., 2014) have slightly improved between generations, it means that even if the cycle

of privilege has augmented for the most advantaged at origin, the improvement of the most disadvantaged is stronger and lead to an increase of the relative mobility. As the same, the indicator of intergenerational association in education proposed by Neidhofer (2018) shows a decrease between generations and then more social mobility.

There is an important gap in the educational achievement between persons with origin in different quintiles. The percentage of respondents with parents in the lowest quintile of wealth (asset index) that complete Junior High School is 31% meanwhile this percentage is 76% for those with origin in the highest quintile (Graph 1). Desegregating results for the two cohorts (25-45 years and 46-69 years) we see a reduction of the gap (in absolute percentage point) between the lowest and the highest quintile[11] in the probability to complete Junior High School. For superior levels like High School or Undergraduate, the gap between the lowest quintile (and also second quintile) and the highest quintile have increased (Graph 2). Looking now at the educational achievement for respondents with parents in different classes of occupation, there is a clear inequality of opportunity (Graph 3). For men respondents with parents in the first class (not skilled manual and primary sector), the probability to complete Junior High School is 33% (and 49% for women), while this probability is more than 90% (and 80% for women) for respondents with origins in the fourth group (employers and services class). As well as for the Quintile desegregation, we note that the gap between the two extreme classes (first and four) has been reduced for Junior High School level but increased for superior levels between the two cohorts of study (Graph 4).

The level of inequality approximated through the Dissimilarity Index increase with the level of education, it is moderately similar for high school (0.32) and undergraduate (0.40) and much lower for secondary level (0.18). Indeed, for secondary level, the age variable is, with level of wealth, one of the variables that most contribute to IOp (27%), and confirms that the strong improvements in the educational coverage between cohorts permit to reduce the inequality between groups of different circumstances, it also traduce that these advances are limited to secondary level. Wealth level of the household at 14 is the principal variable (until 34% for undergraduate) to contribute to the IOp, while the level of education of the parent's weight until 24% for the undergraduate level. Territorial variables like the urban or rural area of residence, or the size of the head territory participate to approximatively 10% of the IOp and the inequality of opportunities between sex rises from 2% for the secondary level to 5% for undergraduate. Finally, we observe that controlling for other variables, the probability to keep studying next high school is significantly correlated with persons that change of municipality between there 14 years old and the year of the survey (2018). We will develop on the relation and endogeneity issues between social and spatial mobility forward.

Wealth

We approximate wealth through an asset index calculated on the basis of the household´s ownership of some goods in 2018 and when the respondent was 14 years old. We first generate quintiles and percentile on the whole sample, and secondly for each cohort. There is a difference in the interpretation of the results of both methods, in the first we compare relative position in the whole population and in the second one we only compare mobility between relative positions of persons of the same cohort. The

[11] But also between lowest and fourth Quintile, and between the second Quintile and fourth or fifth Quintile.

proportion of men and women in each cohort is equal, and men are overrepresented in high Quintiles. There is a higher percentage of mobility (upward and downward) for women than for men, in addition of a lower trap of opportunity and cycle of privilege, reflecting a lower persistence for women in the extreme of the distribution and thus relative mobility. It must be mentioned that the probability to have destination in a high quintile of wealth (Quintile 4 or 5) have an inverse U-shaped relation with age (Graph 5), it increases between 25 and 54 years old, and then fall between 55 and 69 years old. This relation is similar to the life cycle variations in earning, well identified in the literature (Haider and Solon, 2006). Previous works on intergenerational mobility in income insist on the bias that appears when using the current income instead of the long-run income (Solon, 1999). For this reason, we also compare the different indicators of social mobility generating quintiles of wealth by cohort.

Creating quintiles on the whole sample, we see a decrease of the overall social mobility across cohorts, characterized by an increase of the downward mobility and a decrease of the upward mobility (Table 12). Additionally, the percentage that remains in the trap of opportunity (in the first quintile) increase from 20% for the 55-64 years old cohort, to 44% in the youngest cohort (25-34 years), and at the same time, the cycle of privilege have decreased from 84% to 27% between the same cohorts. This result did not necessary reflect a deteriorating in the living conditions for the youngest cohorts, but rather traduce the structural change in assets possession over time and the effect of life-cycle variations in assets. To illustrate this, in the youngest cohort 34% have a father in the highest quintile and 4% in the first quintile, whereas in the oldest cohort the 37% have fathers in the first quintile and 6% in the fifth. In other words, the probability to experiment social mobility for youngest generation is restricted given that more than a third belong to the fifth quintile at origin and thus cannot rise, they can only remain in this quintile or experiment downward mobility. The other explication is that the younger generation still does not have to reach the maximum level of assets of his lifecycle. We run rank-rank regressions (Chetty et al., 2014) and also observe that the absolute upward mobility for respondents with parents in the lowest centile has strongly decreased across cohorts (Graph 6), the respondents of the oldest cohort occupy in average the rank 49^{th} while the youngest cohort occupies the 9^{th}. This way, there is a decrease of the indicator of relative mobility (Chetty et al., 2014) across cohorts.

In order to observe the social mobility dynamic between persons of the same cohort and hence reduce the structural effect, we generate quintiles at origin and destination for each cohort (Table 13). With this method, the percentage of the population that experiment social mobility is quite similar between cohorts. Alike the anterior method, we can see a decrease across time in the percentage of absolute upward mobility and an increase of the absolute downward mobility and trap of opportunity, nevertheless, in the youngest cohort the absolute upward mobility rise again, and the trap of opportunity and absolute downward mobility decrease. Rank-rank regressions (Chetty et al., 2014) permit to better understand these results. With this methodology we confirm a decrease across cohorts of the absolute upward mobility, essentially for the most disadvantaged at origin (Graph 7), and in the youngest cohort the absolute upward mobility increase comparing to anterior two cohorts and at the same time there is a strong persistence for most advantaged (comparing with other cohorts), thus the relative mobility in this generation remains very low. Finally, the indicator of intergenerational elasticity proposed by Neidhofer (2018) confirms higher association across cohorts.

The quintile of wealth at destination depends on the quintile at origin but also on education level at origin (parent's education) and destination (respondent´s education). If more than a half of respondents who pursue their studies after High School reach the highest Quintile and almost 80% reach the fourth Quintile (at least), only 13% of respondents with the lower educational level have destination in the fifth Quintile and 20% in the fourth Quintile (Graph 7). As the educational level reached by an individual is associated (between other factors) with the educational level reached by his parents, we also found that the percentage of the population with destination in a high quintile increase with the education of parents. The quintile of destination depends also on the socio-professional class occupied and the one of his parents. Thus, we can see on Graph 8 that sons and daughters whose parents were occupied in the fourth class (Small and large employers, services) have the higher probability (47%) to reach the fourth or fifth Quintile in comparison with other classes, for example this percentage is lower than 20% for respondents with parents in the first or second class. If we look now at the class occupied by respondents (Graph 9), there is also a higher probability to reach the fourth or fifth quintile belonging to a higher socio-professional class.

The dissimilarity index in the probability to reach the fourth or fifth quintile also increase with the quintile of destination (0.16 for fourth quantile and 0.29 for the fifth quintile). As for the educational dimensional, the quintile of wealth at origin contribute to more than 30 % of the IOp and familiar circumstances sum 64%. With respect to the educational and occupational dimension, in the theme of wealth, the territorial variables contribute much more to the IOP (more than 20%), in particular, the urban/rural area of residence at 14 years old (18%).

Socio-Professional Categories

The last dimension of interest to study social mobility is the socio-professional category or class as defined by Solis (2019). Comparing to their parents, the percentage of respondents occupied in manual and no skilled activities or in primary sector activities have decreased while have augmented the part occupied in non-manual works or as independents (Class 3), as well as in the service sector or as an employer (Class 4) (Graph 10). There is a strong diminution for both sex of the trap of opportunity and an increase of the cycle of privilege and the probability from going rag to riches. The anterior changes are induced by structural transformation (structural mobility) between the parent´s and child's generation.

Desegregating the results by gender we observe important differences. First, half of the women of the sample declare herself as not working, while this proportion is one of ten for men. Just as their parents, men are occupied in a higher percentage than women in the primary sector, as non-skilled or manual worker. More than a half of the women actually working are occupied as a non-manual worker or as independent (food preparation, sales or trade activities, a small business like the grocery store). Women present a strong trap of opportunities given that 62% of the respondents that declare that their parents were not working remain without working. As the same, the 65% of women with parents occupied in first class are not working actually, traducing downward mobility in this dimension. Nonetheless, the percentage of absolute downward mobility is lower for women (18%) than for men (20%) and reflect the stronger rate of immobility for women. As we can see in Graph 11, the class of destination is linked to the educational level of the respondents (and of their parents), 13% of the respondents that did not complete primary

school are occupied in the third or fourth class, contrasted with 70% of the respondents that keep studying after High School.

The Dissimilarity Index estimated for the probability to work in the third class is lower than in the education or wealth dimension. Quintile of wealth at origin explain 30% of the IOp, and the occupation and education of parents 21% both. The rural or urban area of residence at 14 contribute to 5% and the size of the main city of the territory to 6% of IOp. Concerning the fourth class (employers and service class), the weight of the sex variable in the IOp is huge given that 49% is explained by this variable.

Territorial heterogeneity

Territorial variables like the rural or urban area of residence and the size of the head territory contribute until 20% of the IOp observed in education, wealth and occupation. We first look at differences between territories of different sizes according to the locality in which grew up the respondent at age 14. The probability to achieve High School or more, to end up in the two highest quintiles of wealth or occupational class is stronger in urban than in rural zone. For example, 45% of the population in localities of less than 15,000 habitants' complete Junior High School and 61% of the habitants of urban areas complete this level (Graph 12). As the same, residents of the head-territory present higher levels of advantages compared to the hinterland.

We can also see in Graph 13 the gap between localities of different size. In small towns of less than 1,000 habitants, the percentage achieving High School or in the highest quintile is inferior to 12% meanwhile that in localities of more than 15,000 habitants these percentages are around 30%. The probability to have a destination in the third occupational class (non-manual work, skilled work, independent work) also increase with the size of the locality, nevertheless, there are no relevant differences between localities of different size for the fourth class.

Another aspect of the territory in which grew up the respondents is the size of the main city of the territory (Berdegue et al., 2015). We note that the percentage of the population that reach advantages in education, wealth or occupational class is slightly higher in territories near a large main city (more than 350,000) comparing to the ones near the small and medium main city (Graph 14). An unexpected result is that the percentage that reaches advantages is higher for respondents that grew up in territories near small cities compared to those near medium cities. Looking at social mobility indicators proposed by Chetty et al (2014), the absolute upward mobility for most disadvantaged at origin is lower in rural zone and territories with medium size main city comparing to large or even small size head territory. For occupation and wealth, the differences between functional territories of different size are found in the bottom of the distribution, thus, living near a large head territory increase the upward mobility of most disadvantaged, and for the three sizes of head territories, respondents most advantaged at origin occupy on average the same average rank in occupation.

Index of social stratification: Socioeconomic rank

The anterior section shows how the three dimensions of interest are strongly linked. First, the level of the advantage of a respondent is associated with the other advantages, and secondly, is associated with the level of advantages of the parents. We also expose how the educational level of the respondents is

influenced with the education, the wealth and the occupation of parents, and at the same time, education is a vector of social mobility in wealth and occupation. We construct through a principal component analysis an index that resumes these three dimensions, and in another time construct quintiles and percentiles based on this Socioeconomic Index (SE) to obtain groups that represent social stratification and are ranked according to the level of education, occupation, and assets.

Descriptive statistics

The marginal distributions in each quintile of the SE index reveal a significant gap between men and women as long as only 9% of men belongs today to the lowest quintile and 29% to the fifth quintile, as opposed to 22% of women in the first quintile and 15% in the highest one (Graph 15). As expected, there are no differences between men and women in the quintile at the origin, reflecting the entrenchment of inequalities among these groups during the life cycle (Graph 16). Looking at the quintile of origin by cohort, 42% of the 25-34 years' generation have parents in the highest quintile, meanwhile, this percentage is 25% for the 35-44 years' cohort and 16% for the oldest cohort (45-59 years) (Graph 16). The percentage of the population in the highest quintile of destination in 2018 demonstrate less variation between these cohorts, indeed 27% of the youngest cohort, 21% of the 35-44 years' cohort and 21% of the oldest cohort is in the fifth quintile (Graph 15).

In rural localities, 19% of the population is today in the first quintile meanwhile that in urban areas only 9% belongs to this lowest quintile. In the other extreme of the distribution, 32% of the urban population is in the highest quintile contrasted with 15% of the rural inhabitants (Graph 17). Correspondingly, more population belongs to the highest quintile in territories with a large main city (18%) comparing to medium (14%) and small (13%). We desegregate results for habitants of four different quadrants of growth and reduction of inequalities. Territories that reach an inclusive growth (quadrant 1) have higher percentage of persons in the highest quintile (28%) compared to other ones, and the Quadrant 3 that did not grow nor reduce inequality have a lower percentage of population in the highest quintile (18%) and the highest percentage of population in the two lowest Quintiles.

Social mobility in SE rank

The youngest cohort (25-34 years) present the lower absolute upward mobility (25^{th}) for most disadvantaged at origin (0^{th}) as well as the lower relative mobility, indeed the average position occupied by respondents with parents in the top of the distribution (100^{th}) is one of the highest compared with prior generations. The higher absolute upward and relative mobility calculated is for the generation from 45 to 54 years (36^{th}), and respondents with parents in the 0^{th} percentile at origin in the 35-44 years or 55-64 years cohorts occupy the 31th percentile in average. (Table 14).

In the anterior section, we settle that men and women at the age of 14 are represented in the same proportion in each quintile, nevertheless, in their adult life, higher percentage of women have destination in lowest quintiles than men. This breach is associated with lower absolute upward mobility for women (31%) than for men (42%), but also more downward mobility (39% versus 24%) and mayor persistence in the first quintile (38% versus 25%). The result is essentially explained by the low upward mobility in the occupational dimension and the small rate of labor participation of women. Another clarification is

that we compare their rank to the rank of one of their parents (higher achievement between both parents), independently of the sex[12]. An indicator of absolute upward mobility for the most disadvantaged at origin proposed by Chetty et al. (2014) confirm lower absolute mobility but also lower relative mobility for women (Table 14). The indicator of the intergenerational association presented by Neidhofer (2018) show correspondingly higher mobility for women and we understand that an important part is downward mobility.

Although habitants of rural areas occupy in average a lower quintile than those of urban zones, the percentage that experiments absolute upward mobility is larger. Nonetheless, rural zones still have a greater trap of opportunity, a lower cycle of privilege and lower probability from going rags to riches comparing to urban residents. Indicators of relative and absolute mobility of the rank-rank methodology (Chetty et al., 2014) allow seeing clearly these differences (Graph 18). There are lower intergenerational association and more relative mobility in rural zone given that respondent with origin in the top of the distribution are in an average rank much more lower (67^{th}) than in urban zones (77^{th}). On the bottom of the distribution at origin (0^{th}), the gap between rural and urban habitants is substantially smaller than in the top, respondents who live today in urban area are in average in a higher position (35^{th}) than those in rural areas (30^{th}). The lower intergenerational association in rural areas is also found using the indicator proposed by Neidhofer (2018). The anterior results confirm the strong reproduction of the highest SE status in urban zones and a quite similar absolute upward mobility between urban and rural areas for respondents with parents in the lowest SE percentile.

An interesting fact is a difference in the results depending on if we desegregate by urban/rural zone at the age of 14 years or in 2018 (Graph 18). In the first case, there are few differences between the average absolute upward mobility of respondents with origin at the bottom of the distribution that grew up in rural or urban zones (respectively $31,9^{th}$ and $32,2^{th}$). In the second case (area of actual residence), we observe a larger gap between rural ($29,7^{th}$) and urban areas ($34,9^{th}$). The difference in the two approaches is explained by the migratory flows between rural and urban zones, and we see in the Graph 18 how these movements lead to reinforce inequality between rural and urban areas. To illustrate this, respondents whose parents were in the 0^{th} percentile, that grew up in rural areas but live today in urban zone occupy in average the 37.6^{th} percentile meanwhile that the ones who still live in rural area occupy in average the 30^{th} percentile. In the same way, respondents with origin in the bottom of the distribution that grew up in urban zones occupy in average the 32^{th} percentile, while the ones who remain in urban zones occupy the 34^{th} percentile and the one who migrated to rural zones occupy the 27^{th} percentile.

Comparably to rural zones, there is more population experimenting absolute upward mobility for respondents that grew up in territories with small main city (38%) than in those with medium or large cities (31%). The indicator of absolute upward mobility (Chetty et al., 2014) confirms that in territories with small chief town, the most disadvantaged population (with fathers in percentile 0^{th} or 25^{th}) occupy today a slightly higher or similar position (respectively 34th and 44^{th}) than those in territories with large main cities (respectively 32th and 44^{th}) or medium cities (respectively 31^{th} and 42^{th}) (Table 15 and Graph 19). Nevertheless, sons and daughters most advantaged at origin (parent in percentile 75^{th} and 90^{th}) of

[12] When most of the literature focus on father-son and mother-daughter relations.

territories with small head-territory occupy a lower relative position comparing to larger cities. Territories with medium head-territory have lower absolute upward mobility than small and large size head-territory, respondents occupy in average a lower position than respondents of other territories with the same SE level at the origin. If we look now at these results depending on the territory in which lives the individuals today, we see some differences. The absolute upward mobility for the most disadvantaged increase with the size of the main city of the territory, and there is lower relative mobility (rank-rank coefficient) in territories with a small principal city.

To resume results differ according to if we disaggregate the information by the size of the main city of the territory in which grew up the respondents at the age of 14 years old or in which he actually lives. The explication at this resides in the migrations between the territories at age 14 and at age of the survey. Persons that grew up in small head-territories and then move to medium or large size presents an indicator of absolute upward mobility much higher (44^{th}) than the ones who still live in these territories (30^{th}). Finally, an indicator of intergenerational association proposed by Neidhofer permits to confirm these results. There is less association intergenerational between origin and destination for respondents who grew up in territories with small main cities but migrated, but there is a higher association for those who still lived in the same territory.

Inequality of opportunity in SE rank

We run probit models that approximate the probability of being in an SES percentile destination in the top 10%, 25%, and 40%. In another time we generate an IOp index. Finally, we compare the contribution of each variable and group of variables to the variance in this probability and to the IOp.

Familiar circumstances and personal characteristics

Familiar circumstances variables are by far that who most contribute to IOP and influence the probability to reach advantages, in particular the quintile of asset (34% of contribution to the IOP), the level of education of the parents (18%) and class occupation of the parents (16%) at age of 14 (Table 16). To live in a single-parent household is negatively correlated with these advantages, but controlling for other circumstances variables in the model there is no significant relation. Within the personal characteristics, women have a significant and lower probability (until 18 percentage points) to end up in one of these high percentiles (Model 1 and 2), and we underlined anteriorly the strong inequality in the access to the jobs in the service class or as employers.

Concerning age, the model confirms an inverse U-shaped relation similar to the quintile-age relation observed in descriptive statistics. The level of inequality of opportunities between the different groups of the model show a decrease between the oldest (65 years or more) and the youngest (25-34), nevertheless, this level is relatively stable for the 25-34 years, the 35-44 years and the 45-54 years cohorts. Moreover, the DI in the probability to reach the 25^{th} percentile or more slightly increase between the 45-54 years and the youngest cohort (Table 17).

Territorial variables in which the individual grew up at the age of 14

Territorial variables in which the individual grew up at the age of 14 also represent some circumstances variables and contribute to approximatively 15% of the IOp. First, growing up in an urban zone increase from 4 to 6 percentage points the probability to reach advantages (Models 1 and 2) comparing to rural areas and contribute to 9% of the IOp (Table 18, 19, 20). Another aspect is the size of his principal city, his weight is about 3% of the IOp. Controlling for others variables and in particular the urban/rural area at age of 14, there is a significantly higher probability (from 3 to 6 percentage points) to achieve advantages for residents in territories with large or small size head-territory than those with medium head-cities. There is no significant differences between small size and large size head-territory at age of 14.

Finally, we look at the influence of some variables that reflect the poverty and the inequality in the municipality in which the respondent grew up. Given that we use secondary data only available for census and inter-census years (1990, 2000, 2005, and 2010) and that we want to approximate the environment in which the individual evolve at age of 14 years old, we limit the sample to 25-44 years. Thus for individuals from 25 to 28 years old, we use information from 2010, for 29-37 years old we use information from 2000 and finally for 38-44 years information from 1990. All things being equal there is a significant and positive relation between the levels of inequality, the level of poverty in the municipality in which grew up the respondent and the probability to reach the top 10^{th}, 25^{th} or 45^{th} percentile (Models 3 and 4).

Territorial variables in which the individual lives today

We now analyze the characteristics of the locality in which live the respondents today. Living in an urban zone or in the head-territory increase intensely the probability to achieve advantages (Models 5 and 6). The time distance to the head-territory and the Quadrant of growth and inclusion pattern, contribute each one to 3% of the IOp. Controlling for familiar circumstances, personal characteristics and urban/rural territory, the time distance to the main principal city (defined through 4 groups[13]) is not significant and negatively associated with the probability to have a percentile of destination superior to the 40^{th}, 25^{th} or 10^{th} percentile. The only significant difference between territories with different size of the head territory is that living in a locality with a Small or Large Head-Territory increase the probability to achieve advantages comparing to Medium Head-Territory (Models 7 and 8). The Quadrants in which the respondents live today present some differences statistically significant. Habitants of the third quadrant that did not grow nor reduce inequalities have a lower probability to reach advantages, this difference is from 8 percentage points with the first Quadrant that grows and reduces inequalities. We do not observe significant differences between other Quadrants, but Inclusive Quadrants (1 and 2) have a higher coefficient than other Quadrants (Models 9 and 10).

We collect information about the characteristics of the locality in 2018. Localities that have educational infrastructures like High School or University, proportionate higher probability to reach at least the 40^{th} percentile to their habitants (Models 11 and 12). Respondents in localities where authorities coordinate with other localities or municipalities programs of mobility and transport have a significantly

[13] 0: less than ten minutes; 1: between ten and 30 minutes; 2: between 31 and 45 minutes; 3: between 46 and 60 minutes; 4: more than one hour. Average in public transport.

higher probability to reach advantages. Finally, information from 2010 Census at locality level lets observe that controlling for the size of the locality, living in localities with a higher percentage of the active population occupied in primary sector reduce the probability to reach advantages (Model 15).

We look at the inequality of opportunity index and his shapely decomposition. First, the level of IOP is higher in rural zones and decrease with the size of the main city in the territory. Territorial variables contribute until 15% of the IOP, in particular, the urban/rural area of residence (9%), and this weight varies from 19% in territories with small main city to 6% in territories near large cities, indicating that being near a large city reduce the inequality suffered by being in rural zone. Another important result is that in localities that are not head-territory, the size of the head-territory contributes to 11% of the IOP. The level of education of the fathers contributes more to the IOP in urban than rural zones, in these last ones the level of assets and the occupation of fathers are more important than in urban zones. As the same, in territories near large cities, the contribution of the educational level of the fathers to the IOP is from 27% as against 14% in small size main city or 12% in medium size main city. The latter reflects the importance of the educational position of parents, and at the same time the weight of the capital cultural in this dimension.

Mobility between territories

The probit model reflects that respondents that change of quadrant, of functional territory, from rural or urban area, municipality or who are working in another municipality have a higher probability to reach the top 10^{th}, 25^{th} or 40^{th} percentile or more. The 21% of the sample has changed of area (rural or urban) between they had 14 years old and 2018. The 9% change from urban to a rural area and 12% from rural to urban areas. The relation between advantages and moving from rural to an urban area is significant and positive, and the relation is significant and negative for persons who move from urban to rural areas. Additionally, persons who changed of municipality or to a territory with a different size of the head-territory since their 14 years old, present (all things being equal) higher probability to end up in a high percentile. Persons that move from one Quadrant to another show higher probability to reach a high percentile and we must underline that growth Quadrants are the one who more attracts residents from other Quadrants, and the Quadrant that did not grow nor reduce inequality have higher emigration rate (12%) than another quadrant.

Persons that declare to work in another municipality are strongly associated with higher probability to reach the top 10^{th} percentile. This professional mobility is related to higher Quintile on average and is explained in a part by the younger age (40.3) in comparison with non-mobile (42.5). Effectively, respondents working in another municipality have higher educational level given that the 23% study have an undergraduate and are occupied in the higher occupational class (versus 12% and 13% for non-mobile). They are also more to declare vehicle possession and higher quintile at the origin. We suppose that from one side, underprivileged respondent may search for work near his locality of residence to limit the cost of transport, on the other side wealthier respondents can search for works in other territories, but they can also be enforced to search work far away if his territory of residence don't provide enough opportunities according to his skills. Finally, these households can move away (for example from urban to rural-urban areas) to a more pleasant place to live and keep his job in an urban place, whereas for the poorest household this type of mobility is more restricted (Paulo, 2007). The percentage of occupied

women working in another municipality is only 5% versus 15% for men, thus the 88% of persons working in another municipality are men and we do not see differences between sexes in the migration rate to other municipality, quadrant or functional territory of different size. Finally, it is interesting to note that persons who work in another municipality declare more satisfaction on their living standards and security, but less satisfaction on their city and time disposal than non-migrants.

In the same way, persons who have changed of municipality, from rural to an urban area, from Quadrant or size of Functional Territory, have a higher educational level and are in a higher Quintile of SE position at the destination. The theme of the self-selection of migrants and the cost and the decision to migrate according to comparative advantages or aptitudes of individuals has been studied in the literature (Roy, 1951, Borjas, 1994, Stark, 1991). If we underline a relation between social mobility and migration, we assume the endogeneity between these variables. From one side people can experiment social mobility as a consequence of the migration, or on the other side having migrated because the respondent experiment social mobility (for example higher level of education that lead to search work in farther areas). Finally, migrants having specific characteristics (self-selection), these characteristics can influence positively both social mobility and the decision to migrate. The other theme is the loss of human capital of territories due to migrations (Bhagwati and Hamada, 1974), even if the territory of origin can benefit from other forms to this migration (remittances, investment…). These movements lead to changes in the social stratification or marginal distribution within the territories as Solis (2019) exposed in the case of international migration. In other words, migrants that leave territories have some special characteristics and experiment more social mobility, nevertheless by leaving their territory to a wealthier (for example urban area), the territory of origin don't benefit from this social mobility and inequality between territories is reinforced.

Discussion

The objective of this paper was to present results in the themes of Inequality of Opportunity and Social Mobility in urban-rural territories of Mexico and pretend to contribute to the literature bringing an innovative territorial vision, information at the subnational level and new elements to better understand the relations between place, physical mobility and social mobility. A particularity of the paper is to focus on Middle-Territories that represent 20% of the total Mexican population. These urban-rural territories have socioeconomics characteristics very similar to middle size localities between 1,000 and 380,000 habitants. We can see to some extent more social mobility (percentage of absolute upward and downward mobility) in education and wealth in these urban-rural areas than in small or large territories.

To analyze social mobility and inequality of opportunity we construct a socioeconomic index reflecting social stratification in the educational, occupational and wealth dimensions. In these three dimensions, the largest part of the mobility is explained by structural mobility when comparing respondents with parents or generations between them. Results show a decrease in the intensity of the social mobility in the SE dimension across cohorts despite a strong absolute upward mobility in education and occupational position, and we underline how the lifecycle trajectory and structural mobility in wealth can explain this result. Nevertheless, the inequality of opportunity between groups of different circumstances has decreased across time, even if stagnate for generations from 25 to 54 years. The analysis by gender stressed out that in the theme of occupation, women suffered a strong inequality of opportunity in the probability to be occupied in the service or employers class. lower probability for women to reach

a high percentile position compared to men. This result is influenced by the robust persistence and downward mobility in occupation, linked to a high rate of unemployment for women and underrepresentation in high occupational classes. Moreover, we show differential access to some spatial motilities according to sex and level of wealth, in particular, the vehicle ownership and the percentage working in another municipality is lower for women and increase with the level of wealth. For women, the limited possibilities of mobility in addition to high insecurity levels in Mexico, penalize and disincentive the research for job opportunities, above all for rural and peripheral inhabitants.

We highlight significant differences in terms of social mobility and IOp between territories of the middle, in particular between urban and rural localities, head-territory and their hinterlands, size and time to the head-territory, and four types of patterns of development (inclusion and growth). Territorial variables explain approximatively 15% of the IOp, and in territories with a small main city, the rural/urban condition explain 20% of IOp and reflect that living near a large size Head-Territory reduces the inequality between urban and rural areas. The weight of the territorial and migration variables in the IOp is more important in the wealth dimension than in education or occupation.

For their part, familiar circumstances variables explain around 66% of the IOp, and the quintile of wealth at origin is the principal variable in contributing to inequality. In territories more urbanized or with a head-territory of large size, the educational level of parents is particularly important to explain inequality in comparison with other territories. A hypothesis is that this variable approximate also the capital cultural of the household as well as other factors outside of school that influence school performance as private support curses, cultural background at home, expenditure differences, or the fact that some parents read more to their child than other (Hutton, 2015). In the anterior example, we recognize the difficulty to reach the equality of opportunities and to provide to every child these extra support curses, or at the inverse case to forbid parents to give support curses, read at home with their children, or to enroll them in a private school, given that involve an entry of public policy in the private sphere of the households. In this way, Swift (2004) proposes to study and distinguish the factors that we want or not to consider as permitted or legitimate. We understand the complexity linked at this notion, and we consider in this article that the IOP approach is an efficient tool to reflect tendencies and differences between territories as well as to identify the barriers or bottlenecks (Fishkin, 1983; Black and Devereux, 2011).

Urban habitants most disadvantaged at origin have slightly higher upward mobility than rural ones, and the most advantaged occupy a considerable higher position. As the same, the average position occupied by respondents with parents on the bottom of the distribution, increase with the size of the Head-Territory. Nevertheless, rural and small head-territory habitants present more social mobility in the percentage of the population and more relative mobility. There are two explanations to this, first, these areas have more percentage of the population in the lowest positions, and even if there is more percentage of the population who remain in the trap of opportunity compared to more urbanized areas, in relative terms the percentage experimenting absolute upward mobility is superior. Secondly, these areas are characterized by higher downward mobility for most advantaged at origin compared to urban areas, the consequence of this is higher relative mobility.

We also emphasize on the spatial mobility aspect and the variation of the results depending on if we concentrate on the area of residence in 2018 or at the age of 14 years old. The differences observed are

explained by the migration between areas with head-territories of various sizes or from rural to urban areas. We found that living in 2018 in areas rural or with a small or medium Head-Territory reduce the absolute upward mobility of most disadvantaged at origin compared to urbanized zones, nevertheless, if we concentrate on the area of residence at age of 14 the differences are smaller or no significant. Indeed, we found that changing from rural to an urban area is associated with upward social mobility and changing from urban to rural with downward mobility. As the same, moving to an area with Head-Territory of different size, another pattern of development, moving or working in another municipality increase significantly the social mobility.

The anterior have different implications on social mobility and the analysis of social mobility. First, migrants present different characteristics than those who stay, in particular, more education, and as a consequence reinforce the "brain drain" (Berdegue et al., 2015). The concept reflects how the social and spatial mobility will not benefit directly to the area of origin nevertheless some indirect benefits exists like remittance flows. Moreover, we underline that the relation between spatial and social mobility is vague given the self-selection of migrants, nevertheless we show in this work how a large part of the social mobility observed in respondents that grew up in rural or small size Head-Territories is explained by the social mobility of respondents that leave the territory. Professional mobility approximated through the percentage of persons working in another municipality shows differential access between sex and households of different quintiles, in particular for the lack of vehicle ownership. To resume we underline how spatial mobility is associated with social mobility or higher socioeconomic position, so much for most disadvantaged than most advantaged, and we understand how certain territories don't proportionate sufficient opportunities to the overall population, being forced to move. We also comment how wealthier household has facilities to spatial mobility and can find better job opportunities ore more pleasant places to live, which also lead to a concentration of elites in geographical areas (Lash, 1994). For the anterior, we understand the necessity to integer territorial aspects in the studies on these themes. Migrations flows traduce the lack of opportunities in the proximity of some localities and the concentration of jobs, services and other opportunities in the same places, in majority urbanized.

The effort may be done to proportionate opportunities in all the territories and retain talented habitants with possibilities of upward mobility, in order that this mobility beneficed to the area of origin and then reduce territorial gaps. The other territorial aspect is unequal access to spatial mobility, and as a consequence unequal access to opportunities as well as geographical concertation according to socioeconomic level. As underlined by the OCDE (2010), a consequence of the spatial concentration (or segregation) is the concentration in same schools of children from same socioeconomic origin, and a first recommendation is to promote school diversity from different socioeconomic background, a second one concern urbanism, and housing policies, and the need for more social diversity inside the city to reduce inequality and support social mobility.

As we say, the approach following in this study is relevant to identify barriers to equality of opportunities, differentiating for each territory these bottlenecks in order to guide policy. To this, we realize the requirement for further investigation for more information, including variables of accessibility, spatial mobility, but also about the characteristics of the city and the social and spatial segregation of the locality or neighborhoods. Similarly more information must be collected about the role in the social

reproduction of institutions such as the school (Bourdieu et al, 1964, Raj Chetty et al, 2017), the family (Boudon, 1973), the inheritance and demographic system of territories (Todd, 1983), networks and spaces of power (Pinçon-Charlot, 2007, Lasch, 1994) or the taxation and redistributive policies (OECD, 2010). In addition, several authors recognize physical mobility as a form of capital (Kauffman et al, 2004), and define on the basis of the different resources available for taking advantage of the spatial dimension of the society (Levy, 2003). The role of physical mobility in the social mobility can be defined as an instrument of adaptation to a changing environment, characterized by high professional mobility, succession of jobs, but also as a capital that gives power over the social space (Kaika et al., 2000; Pfliger, 2006). Finally, researches must pay attention to advances in communications and transportation, which reconfigured and give better handling over space and time (Montulet, 1998).

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Graphics and Annex

Table 1: Sample design

Functional Territories (Population of the head-city)		**Quadrants**	
1. Between 15 and 60 thousand	Rural/Urban	1. Inclusive Growth	Rural/Urban
2. Between 60 and 115 thousand	Rural/Urban	2. Social Inclusion without Growth	Rural/Urban
3. Between 115 mil and 380 thousand	Rural/Urban	3. Without Growth nor Social Inclusion	Rural/Urban
		4. Growth without Social Inclusion	Rural/Urban

Source: Own, based on Survey of Territorial Dynamics and Wellbeing-Mexico (2018).

Table 2: Descriptive statistics of the sample survey

observations	3346
Age (mean)	46.12
Age: 25-35 (%)	23%
Age: 36-45 (%)	27%
Age: 46-55 (%)	26%
Age: 56-65 (%)	20%
Age: 66-70 (%)	5%
Women (%)	46%
Urban area at age 14 (%)	47%
Living with both parents at age 14 (%)	83%
Parent occupation: not skilled worker (%)	55%
Parent occupation: skilled worker (%)	6%
Parent occupation: commerce and trade (%)	11%
Parent occupation: farming activities (%)	18%
Parent occupation: not working (%)	7%
Household members	3.62
Asset level - group 1 (lowest) (%)	20%
Asset level - group 2 (%)	22%
Asset level - group 3 (%)	15%
Asset level - group 4 (%)	22%
Asset level - group 5 (highest) (%)	21%
Occupation respondent 0: not working	28%
Occupation respondent 1: farming, not skilled	21%
Occupation respondent 2 skilled manual workers	17%
Occupation respondent 3: employees non manual, merchants and artisans	20%
Occupation respondent 4: services classes and employers	14%
Vehicle possession (%)	39%
Migration since the 14 years old (%)	20%
Functional Territory 1	35%
Functional Territory 2	29%
Functional Territory 3	35%
Quadrant 1 (Growth-Inclusion)	27%
Quadrant 2 (No Growth-Inclusion)	23%

Quadrant 3 (No Growth-No Inclusion)	24%
Quadrant 4 (Growth-No Inclusion)	26%

Source: Own, based on Survey of Territorial Dynamics and Wellbeing-Mexico (2018).

Table 3: Summary of approaches used in the paper

Method	Key variable(s)	Type of analysis	Focus on
Analysis of transition matrices	Proportions in a matrix that links advantages at origin (*i*=parents) and at destination (*j*=children)	Identification of certain key proportions P*ij* in stochastic transition matrices derived from mobility tables	*Absolute mobility:* P11(intergenerational opportunity trap), P55 (intergenerational cycle of privilege) P15 (rags to riches) Percentage of immobility Percentage of upward mobility Percentage of downward mobility
Rank-rank analysis	Parents´ and children´s percentile rank in the national distribution	OLS regression	*Absolute mobility:* Absolute Upward Mobility of those in the 0^{th} and 25^{th} percentile. *Relative Mobility:* Difference in the average rank occupied by individuals with origin at the 100^{th} and 0^{th} percentile.
Intergenerational Elasticity	Parents´ and children´s relative gap with respect to the group with same characteristics in age and sex	OLS regression	*IGE*: Intergenerational association controlling for sex and age
Probability to achieve some advantage	Probability to achieve advantages	Probit regression, using individual (I*ij*), Family´s at age 14 (F*ij*) and Territorial (T*j*) variables.	Determinants in the probability to have an advantage, in particular location variables at the age of 14.
Inequality of Opportunity	Access to advantages	Probit regression, using individual (I*ij*), Family´s at age 14(F*ij*) and Territorial (T*j*) variables.	Dissimilarity Index and Shapley decomposition to assess the relative weight of I*ij*, F*ij* and T*j*.

Source: Own, based on Survey of Territorial Dynamics and Wellbeing-Mexico (2018).

Table 4: Variables used in the model presented in Equation 2

Advantages *Y* (Dependent Variable)	Circumstances (at age 14) (Cij)	Territorial variables (at age 14) (Tj)	Personal characteristics (Pij)	Migration (Mi)
10^{th} percentile or more	Parents´ schooling	Rural/Urban area	Sex	From urban to rural
25^{th} percentile or more	Parents´ occupation type	Quadrant of inclusive growth	Age	From rural to urban
40^{th} percentile or more	Asset Index	Size of Urban Centre		Move to another municipality
	Single parents	Time distance to Head-Territory		Work in another municipality
				Change of Quadrant
				Change of Functional Territory

Source: Based on Survey of Territorial Dynamics and Wellbeing-Mexico (2018).

Table 5: Characteristics of the population, different sizes of localities and Sampling Frame of the EDTYB, INEGI, 2010

	Using the Sampling frame of the EDTYB	**Total Population**	More than 350,000 habitants	Between 1,000 and 350,000 habitants	Less than 1,000 habitants
Total Population	24,386,818	112,336,538	39,872,447	55,391,077	17,073,014
Total Rural Population (<15,000)	7,198,196	42,157,402		25,084,388	17,073,014
Total Urban Population (>=15,000)	17,188,622	70,179,136	39,872,447	30,306,689	
(%) Population	22%	100%	35%	49%	15%
(%) Rural Population (<15,000)	30%	38%		45%	100%
(%) Urban Population (>=15,000)	70%	62%	100%	55%	
(%) Population of less than 15 years old	30%	29%	26%	30%	34%
(%) Population of 65 years old and more	6%	6%	6%	6%	8%
(%) Population between 15 y 64 years	63%	64%	66%	63%	58%
(%) Population born in the Entity (State)	85%	80%	72%	82%	92%
(%) Population in the Entity (State) in the past five years	85%	85%	85%	85%	85%
(%)Population aged 3 years and older speaking indigenous language	5%	7%	1%	7%	19%
(%) Population between 6 and 11 years not attending school	3%	3%	3%	3%	4%
(%) Population between 15 and 17 years attending school	67%	67%	74%	67%	54%
(%) Population between 18 and 24 years attending school	27%	28%	36%	27%	13%
(%) Population economically not active	47%	47%	43%	47%	55%
(%) Unemployed population / PEA	4%	4%	5%	4%	4%
(%) Population without Access to Health Services (*IMSS, ISSSTE y Estatal, Pemex, Defensa o Marina*)	33%	34%	32%	34%	37%
(%) Population with *Seguro Popular*	27%	23%	10%	26%	47%
(%) Houses without electricity	1%	2%	0%	1%	7%
(%) Houses with access to pipe water	88%	88%	96%	89%	65%
(%) Houses with drainage	92%	90%	98%	92%	64%

Source: Census of Population, 2010 (INEGI)

*Results can slightly differ from INEGI presented results given the missing information for a lot of localities in ITER base

Table 6: Percentage of achievement in educational and wealth dimension, three sources of information (EDTYB 2018; EMOVI, 2017; MMSI 2016)

	Percentage completing Junior High School	Percentage completing High School	Percentage studying next High School	Quintil 1	Quintil 4 or 5	Quintil 5
MMSI same sampling framework from EDTYB	59%	30%	14%			
MMSI different sampling framework from EDTYB	66%	36%	18%			
EMOVI same sampling framework from EDTYB	64%	33%	12%	23%	30%	12%
EMOVI different sampling framework from EDTYB	72%	41%	16%	16%	45%	23%
EMOVI total	71%	39%	16%	18%	41%	20%
MMSI total	64%	35%	17%			
EDTYB sin factor	57%	25%	13%			
EDTYB con factor	52%	20%	9%			

Source: Based on Survey of Territorial Dynamics and Wellbeing-Mexico (2018); EMOVI, 2017; MMSI 2016

Table 7: Percentage of achievement in educational and wealth dimension, 25-64 years old, by size of the locality of actual residence, ESRU-EMOVI

	Percentage completing Junior High School	Percentage completing High School	Percentage studying next High School	Quintile 1	Quintil 4 or 5	Quintil 5
Less than 2500	50%	18%	5%	44%	11%	3%
Between 2500 and 14,999	59%	26%	8%	33%	17%	5%
Between 15,000 and 99,999	67%	35%	12%	19%	33%	13%
Between 100,000 and 499,999	79%	49%	22%	11%	49%	24%
More than 500 mil	78%	47%	20%	9%	55%	30%

Source: EMOVI 2017

Table 8: Indicators of Social Mobility in the educational dimension, EMOVI, 2017 and MMSI, 2016

	Education				
		ESRU-EMOVI 2017		MMSI 2016	
	EDTYB	Sample frame	Different from Sample frame	Sample frame	Different from Sample frame
Absolute upward mobility	67%	68%	68%	67%	65%
Absolute upward mobility (2 levels or more)	38%	39%	36%	37%	35%
Immobility	27%	26%	26%	25%	27%
Absolute downward mobility	6%	5%	6%	8%	8%

Source: Based on Survey of Territorial Dynamics and Wellbeing-Mexico (2018); EMOVI, 2017; MMSI 2016

Table 9: Indicators of Social Mobility in the wealth dimension, EMOVI, 2017

	Wealth		
		ESRU-EMOVI 2017	
	EDTYB	Sample frame	Different from Sample frame
Absolute upward mobility	38%	36%	33%
Absolute upward mobility (2 levels or more)	18%	13%	12%
Immobility	29%	35%	37%
Absolute downward mobility	33%	29%	30%

Source: EMOVI 2017

Table 10: Indicators of Social Mobility in Education, by cohort and sex of respondent

	TOTAL			Men		Women	
	TOTAL	25 to 45 years	46 to 69 years	25 to 45 years	46 to 69 years	25 to 45 years	46 to 69 years

Absolute upward mobility	67%	68%	66%	69%	66%	68%	62%
Absolute upward mobility (2 levels or more)	38%	42%	36%	40%	39%	41%	31%
Immobility	27%	24%	29%	24%	30%	24%	32%
Absolute downward mobility	6%	8%	5%	7%	4%	8%	5%
P1:1 "Trap of opportunity"	22%	13%	26%	15%	26%	10%	26%
P1:5 "rags to riches"	7%	7%	7%	8%	8%	7%	5%
P5:5 "Cycle of privilege"	60%	65%	52%	68%	60%	61%	40%
Absolute upward mobility (Chetty p0)	41.12	48.9	35.6	48.56	38.46	49.42	32.43
Relative mobility (Chetty p100-p0)	0.26	0.21	0.26	0.23	0.27	0.18	0.24
Intergenerational Association (Neidhofer)	0.19	0.09	0.26	0.05	0.37	0.10	0.11

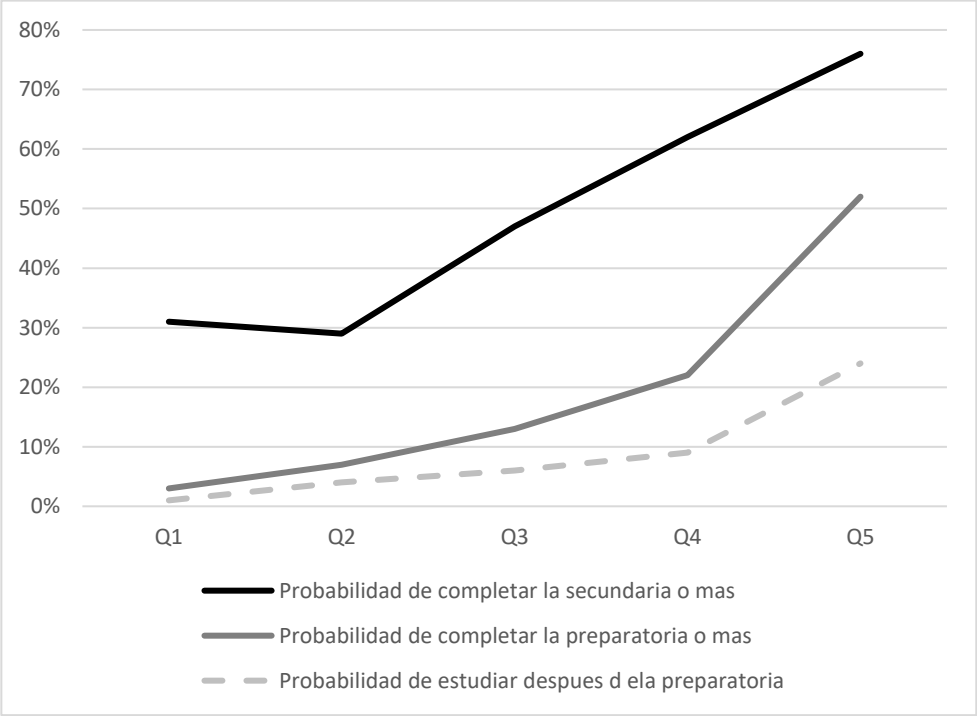
Source: Based on Survey of Territorial Dynamics and Wellbeing-Mexico (2018)

Table 11: Educational achievement for respondents and their parents, by cohort and sex

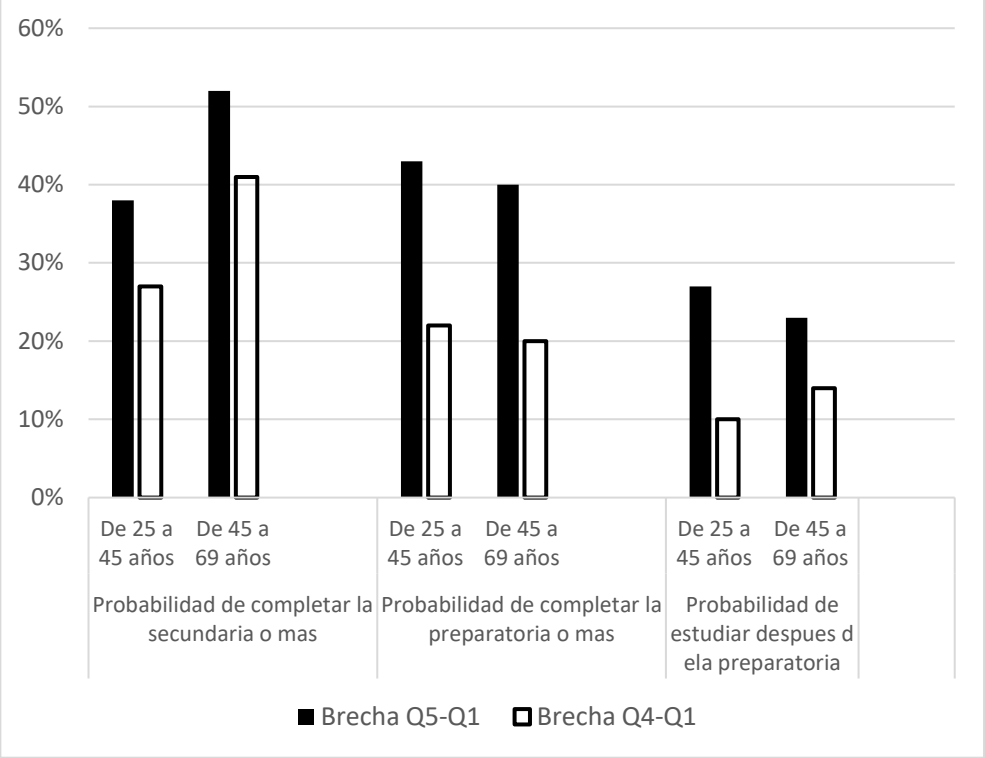
		Percentage completing Junior High School	Percentage completing High School	Percentage studying next High School
Men	25 to 45 years	71%	35%	16%
	46 to 69 years	30%	13%	9%
Women	25 to 45 years	67%	22%	6%
	46 to 69 years	30%	10%	6%
Respondents		49%	19%	9%
Parents of respondents		18%	13%	11%

Source: Based on Survey of Territorial Dynamics and Wellbeing-Mexico (2018)

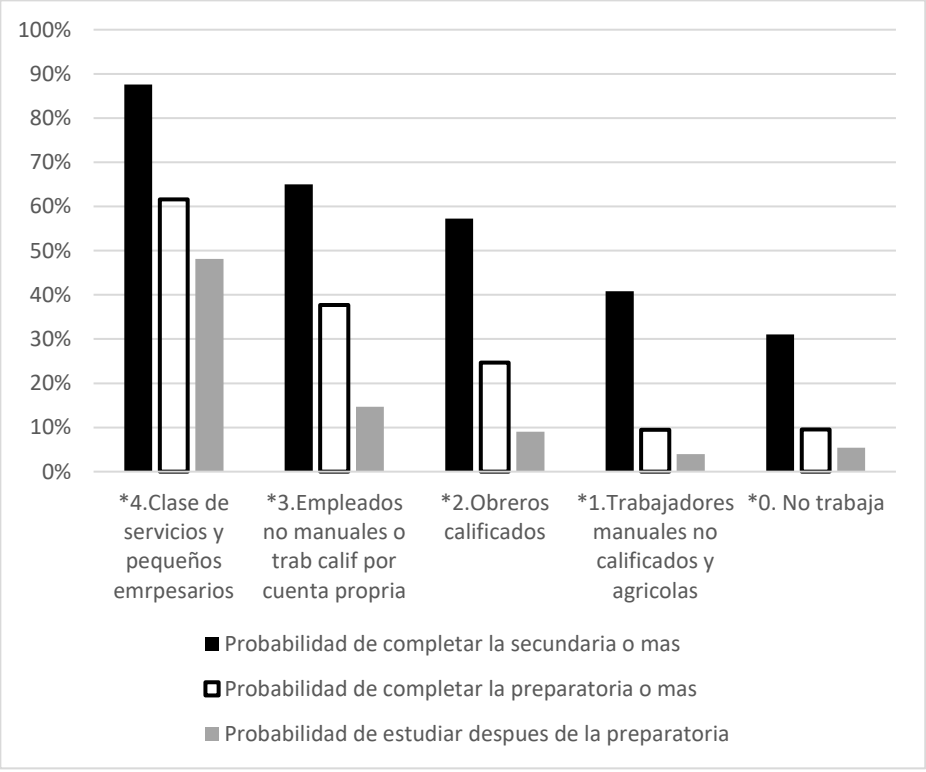
Graph 1: Percentage of educational achievement by origin in different Quintiles of Wealth



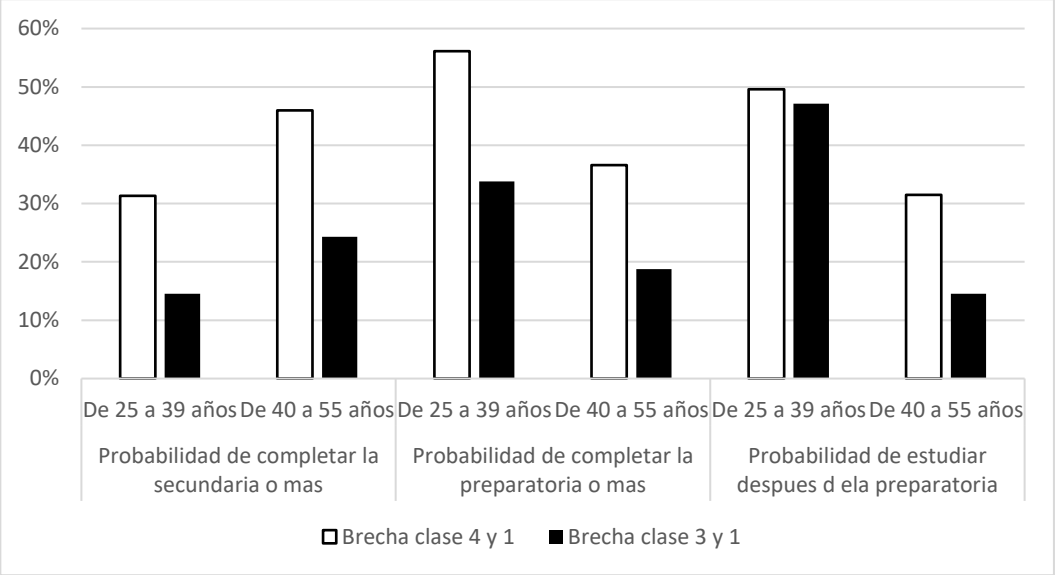
Graph 2: Educational Achievement Gap (in percentage points) between the lowest and highest quintile and between the fourth and first Quintile



Graph 3: Percentage of educational achievement by origin in different Classes of Occupation



Graph 4 Educational Achievement Gap (in percentage points) between the lowest and highest Class of Occupation and between the third and first Class



Graph 5: Percentage of population in fourth and fifth quintile of wealth, by cohorts

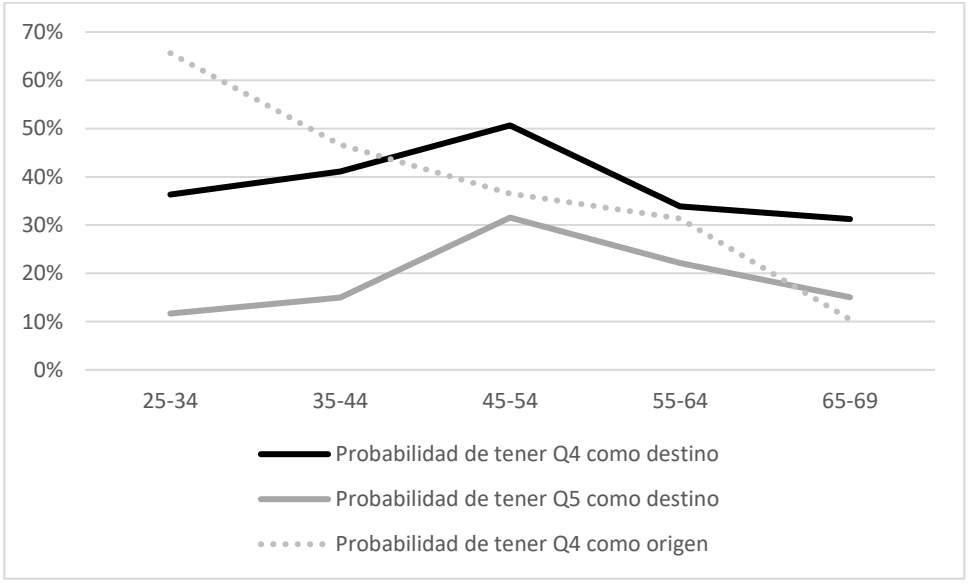


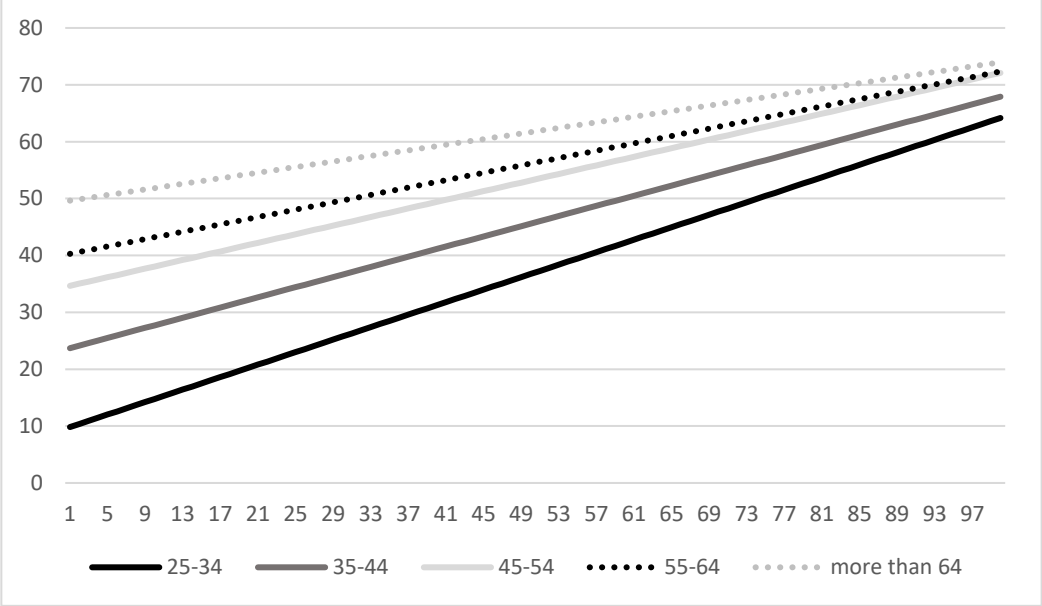
Table 12: Indicators of Social Mobility in Wealth, by cohort. Quintiles generated on the whole sample

	25-34	35-44	45-54	55-64	more than 64
Absolute upward mobility	8%	29%	46%	50%	51%
Absolute upward mobility (2 levels or more)	2%	19%	23%	18%	38%
Immobility	32%	36%	29%	26%	13%
Absolute downward mobility	60%	35%	25%	24%	36%
P1:1 "Trap of opportunity"	44%	21%	21%	20%	13%
P1:5 "rags to riches"	4%	5%	6%	8%	9%
P5:5 "Cycle of privilege"	27%	41%	69%	84%	63%
Absolute upward mobility (Chetty p0)	9.3	23.2	34.3	39.9	49.4
Relative mobility (Chetty p100-p0)	0.55	0.45	0.38	0.32	0.24
Intergenerational Association (Neidhofer)	0.89	0.40	0.34	0.19	0.07

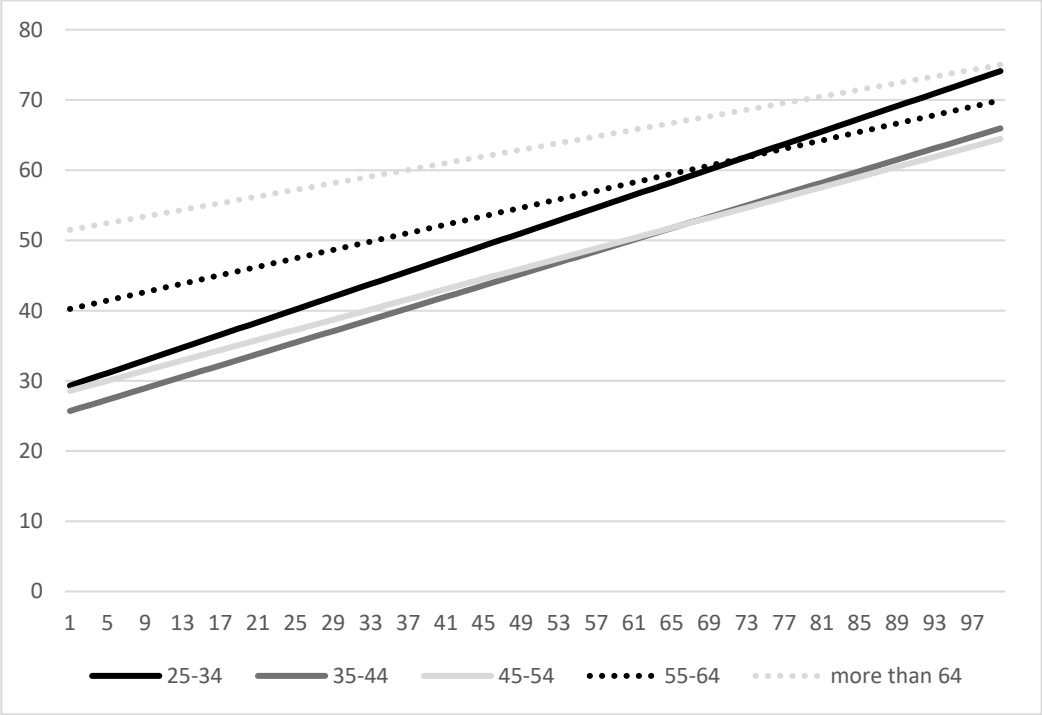
Table 13: Indicators of Social Mobility in Wealth, by cohort. Quintiles generated on each cohort

	25-34	35-44	45-54	55-64	more than 64
Absolute upward mobility	31%	26%	30%	41%	52%
Absolute upward mobility (2 levels or more)	15%	12%	12%	21%	38%
Immobility	32%	31%	27%	26%	25%
Absolute downward mobility	37%	43%	43%	32%	23%
P1:1 "Trap of opportunity"	35%	41%	32%	24%	22%
P1:5 "rags to riches"	6%	7%	5%	13%	18%
P5:5 "Cycle of privilege"	42%	40%	36%	35%	0%
Absolute upward mobility (Chetty p0)	28.8	25.3	28.2	39.9	51.26
Relative mobility (Chetty p100-p0)	0.45	0.41	0.36	0.30	0.24

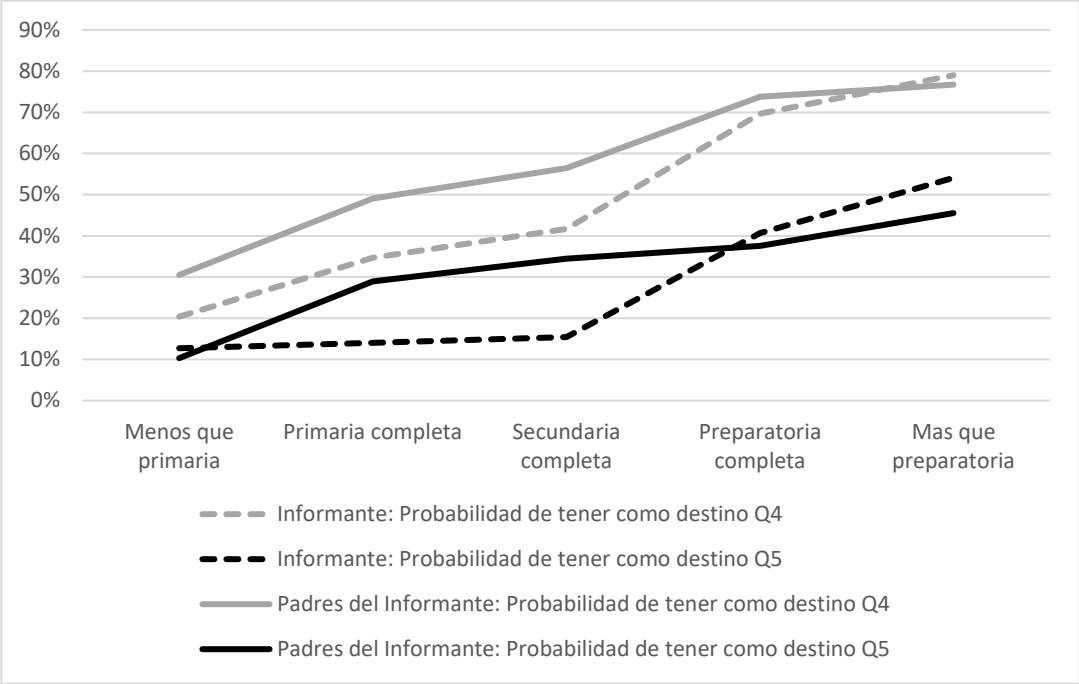
Graph 6A: Rank-Rank regression in Wealth (Quintile on the whole sample)



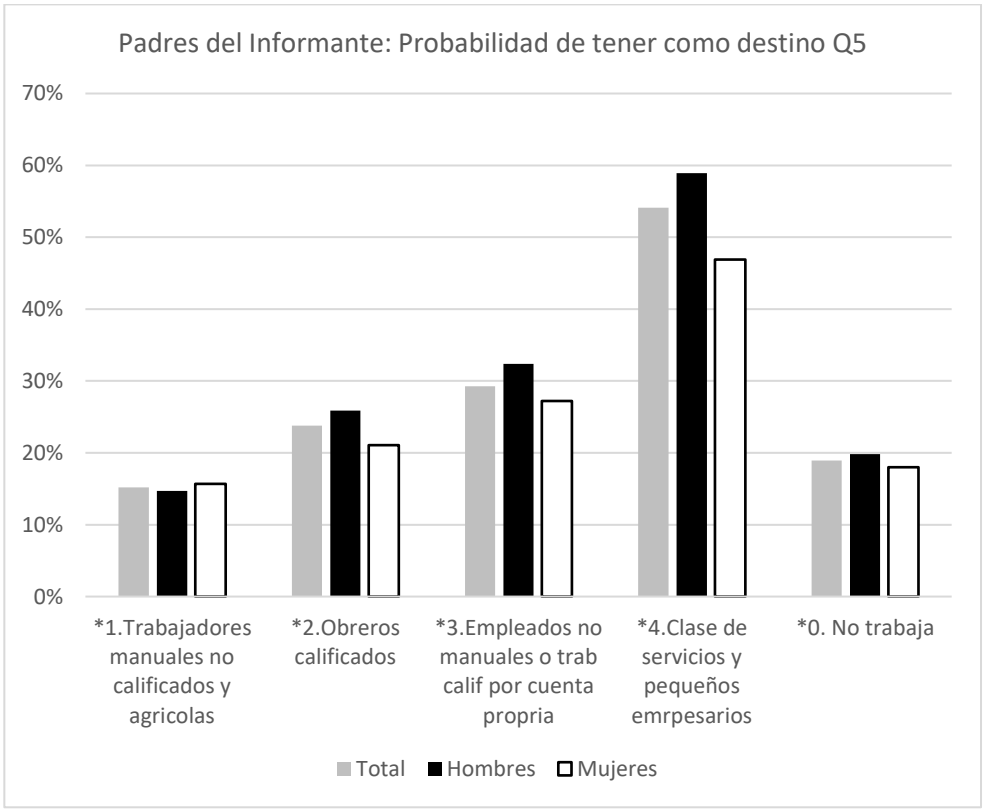
Graph 6B: Rank-Rank regression in Wealth (Quintile by cohort)



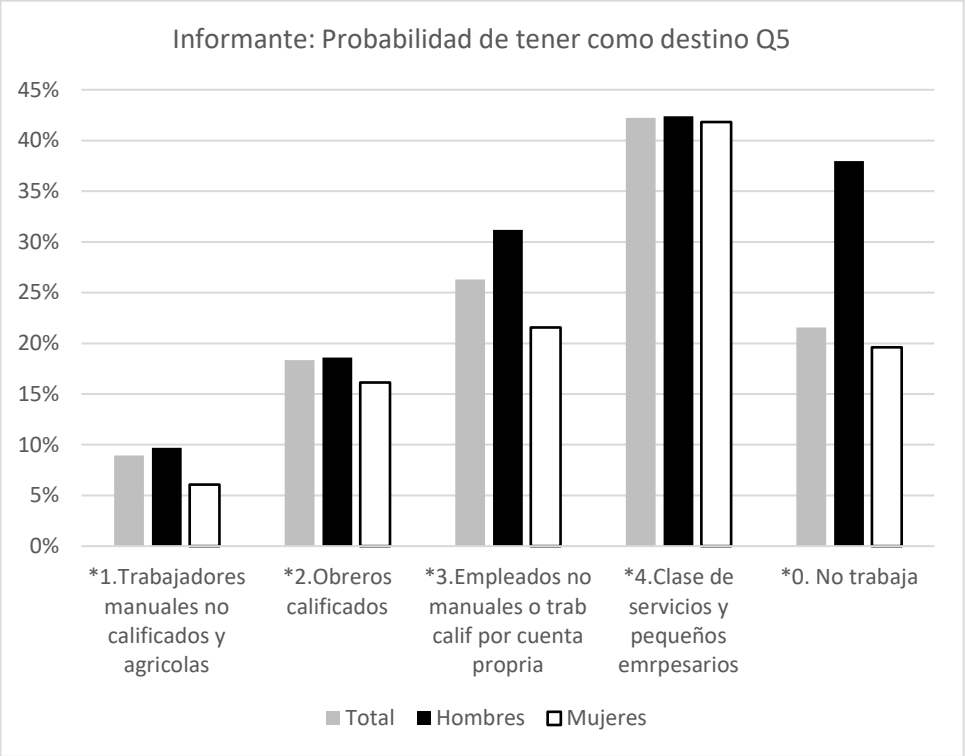
Graph 7: Percentage of population in fourth and fifth quintile, by level of education of respondent and fathers



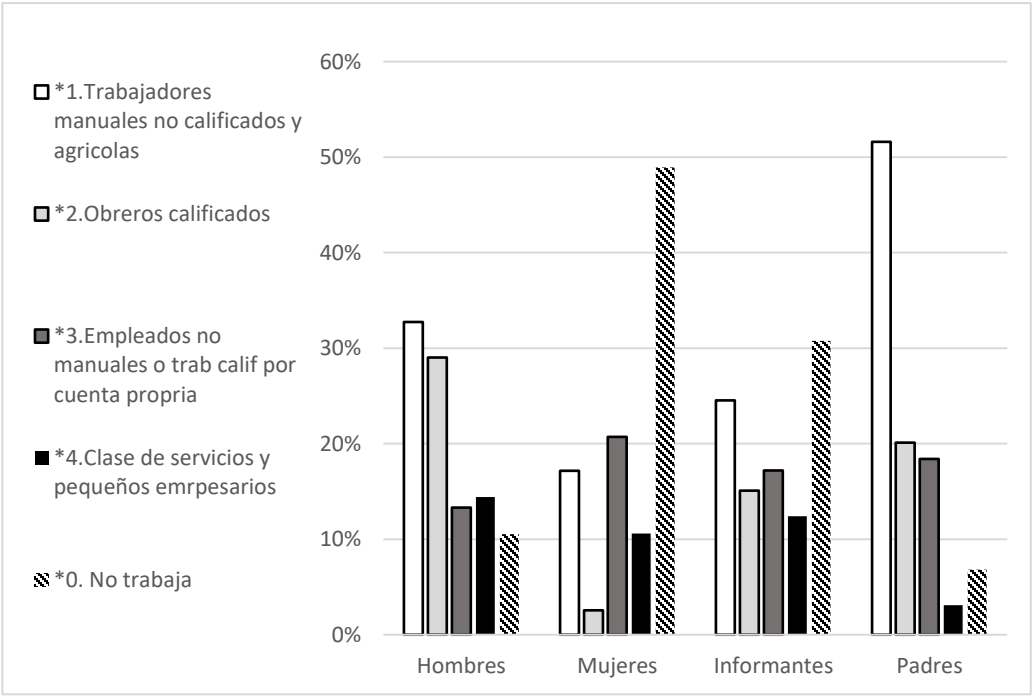
Graph 8: Percentage of population in fifth quintile, by Class of occupation of fathers



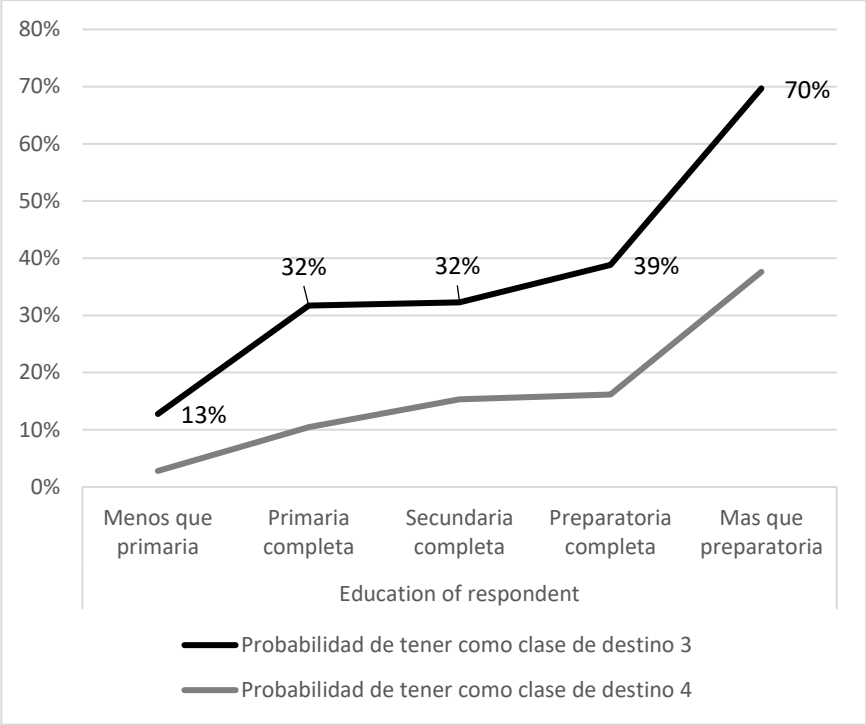
Graph 9: Percentage of population in fifth quintile, by Class of occupation of respondent



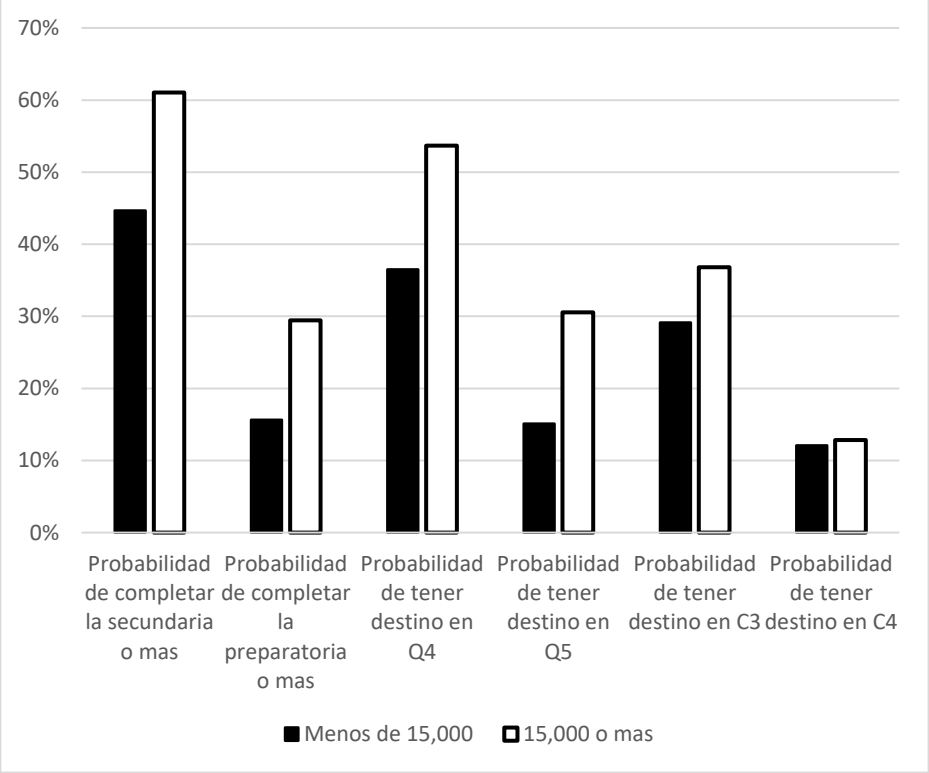
Graph 10: Percentage of population occupied in each Class, by sex, respondents and fathers



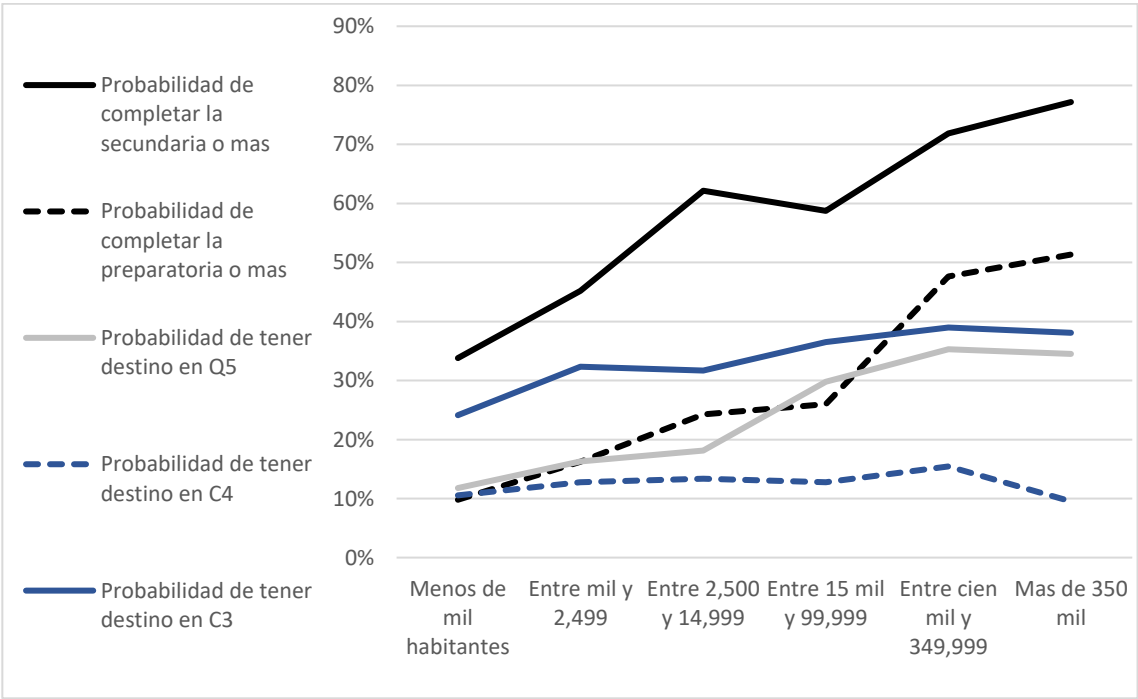
Graph 11: Percentage of population occupied in Class 3 or 4, by level of education of respondent



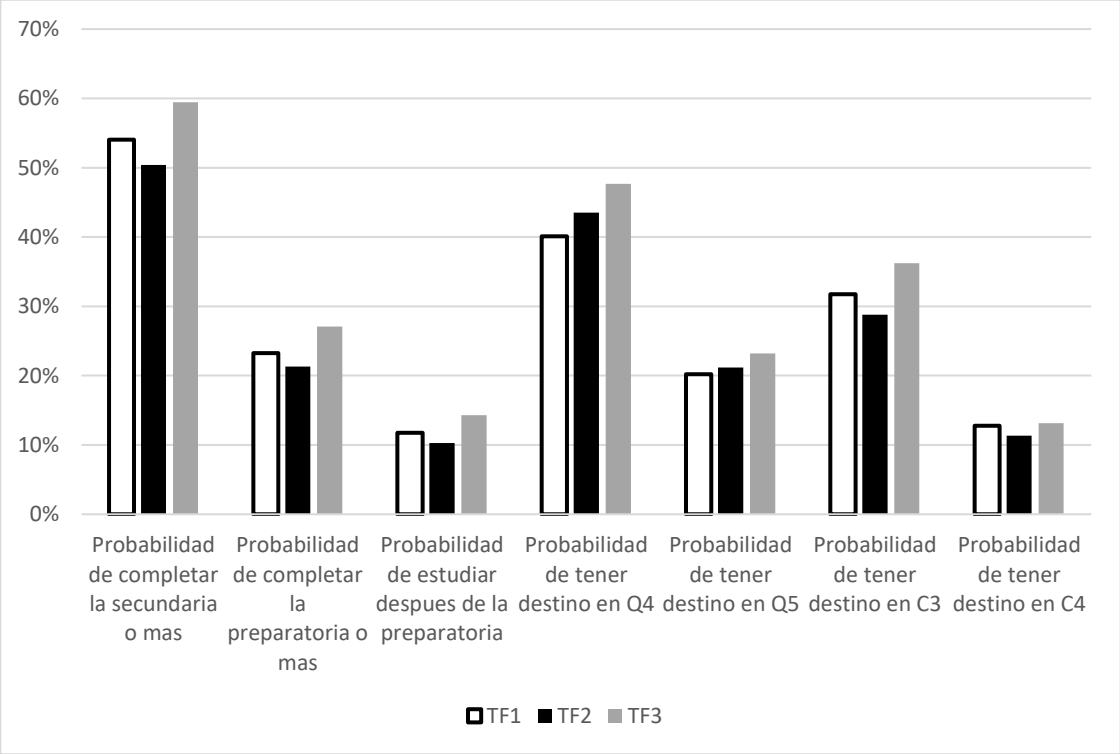
Graph 12: Percentage of population that reach advantages in education, wealth and occupational class, by urban/rural area



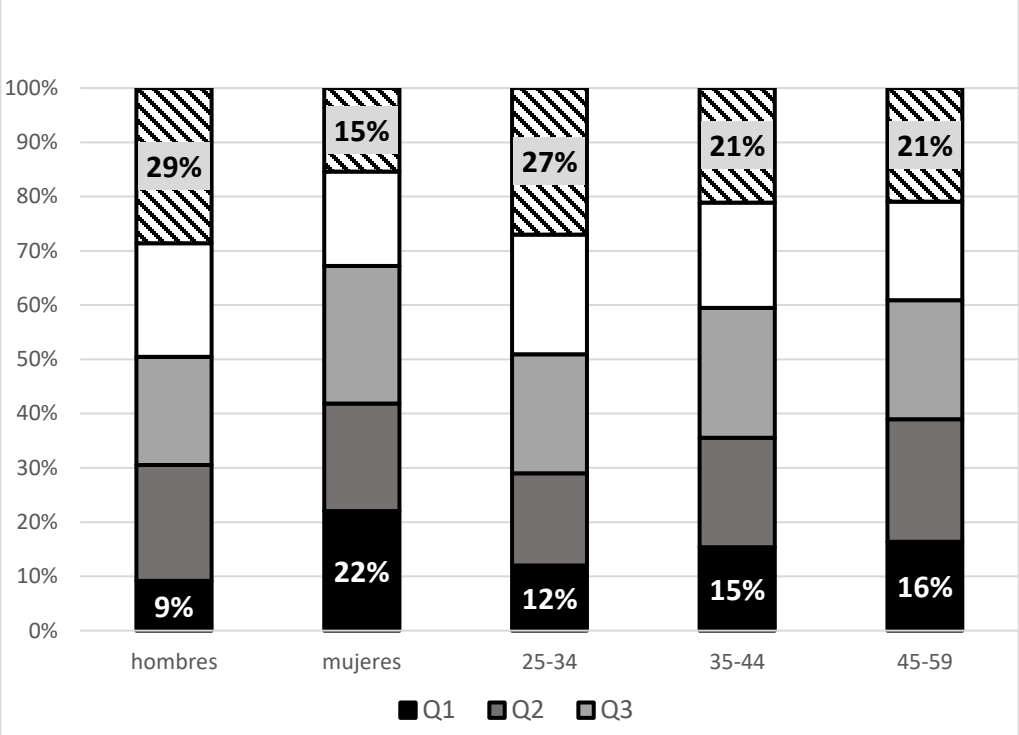
Graph 13: Percentage of population to reach advantages in education, wealth and occupational class, by size of the actual locality



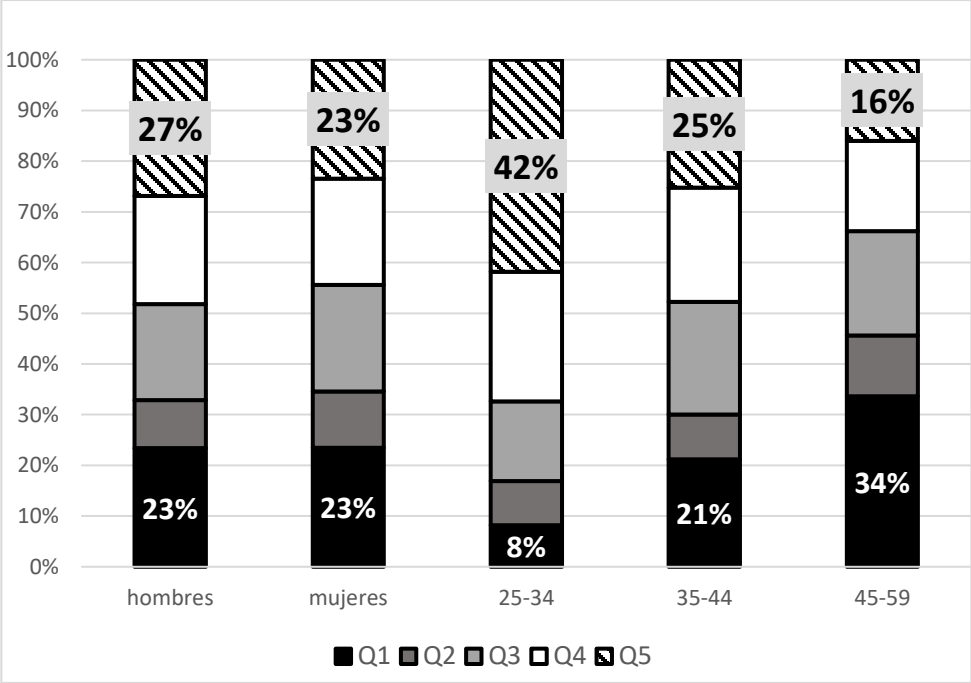
Graph 14: Percentage of population to reach advantages in education, wealth and occupational class, by size of the actual functional territory



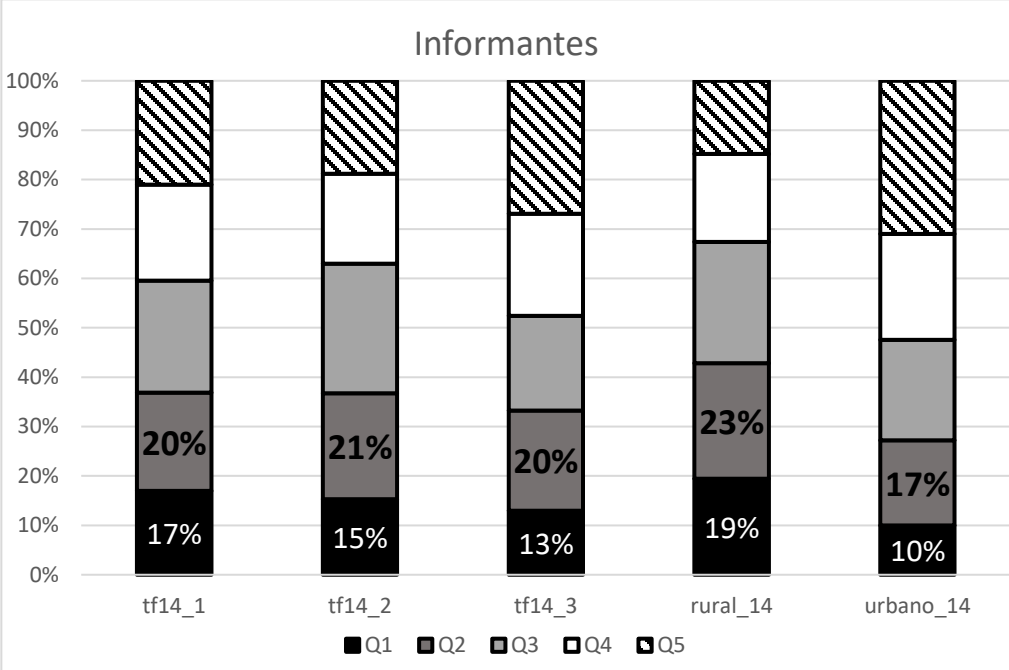
Graph 15: SE Quintile of destination of respondent by sex and cohort



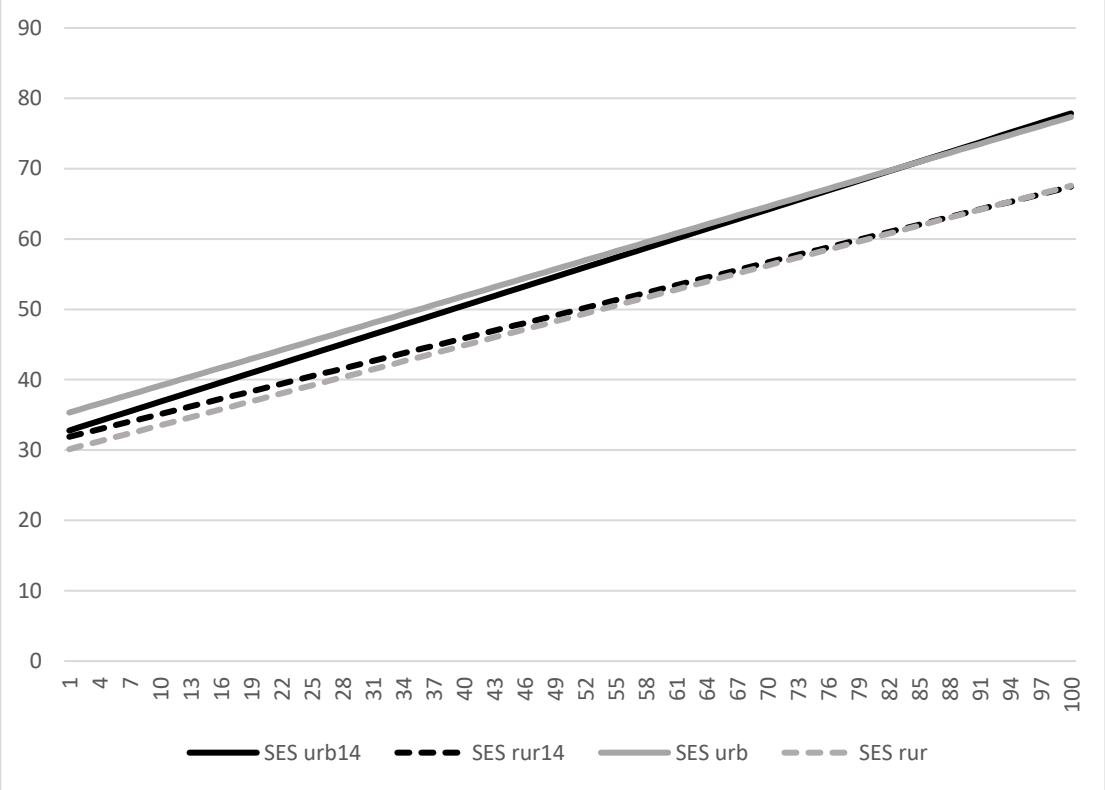
Graph 16: SE Quintile of destination of parents of respondent, by sex and cohort



Graph 17: SE Quintile of destination of respondent, different territories



Graph 18: Rank-Rank intergenerational association in SE index, by urban and rural territories



Graph 19: Rank-Rank intergenerational association in SE index, by Functional Territory

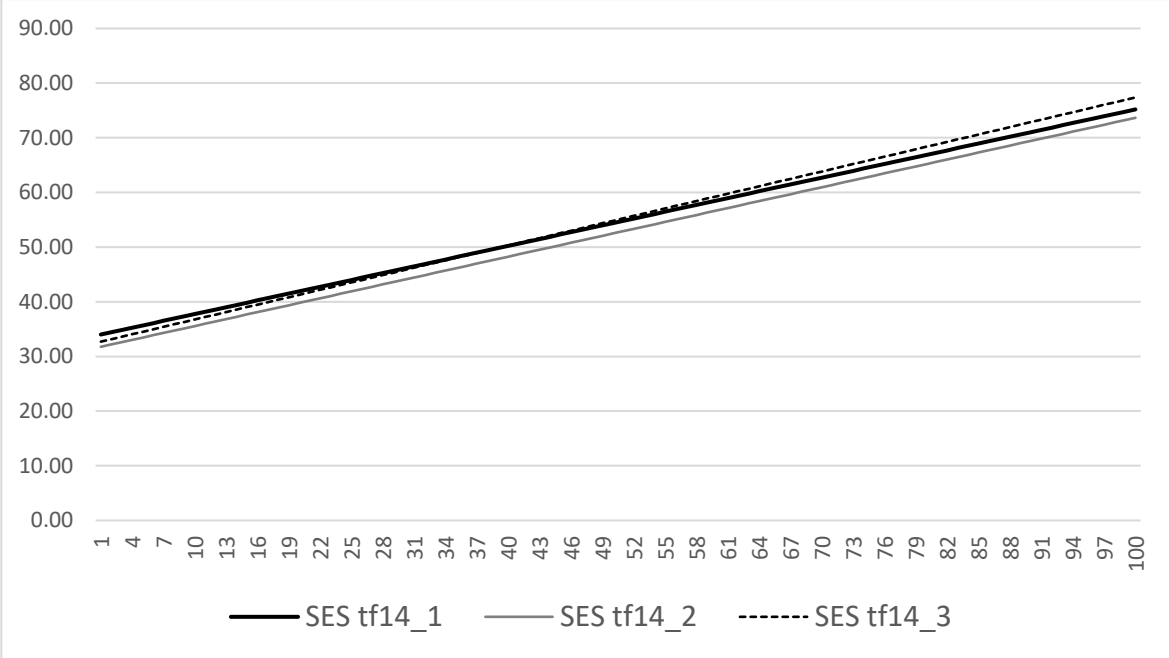


Table 14: Indicators of social mobility in SE rank

	urban	rural	men	women	gr edad 1	gr edad 2
Absolute upward mobility	30%	40%	41%	29%	27%	44%
Absolute upward mobility (2 levels or more)	13%	18%	20%	11%	11%	21%
Immobility	36%	30%	34%	31%	36%	30%
Absolute downward mobility	34%	30%	24%	40%	37%	26%
P1:1 “Trap of opportunity”	25%	33%	26%	37%	32%	31%
P1:5 “rags to riches”	8%	6%	7%	5%	6%	6%
P5:5 “Cycle of privilege”	58%	44%	62%	41%	54%	50%
Chetty Constant (p0)	33	32	36	27	30	32
Chetty Constant (p25)	45	42	47	38	42	43
Chetty Constant (p75)	68	61	70	59	65	65
Chetty Constant (p90)	75	67	77	65	72	71
Chetty Beta	0.47	0.38	0.46	0.41	0.46	0.43
Neidhofer Beta	0.34	0.30	0.41	0.26	0.36	0.33

	25-34	35-44	45-54	55-64
Chetty Constant (p0) (Quintiles on whole sample)	25.1	31.0	36.0	30.1
Chetty Beta (Quintiles on whole sample)	0.51	0.43	0.41	0.41
Chetty Constant (p0) (Quintiles by cohort)	29.5	27.9	29.2	43.5
Chetty Beta (Quintiles by cohort)	0.44	0.42	0.43	0.30
Neidhofer Beta (Quintiles on whole sample)	0.9	0.4	0.3	0.2
Neidhofer Beta (Quintiles by cohort)	0.5	0.3	0.4	0.2

Table 15: Indicators of social mobility in SE rank

	Tf14_1	Tf14_2	TF14_3	Tf_1	Tf_2	TF_3
Absolute upward mobility	38%	31%	31%	36%	32%	34%
Absolute upward mobility (2 levels or more)	18%	14%	13%	16%	15%	14%
Immobility	30%	33%	33%	32%	32%	32%
Absolute downward mobility	32%	36%	36%	33%	36%	35%

P1:1 "Trap of opportunity"	29%	30%	24%	32%	27%	23%
P1:5 "rags to riches"	4%	4%	9%	4%	5%	8%
P5:5 "Cycle of privilege"	49%	44%	50%	50%	44%	51%
Chetty Constant (p0)	31.3	29.1	32.3	28.8	31.1	33.6
Chetty Constant (p25)	42	39.6	42.9	40.3	41.1	43.7
Chetty Constant (p75)	63.2	60.7	64.1	63.4	61.3	63.9
Chetty Constant (p90)	69.6	67.0	70.5	70.4	67.3	70.0
Chetty Beta	0.42	0.42	0.42	0.46	0.40	0.40
Neidhofer Beta	0.30	0.39	0.34	0.38	0.32	0.34

Table 16: IOp and shapley descomposition

	Junior high school or more	High school or more	More than high school	quintile 4 or more	quintile 5 or more	Ocupational class 3 or 4	Ocupational class 4	SE 10th or more	SE 25th or more	SE 40th or more
	0.185	0.322	0.398	0.165	0.290	0.132	0.245	0.437	0.310883	0.212622
age	27%	13%	5%	7%	10%	7%	5%	7%	6%	7%
sex	2%	3%	5%	2%	2%	8%	49%	9%	12%	13%
Single parent	1%	1%	1%	1%	1%	2%	1%	0%	0%	0%
Education of parents	19%	24%	24%	16%	15%	21%	16%	18%	20%	17%
Occupation of parents	11%	13%	16%	15%	16%	21%	11%	16%	16%	15%
Quintil parents	31%	34%	33%	33%	33%	30%	12%	34%	30%	32%
TF	3%	2%	2%	5%	3%	6%	1%	3%	3%	3%
Change of municipality	2%	2%	5%	4%	2%	0%	1%	2%	3%	2%
Rural	6%	8%	9%	16%	18%	5%	3%	10%	10%	11%

Table 17: DI by cohort

	Probability in top 10th	Probability in top 25th	Probability in top 40th
25-34	0.36	0.30	0.17
35-44	0.45	0.32	0.20
45-55	0.37	0.26	0.20
54-65	0.61	0.40	0.26
65 y mas	0.51	0.31	0.26

Table 18: DI in the probability to reach the SE 10th percentile or more and shapley decomposition

	urbano	rural	small head-territory	middle head-territory	large head-territory	Head territory
	0.34	0.50	0.46	0.44	0.41	0.45
Edad	8%	7%	6%	8%	7%	7%
Sexo	12%	8%	7%	10%	9%	4%
Monoparent	2%	0%	3%	1%	2%	2%
Nivel educativo padres	23%	18%	14%	12%	27%	13%
Ocupacion Padres	15%	18%	15%	15%	17%	15%
Quintil padres	32%	39%	33%	41%	29%	32%
TF	7%	5%				12%
Cambio mun	1%	5%	2%	2%	2%	4%
Rural			19%	10%	6%	11%

Table 19: DI in the probability to reach the SE 25th percentile or more and shapley decomposition

	urbano	rural	small head-territory	middle head-territory	large head-territory	Head territory
	0.26	0.31	0.33	0.31	0.29	0.31
Edad	8%	7%	5%	7%	8%	6%
Sexo	15%	15%	15%	12%	10%	10%
Monoparent	2%	0%	1%	1%	0%	1%
Nivel educativo padres	24%	21%	21%	16%	23%	17%
Ocupacion Padres	14%	19%	16%	15%	17%	20%
Quintil padres	33%	29%	28%	32%	31%	25%
TF	3%	4%				7%
Cambio mun	2%	5%	3%	4%	2%	4%
Rural			11%	13%	9%	10%

Table 20: DI in the probability to reach the SE 40th percentile or more and shapley decomposition

	urbano	rural	small head-territory	middle head-territory	large head-territory	Head territory
	0.16	0.22	0.22	0.24	0.19	0.22
Edad	6%	12%	6%	7%	9%	10%
Sexo	16%	17%	17%	11%	12%	19%

Monoparent	2%	0%	1%	1%	2%	1%
Nivel educativo padres	23%	16%	19%	11%	23%	17%
Ocupacion Padres	18%	13%	12%	17%	15%	14%
Quintil padres	31%	35%	32%	36%	30%	29%
TF	2%	5%				4%
Cambio mun	2%	2%	2%	2%	1%	2%
Rural			11%	14%	10%	5%

Model 1 and 2: Probability to reach the 10th. 25th or 40th percentile or more

	Probability to reach 10th or more	Probability to reach 25th or more	Probability to reach 40th or more	Probability to reach 10th or more	Probability to reach 25th or more	Probability to reach 40th or more
age	0.009	0.016	0.025	0.009	0.016	0.025
	(2.41)**	(2.68)***	(3.67)***	(2.41)**	(2.68)***	(3.67)***
age squared	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(2.49)**	(2.50)**	(3.78)***	(2.49)**	(2.50)**	(3.78)***
sex	-0.060	-0.139	-0.183	-0.060	-0.139	-0.183
	(5.72)***	(7.98)***	(8.91)***	(5.72)***	(7.98)***	(8.91)***
single parent household at 14	0.006	0.012	0.015	0.006	0.012	0.015
	(0.43)	(0.51)	(0.55)	(0.43)	(0.51)	(0.55)
Education of parents	0.032	0.078	0.095	0.032	0.078	0.095
	(6.21)***	(8.27)***	(7.78)***	(6.21)***	(8.27)***	(7.78)***
Quintile of Wealth of parents	0.046	0.078	0.099	0.046	0.078	0.099
	(10.05)***	(10.44)***	(11.10)***	(10.05)***	(10.44)***	(11.10)***
Ocupational class of parents	0.019	0.049	0.053	0.019	0.049	0.053
	(3.59)***	(5.18)***	(4.61)***	(3.59)***	(5.18)***	(4.61)***
Small Head-Territory at 14	0.007	-0.005	-0.012			
	(0.53)	(0.22)	(0.47)			
Medium Head-Territory at 14	-0.031	-0.031	-0.061	-0.037	-0.026	-0.050
	(2.77)***	(1.51)	(2.48)**	(3.10)***	(1.21)	(1.95)*
Large Head-Territory at 14				-0.007	0.005	0.012
				(0.54)	(0.22)	(0.47)
Rural (<15,000) at 14	-0.036	-0.058	-0.065	-0.036	-0.058	-0.065
	(3.19)***	(3.24)***	(3.04)***	(3.19)***	(3.24)***	(3.04)***
N	2,799	2,799	2,799	2,799	2,799	2,799

Model 3 and 4: Probability to reach the 10th. 25th or 40th percentile or more

	Probability to reach 10th or more	Probability to reach 25th or more	Probability to reach 40th or more	Probability to reach 10th or more	Probability to reach 25th or more	Probability to reach 40th or more
age	-0.023	-0.028	-0.007	0.001	0.008	0.024
	(1.04)	(0.85)	(0.18)	(0.03)	(0.26)	(0.69)
age squared	0.000	0.000	0.000	-0.000	-0.000	-0.000
	(1.08)	(0.93)	(0.25)	(0.00)	(0.17)	(0.62)
sex	-0.076	-0.143	-0.159	-0.069	-0.144	-0.157
	(4.27)***	(5.29)***	(5.30)***	(3.83)***	(5.25)***	(5.15)***
single parent household at 14	0.042	0.081	0.068	0.043	0.083	0.070
	(1.54)	(2.08)**	(1.71)*	(1.59)	(2.15)**	(1.75)*
Education of parents	0.042	0.094	0.103	0.044	0.095	0.103
	(5.08)***	(7.15)***	(6.60)***	(5.21)***	(7.18)***	(6.65)***
Quintile of Wealth of parents	0.069	0.099	0.114	0.071	0.098	0.115
	(7.58)***	(7.38)***	(8.32)***	(7.49)***	(7.24)***	(8.21)***
Ocupational class of parents	0.025	0.044	0.045	0.025	0.044	0.046
	(2.75)***	(2.99)***	(2.72)***	(2.70)***	(3.03)***	(2.73)***
Small Head-Territory at 14	-0.001	-0.027	-0.025	-0.021	-0.035	-0.036
	(0.05)	(0.85)	(0.69)	(1.00)	(1.05)	(0.96)
Medium Head-Territory at 14	-0.042	-0.047	-0.069	-0.046	-0.048	-0.070
	(2.21)**	(1.49)	(1.88)*	(2.44)**	(1.53)	(1.91)*
Large Head-Territory at 14						
Rural (<15,000) at 14	-0.041	-0.083	-0.028	-0.041	-0.080	-0.026
	(2.14)**	(2.95)***	(0.88)	(2.13)**	(2.87)***	(0.83)
Gini	0.573	0.837	0.711			
	(2.67)***	(2.60)***	(1.96)**			
Food poverty				0.168	0.050	0.084
				(2.79)***	(0.53)	(0.81)
N	1,331	1,331	1,331	1,331	1,331	1,331

Model 5 and 6: Probability to reach the 10th. 25th or 40th percentile or more

	Probability to reach 10th or more	Probability to reach 25th or more	Probability to reach 40th or more	Probability to reach 10th or more	Probability to reach 25th or more	Probability to reach 40th or more
age	0.009	0.015	0.025	0.009	0.016	0.026
	(2.41)**	(2.59)***	(3.64)***	(2.48)**	(2.71)***	(3.74)***
age squared	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(2.50)**	(2.45)**	(3.78)***	(2.54)**	(2.53)**	(3.83)***
sex	-0.063	-0.144	-0.189	-0.062	-0.140	-0.185
	(5.99)***	(8.31)***	(9.22)***	(5.87)***	(8.05)***	(9.03)***
single parent household at 14	0.007	0.010	0.014	0.009	0.016	0.019
	(0.47)	(0.43)	(0.49)	(0.59)	(0.64)	(0.69)
Education of parents	0.032	0.076	0.093	0.033	0.078	0.095
	(6.26)***	(8.06)***	(7.65)***	(6.44)***	(8.33)***	(7.82)***
Quintile of Wealth of parents	0.046	0.078	0.100	0.047	0.080	0.102
	(10.09)***	(10.60)***	(11.38)***	(10.41)***	(10.94)***	(11.67)***
Ocupational class of parents	0.020	0.049	0.054	0.021	0.052	0.057
	(3.81)***	(5.27)***	(4.75)***	(3.96)***	(5.49)***	(4.98)***
Urban (>15,000)	0.041	0.091	0.085			
	(3.71)***	(5.19)***	(4.13)***			
Head-Territory				0.023	0.057	0.050
				(2.18)**	(3.27)***	(2.37)**
N	2,799	2,799	2,799	2,799	2,799	2,799

Model 7 and 8: Probability to reach the 10^{th}. 25^{th} or 40^{th} percentile or more

	Probability to reach 10th or more	Probability to reach 25th or more	Probability to reach 40th or more	Probability to reach 10th or more	Probability to reach 25th or more	Probability to reach 40th or more
age	0.008	0.013	0.024	0.008	0.015	0.025
	(2.07)**	(2.09)**	(3.30)***	(2.35)**	(2.60)***	(3.62)***
age squared	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000

	(2.18)**	(1.98)**	(3.40)***	(2.45)**	(2.47)**	(3.76)***
sex	-0.061	-0.154	-0.192	-0.061	-0.143	-0.187
	(5.44)***	(8.27)***	(8.79)***	(5.82)***	(8.26)***	(9.13)***
single parent household at 14	0.009	0.017	0.013	0.008	0.011	0.015
	(0.57)	(0.67)	(0.43)	(0.54)	(0.47)	(0.54)
Education of parents	0.033	0.075	0.091	0.031	0.076	0.093
	(5.95)***	(7.46)***	(7.02)***	(6.14)***	(8.05)***	(7.62)***
Quintile of Wealth of parents	0.047	0.082	0.104	0.046	0.077	0.100
	(9.54)***	(10.51)***	(11.13)***	(10.21)***	(10.48)***	(11.32)***
Ocupational class of parents	0.018	0.044	0.049	0.020	0.049	0.054
	(3.06)***	(4.37)***	(4.05)***	(3.70)***	(5.22)***	(4.67)***
Urban (>15,000)	0.041	0.083	0.077	0.038	0.090	0.083
	(3.20)***	(4.13)***	(3.30)***	(3.57)***	(5.13)***	(4.00)***
Time to Head-Territory	-0.004	-0.011	0.003			
	(0.45)	(0.82)	(0.18)			
Small Head-Territory				0.023	-0.007	0.012
				(1.61)	(0.32)	(0.49)
Large Head-Territory				0.038	0.019	0.042
				(2.83)***	(0.90)	(1.69)*
N	2,492	2,492	2,492	2,799	2,799	2,799

Model 9 and 10: Probability to reach the 10th. 25th or 40th percentile or more

	Probability to reach 10th or more	Probability to reach 25th or more	Probability to reach 40th or more	Probability to reach 10th or more	Probability to reach 25th or more	Probability to reach 40th or more
age	0.009	0.015	0.025	0.009	0.015	0.025
	(2.45)**	(2.57)**	(3.65)***	(2.45)**	(2.57)**	(3.65)***
age squared	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(2.53)**	(2.44)**	(3.79)***	(2.53)**	(2.44)**	(3.79)***
sex	-0.061	-0.144	-0.189	-0.061	-0.144	-0.189
	(5.72)***	(8.14)***	(9.07)***	(5.72)***	(8.14)***	(9.07)***
single parent household at 14	0.006	0.011	0.013	0.006	0.011	0.013
	(0.38)	(0.44)	(0.48)	(0.38)	(0.44)	(0.48)
Education of parents	0.031	0.075	0.091	0.031	0.075	0.091
	(6.03)***	(7.92)***	(7.51)***	(6.03)***	(7.92)***	(7.51)***

Quintile of Wealth of parents	0.047	0.078	0.100	0.047	0.078	0.100
	(10.33)***	(10.57)***	(11.35)***	(10.33)***	(10.57)***	(11.35)***
Ocupational class of parents	0.020	0.050	0.055	0.020	0.050	0.055
	(3.76)***	(5.34)***	(4.78)***	(3.76)***	(5.34)***	(4.78)***
Quadrant 1: Inclusive Growth	0.046	0.055	0.057	0.003	0.030	0.020
	(2.63)***	(2.14)**	(1.96)**	(0.21)	(1.32)	(0.77)
Quadrant 2: Inclusion Without Growth	0.022	0.051	0.052	-0.018	0.026	0.015
	(1.15)	(1.75)*	(1.62)	(1.31)	(0.98)	(0.51)
Quadrant 4: Growth without inclusion	0.042	0.024	0.037			
	(2.41)**	(0.95)	(1.27)			
Urban (>15,000)	0.037	0.087	0.082	0.037	0.087	0.082
	(3.42)***	(4.96)***	(3.95)***	(3.42)***	(4.96)***	(3.95)***
Quadrant 3: Without Growth without inclusion				-0.036	-0.023	-0.037
				(2.89)***	(0.98)	(1.27)
N	2,799	2,799	2,799	2,799	2,799	2,799

Model 11 and 12: Probability to reach the 10th. 25th or 40th percentile or more

	Probability to reach 10th or more	Probability to reach 25th or more	Probability to reach 40th or more	Probability to reach 10th or more	Probability to reach 25th or more	Probability to reach 40th or more
age	0.009	0.015	0.025	0.009	0.015	0.025
	(2.41)**	(2.59)***	(3.65)***	(2.39)**	(2.63)***	(3.67)***
age squared	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(2.50)**	(2.46)**	(3.79)***	(2.49)**	(2.49)**	(3.82)***
sex	-0.064	-0.144	-0.189	-0.064	-0.143	-0.188
	(5.98)***	(8.29)***	(9.18)***	(6.01)***	(8.25)***	(9.14)***

single parent household at 14	0.007	0.010	0.013	0.007	0.010	0.012
	(0.47)	(0.42)	(0.46)	(0.48)	(0.41)	(0.45)
Education of parents	0.032	0.076	0.094	0.032	0.076	0.094
	(6.23)***	(8.08)***	(7.73)***	(6.23)***	(8.09)***	(7.70)***
Quintile of Wealth of parents	0.046	0.078	0.100	0.046	0.077	0.098
	(10.09)***	(10.60)***	(11.37)***	(10.05)***	(10.45)***	(11.18)***
Ocupational class of parents	0.020	0.049	0.054	0.021	0.049	0.053
	(3.81)***	(5.25)***	(4.71)***	(3.87)***	(5.19)***	(4.66)***
Urban (>15,000)	0.042	0.085	0.062	0.047	0.072	0.054
	(3.22)***	(4.13)***	(2.61)***	(3.50)***	(3.30)***	(2.09)**
High School in the locality	-0.002	0.011	0.046			
	(0.16)	(0.51)	(1.83)*			
University in the locality				-0.011	0.031	0.050
				(0.84)	(1.42)	(1.93)*
N	2,799	2,799	2,799	2,799	2,799	2,799

Model 13 and 14: Probability to reach the 10^{th}. 25^{th} or 40^{th} percentile or more

	Probability to reach 10th or more	Probability to reach 25th or more	Probability to reach 40th or more	Probability to reach 10th or more	Probability to reach 25th or more	Probability to reach 40th or more
age	0.009	0.015	0.025	0.009	0.015	0.025
	(2.41)**	(2.57)**	(3.62)***	(2.43)**	(2.64)***	(3.69)***
age squared	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(2.50)**	(2.44)**	(3.77)***	(2.54)**	(2.52)**	(3.84)***
sex	-0.063	-0.143	-0.188	-0.064	-0.146	-0.192
	(5.96)***	(8.19)***	(9.13)***	(6.05)***	(8.42)***	(9.36)***
single parent household at 14	0.007	0.010	0.013	0.008	0.011	0.014
	(0.47)	(0.41)	(0.47)	(0.51)	(0.46)	(0.49)
Education of parents	0.032	0.076	0.093	0.032	0.076	0.092
	(6.26)***	(8.08)***	(7.65)***	(6.25)***	(8.01)***	(7.59)***
Quintile of Wealth of parents	0.046	0.077	0.099	0.045	0.077	0.099
	(10.01)***	(10.40)***	(11.22)***	(10.02)***	(10.49)***	(11.26)***
Ocupational class of parents	0.020	0.050	0.054	0.021	0.050	0.055
	(3.81)***	(5.27)***	(4.76)***	(3.83)***	(5.30)***	(4.78)***
Urban (>15,000)	0.040	0.075	0.074	0.036	0.080	0.069
	(2.98)***	(3.51)***	(2.99)***	(3.15)***	(4.37)***	(3.20)***
Library or cultural center in the locality	0.001	0.029	0.020			
	(0.05)	(1.32)	(0.80)			
Coordinate mobility programs				0.017	0.042	0.064
				(1.52)	(2.16)**	(2.84)***
N	2,799	2,799	2,799	2,799	2,799	2,799

Model 15: Probability to reach the 10th. 25th or 40th percentile or more

	Probability to reach 10th or more	Probability to reach 25th or more	Probability to reach 40th or more
age	0.010	0.016	0.025
	(2.67)***	(2.65)***	(3.62)***
age squared	-0.000	-0.000	-0.000
	(2.77)***	(2.53)**	(3.78)***
sex	-0.062	-0.141	-0.189
	(5.84)***	(8.01)***	(9.04)***
single parent household at 14	0.003	0.002	0.003
	(0.20)	(0.09)	(0.11)
Education of parents	0.032	0.076	0.095
	(6.24)***	(7.95)***	(7.62)***
Quintile of Wealth of parents	0.043	0.076	0.095
	(9.35)***	(10.06)***	(10.47)***
Ocupational class of parents	0.017	0.046	0.048
	(3.16)***	(4.72)***	(4.05)***
Urban (>15,000)	0.036	0.085	0.061
	(2.94)***	(4.29)***	(2.62)***
% in primary sector in locality	-0.045	-0.055	-0.164
	(1.54)	(1.24)	(3.28)***
N	2,715	2,715	2,715