

Intergenerational Social Mobility in Occupational Skills in Nuevo León, Mexico

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The aim of this study is to estimate the degree of intergenerational social mobility in occupational skills in the state of Nuevo León, Mexico. The methodology involves estimating skills through imputations and then examining intergenerational mobility using transition matrices. The findings indicate that upward mobility in skills associated with higher-paying occupations is lower for children of parents with lower skills, and women have achieved greater mobility than men. The main limitation of the study is the assumption that job performance necessarily implies a particular set of skills. The uniqueness of the study lies in imputing occupational skills from a specialized skills survey (CONOCER) to a survey designed to capture social mobility (Encuesta ESRU-EMOVI Nuevo León 2021). In conclusion, this study highlights that skill mobility is significantly influenced by family background, and that losing skills between generations is more common than gaining them.

Keywords: skills, occupation, intergenerational, social mobility, Mexico

JEL Classification: J24, J62, R11

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1. Introduction

The basic concept of social mobility refers to changes in the socio-economic status of individuals. There is growing evidence that lower levels of social mobility are associated with higher levels of inequality (Corak, 2013) and poverty (Orozco, Espinosa, Fonseca, and Vélez, 2019), as well as fewer opportunities to improve people's well-being (Roemer, 1993). At the same time, lower levels of social mobility restrict an economy's ability to efficiently utilize available resources and generate economic growth (Delajara, De la Torre, Díaz-Infante, and Vélez, 2018).

Social mobility can be absolute or relative depending on the reference point. Any change in the socio-economic conditions of individuals is referred to as absolute social mobility, but if the change is in relation to one's original social stratum or position, it is called relative social mobility. Furthermore, if this change is in relation to one's parents, it is referred to as intergenerational (relative) social mobility. This type of mobility perhaps best describes the social and economic structural changes that can occur within a society. In societies with a high level of inequality or social exclusion, it is desirable for a high degree of upward intergenerational social mobility to occur. This means that individuals from lower socio-economic backgrounds should progress more in comparison to their parents than those with more privileged origins.

Traditionally, factors contributing to upward social mobility are recognized as genetics, the socio-economic context of one's upbringing, as well as the abilities (education, health) and skills (cognitive, socio-emotional, managerial) acquired through life. In recent years, the idea that individuals' skills play a crucial role in explaining their social mobility has gained importance. This is because skills influence people's ability to enter, stay, or advance in their occupations, as well as to adapt to the social environment and/or embark on successful life projects (Campos, 2018b; Deming, 2017;

Campos, 2016). There are different types and classifications of skills, with some of the most representative ones being cognitive, socio-emotional or personal, managerial, and manual skills. Empirical-statistical studies on the transmission of parental skills to their children and its impact on intergenerational social mobility are relatively recent. This is due to the complexity of measuring certain types of skills, especially socio-emotional ones, and the fact that some concepts are not yet fully defined or delimited.

The objective of this study is to estimate the occupational skills of parents and their children, and, based on this, determine the degree of intergenerational social mobility in occupational skills within a subnational territory in Mexico (the State of Nuevo León). The research aims to address two primary questions: Firstly, which occupational skills exhibit higher or lower mobility between generations? Secondly, to what extent can children of parents with fewer skills transition into the population group with higher skills? Additionally, the study aims to determine whether skill mobility differs between men and women.

To conduct the analysis, we use a newly available survey called Encuesta ESRU de Movilidad Social en Nuevo León 2021 (ESRU-EMOVI Nuevo León 2021). Furthermore, the estimates of occupational skills are derived from the Encuesta de Competencias de Personas y Perfiles Ocupacionales (CONOCER) which in turn are used and matched to the occupations recorded in the ESRU-EMOVI Nuevo León 2021 survey. This creates a unique and innovative database for estimating intergenerational occupational mobility in a subnational territory in Mexico. Subsequently, categories of different levels of cognitive-knowledge, cognitive-abstract, personal, managerial, and manual skills are used to establish the degree of upward and downward intergenerational occupational mobility.

The main contribution of this study is to provide structured information about intergenerational mobility in occupational skills in Mexico, which is one of the less explored aspects in the field of social mobility and is increasingly gaining importance as a field of public policy. Additionally, it represents one of the few studies on mobility of occupational skills for a subnational territory in Mexico.

One of the main findings is that in skills associated with higher income or better working conditions (cognitive-abstract, cognitive-knowledge, managerial, and personal skills), children of parents with lower skills exhibited lower upward mobility to the quartile with the highest proficiency in these skills compared to other quartiles. When breaking down the data by gender, it was found that in skills associated with higher labor income, women achieved greater mobility than men, while in manual skills, they exhibited less mobility towards the use of these skills, which are typically associated with lower income. Regarding downward mobility from the quartile of parents with the highest skills to the quartile of children with the lowest skills, it was observed that this occurs more frequently than upward mobility. This indicates that it is easier for skills to decline between generations than for them to improve.

2. Conceptual framework

2.1 Intergenerational social mobility

In general terms, social mobility is defined as the alteration in an individual's socio-economic status (Sorokin, 1959). In societies characterized by low social mobility, those living in poverty are likely to remain impoverished throughout their lives, and levels of inequality are likely to persist or even worsen (Corak, 2013; Delajara *et al.*, 2018). From an economic standpoint, higher levels of social mobility led

to a perception of a more meritocratic social structure, incentivizing individuals to compete and enhance their labor productivity, ultimately resulting in increased income. Furthermore, the presence of upward social mobility suggests that a society utilizes its resources more efficiently, and the well-being of individuals is primarily a result of their effort and talent rather than the circumstances of their birth (Vélez, Campos, and Huerta, 2013).

The literature has well documented two common types of social mobility: absolute and relative mobility. Absolute mobility refers to improvements in a person overall well-being without necessarily indicating changes within a specific socio-economic group. On the other hand, relative mobility involves shifts in the position of individuals with respect to their peers or between different socio-economic strata, or even with respect to their parents. In this sense, relative upward mobility means that an individual succeeds in reaching a higher socio-economic stratum than the one they originated from in relative terms.

Relative intergenerational social mobility is one of the most important types of mobility because it involves significant changes in people's lives and indicates a society's ability to offer opportunities for meaningful improvements in the well-being of its members. Relative upward intergenerational social mobility means that children born to parents situated at the lower end of the socio-economic scale manage to attain a higher position on the socio-economic ladder in their own generation as adults.

Social mobility is influenced by factors that individuals have no control over, such as genetics and the socioeconomic circumstances of their family background, including their parents' wealth, education, and occupation (De la Torre and Espinosa, 2022). Additionally, barriers to upward social mobility can include a lack of social protection, dysfunctional family environments, and circumstances at birth, such as being

born female or in a particular geographical location (Orozco *et al.*, 2019; Heidrich, 2017; Delajara and Graña, 2017; Chetty, Hendren, Kline, and Saez, 2014). In some cases, even factors like having darker skin can be a disadvantage in societies where the elites are predominantly of a different racial or ethnic background (Monroy, Vélez, and Yalonetzky, 2018).

Traditionally, governments and society have prioritized educational achievement as the primary mechanism to promote social mobility. This is based on the belief that individuals with higher levels of education enhance their ability to enter the job market more favorably and become more productive. The impact of education on increasing individuals' income has been extensively studied and documented, along with its positive influence on social mobility. However, in recent years, empirical findings have emerged suggesting that factors other than education may be even more significant in explaining intergenerational social mobility. Rothstein (2018) discovered that, in the United States, intergenerational income mobility is better explained by factors related to the labor market or the demographic composition of households than by individuals' education.

2.2 Occupational skills and social mobility

In recent years, there has been growing evidence of the importance of people's skills in explaining their labor income and social mobility. Adults' skill levels are influenced by both innate factors and those that can be shaped over their lifetime (Campos, 2018b). Innate factors primarily pertain to genetic inheritance (Deming, 2017; Campos, 2016). On the other hand, factors that develop over one's lifetime include parenting practices, the quality of education received, and career paths. While

socioeconomic background at birth may not be considered an innate characteristic, it plays a significant role in determining people's mobility in various aspects, including their skills.

Early childhood is crucial for skill development because the first five years of life lay the foundation for the physical and mental development of adults (Nelson, 2010). When children are exposed to risk factors such as poverty, malnutrition, poor health, and inadequate caregiving or parenting practices, the development of these skills can be negatively affected or permanently reduced (Grantham-McGregor *et al.*, 2007). While individuals can continue to acquire or develop skills throughout their lives, their capacity to do so may diminish. Moreover, the longer it takes to acquire these skills, the wider the gap between them and those who acquired them during childhood. While skills can be acquired or developed throughout one's life, individuals may have a reduced capacity to do so. Additionally, the longer it takes for them to acquire these skills, the wider the gap becomes between them and those who acquired them during their childhood.

There are various types and classifications of skills, although there is generally consensus on the basic concepts and their implications. The occupational skill concepts used in this study are those estimated by Autor (2017) based on the definitions provided by Aedo *et al.* (2013), Acemoglu and Autor (2011), and Laajaj and Macours (2017). Specifically, there are five types of skills:

1. Cognitive Knowledge: Accumulation of knowledge and information.
2. Abstract Cognitive (Analytical): Information analysis, formal reasoning, creative thinking, interpretation of data.
3. Personal (Socio-emotional): Ability to establish and maintain long-term relationships. Perseverance.

4. Managerial: Guiding, directing, and motivating subordinates. Training and developing others. Teamwork.
5. Manual: Use of hands to manipulate, control, or touch objects and/or tools. Operation of vehicles, equipment, or mechanical devices. Spatial orientation.

Specialized literature on the study of skills has primarily focused on cognitive skills, somewhat neglecting the relevance of personal or socio-emotional skills. Recent research suggests that socio-emotional skills can be equally or even more important than cognitive skills for labor market integration and social mobility. Campos (2016) documents that in low socio-economic contexts, socio-emotional skills are more critical than cognitive skills for job insertion and performance. However, in higher socio-economic contexts, cognitive skills become more important for job retention and advancement. Deming (2017) has found evidence that recent technological changes have led to many cognitive tasks being performed by new technologies. As a result, the market has increasingly rewarded individuals for their socio-emotional skills. Since socio-emotional skills can be molded more through family and school environments than cognitive skills, which are often more associated with genetics (Campos, 2016), socio-emotional skills present an opportunity for individuals from disadvantaged backgrounds to increase their social mobility. Deming (2017) also finds that, in the United States, the wage return to social skills is positive, and cognitive ability and social skills complement each other. More specifically, he identified that social skills are a much stronger predictor of employment and wages for young adults aged 25 to 33 in the mid-2000s, compared to the 1980s and 1990s. In contrast, there is evidence that the importance of cognitive skills has slightly decreased.

In Mexico, Campos (2017) finds that non-cognitive skills are rewarded in the job market even after accounting for family background and educational attainment. When analyzing by gender, the returns to non-cognitive skills are similar between men and women. However, when controlling for educational attainment and family background, only men receive rewards for their cognitive skills.

3. Data and methods

3.1 Data description

The primary data used in this study come from the Encuesta ESRU de Movilidad Social en Nuevo León 2021 (ESRU-EMOVI Nuevo León 2021) (CEEY, 2022) targeting Mexican men and women aged 25 to 64 residing in both urban and rural areas of the state of Nuevo León. The survey collected both current and retrospective data, including information about the respondents' current occupations and those of their parents when the interviewees were 14 years old. In total, 3 767 interviews were conducted, and the results are representative of the population of the state, encompassing rural and urban areas as well as metropolitan and peripheral zones. Crucial for the objectives of this study is the availability of occupational information for both the respondents and their parents. This data enables the creation of various skills categories linked to the occupational structure.

To build skill profiles, this study also utilizes the Encuesta de Competencias de Personas y Perfiles Ocupacionales (CONOCER). This survey, conducted during the years 2011 and 2012 by the National Council for Standardization and Certification of Labor Competencies, is a data source to build up information regarding competences and skills for workers in Mexico. It is a representative survey, covering a sample of

17 250 respondents, including both entrepreneurs and workers, across 443 occupations at the four-digit level. The survey encompasses seven domains of labor-related aspects, including responsibility, knowledge, tools, abilities, social skills, traits, and physical skills. It provides detailed information about the nature of jobs, allowing for direct comparisons across all occupations (CONOCER, 2012).

One notable advantage of CONOCER is its design similarity to the information used by the United States Office of Occupational Information Network (O*NET), responsible for collecting data on skills and competences in the United States. This similarity makes it easier to conduct international comparisons with greater reliability. Applied work has been found to use type of data, including Autor and Dorn (2013), which analyzed the growth of low-skill service occupations and the concurrent polarization of employment and wages in the United States. Acemoglu and Autor (2011) explored job polarization, focusing on the roles of skills and technology from a heterodox perspective. Deming (2017) emphasized the importance of social skills in explaining salary returns. For Mexico, CONOCER data has been previously employed to investigate the role of occupational choices and acquired skills for Mexican migrant selection in the United States, see for example Author (2021). More recently, Leopold, Ruhose and Simon (2023) provide new evidence on international migrant selection based on occupational skills from a comparative perspective from urban and rural Mexico.

When estimating occupational skills, there are commonly used direct and indirect methods. On the one hand, the direct method involves collecting information from administering specific standardized tests to individuals. For instance, to measure cognitive skills, tests like the Raven's Progressive Matrices can be used to assess fluid intelligence (Campos, 2018a). For estimating crystallized intelligence, animal naming

tests can be employed (Schipolowski, Wilhelm & Schroeders, 2014), or for measuring memory capacity, five-digit span tests can be used (Campos, 2018a). In Mexico, the 2015 Social Mobility Survey is one of the few surveys that includes both intergenerational questions and sets of questions for directly estimating cognitive and non-cognitive skills among parents and adolescents within the same household (Campos, 2018a). However, this survey has certain limitations. It does not establish a direct link between skills and occupational classifications based on international or national standards, such as the Occupational Information Network (O*NET) in the United States or the SINCO in Mexico. Additionally, it does not take into account the representativeness of subnational territories.

On the other hand, there are also indirect methods for inferring the type of skills individuals possess based on the type of occupation they engage in. The advantage of this approach is that it allows for the estimation of occupational skills for a large number of people, although the disadvantage is that it is not entirely certain that certain types of skills are definitively associated with particular occupations. Due to the scarcity of information on occupational skills in representative samples for large territories, such as a subnational entity like Nuevo León, and furthermore, the enormous complexity involved in having occupational skills data for two generations, this study employs an indirect method to estimate the occupational skills of individuals.

In this study, we employ CONOCER's skill imputation method based on SINCO classifications, which, in turn, are derived from job task requirements. We use a Principal Component Analysis (PCA) to represent the occupational skill landscape across various dimensions: cognitive-knowledge, cognitive-abstract, social, managerial, and manual skills. For instance, cognitive-knowledge involves tasks related to accumulating knowledge and information; abstract-cognitive involves activities such as

information analysis, formal reasoning, creative thinking, and data interpretation; personal involves socio-emotional abilities to pertain, establish and maintain long-term relationships; managerial skills involve guiding, directing, motivating subordinates, training and developing others; and lastly, manual skills encompass the use of hands to manipulate, control, or handle objects/tools, as well as the operation of vehicles, equipment, or mechanical devices, and spatial orientation. For a comprehensive explanation of the CONOCER variables and information regarding tasks and its imputation into occupational skills, please refer to the work by Pat *et al.* (2021).

Because both the ESRU-EMOVI Nuevo León 2021 survey and CONOCER use the SINCO classification for occupational data, the occupational skills from CONOCER are assigned to the matching occupational categories in the ESRU-EMOVI Nuevo León 2021 survey. This process results in a distinctive database that allows for the examination of intergenerational mobility in both occupations and occupational skills.

3.2 Transition matrices

A transition matrix, in its simplest form, is a table that relates a set of categories between two periods of time. In the case of intergenerational social mobility, these matrices are frequently used to observe changes in specific well-being measures between parents and children, such as changes in wealth levels, income, or types of occupational employment.

In this study, transition matrices are employed to examine changes in the distribution of occupations and occupational skills of children in relation to their parents. More specifically, the aim is to establish the degree of upward or downward mobility in occupational skills through three types of analyses:

1. Intergenerational upward mobility of children from the quartile of parents with lower skills to the quartile of children with higher skills.
2. Intergenerational downward mobility of children from the quartile of parents with higher skills to the quartile of children with lower skills.
3. Persistence of children in the same quartile of skills as their parents, i.e., intergenerational immobility in skills.
4. Gender differences in levels of upward and downward skill mobility.
5. Identification of those skills with greater or lesser mobility.

4. Results

4.1 Intergenerational occupational mobility

Table 1 displays the distribution of occupations for both mothers and fathers of the interviewees (both men and women). As observed, the data for mothers represents only 43.8% of the data for fathers. This difference can be attributed to historically lower female labor force participation rates compared to males. The table also reveals that the majority of mothers' occupations fall within the categories of Elementary (33.7%), Sales (18.9%), and Services (11.3%). In contrast, fathers are predominantly engaged in Agriculture (73%) and Crafts (11.8%).

As shown in Table 1, there is an evident limitation in the dataset, namely the small number of observations for certain parental occupations, such as Managers. This limitation can be attributed to two main factors. Firstly, it may be due to the inherent constraints of the ESRU-EMOVI Nuevo León 2021 survey in capturing specific types of occupations from previous generations. Secondly, it may be attributed to the fact that certain occupation categories were not very common among the parents, especially

those involving skilled occupations. Instead, a significant portion of them had occupational profiles closely tied to the agricultural sector.

Despite this limitation, the dataset includes 1 621 observations for fathers out of a total of 3 767 interviewees (both men and women), which is considered sufficient for making meaningful extrapolations and analysis.

Table 1. Observations of mothers and fathers with information on occupations in the sample

| Occupations | Mothers of interviewees (women and men) | | Fathers of interviewees (women and men) | |
|-------------------------------|---|--------------|---|--------------|
| | Obs. | % | Obs. | % |
| Agriculture | 63 | 8.9 | 1 184 | 73.0 |
| Clerks | 41 | 5.8 | 13 | 0.8 |
| Crafts | 64 | 9.0 | 180 | 11.1 |
| Elementary | 239 | 33.7 | 23 | 1.4 |
| Machine operators | 4 | 0.6 | 62 | 3.8 |
| Managers | 5 | 0.7 | 2 | 0.1 |
| Professionals and technicians | 47 | 6.6 | 48 | 3.0 |
| Sales | 134 | 18.9 | 69 | 4.3 |
| Services | 113 | 15.9 | 40 | 2.5 |
| Total | 710 | 100.0 | 1 621 | 100.0 |

On the other hand, Table 2 presents the distribution of occupations for the interviewees (both daughters and sons). Here, it can be observed that the occupations of men are predominantly in Sales (20.4%), Machine Operators (17.5%), and Professionals and Technicians (17.1%), with Agriculture accounting for only 4.3%. In the case of women, their occupations continue to concentrate in Sales (26.3%), followed by Professionals and Technicians (16%). Initially, these data may suggest a higher level of intergenerational occupational mobility among men than among women.

Table 2. Observations of interviewees with information on occupations in the sample
by sex

| Occupation | Interviewees (daughters or sons) | | Interviewees (daughters) | | Interviewees (sons) | |
|----------------------------------|--|--------------|-----------------------------|--------------|------------------------|--------------|
| | Obs. | % | Obs. | % | Obs. | % |
| Agriculture | 50 | 3.1 | 7 | 1.1 | 43 | 4.3 |
| Clerks | 102 | 6.3 | 59 | 9.4 | 43 | 4.3 |
| Crafts | 169 | 10.4 | 35 | 5.5 | 134 | 13.5 |
| Elementary | 207 | 12.8 | 102 | 16.2 | 105 | 10.6 |
| Machine operators | 179 | 11.0 | 6 | 1.0 | 173 | 17.5 |
| Managers | 33 | 2.0 | 9 | 1.4 | 24 | 2.4 |
| Professionals and technicians | 260 | 16.0 | 91 | 14.4 | 169 | 17.1 |
| Sales | 427 | 26.3 | 224 | 35.5 | 202 | 20.4 |
| Services | 194 | 12.0 | 98 | 15.5 | 96 | 9.7 |
| Total | 1 621 | 100.0 | 631 | 100.0 | 989 | 100.0 |

Note: in the Sales category there is an observation without a sex type label.

As described above, the limited occupational information about mothers makes it convenient to focus on the intergenerational analysis between the interviewees (daughters or sons) and their fathers (men). Additionally, in previous generations, the father was typically the only family member with an occupation in the labor market. Thus, Table 3 displays the occupational transition matrix of the interviewees concerning their fathers.

Table 3. Occupational mobility of interviewees (men and women) with respect to their
parents (men)

| | Occupation | Occupational classification of the children interviewed (women and men) | | | | | | | | | |
|---|-------------|---|-------|--------|-------|------|------|-------|-------|-------|-------|
| | | Agr. | Clerk | Crafts | Elem. | Mac. | Man. | Prof. | Sales | Serv. | Total |
| Occupational classification of the father of the interviewees | Agriculture | 3.0 | 4.5 | 9.9 | 14.3 | 10.5 | 2.6 | 24.2 | 19.5 | 11.4 | 100.0 |
| | Clerks | 0.0 | 58.8 | 0.0 | 2.0 | 17.4 | 0.0 | 5.1 | 5.1 | 11.6 | 100.0 |
| | Crafts | 0.0 | 4.4 | 29.3 | 14.7 | 18.7 | 0.0 | 13.8 | 10.1 | 9.1 | 100.0 |
| | Elementary | 0.0 | 10.5 | 4.5 | 24.2 | 25.2 | 0.0 | 13.2 | 16.6 | 5.8 | 100.0 |
| | Machine op. | 0.5 | 17.9 | 2.9 | 15.4 | 36.6 | 0.3 | 17.3 | 8.8 | 0.2 | 100.0 |
| | Managers | 0.0 | 16.6 | 0.0 | 0.0 | 83.4 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 |
| | Prof./tech. | 0.0 | 11.1 | 0.7 | 2.2 | 18.3 | 0.8 | 41.5 | 17.3 | 8.1 | 100.0 |
| | Sales | 0.0 | 0.4 | 0.8 | 2.7 | 17.5 | 0.3 | 21.6 | 53.2 | 3.5 | 100.0 |
| | Services | 0.6 | 1.7 | 0.4 | 9.5 | 13.0 | 0.0 | 29.6 | 32.9 | 12.3 | 100.0 |

Note: the population expansion factor is applied to obtain the results.

In line with the socio-economic transformations of recent decades, the significant occupational mobility of the children of fathers originally employed in agriculture is confirmed. Specifically, only 3% of the children of fathers working in agriculture remained in agricultural occupations, while 24.2% of their children are now employed as Professionals and Technicians, occupations that typically offer better working conditions than agricultural jobs. Regarding occupational persistence, which refers to limited occupational mobility, there is a high persistence of occupations in Clerks (58.8%), Professionals and Technicians (41.5%), and Sales (53.25%).

In order to capture gender-related differences, Table 4 presents occupational transition matrices separately for women (top) and men (bottom) concerning their fathers. Regarding fathers employed in agriculture, there is high occupational mobility among their daughters and sons (interviewees). For women, the highest mobility was observed in Sales (29.5%) and Professionals and Technicians (30.9%), while for men, it concentrated in Professionals and Technicians (20.4%) and Machine Operators (17.1%). It is also noteworthy that the sons' mobility was more evenly distributed across different types of occupations compared to the daughters.

On the other hand, the occupations with the highest persistence among women and their fathers were Sales (62.2%), Professionals and Technicians (58.1%), and Crafts (22.8%). In the case of men, the occupations with the highest persistence were Clerks (66%) and Sales (51%), followed by Professionals and Technicians (38.3%) and Machine Operators (36.8%). As can be seen, once again, there is a more uniform occupational persistence among men compared to women.

Table 4. Occupational mobility of interviewees with respect to their parents by sex

| | | Occupational classification of women interviewee | | | | | | | | | |
|---|-------------|--|-------|--------|-------|------|------|-------|-------|-------|-------|
| | | Agr. | Clerk | Crafts | Elem. | Mac. | Man. | Prof. | Sales | Serv. | Total |
| Occupational classification of the father of the female interviewee | Agriculture | 2.6 | 5.7 | 3.6 | 12.7 | 1.5 | 2.3 | 29.5 | 30.9 | 11.1 | 100.0 |
| | Clerks | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.1 | 84.9 | 100.0 |
| | Crafts | 0.0 | 4.6 | 22.8 | 15.5 | 9.7 | 0.0 | 5.4 | 26.8 | 15.3 | 100.0 |
| | Elementary | 0.0 | 0.0 | 0.0 | 8.1 | 0.0 | 0.0 | 7.8 | 58.2 | 26.0 | 100.0 |
| | Machine op. | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 |
| | Managers | | | | | | | | | | |
| | Prof./tech. | 0.0 | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 58.1 | 10.4 | 27.2 | 100.0 |
| | Sales | 0.0 | 2.0 | 0.0 | 11.1 | 0.0 | 0.0 | 21.9 | 62.2 | 2.8 | 100.0 |
| | Services | 0.0 | 0.0 | 0.0 | 38.9 | 0.0 | 0.0 | 0.0 | 61.1 | 0.0 | 100.0 |
| | | Occupational classification of men interviewee | | | | | | | | | |
| | | Agr. | Clerk | Crafts | Elem. | Mac. | Man. | Prof. | Sales | Serv. | Total |
| Occupational classification of the father of the male interviewee | Agriculture | 3.3 | 3.7 | 14.6 | 15.5 | 17.1 | 2.8 | 20.4 | 10.9 | 11.7 | 100.0 |
| | Clerks | 0.0 | 66.0 | 0.0 | 2.2 | 19.6 | 0.0 | 5.7 | 3.9 | 2.6 | 100.0 |
| | Crafts | 0.0 | 4.3 | 31.0 | 14.5 | 20.9 | 0.0 | 15.9 | 5.9 | 7.5 | 100.0 |
| | Elementary | 0.0 | 12.3 | 5.3 | 27.0 | 29.5 | 0.0 | 14.1 | 9.5 | 2.3 | 100.0 |
| | Machine op. | 0.5 | 18.0 | 2.9 | 15.0 | 36.8 | 0.3 | 17.4 | 8.9 | 0.2 | 100.0 |
| | Managers | 0.0 | 16.6 | 0.0 | 0.0 | 83.4 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 |
| | Prof./tech. | 0.0 | 12.4 | 0.9 | 2.7 | 21.9 | 0.9 | 38.3 | 18.6 | 4.3 | 100.0 |
| | Sales | 0.0 | 0.0 | 1.0 | 0.7 | 21.6 | 0.4 | 21.6 | 51.0 | 3.7 | 100.0 |
| | Services | 0.8 | 2.3 | 0.6 | 0.0 | 17.2 | 0.0 | 39.1 | 23.8 | 16.3 | 100.0 |

Note: the population expansion factor is applied to obtain the results.

4.2 Intergenerational skills mobility

As previously described, to analyze the mobility of skills, these were transformed from their original values (resulting from Principal Component Analysis) to a scale of 1 to 100 (range-scale), and then divided into quartiles. The lowest quartile (0-25) represents individuals with the lowest skills, while the highest quartile (< 75 and < = 100) represents those with the highest skills.

In contrast to cognitive-abstract, cognitive-knowledge, managerial, and personal skills, which are usually linked to improved job conditions and, consequently, upward social mobility (well-being), manual skills should be viewed differently. Manual skills are typically associated with occupations that provide lower wages or working conditions, so a higher proficiency in manual skills might indicate a likelihood of less favorable employment outcomes.

The results in Table 5 illustrate the intergenerational mobility of occupational skills between interviewees and their parents. A crucial observation to make is that, overall, when it comes to skills that are linked to higher income or improved job conditions, such as cognitive-abstract, cognitive-knowledge, managerial, and personal skills, children whose parents had lower skills (in the first quartile) tended to experience less upward mobility in these skills compared to individuals in other quartiles. Regarding the upward mobility of children from the quartile of parents with lower skills (0-25) to the quartile of children with higher skills (< 75 and ≤ 100), the skill with the least upward intergenerational mobility is cognitive-abstract, with only 2.5% of children from parents in the lower skills quartile managing to move to the higher skills quartile. For managerial skills, there was a 6.5% mobility, cognitive-knowledge, 8.4%, personal, 11%, and manual, 25.1%.

In terms of downward mobility from the quartile of parents with higher skills (< 75 and ≤ 100) to the quartile of children with lower skills (0-25), cognitive-knowledge skills recorded a 22.7% decrease, cognitive-abstract, 28.8%, personal, 23.5%, managerial, 33.7%, and manual, 16.4%. As observed, downward mobility is greater than upward mobility, with managerial skills being more volatile or sensitive to registering more pronounced declines in children. The quartiles of skills with the highest persistence (no change in quartile) are the third quartile of cognitive-knowledge skills with 56.7%, the first quartile of cognitive-abstract skills with 54.3%, the first quartile of personal skills with 54.4%, the first quartile of managerial skills with 71.1%, and the fourth quartile of manual skills with 40.7%. This means that for skills with higher income potential, it is more challenging for children to surpass their parents' situation, and for manual skills, associated with lower income potential, it is also more difficult for children to move away from them. In conclusion, upward intergenerational

mobility in skills associated with higher-income occupations, such as cognitive and managerial skills, is lower for children of parents with lower skills.

Table 5. Intergenerational mobility of occupational skills

| | | Cognitive-knowledge of the interviewees (men and women) | | | | |
|--|-------------|--|------------|------------|-------------|-------|
| | | 0-25 | <25 y <=50 | <50 y <=75 | <75 y <=100 | Total |
| Cognitive-knowledge of the interviewee's father | 0-25 | 49.96 | 22.53 | 19.11 | 8.39 | 100 |
| | <25 y <=50 | 23.29 | 22.91 | 23.53 | 30.27 | 100 |
| | <50 y <=75 | 14.19 | 21.67 | 56.74 | 7.41 | 100 |
| | <75 y <=100 | 22.67 | 29.21 | 18.08 | 30.04 | 100 |
| | | Cognitive-abstract of the interviewee (men and women) | | | | |
| | | 0-25 | <25 y <=50 | <50 y <=75 | <75 y <=100 | Total |
| Cognitive-abstract of the interviewee's father | 0-25 | 54.35 | 21.28 | 21.82 | 2.55 | 100 |
| | <25 y <=50 | 23.98 | 19.41 | 25.94 | 30.67 | 100 |
| | <50 y <=75 | 61.35 | 7.74 | 25.78 | 5.13 | 100 |
| | <75 y <=100 | 28.76 | 21.72 | 24.43 | 25.09 | 100 |
| | | Personal of the interviewee (men and women) | | | | |
| | | 0-25 | <25 y <=50 | <50 y <=75 | <75 y <=100 | Total |
| Personal of the interviewee's father | 0-25 | 54.44 | 18.27 | 16.22 | 11.07 | 100 |
| | <25 y <=50 | 24.57 | 27.69 | 17.89 | 29.85 | 100 |
| | <50 y <=75 | 30.55 | 47.76 | 10.69 | 11 | 100 |
| | <75 y <=100 | 23.5 | 31.77 | 16.25 | 28.48 | 100 |
| | | Managerial of the interviewee (men and women) | | | | |
| | | 0-25 | <25 y <=50 | <50 y <=75 | <75 y <=100 | Total |
| Managerial of the interviewee's father | 0-25 | 71.13 | 5.72 | 16.63 | 6.52 | 100 |
| | <25 y <=50 | 24.77 | 18.98 | 25.74 | 30.52 | 100 |
| | <50 y <=75 | 11.19 | 4.82 | 38.91 | 45.08 | 100 |
| | <75 y <=100 | 33.72 | 21.45 | 26.88 | 17.95 | 100 |
| | | Manual of the interviewee (men and women) | | | | |
| | | 0-25 | <25 y <=50 | <50 y <=75 | <75 y <=100 | Total |
| Manual of the interviewee's father | 0-25 | 29.79 | 26.01 | 19.09 | 25.11 | 100 |
| | <25 y <=50 | 27.91 | 17.68 | 30.69 | 23.72 | 100 |
| | <50 y <=75 | | | | | |
| | <75 y <=100 | 16.36 | 15.49 | 27.46 | 40.68 | 100 |

Note: the population expansion factor is applied to obtain the results.

In order to observe potential gender differences in the mobility of occupational skills, Table 6 describes the mobility of daughters and sons separately for each skills type. Regarding the upward mobility of children from the quartile of parents with lower skills to the quartile of children with higher skills, in cognitive-knowledge skills, women recorded higher mobility, with 16.3% compared to 6.0% for men. For cognitive-abstract, personal, managerial, and manual skills, these percentages were 21.5% and 0%, 15.6% and 9.5%, n.d. and 6.5%, and 14.7% and 26.4%, respectively. This means

that in skills associated with higher income potential (except for managerial skills due to data limitations for women), women achieved greater mobility than men. In manual skills, they registered less mobility toward the use of these skills associated with lower income potential.

When analyzing the downward mobility from the fourth to the first quartile, the following percentages are observed for women and men: in cognitive-knowledge, 17.5% and 23.7%; cognitive-abstract, 34.6% and 27.3%; personal, 17.0% and 24.8%; managerial, 30.3% and 34.4%; and manual 25.5% and 13.9%. Although downward mobility is more gender-balanced than upward mobility, it is noteworthy that the decline in manual skills for women is almost twice as high as for men.

Table 6. Intergenerational mobility of occupational skills by sex

| | | Cognitive-knowledge of the interviewees (Women=W; Men=M) | | | | | | | | | |
|--|-------------|---|-------|------------|-------|------------|-------|-------------|-------|-------|-----|
| | | 0-25 | | <25 y <=50 | | <50 y <=75 | | <75 y <=100 | | Total | |
| Sex | | W | M | W | M | W | M | W | M | W | M |
| Cognitive-knowledge of the interviewee's father | 0-25 | 53.06 | 49.01 | 10.00 | 26.38 | 20.68 | 18.63 | 16.25 | 5.98 | 100 | 100 |
| | <25 y <=50 | 16.6 | 28.65 | 18.72 | 26.03 | 16.34 | 29.28 | 48.33 | 16.04 | 100 | 100 |
| | <50 y <=75 | 10.9 | 14.46 | 78.52 | 16.96 | 10.58 | 60.56 | 0.00 | 8.02 | 100 | 100 |
| | <75 y <=100 | 17.51 | 23.69 | 33.98 | 28.27 | 14.01 | 18.88 | 34.5 | 29.15 | 100 | 100 |
| | | Cognitive-abstract of the interviewees (Women=W; Men=M) | | | | | | | | | |
| | | 0-25 | | <25 y <=50 | | <50 y <=75 | | <75 y <=100 | | Total | |
| Sex | | W | M | W | M | W | M | W | M | W | M |
| Cognitive-abstract of the interviewee's father | 0-25 | 40.73 | 56.19 | 0 | 24.14 | 37.76 | 19.67 | 21.51 | 0 | 100 | 100 |
| | <25 y <=50 | 19.46 | 27.91 | 16.83 | 21.37 | 23.8 | 27.85 | 39.91 | 22.87 | 100 | 100 |
| | <50 y <=75 | 0 | 63.09 | 21.91 | 7.34 | 32.29 | 25.6 | 45.8 | 3.98 | 100 | 100 |
| | <75 y <=100 | 34.62 | 27.35 | 30.18 | 19.69 | 10.21 | 27.83 | 24.99 | 25.12 | 100 | 100 |
| | | Personal of the interviewees (Women=W; Men=M) | | | | | | | | | |
| | | 0-25 | | <25 y <=50 | | <50 y <=75 | | <75 y <=100 | | Total | |
| Sex | | W | M | W | M | W | M | W | M | W | M |
| Personal of the interviewee's father | 0-25 | 51.52 | 55.43 | 16.74 | 18.78 | 16.12 | 16.26 | 15.62 | 9.53 | 100 | 100 |
| | <25 y <=50 | 15.88 | 31.51 | 13.65 | 38.89 | 26.17 | 11.11 | 44.3 | 18.49 | 100 | 100 |
| | <50 y <=75 | 38.82 | 30.23 | 13.45 | 49.09 | 0 | 11.11 | 47.73 | 9.57 | 100 | 100 |
| | <75 y <=100 | 17.04 | 24.8 | 16.12 | 34.92 | 39.17 | 11.64 | 27.67 | 28.65 | 100 | 100 |
| | | Managerial of the interviewees (Women=W; Men=M) | | | | | | | | | |
| | | 0-25 | | <25 y <=50 | | <50 y <=75 | | <75 y <=100 | | Total | |
| Sex | | W | M | W | M | W | M | W | M | W | M |
| Managerial of the interviewee's father | 0-25 | | 71.13 | | 5.72 | | 16.63 | | 6.52 | | 100 |
| | <25 y <=50 | 13.81 | 34.19 | 22.31 | 15.9 | 28.22 | 23.69 | 35.66 | 26.22 | 100 | 100 |
| | <50 y <=75 | 33.8 | 0 | 14.55 | 0 | 32.91 | 41.88 | 18.75 | 58.12 | 100 | 100 |
| | <75 y <=100 | 30.31 | 34.43 | 38.41 | 17.93 | 19.99 | 28.3 | 11.28 | 19.33 | 100 | 100 |
| | | Manual of the interviewees (Women=W; Men=M) | | | | | | | | | |
| | | 0-25 | | <25 y <=50 | | <50 y <=75 | | <75 y <=100 | | Total | |
| Sex | | W | M | W | M | W | M | W | M | W | M |
| | 0-25 | 29.15 | 29.87 | 44.58 | 23.73 | 11.52 | 20.02 | 14.75 | 26.38 | 100 | 100 |
| | <25 y <=50 | 40.87 | 17.72 | 27.06 | 10.03 | 19.96 | 39.27 | 12.11 | 32.98 | 100 | 100 |

| | | | | | | | | | | | |
|---|-------------|-------|-------|-------|-------|------|------|-------|-------|-----|-----|
| Manual of the interviewee's father | <50 y <=75 | | | | | | | | | | |
| | <75 y <=100 | 25.47 | 13.93 | 20.36 | 14.19 | 20.6 | 29.3 | 33.57 | 42.58 | 100 | 100 |

Note: the population expansion factor is applied to obtain the results.

Regarding persistence in the quartile with higher skills (< 75 and < = 100), women remain in such position more than men in cognitive-knowledge skills (34.5% and 29.1%), but not in cognitive-abstract (25.0% and 25.1%), personal (27.7% and 28.7%), managerial (11.3% and 19.3%), and manual (33.6% and 42.6%) skills. This implies that in three out of the four skills associated with higher income potential, women fell in level to a greater extent than men. For manual skills, a lesser decline in women's skills should be interpreted as a sign of less mobility toward higher-paying skills in the job market.

5. Conclusions

The present study suggests that there has been a certain level of increased mobility in occupational skills in Nuevo León. However, this mobility varies depending on the type of skill, gender, and family background. One notable result is that, in general, for skills associated with higher incomes or better working conditions (cognitive-abstract, cognitive-knowledge, managerial, and personal), children of parents with lower skills (first quartile) showed less upward mobility to the quartile with higher skill levels (fourth quartile) compared to other quartiles. Regarding upward mobility from the quartile of parents with lower skills to the quartile of children with higher skills, the following percentages were observed: 2.5% in cognitive-abstract, 6.5% in managerial, 8.4% in cognitive-knowledge, 11% in personal, and 25.1% in manual skills.

Unlike other skills, the increase in manual skills should be interpreted as indicative of a likely worse labor situation.

When breaking it down by gender, it was found that women achieved greater mobility than men in skills associated with higher incomes, and they displayed less mobility toward the use of manual skills, which are typically associated with lower incomes. In this regard, it can be asserted that, in Nuevo León, women currently enjoy improved working conditions compared to their parents, surpassing men in this regard when compared to their parents. This undoubtedly represents progress for gender equality. However, it is important to note that, as extensively documented, women still face a significant gender wage gap and lower labor market participation compared to men in the present day.

Regarding the decline in mobility from the quartile of parents with the highest skills to the quartile of children with the lowest skills, it was observed that this decline is more pronounced than upward mobility. This implies that losing skills between generations is more common than gaining them. It's worth noting that, in contrast to other measures of social mobility where women tend to experience greater declines than men, when it comes to skills, the situation is reversed: men are more likely to experience declines in skills compared to women.

Despite methodological limitations related to skill imputation, where it is assumed that the type of occupational skills can be inferred solely from the occupation, this study provides unique and valuable information for analyzing intergenerational mobility in occupational skills in Nuevo León. It has significant implications for the design of social, labor, and economic policies. The fact that intergenerational mobility in skills associated with better jobs is lower for children of parents with lower skills of this type highlights the importance of directing labor and education policies towards

skills development in population segments with lower income or wealth, as they typically have fewer high-paying skills recognized by the job market. In terms of gender differences, the results show greater upward mobility for women. However, as extensively documented, this does not necessarily mean that they are actually earning higher salaries than men. Therefore, it is crucial to continue promoting labor policies focused on gender equality and non-discrimination. Although occupational skills are related to educational levels, it is possible that a policy promoting skills development through family, school, and work could be just as determining as educational attainment in gaining access to better occupations and achieving greater social mobility. This is a potential avenue for future research in related studies.

6. References

- Acemoglu, Daron and Autor, David. (2011). “Skills, Tasks and Technologies: Implications for Employment and Earnings”. *Handbook of Labor Economics*, 4, 1043-1171. [https://doi.org/10.1016/S0169-7218\(11\)02410-5](https://doi.org/10.1016/S0169-7218(11)02410-5)
- Aedo, C., Hentschel, J., Luque, J. and Moreno, M. (2013). “From Occupations to Embedded Skills: A Cross-Country Comparison”. *The World Bank. Policy Research Working Paper 6560* <https://doi.org/10.1596/1813-9450-6560>
- Autor, David H and Dorn, David. (2013). “The growth of low-skill service jobs and the polarization of the US labor market”. *American Economic Review*, 103(5), 1553-1597. DOI: 10.1257/aer.103.5.1553
- Campos, Raymundo. (2018a). “Intergenerational Persistence of Skills and Socioeconomic Status”. *Journal of Family and Economic Issues*, 39(3), 509-523. <https://doi.org/10.1007/s10834-018-9574-7>
- Campos, Raymundo. (2018b). *Movilidad social en México. La importancia de las habilidades y su transmisión intergeneracional*. México: El Colegio de México-Centro de Estudios Espinosa Yglesias (CEEY).

- Campos, Raymundo. (2017). “Returns to cognitive and non-cognitive skills: evidence for Mexico”. *Applied Economics Letters*, 25(16), 1153-1156
<https://doi.org/10.1080/13504851.2017.1403551>
- Campos, Raymundo. (2016). *Inteligencia y personalidad. Efectos en movilidad social y resultados de vida*. México: El Colegio de México-Centro de Estudios Espinosa Yglesias (CEEY).
- CEEY. (2022). Encuesta ESRU de Movilidad Social en Nuevo León 2021. Retrieved from: <https://ceey.org.mx/encuesta-esru-de-movilidad-social-en-nuevo-leon-2021/>
- Chetty, R., Hendren, N., Kline, P. and Saez, E. (2014). “Where is the Land of Opportunity? The Geography of Intergenerational Mobility in the United States”. *The Quarterly Journal of Economics*, 129(4), 1553-1623.
<https://doi.org/10.1093/qje/qju022>
- Corak, Miles. (2013). “Income Inequality, Equality of Opportunity, and Intergenerational Mobility”. *Journal of Economic Perspectives*. 27(3), 79-102.
<http://dx.doi.org/10.1257/jep.27.3.79>
- De la Torre, R. and Espinosa, R. (2022). *Informe sobre movilidad social en Nuevo León*. México: Consejo Nuevo León para la Planeación Estratégica-Centro de Estudios Espinosa Yglesias.
- Delajara, M., De la Torre, R., Díaz-Infante, E., Vélez, R. (2018). *El México del 2018. Movilidad social para el bienestar*, México: Centro de Estudios Espinosa Yglesias (CEEY).
- Delajara, M., y Graña, D. (2017). “Intergenerational Social Mobility in Mexico and its Regions”. *Documento de trabajo 06/2017 del Centro de Estudios Espinosa Yglesias*.
- Deming, David. (2017). “The Growing Importance of Social Skills in the Labor Market”. *The Quarterly Journal of Economics*, 132(4), 1593-1640.
<https://doi.org/10.1093/qje/qjx022>
- Grantham-McGregor, S., Bun Cheung, Y., Cueto, S., Glewwe, P., Richter, L., Strupp, B., and the International Child Development Steering Group. (2007). “Developmental potential in the first 5 years for children in developing countries”. *Child development in developing countries*. 369(9555), 60-70.
[https://doi.org/10.1016/S0140-6736\(07\)60032-4](https://doi.org/10.1016/S0140-6736(07)60032-4)

- Heidrich, Stefanie. (2017). "Intergenerational mobility in Sweden: a regional perspective". *Journal of Population Economics*, 30, 1241-1280. <https://doi.org/10.1007/s00148-017-0648-x>
- Laajaj, R. and Macours, K. (2017). "Measuring Skills in Developing Countries". *World Bank Working Paper No. 8000*. <https://doi.org/10.1596/1813-9450-8000>
- Leopold, S., Ruhose, J. and Simon, W. (2023). "Why is the Roy-Borjas Model Unable to Predict International Migrant Selection on Education? Evidence from Urban and Rural Mexico". *CESifo Working Paper No. 10588*. <http://dx.doi.org/10.2139/ssrn.4527563>
- Monroy, Luis, Vélez, R. y Yalonetzky, G. (2018). Layers of Inequality Social Mobility Inequality of Opportunity and Skin Colour in Mexico. *Documento de trabajo 03/2018 del Centro de Estudios Espinosa Yglesias*.
- Nelson, C. A. (2000). "The neurobiological bases of early intervention". *Handbook of early childhood intervention*, 204-227. <https://doi.org/10.1017/CBO9780511529320.012>
- Orozco, Mónica, Espinosa, Rocío, Fonseca, Claudia y Vélez, Roberto. (2019). *Informe de movilidad social en México 2019. Hacia la igualdad regional de oportunidades*. México: Centro de Estudios Espinosa Yglesias.
- Roemer, John. (1993). "A Pragmatic Theory of Responsibility for the Egalitarian Planner". *Philosophy & Public Affairs*, 22(2), 146-166.
- Schipolowski, S., Wilhelm, O., & Schroeders, U. (2014). On the nature of crystallized intelligence: The relationship between verbal ability and factual knowledge. *Intelligence*, 46, 156-168. <https://doi.org/10.1016/j.intel.2014.05.014>.
- Sorokin, P. A. (1959). *Social and Cultural Mobility*, Nueva York: The Free Press.
- Vélez Grajales, R., Campos Vázquez, R. y Huerta Wong, J. E. (2013). *Informe de Movilidad Social en México 2013: Imagina tu futuro*. México: Centro de Estudios Espinosa Yglesias.