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# Senior Executives and High-Level Professionals: A Statistical Definition of the “Socio-Professional Elite”

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## Abstract:

This article introduces the theoretical framework, construction method, and initial analyses of a new category within the official French socioeconomic classification (*Professions et catégories socioprofessionnelles*; PCS 2020), named “top-level executives and professionals.” This category aims to identify the highest-ranking occupations in French society. Among managers, professionals, and higher-level intellectual occupations, this category pinpoints the upper echelon of positions (whether salaried or otherwise) that entail significant responsibilities within work organizations and/or recognized high-level expertise. These positions, identified based on their titles and occupational characteristics, constitute an “occupational elite” (comprising 3% of the working population) that bridges the sociology of stratification and the sociology of elites. Incorporating this category into public statistical surveys offers a fresh perspective for analyzing socioeconomic inequalities, complementing those approaches based on educational level or income. As an initial demonstration of its empirical utility, this article presents evidence of pronounced intergenerational reproduction at the pinnacle of the social hierarchy.

## Keywords:

Elite  
Social stratification  
Occupational categories  
Upper classes  
Inequalities  
Social mobility

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## 1. Introduction

Economic inequalities measured at the top of the social structure have been the subject of renewed scientific and media interest for several years now, particularly in terms of the increase in the share of income received by the richest 1% in many countries <sup>[1]</sup>. French sociology

has long been concerned with the issue of elites, as demonstrated by studies on the upper middle classes and their neighborhoods <sup>[2]</sup>, the educational institutions central to the training of economic, administrative, and political elites <sup>[3–6]</sup>, high incomes in the finance sector <sup>[7]</sup>, and the overall “structure of the field of power” <sup>[8]</sup>. However,

because of their very small size, these groups have rarely been captured in the major national quantitative surveys, which Savage and Williams point out are fundamentally blind to elites because of the lack of precision in the categories used <sup>[9]</sup>. This methodological difficulty feeds the distinction between two fields of study that have developed separately. On the one hand, the sociology of elites and the economics of inequality focus on highly selective groups—the top 0.1% or even less of income earners—using specialized sources (for example, Who's Who or the Bottin Mondain in France <sup>[10,8]</sup>) or exhaustive administrative files (like the work on very high incomes or wealth based on tax data <sup>[11,7,12]</sup>). On the other hand, the sociology of stratification and social classes focuses on broader groups, mainly based on national surveys of representative samples <sup>[13]</sup>. There is a quantitative gulf between the *énarques* or big bosses studied by the first trend, who represent at most a few tens of thousands of people, and the socio-professional group of “managers and higher intellectual professions” analyzed by the second trend, which represents several million people. This problem is not specific to France: for example, Savage, highlighting the internal “fracture” in the British category of upper service class (equivalent to *cadres et professions intellectuelles supérieures* in the official NS-SEC classification), calls on sociology to “distinguish a slightly broader group (than the 1%) at the top of the social structure” <sup>[14]</sup>.

The category of “high-level managers and professionals” presented in the article is intended to fill this gap and thereby respond to the desire to have, in official statistics, a hierarchical analysis grid within the group of “managers and higher intellectual professions” <sup>[15]</sup>. This category groups several hundred thousand people, around 3% of jobs, and therefore makes it possible to carry out analyses at the junction of the sociology of stratification and the sociology of elites. It delimits, within company managers and executives and the higher intellectual professions, the upper fraction of positions occupied in the social division of labor, positions characterized by significant responsibility in work organizations (whether as an employee or as a self-employed person) or expertise recognized as being of a high level. While income from work and qualifications are considered to be indicators of a high position in a

given field, their levels vary from one field to another—it is understood that the dominant positions in society represent a variable proportion of the workforce in each field, depending on its position in the hierarchy of fields. The proposed category is therefore not simply a measure, albeit an indirect one, of these dimensions: its objective is indeed to identify people with a high level of power, i.e. responsibility or expertise, attached to a formal position in the division of labor and which can, therefore, be objectified by a job description and characteristics of the professional situation.

The category of high-level managers and professionals is one of the innovations in the latest revision of the nomenclature of occupations and socio-professional categories (PCS) in 2020 <sup>[16,17]</sup>. It is the result of design work carried out by the authors of this article within the working group of the *Conseil national de l'information statistique* (CNIS), in parallel with the renovation of the PCS coding process, which allows more precise identification of occupational situations through the use of a list of several thousand standardized job descriptions in the collection. The degree of statistical precision obtained in this way has few equivalents in general population surveys in France or elsewhere. It enables regulated professions, civil service grades and positions in company organization charts to be identified with great precision.

The resulting variable has been included in national statistical surveys since 2021, beginning with the Employment Survey conducted by the National Institute of Statistics and Economic Studies (INSEE). Although it lacks the precision of definition and analysis offered by prosopographic studies and monographic surveys in the sociology of elites, the category encompasses a broader social spectrum. Its major contribution is to enable the establishment of cumulative knowledge in different fields of research thanks to a definition that is stable over time and homogeneous in different sources. It will enable us, for example, to identify selection mechanisms for access to the socio-professional elite, to analyze in greater detail the “glass ceiling” that women face in their careers, and to gain a better understanding of social mobility and homogeneity. Based on general population surveys, these analyses are likely to complement existing approaches to the elites, which are essentially limited to an approach

based on the most prestigious educational backgrounds or the highest incomes and wealth.

The following article presents the theoretical underpinnings of the category (part I), its definitional principles, and the methodological challenges posed by its implementation in statistical surveys (part II), as well as initial analyses (part III) based on data from the 2021 Employment survey, which detail the socio-demographic characteristics of high-level managers and professionals and illustrate the category's contribution to the analysis of social mobility.

## 2. Theoretical presentation

More than twenty years ago, Grusky and his co-authors<sup>[18,19]</sup> questioned the need to rethink the framework of class analyses, which were then presented as being in decline because they were linked to the philosophy of Marxist history. They proposed moving away from the macro-sociological level of the “great classes” used by specialists in social stratification towards the sociology of work, by adopting a meso-sociological approach of “microclasses.” From this perspective, class analyses were led to focus on occupations or groups of occupations which, alone, still appeared sociologically consistent in that they all referred to access procedures, specific types of organization and working conditions, shared career paths, and professional sociability, rules, and values, and sometimes even specific lifestyles or political orientations. The creation of the category of high-level managers and professionals was inspired by this trend.

It takes on board the limited size of the proposed category, but also—and more fundamentally — the importance of anchoring the analysis of social stratification in the reality of professional worlds, and the segmentations and hierarchies with which they are endowed. Its components, defined as the upper fractions of different socio-professional categories, are akin to micro-classes. While they do not directly form spaces of inter-acquaintance and “*entre-soi*” that can only be approached by narrow definitions of the elite, they do constitute common training outlets, spaces of professional socialization, and shared areas of career mobility. Reflecting combinations of social characteristics

(economic, cultural, etc.) linked to work situations and environments, they are defined in a multidimensional way, like the socio-professional nomenclature as a whole<sup>[20]</sup>. By statistically aggregating these different components, the category developed should enable social science researchers to examine, at least in the form of a hypothesis, the unity and consistency of a “socio-professional elite,” thus extending to a wider scale a classic question in the sociology of elites.

The category is not limited to capturing high levels of income or wealth. Following the pioneering work of Piketty<sup>[11]</sup>, the development of this approach has certainly made a decisive contribution to highlighting the strengthening of economic inequalities to the benefit of the richest fractions of French society, but it has only enabled an analysis of inequalities through their economic component, whereas using work situations offers a broader understanding, not confined to income or qualifications<sup>[21]</sup>. This limitation also applies to studies that focus on the formation of elites exclusively from the point of view of qualifications<sup>[22]</sup>. Furthermore, the measurement of income suffers from classic pitfalls (under-reporting, including in tax sources; temporal variability as a function of economic conditions and the life cycle), and information on diplomas in itself says nothing about the positions acquired during a career. All these factors explain why occupational status, which is easy to collect in a variety of surveys, remains the key to analysis in the quantitative sociology of social stratification<sup>[23,13]</sup>.

### 2. 1. Identifying positions and describing occupations

The purpose of the high-level managers and professionals' category is to identify the highest positions in each field defined by one of the socio-professional categories of executives and higher intellectual professions or company managers, on the assumption that these positions can reasonably be captured by the wording of the professions, which reflect their position in work organizations, and more broadly in society. In the vocabulary of the sociology of elites, the approach adopted here is therefore positional, in that it is based on the formal positions occupied by individuals, as opposed

to the reputational (based on mutual recognition of elite members) and decision-making (based on observation of concrete actions <sup>[24]</sup>) approaches. This approach is consistent with that advocated by Charles Wright Mills, according to whom “the elite is not simply the most advantaged men, for they could not ‘be advantaged’ without the positions they occupy in the major institutions. Indeed, these institutions are the necessary foundations of power, wealth and prestige” <sup>[25]</sup>.

In line with the Bourdieusian approach in terms of fields <sup>[26,27]</sup> or the Millsian approach in terms of institutional orders <sup>[25]</sup>, the approach followed does not assume that high positions can be identified based on a single criterion, valid uniformly for all fields—whether, for example, income, qualifications, or a combination of these two variables. On the contrary, since each field is relatively autonomous and follows its logic, the classification criteria are not a priori reducible to a single dimension: it is important to identify the occupational hierarchies specific to each field to pinpoint the highest positions, which presupposes accepting that those in a given field may, on one or other criterion, occupy a less favorable position than those in another field. If this rule is not followed, the resulting category will be no more than an approximate measure of income or qualifications, of limited sociological value. This construction principle is close in spirit to the one used by Delruelle-Vosswinkel <sup>[28]</sup> to study the “notables in Belgium” (although the scope was much more restricted).

Relying on occupational titles to identify the highest positions amounts to sanctioning the result of classification struggles within each field, as crystallized in job titles, company organization charts, branch collective agreements, civil service grids, or even laws governing the practice of the liberal professions. In this respect, the proposal presented here follows the spirit of the PCS nomenclature, whose categories are defined based on the social compromises involved in classification <sup>[20]</sup>. Instead of relying on theoretical criteria established a priori (for example, the use, uniformly or in cross-tabulations, of variables such as self-employed/employed status, company size, or income level—etic approach, it intends to rely on ordinary categorizations and thus make sense to the players—emic approach). In practice, the approach has benefited from work on

the job descriptions declared in statistical sources <sup>[29,30]</sup>. Associated with the beginnings of the socio-economics of conventions, this research has shown the plurality of ways of declaring one’s occupation, and hence of the practical and normative supports which organize work activities. Highlighting this plurality, which can be linked to the “cities” of pragmatic sociology <sup>[31]</sup>, guided the work carried out to delimit, in a specific way, the hierarchies within the corpus of wordings corresponding to the different fields.

## 2.2. Between the sociology of elites and the sociology of social classes

The category of high-level managers and professionals is based on criteria found in various theoretical currents. By referring to positions of power in the division of labor, it is close to the categories studied by the sociology of elites, although these are far from unified, as Genieys has pointed out <sup>[32]</sup>. For example, in terms of principles, it is close to part of the definition given by Scott <sup>[33]</sup>. According to Scott, elites can be recognized by the fact that they exercise domination, i.e. a power that takes the form of stable and lasting relationships of control and is achieved either by coercion (force or incentive) or by authority (expertise or command). The two criteria used to define the category, responsibility and expertise, correspond to the two dimensions of authority he identifies <sup>[34]</sup>, and are also central to contemporary theories of social class. According to the neo-Marxist theory of Wright <sup>[35]</sup>, it is these two dimensions that enable the most privileged employees to be allocated part of the surplus resulting from the exploitation of other employees by the owners of the means of production. They also explain, in the neo-Weberian theory of Erikson and Goldthorpe <sup>[36]</sup>, why employees in the service class benefit from advantageous employment conditions.

Nevertheless, the approach adopted here implies adopting an extensive, structural understanding of power and domination, whereas Scott adopts a strict interpretation, limited to cases where these notions can be individually objectified. In fact, by attempting to build a bridge between the sociology of elites and the sociology of social classes, the category of high-level managers and professionals deviates in practice, through its broad scope, from the definition of the elite



adopted by the sociologist. The objective of the proposed category is closer to that pursued over the last fifteen years by Savage and Williams<sup>[9]</sup>, who have attempted to reintegrate studies on elites into the quantitative analysis of social classes, after observing the marginalization of the former due to the fragmentation of their objects and their methodological options. Since the turn of the 1970s in France and Great Britain, most sociological studies of elites have focused on limited fractions of the social space, analyzed in the form of monographs based on local or prosopographical data. Although these studies are empirically in-depth and provide a wealth of information on their field of investigation, even when they take a structural approach<sup>[8]</sup>, they do not fully allow for a society-wide analysis of the different fractions of the elite, understood in a broad sense (including comparisons with other groups).

The scope of the category proposed here is much broader than that usually used in the sociology of elites. We cannot therefore expect the individuals included in it to be very homogeneous, let alone mutually recognized. This is not the “power elite” described by Mills<sup>[25]</sup>—defined by the fact that its position at the top ensures its members’ dominance over all fields and an ability to transfer their power from one field to another—nor even the “contemporary personalities” studied by Girard<sup>[37]</sup> in his analysis of “social success in France.” On the other hand, the perimeter chosen here is akin to an extension to the national scale of what Mills<sup>[23]</sup> calls the “local upper class” or “local high society,” to what Giddens<sup>[38]</sup> refers to as the “secondary structure” of the elite, or to what Dogan<sup>[39]</sup> calls the “third circumference.”

The development of the category of high-level managers and professionals can be compared with the program recently proposed by Bukodi and Goldthorpe<sup>[40]</sup> to revive elite studies. As they point out, “it is not clear why it would be so fundamental to consider as elites only those groups that can be directly associated with the exercise of power (like Scott) or to consider elites only in the context of class analysis (like Savage).” It is precisely this observation that calls for an attempt to find a middle way between the two approaches. However, Bukodi and Goldthorpe’s proposal differs from the one adopted here: in fact, the two authors set a priori a much lower order of magnitude for the components of the elite

that they define, each of which must be counted “in tens, hundreds or, at most, small thousands,” whereas the category proposed here includes almost a million people (see below). If we adopt their terminology, high-level managers and professionals would rather constitute the pool from which the elites are recruited, whose social composition these authors suggest should be studied, particularly concerning that of the elites themselves. It is also in this sense that the category links the sociology of elites and the sociology of social stratification: it is a statistical tool for examining processes of social selection leading—both in intergenerational and intragenerational terms—from the socio-professional *elite lato sensu* to the *elite stricto sensu*, which would be identified by monograph.

The difference in the order of magnitude with work in the sociology of elites means that the category obtained is less refined and the program of analysis that can be envisaged is reduced. However, these drawbacks are offset by the wide availability of the variable in official statistics surveys, which should make it possible to obtain cumulative knowledge on a vast range of issues relating to the internal and external comparison of the various components of the “socio-professional elite” thus defined. While the approach advocated here is not the most appropriate for analyzing the exercise of individual or local mechanisms of domination—a central issue in the sociology of elites—it does enable a detailed study, differentiated according to the professional universe and comparative over time, of inequalities at the top of the social structure.

### 2.3. How can the top of the social stratification be identified statistically?

Similar in principle to certain concepts developed by the sociology of elites, the size of the category of high-level managers and professionals places it at the limit of the quantitative sociology of social stratification, where it appears to have no equivalent, except for the Norwegian categorization proposed by Hansen and her co-authors<sup>[41]</sup>.

None of the major socio-economic or social class classifications makes it possible to identify a top group that is close to the 3% of jobs to which the category proposed here corresponds. In France, to identify the top of the socio-professional structure, it would be

appropriate to use the group of “managers and higher intellectual professions (3)” and the category of “heads of companies with more than 10 employees (23)” in the PCS nomenclature, but the scope would be much wider than for the category considered here (19% of the population in employment in 2020). In international classifications, the categories grouping the highest positions also have a broad scope<sup>[42]</sup>: from 13% to 25% of the population in employment depending on whether we consider the Erikson-Goldthorpe-Portocarero (EGP) classification<sup>[43]</sup>, the European Socio-Economic Groups (EseG)<sup>[44]</sup> and the European Socio-economic Classification (ESeC)<sup>[45]</sup>, Wright’s class scheme<sup>[35]</sup> or Oesch’s<sup>[46]</sup>.

Conversely, defend the importance of paying attention to the top of the social structure, because of its role in the increase in economic inequalities and the transformations of capitalism<sup>[9,14]</sup>, Savage and colleagues<sup>[47]</sup> have called an “elite” (sometimes referred to as “ordinary”) a class comprising 6% of the population identified inductively using an automatic classification procedure. This class is over-represented by “chief executive officers (CEOs), information technology (IT) managers, marketing and sales managers, financial managers, management consultants, as well as the elite liberal professions such as dentists and lawyers,” i.e. some of the professions included in this proposal. However, this approach differs from the one advocated here: on the one hand, its size is twice as large; on the other hand, its use is limited to certain specific surveys, since its implementation is based on ad hoc variables relating to economic and cultural resources, and not on occupation alone.

A priori, only one classification includes a category similar to that defined here: the Oslo Register Data Class Scheme<sup>[41]</sup>. Developed for Norwegian administrative register data to study small groups, this class scheme has been in use for around ten years and has given rise to numerous publications<sup>[48]</sup>. Inspired by the work of Pierre Bourdieu, it is based on the Norwegian nomenclature for salaried occupations (STYRK) and income for self-employed occupations and artists, to construct 13 classes, which are distinguished both according to their overall volume of capital and according to the composition of this capital. The upper level, known as the “elite”

or “upper class,” comprises 4% of the Norwegian population classified. It is divided into three fractions: cultural, economic, and with a balanced composition of capital (which includes the professions). While the upper level of the class schema is very similar to the present proposal, its definition is slightly less precise and its scope slightly broader.

### 3. Construction of the category

The new system used since 2020 to code the socio-professional nomenclature is based on computerized data collection using a list of thousands of standardized job titles and a reduced number of additional variables required for coding. This makes it easier to produce the nomenclature, enabling it to be used in a larger number of statistical sources. Following on from work in the sociology of occupations<sup>[49]</sup>, this system also makes it possible to pinpoint certain occupational fields or segments that cut across the nomenclature, such as “digital occupations,” “green occupations,” or the “socio-professional elite” presented here<sup>[16]</sup>. It is the existence of this revamped process that has made it possible for the empirical implementation of a category following the theoretical objectives and principles set out in the first part.

#### 3.1. Relying on a detailed list of occupations

The list of titles drawn up for the (computerized) collection of the PCS 2020 meets a twofold objective: to enable respondents to find their occupation easily and without error; and to have sufficiently rich information (with the additional variables) to obtain a single occupation code, as well as additional domains or segments, such as the category presented here. To achieve these objectives, the list was drawn up based on the wordings spontaneously declared in the main INSEE sources (census and employment surveys), wordings in which the respondents are likely to find themselves. The wide range of registers used to declare an occupation (logic of occupation, position, title, grade, etc.), as well as the variety of details given (sectoral, functional, etc.), were retained when they were necessary for coding occupations and categories and when they were not accompanied by excessive length or too many labels

(which can make it difficult to read and select from the list during data collection).

At the same time, details were added to the headings when they were necessary for coding and did not make it difficult to use the list. Concerning the category of managers and high-level professionals, information relating to the size threshold of the companies or departments in which the jobs are held by salaried managers, indications of the level of responsibility or expertise of certain professions (particularly in the civil service), and how certain liberal professions are practiced were incorporated into the wording.

To establish the boundaries of the category of high-level managers and professionals within the various socio-professional categories, or the more restricted professional universes within them, the work was based on the breakdowns revealed by the spontaneously declared wordings and on the knowledge of professions collectively established when the PCS nomenclature was renewed. This information was supplemented by legal documents delineating occupational hierarchies, such as collective agreement classifications and civil service corps (and their pay scales), data from official statistics or professional social networks (LinkedIn or Glassdoor), and scientific publications (from the sociology of professions in particular) or professional organizations (Apec, consultancies, employers' and employees' unions, etc.) to objectify the income levels—and sometimes diploma levels—of different professions in a given field. Meticulous work was therefore carried out before the data collection: based on scattered and sometimes incomplete information—in the absence of general data making it possible to characterize and prioritize job descriptions corresponding to an often limited number of people—it was subjected to two successive validation phases using data collected in 2020 in the pilot version of the Employment survey, and then in 2021 in its recast version. The results of this second analysis are detailed in the third part of the article.

### 3.2. Detailed description by socio-professional category

The end of this section presents a summary of the occupational titles used to define the category (more than 1,500 of the 5,400 or so titles included in the list needed

to code all the PCS) and then examines the general construction criteria. The details of how the category was constructed cannot be fully reproduced in an article, due to lack of space, but is accessible online in the form of a matrix of labels on the Insee website (<https://www.insee.fr/fr/information/6050075>), as well as on the website dedicated to the socio-professional nomenclature (<https://www.nomenclature-pcs.fr>).

Heads of companies with 10 or more employees (CS 23) include those who manage companies with 50 or more employees (corresponding to occupation 23A1). However, on a more exceptional basis, some self-employed persons working in companies with 11 to 49 employees in highly qualified service sectors such as banking, insurance, property development, culture, or health are included.

The liberal professions (CS 31) include: all health professions requiring a doctorate when practiced on a self-employed basis, such as specialist and general practitioners, dental surgeons, veterinary surgeons, and pharmacists; notaries; certain legal and accountancy professions when practiced either on a self-employed basis and the business comprises at least two people, or as partners (lawyers, chartered accountants). Generally speaking, all occupations in this CS are included as long as their company employs at least 10 people (architects, chartered surveyors, etc.).

Among civil service administrative and technical managers (CS 33), the category is based in particular on the A+ category defined by the *Direction générale de l'administration de la fonction publique* (DGAFP) <sup>[50]</sup>, albeit with a more restrictive definition. The following are included: senior management, inspection, control, and expertise bodies in the state civil service, including senior and chief engineers; equivalent positions in the local and hospital civil service, using population thresholds consistent with those used by the DGAFP <sup>[51]</sup>; magistrates; senior officers of the rank of colonel and above, as well as military doctors, dentists, pharmacists and veterinary surgeons; members of parliament, elected representatives of large local authorities and representatives of trade unions and employers at national level.

Among the professors and higher scientific professions (CS 34), the category includes: higher



education supervisory professions (regional educational inspectors, head teachers, etc.) and higher education (school headmasters); university professors, research directors, and teachers in preparatory classes; doctors and pharmacists employed by hospitals and the social security system.

Among the information, arts, and entertainment professions (CS 35), the following have been included: A+ level civil servants in the cultural sector and their equivalents in the private sector (heritage curators, etc.); senior positions in the media and publishing (editorial directors, senior reporters, etc.), audiovisual and audiovisual industries (as well as in the private sector), audiovisual and entertainment (producers, directors, etc.), cultural structures (opera directors, prima ballerinas, soloists, etc.) and fashion (haute couture designers, top models).

Amongst administrative and commercial managers and company administrative and commercial managers (CS 37), this category includes: general managers in charge of a department, establishment, or company with 50 or more employees; managers performing functions requiring a high level of specialization or occupying positions of high responsibility, with no size threshold (France managers, financial control managers, etc.); managers of the largest retail or commercial outlets; bank managers, as well as specialized financial market professionals.

Among engineers and technical managers (CS 38), this category includes: generalist technical managers with responsibility for a department, establishment, or company with 50 or more employees; managers with specific responsibility for certain technical functions or fields involving a high level of expertise or responsibility, with no size threshold (research and development managers, IT risk managers, research engineers, etc.); management professions or transport experts (airline pilots, etc.).

### 3.3. Methodological discussion

The development of the category benefited from the collection of job titles adopted as part of the PCS 2020, a decisive opportunity to better define the boundaries within each fraction of the socio-professional structure. However, this did not resolve all the methodological difficulties associated with its delimitation.

Generally speaking, the contours of the category

depend on the plurality of registers used to declare an occupation. Their practical definition requires the addition of a limited number of terminological clarifications, so as not to alter the economy of the coding system, which must be understood by the entire working population. Fortunately, several general principles make it possible to draw a relatively simple line between the different professional universes and to ensure that the definition is consistent across these universes.

Within companies, the most senior positions have mainly been identified using the term “director,” to the exclusion of “head” and “manager.” This is because these terms more often than not refer to less senior positions (as can be seen from the analysis of diploma and salary levels - see below). Similarly, some terms for “manager” of small units have been excluded in certain sectors: supermarkets or mini-markets, agencies (postal, matrimonial, surveillance, security, undertaker, temping), youth hostels, campsites, holiday centers, etc. This rule shows the extent to which it is possible to exclude the “manager” of small units. This rule shows the extent to which it is necessary to take into account the economic importance of the department, establishment, or company being managed, an importance which depends both on the sector of activity or area of specialization (generally included in the title) and on the size (which is why only titles bearing the words “50 employees or more” are used for general managers in administrative, commercial and technical areas).

In addition, the bodies and grades, which remain important positional markers in the senior civil service, have completed the identification of situations based on the function occupied (an identification similar to that carried out in the private sector, with the use of the term “director” and the mention “50 employees or more,” or equivalent thresholds in terms of the number of inhabitants for the local authorities covered): the category thus includes both the terms “director-general of services of a local authority (80,000 inhabitants or more)” and “territorial administrator.” In line with the definition of category A+ for the state civil service, the main graduates of the *École polytechnique*, the *École nationale d'administration* and the *École nationale de la magistrature* have been included. The titles of managers and engineers mentioning these bodies have also been



retained when they correspond to salaried company jobs.

Finally, in the fields of health, law, economics, or technical studies, it is more directly the names of professions, in the strong sense given to it by American sociology <sup>[52]</sup>, which are sufficient to delimit the contours of the category. In the healthcare field, an initial version <sup>[16]</sup> included only managerial positions for employees (university professors and lecturers, hospital practitioners, senior physicians, or department directors). This distinction was abandoned due to the practical impossibility of cross-referencing the hierarchical and medical specialty distinctions for all the wordings, but also due to the particularly high income and diploma levels of all the medical professions.

Thus, whenever possible, the rules followed have been based on established delimitations of the world of work (delimitation of liberal professions, senior civil service). In the opposite case, areas of equivalence were established by homology, according to the empirical constraints linked to the socio-professional nomenclature. This is particularly the case for the size threshold of 50 employees or more, used to distinguish between salaried and self-employed company managers. The boundary is thus intended to be consistent both within a given professional universe and between professional universes, a consistency that is borne out by the exploratory statistics that follow.

As far as limitations are concerned, it should be noted that, in certain professional universes (mainly art, science, and sport) where the highest positions may refer to the recognition of individual qualities, the category confines itself to identifying situations that are professionally and institutionally established. Consistent with the method of identification and the scale of analysis used, the highest positions in the field of music are thus identified by the fact of holding a soloist position. In the scientific field, top positions are defined by holding an A-rank post in higher education or research. Finally, in sports, the fact of declaring oneself to be a professional sportsman or sportswoman was considered to be an indicator of a sufficiently high level of practice.

More generally, the empirical limitations of the proposed category are those of any socio-economic classification based on occupations combined with a small number of ancillary variables (status, size of

company, qualifications): the same wording can cover partially heterogeneous situations and miss certain distinctions, whatever its level of detail. Its use as a reference tool for social statistics presupposes that the empirical construction is transparent, stable over time, and faithfully reflects the principles on which it is based. This last requirement, which is decisive given the limited scope of the category (3% of the population in employment), has led to the exclusion of wordings that correspond, in a significant proportion of cases, to situations that are far removed from the intended reality. The aim of the category is therefore to identify the majority of the highest professional positions, not to guarantee that all of them are included. Given these reservations, it is advisable to adopt a stance of reasoned realism for its analysis, where the conventional dimension of measurement is assumed but does not prevent the production of positive knowledge: cautiously for estimates of numbers, with more assurance for their comparisons and trends (both internal and external).

## 4. Empirical analysis

This article presenting the category of high-level managers and professionals concludes with a series of initial empirical explorations that illustrate its relevance using data from the Employment 2021 survey, the first in which its definitive coding is available.

### 4.1. Validation of the category based on labels

A first set of analyses is used to validate the construction of the category by examining the wording of the list as selected in the survey by the respondents, thus coming closer to the situations actually observed in the employed population.

Although these analyses were based on relatively small numbers, which means that they should be treated with caution, they do show a high concentration of wording in the category: while the corpus contains 322 different wordings (out of a possible 1,500) for the 1,203 individuals in the elite, the 10 most frequent words account for 73% of the numbers, and the 20 most frequent for 84% of the numbers (**Table 1** shows the results by socio-occupational category are reproduced in the appendix).

The category relies heavily on terms including “director” and “doctor” (or terms associated with different medical specialties, such as psychiatrist, radiologist, or gynecologist, for example). Transversal to different professional universes (business as well as the civil service, administrative and commercial as well as technical functions, etc.); private practice as well as hospitals), the variations of these terms and the associated labels represent more than half of the

workforce in this category. It should be noted that some of the most common director titles (e.g. director of information systems or director of communication) are only rarely found in this category, as only those that also specify “50 or more employees” are present, even though they are well in the minority compared to those that do not include this clause.

The other most frequent wordings also correspond to established professions, which have well-established

**Table 1.** Most frequent headings in the “high-level managers and professionals” category in 2021

First (or only) word in description	Most frequent complements	Number	Share in category (%)	Cumulative share (%)
Director	IT project manager, sales manager (50 employees or more), human resources manager (50 employees or more), financial markets manager, marketing manager	328	27	27
Doctor	General practitioner, specialist hospital doctor (hospital practitioner), occupational physician	228	19	46
Engineer	Engineer/researcher industry, mining and telecommunications, finance	78	6	53
Lawyer	Partner	57	5	57
Surgeon	Dentist	52	4	62
Pharmacist		44	4	65
Professor	<i>Agrégé-e</i> in higher education, <i>Classes Préparatoires aux Grandes Écoles</i> (CPGE), universities	31	3	68
Expert	Accountant, statutory auditor	25	2	70
Architect	<i>Diplômé Par Le Gouvernement</i> (DPLG)	22	2	72
Executive	Manager (50 employees or more)	18	2	73
Psychiatrist		16	1	75
Veterinarian		16	1	76
Director	State civil service	15	1	77
Notary	Partner	14	1	79
Manager	Corporate	13	1	80
Radiologist		13	1	81
Gynecologist		11	1	82
Bailiff	of justice	11	1	83
Magistrate	judicial	11	1	84

Scope: Employed population in the high-level managers and professionals category ( $n = 1,203$ ), France excluding Mayotte.

Note: The first words, as well as the complements, are indicated in descending order of frequency; the coding of the category of high-level managers and professionals was carried out by the authors (for the coding program, see <https://www.nomenclature-pcs.fr/coder/coder-la-categorie-des-dirigea>). Provisional unweighted data was used to validate the proposed category.

Source: Employment Survey 2021 (first quarter), INSEE.

names. They cover the main fields in which the category is defined: the liberal professions, whether in health (dental surgeon, pharmacist, veterinary surgeon), law (lawyer, notary, bailiff), or the technical (architect) and economic (chartered accountant) spheres; technical expertise (engineer); company management (company director, senior executive); senior civil service (administrator, magistrate) and higher education (university or preparatory class teacher).

A second series of analyses (**Table 2**) shows that the definition of “director” as belonging to the category of high-level managers and professionals does indeed make it possible to structurally identify the top of the income hierarchy in the various fields in which it is defined, concerning the other “director” categories and those of “head” and “manager” (which, with rare exceptions, are excluded from the category). This is particularly the case in the private administrative and commercial sector, where managers in this category stand out for their significantly higher median net incomes: the difference is €1,550 per month compared to other managers. This is particularly true for those who are only included in the category if they have “50 or more employees,” the difference with those who do not have this designation is €1,394 per month.

## 4.2. Socio-demographic description of the category

In addition to these initial analyses attesting to the validity of the choices made to define the category, the data from the 2021 Employment survey make it possible to sketch a description of the social characteristics of high-level managers and professionals and to compare them with other high-level jobs and with the rest of the employed population (**Table 3**). The statistical analyses are based on the classification of job classes developed as part of the PCS 2020 <sup>[53]</sup>, which divides individuals into four hierarchical classes (A\*, B\*, C\*, and D\*), with higher-level jobs (salaried or self-employed) corresponding to class A\*. For these analyses, an additional category is distinguished for managers and high-level professionals, who are thus removed from class A\*. Under the qualifications and income associated with it, these initial analyses confirm the category’s ability to capture the specific characteristics of the highest socio-professional positions.

As a sign of the glass ceiling and, more broadly, of the gendered selection mechanisms that hinder women’s careers, men are more likely to be found among top-level managers and professionals than in other top-level jobs

**Table 2.** Median monthly full-time income (in €) and numbers (in brackets), in 2021, of people with the titles “manager,” “chief,” and “director” according to whether they are included or excluded from the top-level managers and professionals, by whether they are included or excluded from senior managers and professionals

Wording	Public, education, culture, health CS 33–35 and CS 42–45		Private administrative and commercial CS 37 and CS 46		Private technical CS 38 and CS 47–48	
	Excluded	Included	Excluded	Included	Excluded	Included
Manager	2,148 (18)	– (0)	2,400 (122)	– (0)	2,583 (76)	– (0)
Chief	2,564 (8)	10,000 (1)	2,494 (25)	4,500 (1)	2,600 (77)	– (0)
Director	2,900 (31)	4,000 (8)	3,500 (51)	5,050 (24)	3,540 (12)	4,000 (18)
Director with (included)/ without (excluded) “(50 employees or more)”	4,500 (1)	4,700 (1)	3,300 (45)	4,694 (18)	3,250 (10)	4,000 (3)

Scope: Population in full-time salaried employment ( $n = 4,617$ ), France excluding Mayotte.

Interpretation: The sample contains 76 names beginning with “manager” in the private technical socio-professional categories; all are excluded from the category, and their median income is €2,583 per month.

Note: Coding of the senior managers and professionals category by the authors (for the coding program, see <https://www.nomenclature-pcs.fr/coder/coder-la-categorie-des-dirigea>); median full-time monthly income in euros on the survey date (the numbers shown correspond to observations where income is known). Provisional unweighted data was used to validate the proposed category.

Source: Employment Survey 2021 (first quarter), INSEE.

**Table 3.** Characterization in 2021 of top-level managers and professionals by gender, age, income, and qualifications, compared with other top-level jobs and the rest of the employed population

	<i>N</i>	Senior managers and professionals <i>n</i> = 4,801(%)	Other senior level jobs <i>n</i> = 3,5154 (%)	Other jobs <i>n</i> = 12,0113(%)
Gender	160,068	100	100	100
Male		63	53	50
Female		37	47	50
Median age (1st and 3rd quartiles)	160,068	47 years old (38–56)	43 years old (34–52)	42 years old (32–52)
Age group	160,068	100	100	100
Under 30s		8	17	23
30–39 years old		24	26	24
40–49 years old		28	28	25
50–59 years old		25	23	24
60 and over		15	5	5
Median net monthly income for full-time workers (1st and 3rd quartiles)	20,830*	€4,800 (€3,312–€6,250)	€2,700 (€2,200–€3,500)	€1,680 (€1,400–€2,020)
Net monthly income for full-time workers	20,830*	100	100	100
Less than €2,000		6	15	71
€2,000–€3,999		31	67	27
€4,000–€5,999		26	13	1
€6,000–€9,999		27	4	1
€10,000 and more		11	1	0
Degree	159,573	100	100	100
<i>Bac</i> +8, <i>Grande Ecole</i> , etc.		55	19	1
Other <i>Bac</i> +5		22	28	4
< <i>Bac</i> +5		23	52	95

Scope: Population in employment (*n* = 160,068), France excluding Mayotte.

Note: The association between each variable and category membership is statistically significant at the 1% level according to independent chi-square tests.

\*Income is only known for individuals in the first survey. Weighted data.

Source: 2021 Employment Survey, INSEE.

(63% compared with 53%). Members of this category are also slightly older (median age 47, compared with 43), with half as many under 30s (8%, compared with 17%) and three times as many over 60s (15%, compared with 5%). This reflects the fact that access to the highest positions is rarely from the first position, that it is more common to reach them at the end of one's career, and that retirement ages are later.

The differences between top-level managers and professionals and the rest of the top-level jobs are,

logically, even more marked in terms of qualifications and income. More than three-quarters (77%) of the members of this category have a degree of 5 years or more (compared to 49%). They stand out even more clearly when we focus on the highest or most prestigious qualifications: 55% hold a doctorate, a diploma from a *grande école*, an *agrégation* or a professional qualification (lawyer, notary, etc.), compared with just 19% for other higher-level jobs.

In 2021, the median net income of top-level managers and professionals working full-time (€4,800

per month) is 77% higher than that of other top-level jobs (€2,700 per month), slightly more than the gap between this latter group and the rest of the employed population (61%, €1,680 per month) and a threefold ratio between the first and last groups. It is particularly at income levels above €4,000 that top-level managers and professionals stand out: 64% exceed this threshold, compared with only 18% of other managers and 2% of the rest of the working population. What's more, while 11% of members of this category earn an income over €10,000, this is the case for only 1% of other professional and managerial staff.

#### 4.3. Illustration of the contribution of the category: what social mobility from and towards the socio-professional elite?

From its origins in France—with the pioneering work of demographer Alain Girard<sup>[37,54]</sup> and statistician Jacques Desabie<sup>[55]</sup>—to its most recent developments<sup>[56]</sup>, the history of social mobility analysis has been marked by the importance of data and methodological issues. The category presented in this article, which is linked to the

job class scheme<sup>[53]</sup>, makes an original contribution to this work by providing a detailed measure at the top of the socio-professional structure: it corresponds to the limit of the “managerial and higher intellectual professions” group which, thanks to the sharp rise in the structure of qualifications, now represents around one person in five in employment.

The Employment survey asks individuals about their parents' occupation when they left school. The data collection and coding system is the same as for the occupation of the respondents, although there is a risk of underestimating the number of people in this category due to the less precise nature of the declarations for the occupation of the parents. In the field of people aged 35 to 59 who had already worked, which is usual for analyzing social mobility (Insee<sup>[57]</sup>), 23% of people who had a job as a manager or high-level professional (or whose last job it was) also had their father or mother in this situation when they finished their studies, compared with 9% of those who have or had another job at a higher level (and 5% on average) (**Table 4**). More generally,

**Table 4.** 2021 of social origins and destinies using the starred job class scheme and the top managers and professionals category (in %)

Parents' class (dominant approach)	Child's class (person surveyed)					
	Elite	A* (non-elite)	B*	C*	D*	Overall
Elite	23	9	4	2	2	5
	14	46	20	12	9	100
A*(non-elite)	42	34	21	10	8	18
	6	41	26	15	11	100
B*	15	21	23	16	12	18
	2	26	30	26	16	100
C*	16	25	35	43	38	35
	1	16	23	34	25	100
D*	3	9	15	24	32	20
	0	10	17	34	38	100
Situation unknown	1	3	3	5	8	5
	1	13	17	31	38	100
All	100	100	100	100	100	100
	3	22	23	28	23	100

Scope: People aged 35 to 59 who have already worked ( $n = 20,604$ ), France excluding Mayotte.

Note: The parents' job class is constructed according to the dominant approach, i.e. the parents are part of the elite if the father or mother has a job as a manager or high-level professional, and otherwise are classified as A\* if the father's or mother's job is classified as A\*, etc. Each cell shows the percentage in the column (top right) and in the row (bottom left). Interpretation: 14% of people with at least one parent in the elite belong to the elite; 23% of members of the elite have at least one parent in the elite.

Source: 2021 Employment Survey, INSEE.



**Table 5.** Odds ratios corresponding to the table in 2021 of social origins and destinies using the starred job class scheme and the category of high-level managers and professionals

Parents' class (dominant approach)	Child's class (person surveyed)							
	Elite		A* (non-elite)		B*	C*	D*	
Elite	33.0	(23.7–45.9)	8.5 (6.8–10.7)	2.5	(2.0–3.3)	Ref.	1.0	(0.8–1.4)
A* (non-elite)	11.2	(8.6–14.4)	5.9 (5.2–6.6)	2.6	(2.3–2.9)	Ref.	0.9	(0.8–1.1)
B*	2.5	(1.9–3.4)	2.2 (1.9–2.4)	1.7	(1.5–1.9)	Ref.	0.8	(0.7–0.9)
C*	Ref.		Ref.	Ref.		Ref.		Ref.
D*	0.3	(0.2–0.6)	0.7 (0.6–0.8)	0.8	(0.7–0.9)	Ref.	1.5	(1.4–1.7)

Scope: People aged 35 to 59 who have already worked, and whose father's or mother's employment status is known ( $n = 19,512$ ), France excluding Mayotte.

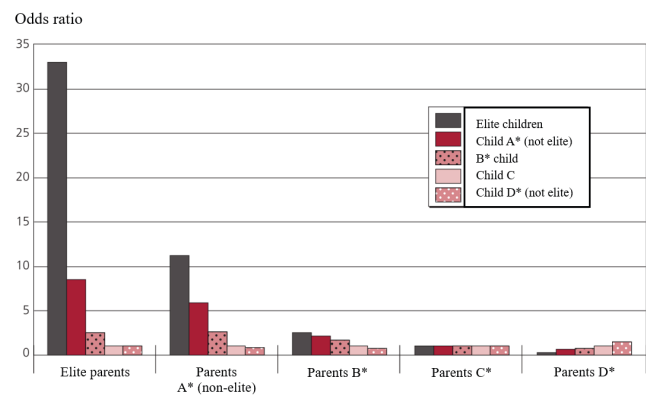
Note: The parents' employment class is constructed according to the dominant approach (see **Table 4**). Each cell indicates the odds ratio and its 95% confidence interval as a function of the parents' class, the reference situation being class C\* (multinomial logistic regression). Unweighted analyses give very similar results. First question, weighted data. Interpretation: The probability of having a job in the socio-professional elite rather than a job qualified as execution (C\*) is 33 times higher when one's father or mother held a job in the socio-professional elite rather than a job qualified as execution (C\*).

Source: Employment Survey 2021.

65% of high-level managers and professionals had their father or mother in a higher-level job (A\*), compared with 43% of those who have or had another higher-level job (and 23% on average). Conversely, 14% of those whose father or mother had a high-level managerial or professional job have or had a high-level job, compared with 6% of those whose father or mother had another high-level job (and 3% on average).

The odds ratios measuring intergenerational social mobility show the strength of social reproduction for the socio-professional elite. In the first column of **Table 5**, they show the strong gradation of social selection mechanisms for access to the highest positions according to social origins: taking skilled operational jobs (C\*) as the reference, the odds ratios range from 0.3 for unskilled jobs (D\*) to 11 for higher-level non-elite jobs (A\*) and 33 for the elite. If the odds ratios (OR) corresponding to situations of social reproduction (on the diagonal of **Table 5** and **Figure 1**) follow a U-shaped curve, the values are higher in the upper fraction of the social space (OR = 33) than in the most disadvantaged fraction (OR = 1.5). Social closure is therefore much stronger at the top of the social space than at the bottom. In addition, the difference between jobs in the socio-professional elite and other higher-level jobs (A\*) is very marked. These analyses thus confirm the contribution of the category of

high-level managers and professionals to the analysis of social mobility.

**Figure 1.** Odds ratios corresponding to the 2021 table of social origins and destinies using the starred job class scheme and the category of high-level managers and professionals

(Scope: People aged 35 to 59 who have already worked, and whose father's or mother's employment status is known ( $n = 19,512$ ), France excluding Mayotte. Note: Graphical representation of **Table 5**. Interpretation: The probability of having a job in the socio-professional elite rather than a job classified as execution (C\*) is 33 times higher when one's father or mother held a job in the socio-professional elite rather than a job classified as execution (C\*). Source: 2021 Employment Survey.)

## 5. Conclusion

The category of high-level managers and professionals presented in this article is one of the main innovations of the latest revision of the French socio-professional

nomenclature, alongside the PCS *Ménage* <sup>[58]</sup> and the job class scheme <sup>[53]</sup>. It allows us to take a fresh look at the issue of inequality at the top of the social structure. Articulated with the socio-professional categories, multidimensional and reflecting the social compromises involved in classification, it identifies the highest positions in the division and organization of work in a plurality of professional universes, thanks to a precise delimitation of the job descriptions made possible by the renewed PCS 2020 coding system.

Precise in both its theoretical principles and its empirical delimitation, the category and its various components constitute a descriptive tool open to numerous interpretative schemes. Attempting to build a bridge between the sociology of the elite and the sociology of social classes, it proposes—at least as a hypothesis to fuel scientific debate—the notion of a “socio-professional elite,” whose internal components and external comparisons can be analyzed in terms of social mobility (or reproduction), spatial circulation (or segregation), housing characteristics, educational strategies, cultural practices, asset composition, etc. As an initial empirical illustration, the article demonstrated the statistical strength of the mechanisms of social reproduction that characterize it.

In terms of the empirical material mobilized by the sociology of elites, the proposed category suffers from certain limitations: theoretically, it does not make it possible to identify precisely the forms of prestige, recognition mechanisms, and capital specific to each of its fractions <sup>[8]</sup>. Empirically, despite the finesse of the delimitations it provides, it does not strictly identify all of the highest positions in the socio-professional structure.

Nevertheless, established according to transparent and stable definitional conventions, and available in official statistics reference surveys from 2021, it is intended to fill a gap in the identification of the different fractions at the top of the social structure, which it can help to objectify, beyond local monographs or investigations limited to a field. Far exceeding the 0.1%, and even the 1% of the new economy of inequalities, the category should, in particular, facilitate an understanding of how elites and upper classes articulate themselves, between selection processes <sup>[40]</sup> and objective alliances <sup>[59]</sup>. In a context where the polarization between

a fantasized elite and a mythologized populace is constantly highlighted in the media, it can also help to restore the complexity of the mechanisms and levels of social stratification.

## 6. Appendix

**Table A1** below shows the beginnings of the most frequent titles for managers and high-level professionals in each socio-professional category (SC). These headings, which account for more than half of the category’s workforce in each CS, give an accurate idea of the occupations included.

The head of companies with more than 10 employees (CS 23, cut-off point 50 employees), a relatively small CS in terms of number of employees, covers the different legal forms of company management (independent or salaried): head of company, executive manager, manager, director.

With regard to the liberal professions (CS 31), as well as teachers and scientists (CS 34), it is worth highlighting the weight of the headings beginning with “doctor” which, on the one hand, make these CS the largest in terms of numbers included and, on the other hand, take precedence over the other professions within them. These headings alone account for a fifth of the individuals included, even though other headings exist for each medical specialty (“surgeons” in particular, as well as “psychiatrists,” “radiologists,” “dentists,” and “gynecologists”), in addition to the headings “hospital practitioner” and “university professor.” Other liberal professions are relatively common in CS 31: lawyers, pharmacists, chartered accountants, architects, veterinary surgeons, notaries and bailiffs. On the other hand, intellectual professions, professors and researchers outside healthcare, are in the minority in CS 34, with the most frequent titles being “associate professor” (in preparatory classes) and “university professor.”

Administrative and technical managers in the civil service (CS 33) include a large proportion of senior civil servants, administrators and magistrates, as well as high-level technical staff (engineers and air traffic controllers). The information, arts and entertainment professions (CS 35) make a relatively small contribution to the category in terms of numbers, firstly because of the limited size

**Table A1.** Main beginnings of titles for high-level managers and professionals, by socio-professional category (SC)

CS	Number of employees in the category in the CS	Proportion of the CS covered by the beginnings of labels displayed (%)	Most frequent wording starts
23	44	89	company director (8), senior executive (7), manager (6), director* (7, of which: agency, 2; partner, insurance, hospital, restaurant, industry, 1), vice-president (4), managing director (4), president (3)
31	342	89	doctor (107), lawyer (55), surgeon (42), pharmacist (33), chartered accountant (25), architect (21), veterinary surgeon (16), notary (14), bailiff (11), dentist (9), radiologist (9)
33	84	71	administrator (14), magistrate (11), senior civil servant (10), air traffic controller (9), administrative director (6), inspector general (6), hospital director (5), electronic engineer for air safety systems (4), doctor (4), cabinet director (3), director general (3), legal director (3), general engineer (3), general secretary (3)
34	205	82	doctor (117), associate professor (19), university professor (12), pharmacist (11), psychiatrist (11), surgeon (10), gynecologist (9), anesthetist (6), research d. (5), hospital practitioner (5)
35	33	82	d. (8, of which: production, 3; artistic, publishing, conservatory, museum, photographic, 1), producer (6), editor (6), curator (4), director (3)
37	112	58	sales manager (19), human resources manager (13), financial engineer (13), regional manager (12), financial market manager (11), senior manager (10), administrative manager (10), development manager (9), marketing manager (8), strategy manager (7)
38	126	72	project manager (36), research engineer (31), mining engineer (18), quality manager (7), line manager (6), logistics manager (6), technical manager (5), division manager (4), laboratory manager (4), site manager (4), works manager (4)

Scope: Population in employment.

Legend: \*To simplify the reading of the table, the words “director” are indicated by the abbreviation “d.”

Note: Coding of the category of high-level managers and professionals carried out by the authors; the 10 most frequent beginnings of titles are indicated for each CS, those cited only once being excluded; the first words of each heading were identified after equating the feminine and masculine headings, and for certain frequent generic terms (“director,” “engineer,” “professor”) by declining them according to the second and sometimes third words for more detail; certain precisions were, in the same way, added to facilitate the comprehension of other headings (“general secretary,” “air traffic controller”). Provisional unweighted data was used to validate the proposed category.

Source: Employment Survey 2021 (first quarter), INSEE.

of this field but also, as noted above, because of the difficulties in capturing the highest positions through the job descriptions. Occupations in the film industry, the press and the public sector are the most represented (producer, editor, curator, director, as well as directors), while artists are almost completely absent.

The administrative and commercial managers (CS 37) present in this category are almost exclusively directors, although there is a notable proportion of consultants and financial engineers—finance is also the most represented field if we add them to the “directors (financial market)” category.

Finally, engineers and technical managers (CS 38) are also mainly technical directors. While this category

includes a significant proportion of research engineers, the other engineer titles appear to be scattered according to their school of origin or training specialty (mines, telecommunications, etc.).

Overall, more than a quarter of the individuals surveyed are classified as directors. They are found in all socio-professional categories, with the exception of the liberal professions.

(1) Among company managers (CS 23): “agency,” “associate,” “insurance,” “hospital,” “restaurant,” “industry” director.

(2) Amongst company administrative managers (CS 37): “sales,” “human resources,” “regional,” “financial market,” “administrative” manager.



(3) Among technical managers (CS 38): mainly “project” managers.

(4) Among administrative and technical managers in the public service (CS 33): “administration,” “hospital,” “cabinet,” “general,” “legal” director.

(5) Information, arts and entertainment professions (CS 35): “artistic,” “publishing,” “conservatory,” “museum,” “photo,” “production” director.

Finally, among the individuals selected, a few dozen (around 1 in 20) have a job title that includes the adjective “general”: in particular “director-general,” “secretary-general,” “inspector-general,” and “engineer-general.” They are found among company directors (CS 23), administrative and technical managers in the public sector (CS 33), and the private sector (CS 37 and CS 38).

### Disclosure statement

The authors declare no conflict of interest.

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# Intergenerational Education Mobility in Young Beneficiaries of Progres Oportunidades-Prospera, 1997–2017

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## Abstract:

*Progres Oportunidades-Prospera* (Progress-Opportunities-Prosper) sought to increase the human capital of its young beneficiaries to break the intergenerational transmission of poverty and therefore gave an important boost to increasing their schooling. This paper aims to analyze the intergenerational educational mobility achieved by a group of rural youth who were beneficiaries from the beginning of the program. We start from the theory of intergenerational social mobility and analyze the group under study using quantitative techniques using the Panel ENCEL 1997–2017 as statistical input. The results show changes in the educational strata attained by young people concerning those of their parents, with upward mobility predominating (80%). Women, Indigenous people, and migrants had the highest mobility. Although the results were positive, they are considered modest, as most of them barely reached secondary school, a level insufficient to compete in the market for quality employment.

## Keywords:

Social policy  
Social development  
Human capital  
Poverty alleviation  
Intergenerational educational mobility

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## 1. Introduction

Inequality, poverty, and social mobility are closely related phenomena. Persistent poverty and inequalities lead to their intergenerational transmission and create

barriers to people's social mobility. Intergenerational social mobility is an indicator of the relative well-being achieved within households, as it reflects the relationship between the origin and destination characteristics of

its members in different dimensions of well-being, for example, in education, occupation, and income. Within social mobility, intergenerational educational mobility (MEI) can be seen as an end, when it takes the form of educational attainment, and it can be conceived as a means when it becomes an equalizing factor of opportunities that allows people to increase their skills and improve their qualifications and income in the labor market.

Public policies play an important role in containing and reducing inequalities and poverty levels. Specifically, social programs have focused on addressing aspects of poverty that seek to mitigate the influence of the factors of the context of origin and allow the social mobility of new generations in families living in extreme poverty. The promotion of education has been an essential element in these programs since the last five years of the last century in Mexico.

For twenty years (1997–2018), the *Progresa-Oportunidades-Prospera* (POP) program was the main social policy instrument aimed at serving the population living in extreme poverty in our country. It sought to reverse inequality of opportunities by helping to break the intergenerational transmission of poverty. Its strategy was to provide new generations with monetary and in-kind support to improve their education, health and nutrition. The transfer of resources to households would improve their food consumption and encourage their members to attend health services and children to go to school. In their logic, nourished and healthy children and young people would achieve better school performance.

Education was central to the program because it represented the investment that in the future would provide the possibility of better labor insertion and with it better levels of well-being in families <sup>[1]</sup>. Therefore, MEI was a necessary mechanism to move from a certain origin to a better educational and social destination.

This article aims to analyze the MEI of a group of young people who were beneficiaries of the POP in different rural areas of the country and to estimate the weight of ascriptive and change (or non-ascriptive) factors in the level of mobility achieved. We sought to answer the following questions: What are the level and characteristics of the MEI achieved by young people, and are there differences by sex, ethnic and migratory

status, and state? How do different ascriptive factors (socioeconomic origin, place of origin, and individual characteristics) and factors of change (migration status, time of exposure to POP, and amount of POP support) influence the levels of mobility achieved? We analyze the characteristics of MEI based on educational mobility tables and study the incidence of ascriptive and switching factors on MEI using a generalized ordered logistic model.

Without ignoring the fact that research on MEI exists in Mexico, the innovation of this study lies in analyzing the mobility of a particular group of young people who started from a situation of extreme poverty in rural areas and who, as a result, had access to the benefits of POP. There are precedents for studying the MEI of this group <sup>[2,1]</sup>; however, here we incorporate a broader period of the intervention, from the start of the program in 1997 until 2017, a year before its cancellation. While this analysis does not constitute an evaluation of the impact of the program on MEI, it does allow us to visualize the changes that the study group experienced concerning the educational attainment of their parents, as well as to identify some factors that influence this process.

Based on the results of previous research on MEI in Mexico, and particularly on the impact of the program on educational indicators and MEI, we expect to find high rates of upward mobility, as well as differences between study subgroups in favor of women, Indigenous people, and migrants. We also expect to find that young people from southern states, particularly Guerrero, have lower levels of upward mobility. Finally, we consider that we will observe an incidence of ascriptive factors that tell us about the weight of intergenerational inheritance, as well as factors of change, which refer to the importance that access to opportunities in more favorable contexts, as well as POP intervention, can have for MEI.

The document is divided into five sections: the first presents the analytical perspective that guides the study; the second describes the characteristics of the program, its objectives, its theoretical basis, and the main results of its evaluations in education; the third explains the methodological design and the source of information; the fourth presents the results, both of the MEI and the analysis of the ascriptive and change factors; finally, the fifth section systematizes the conclusions, articulating an



analytical synthesis of the main findings of the study.

## 2. Theoretical approach to the study of MEI

### 2.1. Studies on intergenerational social mobility

Social mobility refers to the changes that members of a society experience in their socio-economic position or status. Social mobility studies analyze the degree and form of association between social origins, understood as the conditions and circumstances of a person's early life, and the nearest point in time, i.e. social destiny<sup>[3]</sup>.

In their analysis, a distinction can be made between intergenerational mobility, which shows the change in position relative to the household of origin, and intragenerational, which describes changes in socio-economic position over the life cycle of individuals<sup>[4]</sup>. Intergenerational mobility is measured in absolute and relative terms. Absolute mobility reflects changes in living standards relative to those in the household of origin, i.e. intergenerational comparison<sup>[5]</sup>. Relative mobility shows the "comparative mobility opportunities between groups with different social origins" after controlling for absolute mobility, reflecting "social fluidity and equality of opportunity"<sup>[6]</sup>.

Ganzeboom *et al.*<sup>[7]</sup> distinguish three precursor generations in mobility studies, which differ in data collection, measurement procedures, methods of analysis, and the definition of research problems. The first generation developed in the post-war period, characterized by studies of social stratification in which occupational mobility was the main topic; the second generation was characterized by the incorporation of models of trajectories of educational and occupational attainment; and the third generation by the use of more specialized statistical techniques based on log-linear models of occupational mobility.

Subsequently, social mobility studies broadened their interests to include the role of family structure, residential segregation, school systems, the labor market, and the welfare state, among other topics<sup>[1]</sup>. Since the second generation of studies, education has been identified as a relevant factor in social mobility<sup>[8]</sup>.

The MEI makes it possible to contrast changes between parents and children in educational attainment

and, therefore, reflects a dimension of inequality of opportunity in society. Inequality of opportunity refers to the weight of ascriptive factors, which are unrelated to the responsibility or merit of individuals, on social destinies<sup>[9,10]</sup>. Ascriptive factors refer to characteristics such as family socio-economic background, gender, ethno-racial characteristics, and the territorial context of early life, which allows us to understand the effects of the social circumstances of origin on people's destinies<sup>[10]</sup>.

Social stratification can be changed through the incidence of factors that diminish the weight of ascriptive elements in the distribution between origins and destinations. Such factors can be productive, associated with the economic development model; institutional, linked to the segmentation of labor markets or the stratification of the education system; political, referring to the existence or not of redistributive policies; and demographic, in phenomena such as migration or fertility<sup>[11]</sup>. In this sense, the fact that MEI depends less on ascriptive factors and more on factors of change (or non-ascriptive) would be an indicator of the proper functioning of redistributive policies implemented by the state<sup>[4]</sup>.

For this research, we return to the perspective of intergenerational mobility, with an emphasis on absolute mobility and a particular interest in analyzing educational inequalities based on the study of the weight of ascriptive and non-ascriptive factors on intergenerational changes in educational attainment.

### 2.2. Studies on intergenerational educational mobility

Research on stratification and social mobility has shown, for Latin America, the persistence and increase of the association between social origins and social destinations in educational attainment<sup>[12]</sup>. Research by Fernández<sup>[13]</sup> and Blanco<sup>[14]</sup> shows the effects of the change in the economic model on social mobility, and demonstrates that students' academic performance is strongly determined by social origins, socio-demographic traits of families, and the existence of favorable conditions for learning in the home; that is, the social origin of individuals is a primary factor in their social destiny. In addition, the works of Martínez<sup>[15]</sup> and Solís<sup>[16]</sup> analyze

educational inequality measured in years of schooling and show that Mexico, in comparison with other countries of the Organization for Economic Co-operation and Development (OECD), shows greater inequality mainly due to socio-economic factors.

Other studies that have focused on educational transitions <sup>[17,12]</sup> show the effects of inequality at each educational level and how the segmentation of educational provision is related to inequality, which has highlighted the existence of divergent educational trajectories. In international studies of this type, a debate has emerged around the fact that the effects of social background on school progression diminish as one moves to higher levels of education <sup>[12,18]</sup>.

Internationally <sup>[19]</sup>, in Mexico <sup>[8,12,10]</sup>, and in some Mexican cities <sup>[20]</sup>, it has been documented that the expansion of educational coverage has allowed access to schooling for the most disadvantaged social groups. However, they point out that such results should be analyzed with caution as they do not necessarily imply an overall reduction in inequality, but simply a transfer of inequality from the basic level to intermediate and higher education <sup>[21,12,22]</sup>. Moreover, it has been documented that improvements in coverage mostly benefit the more privileged sectors, as they tend to use all their resources to leverage the expansion of education to their benefit <sup>[23]</sup>.

De la Torre <sup>[24]</sup> and Orozco *et al.* <sup>[25]</sup> conclude that upward educational mobility in Mexico is high, although limited because educational disadvantages persist between generations, mainly in the southern states, where mobility rates are lowest, and because home conditions continue to determine educational opportunities. They also point out that the burden of educational inheritance can be reduced by improving the quality of public schools and with the help of cash transfers to the most vulnerable households. De Hoyos *et al.* <sup>[21]</sup>, based on the analysis of the effects of education policies, agree that policies aimed at improving the education of the poorest can be a tool for equalizing opportunities in society.

Finally, Rodríguez <sup>[26]</sup> synthesizes the results of MEI research in Mexico as follows: (a) children mostly have better levels of schooling than their parents; (b) absolute rates of educational mobility are high; (c) absolute mobility rates show a predominance of upward educational mobility as opposed to downward

and immobility; (d) relative mobility rates show an increase in the association between educational origins and destinations, i.e. there is greater rigidity in the educational mobility regime; and (e) educational opportunities are presented in a differentiated way, in particular it is more difficult for children of parents with low levels of education to access upper secondary and higher education.

### 3. Progress-Opportunities-Prospera (POP)

#### 3.1. Background

For twenty years (1997–2018), POP was the central anti-poverty program in the country and was considered a pioneer and international benchmark <sup>[27]</sup>. It was a conditional cash transfer program that sought to contribute to breaking the intergenerational transmission of poverty by promoting the formation of human capital in new generations <sup>[28]</sup>.

In its beginnings, *Progesa* had a coverage of 300,000 families in rural areas; at the beginning of 2002, its population served had increased to 2.4 million households, two-thirds of which were in Indigenous communities. In that year, when it changed its name to *Oportunidades*, it increased its coverage to the 32 states of the country in rural and urban areas, reaching 4.2 million beneficiary households. By the end of 2018, under the name *Prospera*, it served 6.7 million households in 111,844 localities <sup>[29]</sup>.

Its distinctive features were cash transfers, targeting, conditionality, articulation, and evaluation <sup>[30,27]</sup>. Cash transfers sought to increase household income and consumption to improve household welfare and encourage the development of human capital. Targeting was intended to ensure that support was delivered to households living in extreme poverty. Conditionality established a system of co-responsibilities for permanence in the program, aimed at ensuring school attendance and health care. Articulation implied the coordination of the program's actions among various ministries and the three levels of government. An evaluation was the mechanism (internal and external) for monitoring and continuous improvement of results.

The actions deployed were organized into three

main components, although during its two decades of operation, other components were incorporated, mostly of a temporary nature. The education component consisted of scholarships and school supplies packages, and its conditionality was recorded through school attendance lists. The health component promoted health care and the provision of food supplements to young children and pregnant or breastfeeding women, with co-responsibility involving attendance at regular check-ups and health talks. The food component provided monetary support to improve household consumption and nutritional status <sup>[27]</sup>.

### 3.2. Theoretical foundations

The design of the program emerged from a diagnosis carried out between 1995 and 1997, which identified that people's low level of human capital generated a "vicious circle" at the individual-family level, reproducing poverty from one generation to the next <sup>[30]</sup>. Malnutrition and poor health led to low school performance, which translated into limited productivity, low labor income, and ultimately, the reproduction of poverty patterns <sup>[31]</sup>. The program had two interrelated objectives: in the short term, to improve the well-being of families by increasing their consumption capacity; and in the long term, to develop the human capital of its youngest members to improve their well-being in the future <sup>[27]</sup>.

Human capital theory underpinned the social and economic role of the program <sup>[1]</sup>. It hypothesized that investment in the generation of skills and knowledge influences people's future productivity and real income <sup>[32]</sup>. However, people in poverty, given their circumstances and consumption and investment preferences, were found to have poor human capital <sup>[33]</sup>. Through transfers and conditionalities, it was sought that households in poverty would perceive education as an investment and not as an expense, assuming that the retribution of investing in education would be reflected in the long term in better jobs and higher incomes <sup>[34]</sup>.

### 3.3. The educational component

The educational component evolved through the incorporation of educational levels at which the scholarship could be granted, as well as in the recognized educational modalities, which made it possible to expand

the number of children and young people receiving its benefits <sup>[27]</sup>.

The support originally granted to families consisted of educational scholarships and resources for the purchase of school supplies for each child studying between the third year of primary and the third year of secondary school <sup>[30]</sup>. From 2002 onwards, scholarships were granted for upper secondary students in the school-based modality, in 2014 the non-school-based modality was incorporated, and in 2016 the mixed modality was added. In 2012, scholarships were added for the first and second year of primary school in rural areas to encourage children to enter school on time. Finally, scholarships for higher education were included in 2016 through co-financing schemes with the National Coordination of Scholarships for Higher Education <sup>[27]</sup>.

The amounts of the scholarships were defined to discourage children from entering the labor market, taking as a reference the income they received from working <sup>[30,28]</sup>. The amount offered was different for each level of education and increased with increasing levels of schooling. The amounts were equal for men and women in primary school; but from secondary school onwards they were higher for women because it was identified that from the age of thirteen onwards they had lower school attendance rates than men.

Scholarships encouraged school attendance and co-responsibilities promoted permanence. The health and nutrition components had an impact on the beneficiaries to guarantee their adequate school achievement, and to achieve the greatest possible accumulation of human capital throughout their educational trajectories. Based on the development of human capital, generated by the investment in the three components, educational mobility was a crucial element to promote social mobility and, consequently, to break the intergenerational transmission of poverty.

Evaluations of the education component showed that the program had positive effects on school enrolment and retention, increased schooling, transition from secondary to baccalaureate, reduction of grade repetition, academic performance, and MEI. More favorable impacts were also documented for women and Indigenous people in several educational indicators, which favored the closing of gender and ethnic gaps that historically persisted in the country. Of these studies, the



following stand out: Skoufias and Parker <sup>[35]</sup>; Parker <sup>[36,37]</sup>; Schultz <sup>[38]</sup>; Behrman *et al.* <sup>[39]</sup>; González de la Rocha <sup>[40]</sup>; Yaschine <sup>[1]</sup>; ASF <sup>[41]</sup>; Parker and Todd <sup>[42]</sup>; Parker and Vogl <sup>[43]</sup>; Acevedo, Ortega and Székely <sup>[44]</sup>; Mendoza <sup>[2]</sup>; Gutiérrez *et al.* <sup>[45]</sup>, and Behrman *et al.* <sup>[46]</sup>.

In particular, studies analyzing MEI showed that the program had a positive impact on the upward mobility of beneficiaries after ten years of operation <sup>[2]</sup>. The educational mobility of program beneficiaries was predominantly upward, was related to the degree of exposure to the program, and was higher for women, Indigenous, and migrants (compared to men, non-Indigenous, and non-migrants, respectively). It is also noted that while MEI was high compared to their parents, it was limited to the educational attainment of their peers in other socio-economic strata, reflecting the weight of origin in education <sup>[1,2]</sup>.

## 4. Methodological design

### 4.1. Source of information and delimitation of the study group

The source of information used is the panel database of POP's Rural Household Evaluation Survey (ENCEL) 1997–2017. This panel consisted of ten survey rounds: the first seven were conducted between 1997 and 2000, and information was subsequently collected in 2003, 2007, and 2017. The ENCEL was conducted in a sample of rural localities of high and very high marginalization in seven Mexican states: Guerrero, Hidalgo, Michoacán, Puebla, Querétaro, San Luis Potosí, and Veracruz. The last round of the ENCEL was applied in 334 localities <sup>[47]</sup>.

The present research takes the information from the final round of 2017 to construct the dependent and independent variables, except the variables required for the construction of the household wealth index of origin, which are obtained from the baseline round of 1997.

The analysis also focuses on a sample of 4,467 young people, which was formed according to the following criteria: (1) they were between 18 and 35 years old; (2) they had been part of the households in the baseline round or any of the following rounds conducted until 2000, and were located in the 2017 round; (3) they had been beneficiaries of the program for at least one year; and (4)

they had information on their schooling and that of their main provider, the vast majority of whom are fathers or mothers. **Table 1** shows the distribution of the study group by sex, ethnic and migration status, and entity of origin.

**Table 1.** Distribution of the study group by sex, ethnicity, origin, and migration status

	Frequency	Percentage
Gender		
Female	2,504	56.06
Male	1,963	43.94
Ethnic status		
Indigenous	1,227	27.47
Non-Indigenous	3,240	72.53
Entity of origin		
Guerrero	330	7.39
Querétaro	216	4.84
Hidalgo	816	18.27
Michoacán	634	14.19
Puebla	846	18.94
San Luis Potosí	643	14.39
Veracruz	982	21.98
Migration status		
Migrant	675	15.11
Non-migrant	3,792	84.89
Total		
Total number of young people	4,467	100.00

Source: Own elaboration based on Panel ENCEL 1997–2017

### 4.2. Methods for the characterization of the MEI

The analysis of the characteristics of the MEI of the study group is based on the elaboration of intergenerational mobility tables, which make it possible to identify absolute educational mobility and quantify the changes between the social origin, i.e. the educational level of the providers, and the social destination, which refers to the level reached by the young person.

For the study of absolute intergenerational educational mobility, an educational strata scheme was used as the main variable (**Table 2**), which allowed the

grouping of the next higher incomplete level of education to the lower complete level, given the importance of completing a level in the labor market.

The mobility tables are represented by a square matrix. It is made up of  $F_{i,j}$  persons, based on the fact that there are  $i$  columns and  $j$  rows. Each element of the matrix  $F_{i,j}$  represents the proportion of persons (in this case of young people) with a destination  $j$  determined by their provider with an origin  $i$ . The matrix contains frequencies in each cell, the total of each row is the sum of cases in the row and the total in the lower right corner expresses the sum of all cases in the sample <sup>[48]</sup>.

**Table 2.** Clustering of educational levels by strata

Strata	Educational levels	Years of education
No basic education	No education Incomplete primary education	No year Less than five years
Primary education	Complete primary education Incomplete secondary education	Six years Seven to eight years
Secondary education	Secondary school completed Preparatory school incomplete	Nine years Between ten and eleven years
Completed upper secondary education	Preparatory school	Twelve years
Higher education	Higher education	Twelve years and more

Source: Own elaboration based on Mendoza <sup>[2]</sup>

The mobility tables allow the construction of two measures: mobility rates and exit rates. The rates reflect a summary measure of mobility behavior in the study group. They represent the proportion of cases out of the total that experienced immobility or mobility (upward or downward), regardless of the number of positions moved <sup>[48]</sup>. Based on the above, three parameters were established according to the educational stratum reached by a young person concerning that of his or her provider: (1) long-distance upward mobility, when it is greater in two or more strata; (2) short-distance upward mobility, when it is greater in only one stratum; (3) immobility-downward mobility, when the stratum is the same or lower than that of his or her provider.

Exit percentages record the distribution of destinations for each origin category <sup>[48]</sup>, the sum of which for each category (row) is 100 percent. These percentages can be interpreted as “the probabilities that individuals have of having a certain destination, given each origin, considering structural mobility and relative mobility” <sup>[27]</sup>. The transition matrix obtained must be square and have several rows and columns equal to the number of educational strata, which are mutually exclusive. Furthermore, the records and numbers in the matrix must add up to one in each of its rows (100 percent probability distributed across the different strata) and must be positive <sup>[49]</sup>. Each value taken by the matrix  $P_{i,j}$  is established from the frequency distribution and reflects the probability of moving from category  $i$  to  $j$ , calculated as the quotient of the number of people who moved from  $i$  to  $j$  and the number of people who were initially in category  $i$  <sup>[49]</sup>.

#### 4.3. Determinants of MEI: generalized ordered logistic model

The second phase of the methodological strategy consists of estimating a generalized ordered logistic model to analyze the weight of ascriptive and switching factors on the MEI levels achieved by the young people in the study group. This type of model considers the order of the dependent variable and allows us to obtain partial cumulative probabilities, given that the data violate the proportionality assumption, i.e. it cannot be assumed that the same distance exists between the different categories <sup>[50–52]</sup>.

**Table 3** summarizes the variables used in the model. The dependent variable is MEI, defined as a categorical and hierarchical variable, and can have three values: (1) long-distance upward mobility, (2) short-distance upward mobility, and (3) immobility-downward mobility. The independent variables included refer to three types of ascriptive factors: (1) family socio-economic background (household wealth index of origin); (2) place of origin (state of origin), and (3) individual characteristics (gender and ethnicity). Also included are variables associated with three factors of change: (1) migration status, (2) time of exposure to the program, and (3) total amount of monetary support received.

The generalized ordered logistic model was

**Table 3.** Variables in the generalized ordered logistic model

Variable type	Name	Categories
Dependent	Intergenerational educational mobility	3 = Long distance upward mobility 2 = Short distance upward mobility 1 = Immobility-Downward mobility
Type of variables Factors	Name	Categories
Adscriptive	Household wealth index of origin	0 = Low, 1 = Medium, 2 = High
	Federal state	0 = Guerrero; 1 = Querétaro; 2 = Hidalgo; 3 =Michoacán; 4 = Puebla; 5 = San Luis Potosí; 6 =Veracruz
Independent	Sex	0 = Male; 1 = Female
	Ethnic Status	0 = Non-Indigenous; 1 = Indigenous
	Migration status	0 = Non-migrant; 1 = Migrant
	In exchange Time of exposure to the program	0 = 1 to 10 years; 1 = 11 to 16 years; 2 = 17 to 20 years
	Total amount of support received	0 = Low; 1 = Medium; 2 = High

proposed by Williams<sup>[50]</sup> and is expressed as follows:

$$P(Y_i > j) = g(X_i\beta_j) = \frac{\exp(a_j + X_i\beta_j)}{1 + \{\exp(a_j + X_i\beta_j)\}}, j = 1, 2, \dots, M - 1$$

Where:  $M$  = number of categories of the ordinal dependent variable;  $X_i$  = independent variables;  $a_j$  = cut-off points that are similar to the constants;  $\beta_j$  = regression coefficients.

From the above, it can be determined that the probabilities that  $Y$  will take at each of the values 1, ...,  $M$  are equal to:

$$P(Y_i = j) = 1 - g(X_i\beta_1)$$

$$P(Y_i = 1) = g(X_i\beta_{j-1}) - g(X_i\beta_j), j = 2, \dots, M - 1$$

$$P(Y_i = M) = g(X_i\beta_{M-1})$$

First, we obtain the  $\beta$  coefficients that show the direction of the relationship of the independent variables concerning the categories of the dependent variable. Positive coefficients reveal that the higher the value of the independent variable, the more likely the dependent variable is to be in the reference category, in this case, long-distance upward mobility, and negative coefficients show that the lower the value of the independent variable, the more likely the dependent variable is to be in the contrast category, in this case, short-distance

upward mobility or immobility-downward mobility<sup>[50]</sup>.

Odds ratios (OR) are then obtained, which indicate the probability that the independent variables are likely to be in either the reference or comparison category of the dependent variable. The odds ratios are obtained concerning the independent variables' reference categories, represented by the value zero (**Table 3**). Finally, the marginal probabilities are obtained for each level of the MEI as a function of the independent variables and their categories.

It should be noted that the analysis has some limitations. The results are valid only for the young people in the study group and, although they can be taken as indicative, they are not generalizable to all POP beneficiaries. Furthermore, the methodological design does not allow attributing the results in educational mobility to the impact of the POP intervention. Finally, because 3.78% (169) of the young people in the study group continue their educational trajectory, it is possible that our analysis slightly underestimates the MEI because they are cases that do not reflect their mobility potential. However, it was decided to consider them in the sample given that the majority (98) are in higher education (in primary, 10; secondary, 32; and upper secondary, 29). Despite these limitations, the results show the characteristics of the MEI of the group of young people

studied, coming from rural households in conditions of extreme poverty, as well as the weight that certain factors have on it.

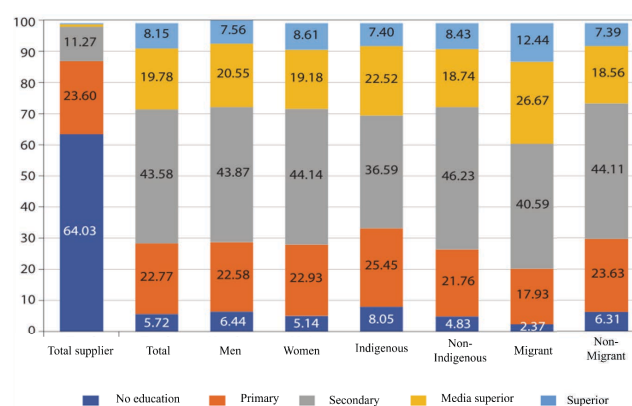
## 5. Results of the study on Mei in young Pop beneficiaries

### 5.1. Characterization of intergenerational educational mobility

To understand the level and characteristics of the MEI achieved by young people and their differences by comparing subgroups (gender, ethnic and migration status, and place of origin), mobility rates and exit rates were calculated. This section describes the results.

The first approach to intergenerational changes in education is shown by the comparative data on the educational strata attained by providers and young people (**Figure 1**). Providers are concentrated in the lowest educational strata, predominantly with no education. On average, they have three years of schooling. In contrast, few young people have no schooling, most have completed secondary school or higher and, on average, have nine years of schooling.

Absolute educational mobility rates complement the description of intergenerational changes. High upward mobility and very low rates of immobility and downward mobility stand out for the total and all comparison subgroups. In all cases, the upward mobility rates indicate that 8 out of 10 young people have a higher educational status than their providers, of which 5 experience long-distance upward mobility and 3 short-distance mobility (**Table 4**).



**Figure 1.** Distribution of providers and young people in the study group by educational background (percentages)

The comparison by sex shows that a slightly higher percentage of women achieve long-distance mobility and a slightly higher proportion of men show immobility-downward mobility, which represents an advance because historically women have lagged further behind. In terms of ethnic status, the MEI behaves similarly in both groups, which could be interpreted as an advance for Indigenous people, considering the historical disadvantages of this group. The comparison by migration status is noteworthy, with migrants having the highest rate of long-distance upward mobility and the lowest proportion of immobility-downward mobility.

In the analysis of mobility achieved according to the state of origin (**Table 5**), similar behavior of the rates is observed in most of the states. The highest proportion of upward mobility (long and short distance) is found in the state of Hidalgo, closely followed by Querétaro, Veracruz, Puebla, San Luis Potosí, and Michoacán. Guerrero, the state with the greatest socio-economic disadvantages among those studied, has the lowest level

**Table 4.** MEI rates for the total study group and by sex, ethnicity, and migration status

Origin-destination relationship (supplier-youth)							
Type of mobility	Total n = 4467	Sex		Ethnic status		Migration status	
		Men (n = 1963)	Women (n = 2504)	Indigenous (n = 1227)	Non-Indigenous (n = 3240)	Migrant (n = 675)	Non-migrant (n = 3792)
Long distance upward mobility (%)	50.75	49.92	51.40	50.77	50.74	56.15	49.79
Short distance upward mobility (%)	33.56	33.32	33.75	33.33	33.64	32.15	33.81
Immobility - downward mobility (%)	15.69	16.76	14.86	15.89	15.62	11.70	16.40

Source: Own elaboration based on data from ENCEL 2017



of long-distance upward mobility, only 3 out of 10 young people achieve it. It also has the highest proportion of immobility-downward mobility, at 28.7%, while for the other states, it is less than 17.0%.

**Table 6** contains the exit rates for the study group as a whole, the results of which reinforce what has been described above. Despite the high rate of upward mobility, the weights of educational inheritance are also observed. Young people with providers who have lower educational attainment are more likely to reach the lower levels. These young people are 7.9% more likely to remain in the lowest educational stratum and only 5.4% more likely to have higher education, while for young people with providers who have higher education, the odds are zero to remain uneducated and 46.2% to have higher education.

The main diagonal presents the percentages of educational immobility, i.e. the proportion that remained in the same stratum as their providers. The upper secondary education stratum has the highest percentage of immobility. In the total aggregate, the educational stratum most likely to be reached is secondary education

(43.5%), and the probability of having a lower educational level (no education or primary education) is 28.4%. While this may represent a difference of up to two educational strata from the provider, the probability of reaching the higher strata is still low: 19.8% for upper secondary education and 8.2% for tertiary education.

The exit rates by subgroups show the same pattern as the aggregate group (**Table 7**). For all subgroups, high rates of upward mobility are observed, as well as a pattern of intergenerational inheritance. However, it is relevant to highlight some differences between them. In the comparison by gender, there is a slightly more favorable difference for women, mainly from the analysis of the two extreme strata. Regardless of the stratum of the provider, the probability of being in the stratum with no education is slightly higher for men (6.4%) than for women (5.1%), while women are more likely to have higher education (8.6%) than men (7.6%). However, for both subgroups secondary education is the level most likely to be attained, being slightly higher for females (44.1% compared to 42.9% for males).

**Table 5.** MEI rates according to the entity of origin

Type of mobility	Origin-destination relationship						
	Hidalgo (n = 816)	San Luis Potosí (n = 643)	Puebla (n = 846)	Veracruz (n = 982)	Querétaro (n = 216)	Michoacán (n = 634)	Guerrero (n = 330)
Long distance upward mobility (%)	54.78	54.90	54.14	52.44	48.15	45.27	31.21
Short distance upward mobility (%)	32.60	28.77	31.56	33.20	37.96	38.01	40.00
Immobility -Downward mobility (%)	12.62	16.33	14.30	14.36	13.89	16.72	28.79

Source: Own elaboration based on data from ENCEL 2017

**Table 6.** Exit percentages for the total study group

Educational status of provider (a)	Educational status of the young person (%)					
	No basic education	Primary	Secondary	Upper secondary	Higher	Total
No basic education	7.86	28.35	42.92	15.45	5.42	100.00
Primary	2.57	16.44	48.00	23.57	9.41	100.00
Secondary	0.40	5.74	40.79	34.26	18.81	100.00
Upper secondary	2.78	8.33	11.11	50.00	27.78	100.00
Higher	0.00	7.69	15.38	30.77	46.15	100.00
Total	5.71	22.77	43.54	19.81	8.17	100.00

Source: Own elaboration based on data from ENCEL 2017

**Table 7.** Percentages of outflows by sex, ethnicity, and migration status (%)

By gender						
Educational status of provider (a)	Educational status of the young person (Male)					
	No basic education	Primary	Secondary	Upper secondary	Higher	Total
No basic education	8.91	28.33	42.05	15.97	4.47	100.00
Primary	3.03	14.72	47.62	25.11	9.52	100.00
Secondary	0.44	7.49	41.41	33.92	16.74	100.00
Upper secondary	0.00	15.00	10.00	50.00	20.00	100.00
Higher	0.00	12.50	12.50	55.00	50.00	100.00
Total	6.42	22.52	42.84	20.63	7.59	100.00
Educational status of the young person, female (%)						
No basic education	7.06	28.36	43.59	15.05	5.94	100.00
Primary	2.20	17.80	48.31	22.37	9.32	100.00
Secondary	0.36	4.32	40.29	34.53	20.50	100.00
Upper secondary	6.25	0.00	12.50	43.75	37.50	100.00
Higher	0.00	0.00	20.00	40.00	40.00	100.00
Total	5.15	22.96	44.09	19.17	8.63	100.00
By ethnicity						
Educational stratum of the young person (Indigenous)						
No basic education	10.77	30.74	35.89	17.58	5.02	100.00
Primary	2.87	15.77	40.86	32.26	8.24	100.00
Secondary	1.00	11.00	32.00	35.00	21.00	100.00
Upper secondary	0.00	0.00	12.50	50.00	37.50	100.00
Higher	0.00	0.00	25.00	25.00	50.00	100.00
Total	8.07	25.43	36.51	22.58	7.42	100.00
Educational status of the young person (Non-Indigenous)						
No basic education	6.67	27.36	45.83	14.57	5.58	100.00
Primary	2.46	16.69	50.58	20.44	9.83	100.00
Secondary	0.25	4.44	42.96	34.07	18.27	100.00
Upper secondary	3.57	10.71	10.71	50.00	25.00	100.00
Higher	0.00	11.11	11.11	33.33	44.44	100.00
Total	4.81	21.76	46.20	18.77	8.46	100.00
By migration status						
Educational status of the young person (migrant)						
No basic education	2.84	25.52	40.98	22.42	8.25	100.00
Primary	2.84	10.23	45.45	30.11	11.36	100.00
Secondary	0.00	4.00	32.00	36.00	28.00	100.00
Upper secondary	0.00	0.00	14.29	57.14	28.57	100.00
Higher	0.00	0.00	50.00	0.00	50.00	100.00
Total	2.37	17.93	40.59	26.67	12.44	100.00
Educational status of the young person (Non-migrant)						
No basic education	8.65	28.79	43.23	14.36	4.97	100.00
Primary	2.51	17.69	48.52	22.26	9.02	100.00
Secondary	0.49	6.17	42.96	33.83	16.54	100.00
Upper secondary	3.45	10.34	10.34	48.28	27.59	100.00
Higher	0.00	11.11	0.00	44.44	44.44	100.00
Total	6.30	23.63	44.07	18.59	7.41	100.00

Source: Own elaboration based on data from ENCEL 2017

While MEI rates are similar for both subgroups by ethnicity, the analysis of exit rates provides some nuances. The weight of educational inheritance is greater for Indigenous people when the provider stratum is no education, as they are 10.7% more likely to remain in that stratum than non-Indigenous people, who are 6.7% more likely to remain in that stratum. In this sense, it is noteworthy that, regardless of the stratum of origin, the probability of being in the lower strata (no education and primary school) is higher for Indigenous people (33.5%) than for non-Indigenous people (26.6%). However, Indigenous people also have a higher probability of reaching the higher educational strata (upper secondary and tertiary) (30.0%) than non-Indigenous people (27.2%). This difference in the extremes of educational stratification is explained by a higher probability for non-Indigenous (46.2%) than for Indigenous (36.6%) of reaching secondary school completion.

The analysis by migration status shows that migrants have a lower weight of intergenerational inheritance, mainly when their origins are in the lower educational levels. This translates into a lower probability for them of having no or primary education (20.3% versus 29.9% for non-migrants) and a higher probability of attaining upper secondary and higher education (39.1% versus 26.0%).

In essence, it is observed that the MEI achieved by young people is predominantly upward and long-distance. Nevertheless, the MEI has enabled young people to largely reach the secondary education stratum, with persistent barriers to accessing and completing upper secondary and tertiary levels. The data also reflect that the weight of educational inheritance persists in educational attainment, as those young people who have a low educational background are more likely to remain at these levels.

Regarding differences in MEI by comparison subgroups, it is observed that females have marginally higher upward MEI than males, while no differences are observed between Indigenous and non-Indigenous. Likewise, in the case of women, compared to men, there is a lower probability of being in the stratum with no education and a higher probability of attaining higher education. Indigenous people, in contrast to non-Indigenous people, have a higher probability of being in the stratum with no education, but also of attaining

higher education.

Migration status reflects the most significant differences, with migrants having achieved the highest levels of upward MEI (particularly long distance), having a lower weight of educational inheritance, and having a higher probability of attaining upper secondary and tertiary education. This result suggests the relevance of context in shaping the opportunity structure.

The importance of context is also reinforced by the differences in MEI by place of origin, according to which young people from Guerrero, the most socioeconomically disadvantaged state, have the lowest levels of long-distance upward MEI and the highest levels of immobility-downward mobility.

## 5.2. Determinants of MEI: ascriptive and change factors

To gain a deeper understanding of the levels of MEI attained, a generalized ordered logistic model was estimated to analyze the weight of ascriptive and switching factors on intergenerational differences. From the model, the probabilities of achieving any of the three types of mobility (long-distance upward, short-distance upward, and immobility-downward mobility) were obtained as a function of three ascriptive variables (socio-economic origin, place of origin, and individual characteristics) and three change variables (migration status, time of exposure to POP and amount of POP support), with long-distance mobility being the reference category.

The statistical package displays coefficients ( $\beta$ ) reflecting the direction of the relationship between the variables and relative risk ratios (RRR) indicating the likelihood of the independent variables exhibiting the reference category of the dependent variable. **Table 8** presents the results.

In the comparison between long and short-distance upward mobility, few categories determine the probability of being in one or the other, reflecting that they are groups with similar characteristics. Of the ascriptive variables, the relative risk of a young person achieving long-distance versus short-distance mobility increases when the household wealth index is high relative to low (1.59 times); and when they are originally from San Luis Potosí (1.66 times), Hidalgo (1.35 times)

**Table 8.** Results of the generalized ordered multinomial logistic ordered model

Variables				Short-distance upward mobility		Immobility-Downward mobility	
Variables	Reference category	Comparison category	β	RRR	β	RRR	
Dependent variable							
Educational mobility	Long-distance upward mobility	Short-distance upward mobility Immobility-downward mobility					
Independent variables							
Ascriptive factors	Household wealth index of origin	Low	Medium	-0.013	0.987	0.071	1.074
			High	0.260*	1.597*	0.251*	1.285*
	State	Guerrero	Querétaro	-0.002	0.998	0.600*	1.823*
			Hidalgo	0.301*	1.352*	0.932*	2.540*
			Michoacán	-0.001	0.999	0.551*	1.736*
			Puebla	0.300*	1.350*	0.891*	2.438*
			SLP	0.419*	1.661*	0.935*	2.548*
			Veracruz	0.198	1.219	0.804*	2.235*
	Sex	Male	Female	0.001	1.001	0.082	1.085
	Ethnic status	Non-Indigenous	Indigenous	0.075	1.078	0.091	1.095
Factors of change	Migration status	Non-migrant	Migrant	0.099	1.104	0.218*	1.629*
	Time of exposure to the program (years)	1 to 10 years	11 to 16 years	0.308	1.360	0.253*	1.388*
			17 to 20 years	0.126*	1.966*	0.267*	1.987*
	Amount of total support received, pesos (ln)	Low	Medium	0.045	1.046	0.455*	1.576*
			High	0.428*	1.535*	1.069*	2.900*

Source: Prepared by the authors using the gologit2 command in Stata 14, based on data from the Panel ENCEL 1997–2017

Note: \* = Statistical significance level at 95%.

or Puebla (1.35 times) versus Guerrero. Among the variables of change, a time of exposure to the program of 17–20 years (1.97 times) and having received a high amount of monetary support (1.54 times), increase the probability of having long-distance mobility.

In the comparison between long-distance mobility and downward mobility, most of the categories analyzed affect the probability of experiencing the former, rather than the latter. As for the ascriptive variables, the probability of a young person reaching the first condition increases when the household wealth index is high (1.31 times) and when the place of origin is not Guerrero (between 2.55 and 1.73 times depending on the entity). All the change variables contribute to explaining the probability of having long-distance mobility instead of

immobility-downward mobility: when young people migrate from their place of origin (1.62 times), when the time of exposure to the program is high (1.99 times) or medium (1.39 times) and when the level of support received is high (2.90) or medium (1.58), relative to low in both cases.

It is worth noting that, among the ascriptive variables, individual characteristics (gender and ethnicity) were not significant in either comparison. This is consistent with the descriptive results presented in the previous section which show that the differences in MEI by gender and ethnicity are marginal.

Probabilities were also estimated for each category of the independent variables, for each of the MEI levels. From the probabilities obtained it is possible to construct



a profile of the determinants associated with each MEI level as a function of ascriptive and change factors.

The results (**Table 9**) show that those with the highest probability of achieving long-distance upward mobility come from a household with a high wealth index, are originally from San Luis Potosí or Hidalgo, are women and Indigenous, migrated from their place of origin, had a time of exposure to POP of 17–20 years and received a high amount of support from this program.

On the other hand, those who are more likely to experience short-distance upward mobility come from households with a medium or high level of wealth, are

originally from Guerrero, Michoacán or Puebla, are not Indigenous, did not migrate from their place of origin, had a POP intervention of 17 to 20 years and received a high amount of monetary support from the program. In this case, gender is indistinct.

Finally, the young people who are most likely to show immobility-downward mobility come from households with a low level of wealth, are originally from Guerrero, are male, are not Indigenous, did not migrate from their place of origin, were beneficiaries of POP from 1 to 10 years of age and received a low amount of monetary support from the program.

**Table 9.** Marginal probabilities of the categories of the generalized ordered multinomial logistic model

Factors	Variables		Long-distance upward mobility	Short-distance upward mobility	Immobility- downward mobility	Total
	Name	Categories of variables				
Ascriptive	Household wealth index of origin	Low	0.4977	0.3403	0.1618	1.00
		Medium	0.5149	0.3431	0.1418	1.00
		High	0.5579	0.2853	0.1566	1.00
	Federal Entity	Guerrero	0.3324	0.3825	0.2849	1.00
		Querétaro	0.4725	0.3800	0.1443	1.00
		Hidalgo	0.5530	0.3150	0.1318	1.00
		Michoacán	0.4606	0.3818	0.1566	1.00
		Puebla	0.5431	0.3152	0.1415	1.00
		SLP	0.5538	0.2904	0.1556	1.00
		Veracruz	0.5221	0.3375	0.1403	1.00
	Gender	Male	0.5010	0.3343	0.1645	1.00
		Female	0.5206	0.3340	0.1452	1.00
	Ethnic status	Non-Indigenous	0.5060	0.3387	0.1551	1.00
		Indigenous	0.5306	0.3223	0.1497	1.00
In exchange	Migration status	Non-migrant	0.5040	0.3376	0.1584	1.00
		Migrant	0.5564	0.3159	0.1275	1.00
	Time of exposure to the program	1 to 10 years	0.4958	0.2924	0.2012	0.99
		11 to 16 years	0.5499	0.3191	0.1565	1.03
		17 to 20 years	0.5595	0.3375	0.1205	1.02
	Range of total support received, pesos (ln)	Low	0.3639	0.3458	0.2936	1.00
		Medium	0.4158	0.3918	0.1911	1.00
		High	0.5210	0.4100	0.1101	1.04

Source: Own elaboration from the generalized ordered multinomial model in Stata 14, with data from Encel 1997 and 2017. Note: All values have 95% statistical significance. The highest values for each variable per MEI category are shaded.

In summary, the results show that MEI is determined by the two types of factors considered: ascriptive and change. The weight of intergenerational inheritance in MEI is observed as a function of the ascriptive variables, mainly the wealth index of the household of origin and the entity of origin. A high socio-economic family origin increases the probability of long and short-distance upward MEI, while a low one favors immobility-downward mobility. On the other hand, young people from Guerrero, the state with the highest socio-economic disadvantages among those analyzed, show a higher probability of having immobility downward-mobility. Gender and ethnicity seem to be variables with a more marginal incidence. Although they are not statistically significant in the logistic model, they are significant in the estimation of marginal probabilities, where it is observed that being female and Indigenous are associated with a higher probability of experiencing long-distance upward MEI.

The factors of change have a positive impact on MEI, as migrating from the place of origin, longer exposure to the program, and higher amounts of program support increases the probability of long and short-distance upward mobility. This reflects that changing the conditions of origin of young people, either through individual decisions that lead to a change of territorial context or through public policy actions, such as access to POP, contributes to reducing intergenerational inequalities in education.

## 6. Conclusion

Based on a theoretical approach to intergenerational social mobility, this article examined the MEI features experienced by a group of young POP beneficiaries who come from largely disadvantaged backgrounds in rural areas of the country. Absolute MEI measures were calculated for the study group as a whole, as well as differences by gender, ethnic and migration status, and state of origin. The incidence of ascriptive and change (or non-ascriptive) factors on the probability of having different MEI outcomes were also analyzed using a generalized ordered multinomial logistic model. For this purpose, information from the initial and final round of the Panel ENCEL 1997–2017 was used.

The results of the descriptive analysis show that the young people in the study group have a higher educational attainment than their providers: nine versus three years of schooling on average. Thus, the MEI rate reflects a predominance of upward mobility (8 out of 10 young people), mainly long distance, over immobility-downward mobility. This is in line with the findings of other research reflecting that in the 21st century, this type of mobility has been restricted to people from disadvantaged social backgrounds <sup>[26]</sup>.

Nevertheless, the impact of social background on educational attainment persists, mainly at the extremes of the distribution. Young people with providers at the lowest educational levels are more likely to attain those levels, while those from more highly educated backgrounds are more likely to do so.

Furthermore, while the high rates of upward MEI reflect a broadening of educational opportunities, the educational attainment of this group of young people still represents a challenge, as it is predominantly concentrated at the secondary level, and shows difficulties in transitioning to and completing upper secondary and tertiary levels. This implies limitations for these young people in their insertion into the labor market and points, in agreement with other studies <sup>[26]</sup>, to the need to strengthen public policy actions that promote the permanence and graduation from secondary and higher education of young people from low-income families.

The comparison of the MEI by subgroups shows differences, although marginal, favorable for women and similar characteristics according to ethnicity. Likewise, women, compared to men, have a lower probability of being in the stratum with no education and a higher probability of attaining higher education. Indigenous people, in contrast to non-Indigenous people, are more likely to be located in the stratum with no education, and also at the tertiary level. Given the historical disadvantage of women and Indigenous people in educational attainment, these results could be interpreted as favorable for these subgroups. They are also consistent with the results of previous research documenting the impact of POP on closing gender and ethnic gaps in education <sup>[40,46]</sup>.

The most notable differences are associated with

migration status. Young people who migrated from their locality of origin have the highest levels of upward MEI (particularly long distance), have a lower weight of educational inheritance, and have a higher probability of attaining upper secondary and tertiary education. These findings are consistent with previous studies that have documented more favorable outcomes for migrants on several dimensions of well-being <sup>[1,2,6,53]</sup>. This suggests that, in the face of limited opportunities in the localities of origin, emigration is a mechanism that provides the possibility of accessing a better level of well-being.

The importance of the context is also reinforced by the results of the MEI according to the entity of origin. Young people from Guerrero, the entity with the greatest socio-economic disadvantages among those studied, have the lowest levels of long-distance upward MEI, as well as the highest rates of immobility-downward mobility.

The analysis of the determinants of MEI allows us to deepen the characterization just presented. The findings show the incidence of both ascriptive elements, which are associated with inequality of opportunity, and non-ascriptive elements, which represent mechanisms of change, in intergenerational outcomes.

The odds of experiencing long-distance upward MEI are associated with having a high socio-economic family background, being originally from San Luis Potosí (in contrast to Guerrero), being female, being Indigenous, being a migrant, having been a beneficiary of POP for the longest time and having received the highest amount of cash transfers from this program.

In the opposite situation, the odds of having an immobility-downward mobility outcome are associated with being from a low socio-economic background, being from Guerrero, being male, not being Indigenous, not having migrated from the locality of origin, having been a POP beneficiary between 1 and 10 years, and having received a low amount of cash transfers from POP.

These findings identify progress in the distribution

of educational opportunities, particularly for this group of young people who come from extremely poor households and rural localities with broad restrictions on opportunities. Such progress has undoubtedly been generated by a combination of factors, including the expansion of educational provision and other public policy actions. However, the results also show that enormous challenges remain in achieving equality of opportunity in the educational dimension, which points to the urgent need to reinforce government strategies to minimize barriers to educational mobility.

Although the analysis does not allow us to estimate the impact of POP on MEI, the findings show that the time of exposure to the program and the amount of monetary support received from the program does have a positive association with long-distance upward mobility. These results point in the same direction as those of <sup>[2]</sup>, who documented the positive impact of POP on MEI for this study group after ten years of program operation. That is, the evidence points to the fact that POP contributed to reducing intergenerational inequalities in education.

POP was canceled in 2019 and replaced by the *Programa Nacional de Becas para el Bienestar Benito Juárez*, which omits the synergy between education, health, and food actions, and reduces the number of educational scholarships. It is possible that this change means a setback in the progress that has been made in the educational trajectories of children and young people living in poverty.

The challenge of equalizing educational opportunities remains, but it is only one of the pieces that must be addressed to avoid the intergenerational reproduction of poverty. Increasing the human capital of individuals will be insufficient if a restrictive economic context is maintained, with low growth and without the capacity to generate quality jobs and characterized by maintaining and deepening inequalities <sup>[54]</sup>.

### Disclosure statement

The authors declare no conflict of interest.

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# Children Who Have Never Gone to School: How Regional Heterogeneity Shapes Access to Primary Education in Uganda

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## Abstract:

Despite Uganda being among the first sub-Saharan countries to introduce universal primary education in 1997, approximately 6% of children aged 9–11 had never attended school as of 2014. A thorough examination of a 10% sample from the latest Uganda Population and Housing Census (2014) dataset underscores notable spatial disparities. We compared the outcomes of separate logistic regression analyses conducted for the Karamoja subregion, the remaining parts of the country, and the entire country. Our multilevel analyses reveal that the influence of household heads' education and wealth on school enrollment emerges as a consistent factor. However, while girls in Karamoja and boys in the rest of Uganda were significantly more likely to have never been enrolled in school, gender was not a significant factor in the national model. Gender-specific expectations and limitations vary, which must be taken into account by policymakers. Our analysis challenges the relevance of national models, and consequently, many national-level findings, in a setting characterized by significant subnational diversity.

## Keywords:

Education  
School enrollment  
Spatial inequalities  
Poverty  
Gender  
Multilevel model  
Sub-Saharan Africa  
Uganda

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## 1. Introduction

Following the international conferences in Jomtien in 1990 and Dakar in 2000, access to primary education has become a political priority for many countries around the world <sup>[1,2]</sup>. In the 1990s, a large proportion of school-age children in sub-Saharan Africa were not in school, particularly girls <sup>[3]</sup>. Over the last few decades, national

and international public policies have supported the increase in school enrolment by specifically targeting girls. Universal access to quality education is one of the Millennium Development Goals, as well as one of the Sustainable Development Goals. Globally, gender equality in access to primary and secondary education was achieved in 2014, as stated by UNESCO <sup>[4]</sup>. In

sub-Saharan Africa, UNESCO data show that 20% of children of primary school age were not in school in 2019, compared with 47% in 1990. For the same sub-continent, the gender parity index increased from 0.83 in 1990 to 0.95 in 2019<sup>[2]</sup>. Today, several African countries such as Senegal<sup>[5]</sup> and other countries with high enrolment rates<sup>[6]</sup> have achieved parity or even better enrolment rates for girls at the primary level.

Uganda was one of the first countries in sub-Saharan Africa to introduce universal primary education (in 1997), followed by universal secondary education (in 2007). In one year, from 1996 to 1997, primary school enrolment increased from around 3 million to almost 5.3 million<sup>[7]</sup>. Both the 2002 and 2014 population censuses highlighted that gender parity had been achieved in primary education<sup>[8]</sup>. Research from the Demographic and Health Surveys confirms that parity has been achieved since 2011. They also reveal higher dropout rates for boys<sup>[6]</sup>.

Yet despite the Global Out-of-School Initiative launched in 2010 by UNICEF and the UNESCO Institute for Statistics<sup>[9]</sup>, 12.5% of children aged between 6 and 12 were not in school in 2014. Almost 20 years after the introduction of universal primary education, 10% of school-age children had never attended school and 2.5% had already dropped out<sup>[8]</sup>.

Most studies consider out-of-school children from an overall perspective, without differentiating between children who have never been to school (non-enrolment) and those who have dropped out. However, Lewin<sup>[10]</sup> considers that these two situations are distinct reasons for exclusion from the school system. They therefore require specific research. The keys to understanding why children do not attend school are not necessarily those that explain why they drop out. To our knowledge, there is no nationally representative study of the determinants of non-enrolment in Uganda. This article seeks to better understand why, at the time of the last census, one in ten Ugandan children had never attended school.

Several previous studies have analyzed school performance in Uganda<sup>[11,12]</sup>. Others have looked at conditions of access and equity in primary education<sup>[13–16]</sup> and secondary education<sup>[17,15]</sup>. However, these studies have not specifically explored the issue of non-enrolment. In sub-Saharan African countries, non-

enrolment is generally linked to the source of income, place of residence, parent's marital status, disability, social stigma, and other vulnerabilities<sup>[10]</sup>. According to a recent study<sup>[18]</sup>, financial constraints remain a major cause of school drop-out, but only moderately determine non-enrolment. However, these results are not representative of the entire Ugandan population. In addition, they concern out-of-school children aged between 6 and 12, an age group that overestimates the number of out-of-school children because of the phenomenon of late school enrolment (after the age of 6), which is particularly marked in rural areas.

Deep inequalities persist in the country. For several decades, development indicators (particularly in education) in the Karamoja region have contrasted with the rest of the country<sup>[19]</sup>. With its episodes of insecurity and pastoral way of life, the region has seen the failure of many development programs<sup>[20,21]</sup>. Over time, various initiatives have been taken to benefit school-age children in Karamoja, the most important of which was the Alternative Basic Education for Karamoja project, set up in 1998 to facilitate access to primary education for children from pastoralist families<sup>[22,23]</sup>. The literature has identified explanatory factors for non-enrolment that are specific to individuals and households (poverty, negative perceptions of school), as well as to school provision (absenteeism, poor quality of teachers, long distances to school, violence in schools) and the emergence of casual employment in the mining sector<sup>[19,23,24]</sup>.

This paper seeks to assess the extent to which national models and indicators reflect Uganda's spatial heterogeneity. A 10% sample of the 2014 population census<sup>[25]</sup> is analyzed in depth to obtain nationally representative results. The population census data gather information on the schooling of all household members: enrolment and attendance. This is exhaustive data, making it possible to capture small sub-populations and produce localized studies for specific sub-populations. This individual-level database is merged with district-level data extracted from the Department for Education's annual data publication<sup>[25]</sup>. This document provides a detailed description of administrative data on key indicators of school provision.

Can non-enrolment be attributed to the specific characteristics of children and their households? Or is

it linked to characteristics of school provision, such as the inadequacy of educational services? Are educational needs being met? Does gender condition school enrolment? Are the answers to these questions consistent across the country?

The aims of this article are: (1) to assess the proportion of children who have never attended school using descriptive data analysis and mapping; (2) to examine the links between individual, household, and district characteristics and the probability of not attending school in Karamoja and the rest of the country using logistic regressions; (3) to explore the different determinants of not attending school, taking into account heterogeneity within the country, using multilevel modeling.

After describing the data, initial analyses of non-enrolment were carried out to compare the Karamoja region with the rest of Uganda. This comparison between regions reveals the contradictory effect of a fundamental variable: the child's gender. Analysis at the national level masks this reality by denying the effect of this characteristic. To better model non-enrolment by taking into account variations between districts, we then carried out multilevel analyses.

## 2. Non-enrolment in Uganda

This section describes the Ugandan school system and defines non-enrolment, as well as its historical and geographical dimensions. Despite an increasing decline in the number of children who have never attended school, the proportion of children deprived of basic education remains higher in the north and north-east of Uganda than in the center and west of the country.

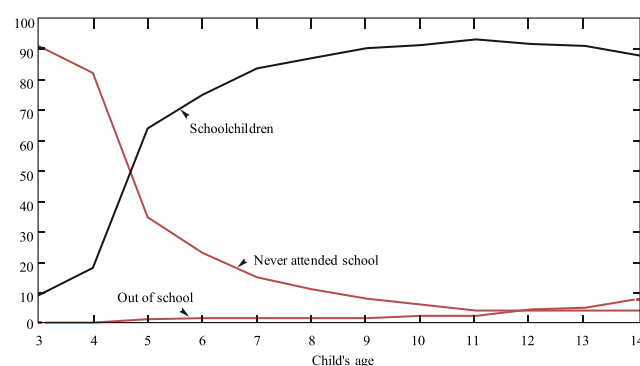
### 2.1. The Ugandan education system and trends in non-enrolment

The Ugandan education system is divided into four levels: primary education, secondary education, commercial, technical and vocational education, and higher education. There are seven years of primary education for pupils aged between 6 and 12, followed by four years of lower secondary education and two years of upper secondary education. At the end of primary school, pupils sit a school-leaving examination. If they pass, they

receive a certificate of primary education. Pupils with the best marks are admitted to secondary school. After primary school, it is also possible to follow a three-year vocational course at a technical school. After secondary school, pupils can go on to university, a teacher training college, or commercial, technical, and vocational institutes [26].

The 2014 population census provides more detailed information on household members than on people in specialized institutes, living in hotels, or homeless at the time of the census. Consequently, the analyses carried out in this article concern ordinary households only. Institutions such as hospitals and prisons are excluded from the database. On the other hand, boarding school children are included, since boarding school pupils are dependent on the households of their parents or guardians, as are those living in particular contexts, such as refugee camps.

The data show that at the official entry age for primary education (6 years), many children are not yet enrolled in school, particularly the youngest (**Figure 1**). At the youngest ages, there are fewer cases of children dropping out of school than not. Most drop-outs occur after the age of 10, although they remain marginal. At the primary level, young children outside school are therefore mainly children who have never been enrolled in school.



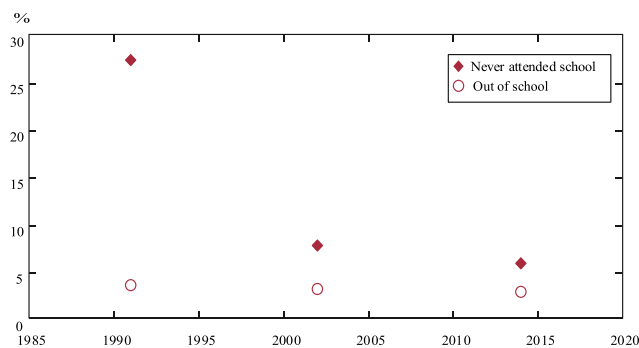
**Figure 1.** Non-enrolment and drop-out rates between the ages of 3 and 14, Uganda, 2014 (Source: Authors' calculations based on a 10% sample from the 2014 Population and Housing Census)

This study focuses on children aged between 9 and 11 in order to take into account cases of late entry into the school system while remaining within the primary education age range. Although Ugandan primary school officially ends at the age of 12, the age range chosen is capped at 11, so as to allow comparisons with other African



countries where primary education ends at the age of 11.

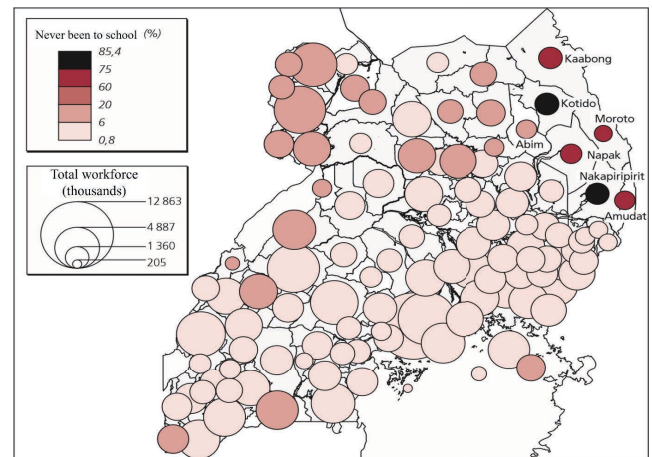
According to census data, the proportion of children who have never been to school has fallen from 27% in 1991 to 6% in 2014 (**Figure 2**). This remarkable progress is inseparable from the universal primary education program implemented in January 1997. The year 1997 was notable for the surge in school enrolments compared with the previous year. By 2002, the proportion of children aged between 9 and 11 who had never been to school had fallen to around 8%. However, over the following decade, rates of non-attendance fell only slightly, or even stagnated. The 2014 census shows that the proportion of children aged 9 to 11 never attending school is relatively low (5.9%) and similar for boys and girls <sup>[5,27,28]</sup>.



**Figure 2.** Non-enrolment and out-of-school children aged 9–11, Uganda, 1991–2014 (Source: Authors' calculations based on 10% samples from the 1991, 2002, and 2014 population and housing censuses)

## 2.2. Children who have never been to school: a spatial approach

According to a previous study, there is a significant gap between enrolment in certain districts of north-eastern Uganda and enrolment in the rest of the country <sup>[29]</sup>. The out-of-school rates calculated by the district confirm that the proportions of children who have never attended school are not uniform across the country (**Figure 3**). Specific factors seem likely to be associated with (non-)enrolment. Many districts in the north and north-west of Uganda, and some in the west and east, have out-of-school rates well above the national average (10% to 20%). In particular, the northwest of the country stands out with rates of over 60% in six of the seven Karamoja districts (**Figure 3**), in stark contrast to the rest of the country.



**Figure 3.** Proportion of children aged 9–11 who have never attended school, by district, Uganda, 2014 (Source: Authors' calculations based on a 10% sample from the 2014 Population and Housing Census; authors' design using the Magrit application (<http://magrit.cnrs.fr>) with a manual discretization of the data)

**Table 1** compares the school enrolment status of children in Karamoja with the rest of Uganda in 2014. It shows that 68% of children in Karamoja had never enrolled in school, compared to only 4% (on average) of children in other regions. This corroborates the findings of the 2016 household survey, which found that the net primary school enrolment rate was 37% in Karamoja, almost half the national average of 79% <sup>[30]</sup>. Children from Karamoja represent only 2.7% of our total sample, yet they account for almost a third of non-enrolment nationally. It is therefore essential to understand the unique situation of these children.

## 3. Determinants of non-enrolment in Karamoja and the rest of Uganda

Using data from the 2014 population census, it is possible to identify the determinants of non-enrolment in the districts of Karamoja and the rest of Uganda. Unlike household surveys, a 10% sample of census data contains sufficient observations relating to children aged 9 to 11 to allow analysis at the district level. The explanatory variables are broken down at individual, household, and district levels, in line with previous work <sup>[31–33]</sup>. This section describes the explanatory variables, before presenting the results of a descriptive analysis. Several separate logistic regressions are then performed for Karamoja, for the rest of Uganda, and Uganda as a whole, to identify factors associated with the probability



**Table 1.** Enrolment status of children aged 9–11 in Karamoja and the rest of Uganda, 2014

Schooling status	Karamoja (%) (1)	Rest of Uganda (%) (2)	Uganda as a whole (%)	Number of children
Ever been to school	32	96	94	272,230
Never been to school	68	4	6	16,902
Total	100	100	100	289,132

Note: The  $\chi^2$  test between (1) and (2) generates a value of  $p < 0.001$

Source: Authors' calculations based on a 10% sample from the 2014 population and housing census

of not attending school. Due to the binary nature of the dependent variable, a logistic model is used <sup>[34]</sup>.

### 3.1. Choice of variables

The characteristics of individuals and households are directly accessible in the census database. At the individual level, the variables selected are age (9–11 years), gender, orphan status, disability, and relationship to the head of household. In many African societies, children do not live exclusively within the household of their biological parents. The 2011 Demographic and Health Survey indicates that more than 25% of children aged between 9 and 11 do not live with their parents and that this percentage increases with age <sup>[35]</sup>. Some of these children are orphans taken in by other family members. Others are staying in households closer to better schools, while others are already working. In addition to these individual characteristics, household characteristics are also likely to influence access to the education system. The gender of the head of the household, his or her age, marital status, religion, and level of education are among the variables selected. The age of the head of household is classified into three categories (under 35; 35 to 59; 60 and over), to examine its impact on school enrolment. Other variables related to the household in general, its structure, its level of wealth, and its location: household size, number of children under five, main source of income, remittances received, wealth index, distance to nearest primary school, and whether the place of residence is rural or urban. Household size is divided into three groups: fewer than six people; six to nine people (the most common); and ten or more people. Previous studies have shown that there is a strong correlation between household wealth and school enrolment (particularly in terms of access to basic education), despite the universalization of primary education in sub-

Saharan Africa <sup>[36]</sup>. In the absence of accessible data on household expenditure and resources, previous studies recommend the use of principal component analysis <sup>[37]</sup>. Households are divided into five wealth quintiles. The place of residence (urban or rural) can lead to disparities in the quality and distribution of schools, the supply of teachers, the nature and origin of household income, and other cultural and behavioral factors likely to affect access to education. Finally, distance from the nearest primary school may condition access to basic education, as most Ugandan children walk to school. This is considered as a continuous variable below.

The three district characteristics selected are assumed to represent the main contextual variables predisposing to access to primary education in Uganda <sup>[18,38]</sup>. They combine an indicator derived from the census and calculated for each district (proportion of household heads who have completed at least primary education), and two indicators measured by a Ministry of Education school census (ratio between the number of school-age children and the number of classrooms available; ratio between the number of pupils and the number of toilets available in the school compound, known as the pupil-to-toilet cubicle ratio). The first variable reflects the district's socio-economic context, while the other two serve as quantitative and qualitative approximations of school provision.

### 3.2. Striking regional disparities between Karamoja and the rest of Uganda

**Table 2** reveals significant differences between Karamoja and the rest of Uganda, for all individual and household characteristics except the gender of the head of household. The differences observed in terms of age partly reflect the fact that the population of Karamoja is younger than that of the rest of Uganda, but also classic reporting biases:

the phenomenon of the attraction of round ages generates an over-representation of children aged 10 and household heads aged 60. In Karamoja, three quarters of children aged between 9 and 11 live in households where the head has no education. In contrast, in the rest of Uganda, most household heads have at least a primary education. Three-quarters of household heads in Karamoja identify themselves as Catholic, compared with 40% in the rest of the country. More than a third of heads of household in Karamoja declare a polygamous union, compared with 16% in the rest of the country. Finally, 84% of children in Karamoja live in “very poor” households, compared with only 19% in the rest of Uganda.

The three district characteristics also show disparities within the country (**Figure 4** and **Table 3**). The first two indicators show extreme values in Karamoja while highlighting significant variations across the country. The proportion of heads of household with

primary education varies from 7% to 84%. It averages 17% in the Karamoja region, compared with 43% in the rest of the country. The ratio of school-age children per classroom fluctuates from 25 to 279, with an average of 140 in Karamoja compared with 52 in the rest of the country. The third variable at the district level, the ratio of pupils per toilet cubicle, ranging from 24 to 129, is more difficult to interpret. Several districts or groups of districts in the country have very high ratios. This variable does not differentiate Karamoja significantly. Schools in Karamoja appear to be better equipped for the number of children they cater to than schools in the rest of the country.

It should be remembered that the Karamoja sample represents only 2.7% of the total sample. As a result, the distribution of the total sample (the country as a whole) is very close to that of the rest of Uganda, whatever the characteristics considered (**Table 2** and **Table 3**).

**Table 2.** Socio-demographic characteristics of children aged 9–11 in Karamoja, the rest of Uganda, and Uganda as a whole, 2014

	Karamoja (1)	Rest of Uganda (2)	Uganda as a whole	$\chi^2$ test (1) - (2)
<b>Categorical variables (%)</b>				
<b>Characteristics of the child</b>				
Age				
9 years old	31	34	34	***
10 years old	47	37	37	
11 years old	22	29	29	
Gender				
Male	48	51	51	***
Girl	52	49	49	
Orphan status				
Orphan	13	9	9	***
Non-orphan	87	91	91	
Relationship to head of household				
Child of the head of household	80	74	74	***
Other relationship	19	25	25	
No relationship	1	1	1	
Disability status				
Without disability	95	94	94	***
Disabled	5	6	6	
<b>Characteristics of the head of household</b>				
Education				
None	76	17	18	***
Primary education	13	57	56	
Secondary education	7	19	19	
Higher education	4	7	7	
Gender				
Male	77	78	78	*
Female	23	22	22	

**Table 2 (Continued)**

	Karamoja (1)	Rest of Uganda (2)	Uganda as a whole	$\chi^2$ test (1) - (2)
Age				
Under 35	23	19	20	***
35–59 years old	57	67	66	
60 and over	20	14	14	
Religion				
Catholic	77	38	39	***
Anglican	12	33	33	
Muslim	1	14	14	
Evangelical Christian (Pentecostal or regenerate)	3	10	10	
Other	7	5	4	
Marital status				
Never married	1	1	1	***
Married, monogamous	52	67	67	
Married, polygamous	36	16	16	
Widowed	9	10	10	
Separated/divorced	2	6	6	
<b>Household characteristics</b>				
Size (number of people)				
1–5	20	24	24	***
6–9	59	57	57	
10 or more	21	19	19	
Number of children under 5				
None	37	33	33	***
1	31	36	36	
2 or more	32	31	31	
Cash transfers received				
None	78	84	84	***
Yes, money	8	7	7	
Yes, goods	12	8	8	
Yes, money and goods	2	1	1	
Wealth index				
Very poor	84	19	21	***
Poor	6	22	22	
Average	4	22	22	
Rich	4	22	22	
Very rich	2	15	13	
Main source of income				
Subsistence farming	82	78	78	***
Business	4	8	8	
Salary	4	10	9	
Family, friends, institutional support	4	2	2	
Other	6	2	3	
Place of residence				
Urban	13	20	20	***
Rural	87	80	80	
<b>Continuous variable</b>				
Distance to nearest primary school (km)				
Mean value	5.61	2.76	2.84	
Standard deviation	8.34	3.53	3.78	
Number	7,970	281,162	289,132	

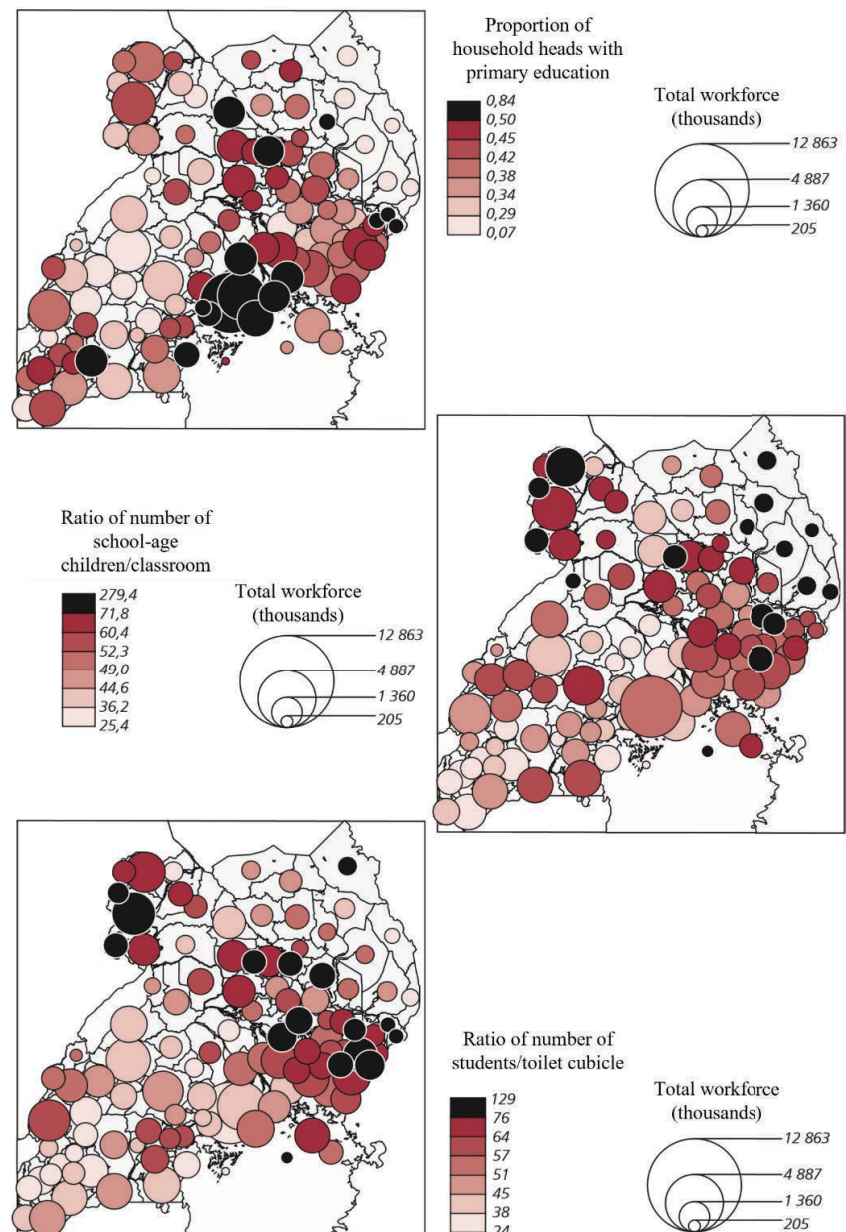
Significance: \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ 

Source: Authors' calculations based on a 10% sample from the 2014 population and housing census.

**Table 3.** Comparison between the districts of Karamoja, the rest of Uganda, and Uganda as a whole

	Karamoja		Rest of Uganda		Uganda as a whole	
	Average	Standard deviation	Average	Standard deviation	Average	Standard deviation
Proportion of heads of household who have completed primary education	0.17	0.13	0.43	0.13	0.43	0.13
Number of school-age children/classroom ratio	140.28	64.63	51.70	16.87	57.24	30.93
Ratio of number of pupils/toilet cubicle	48.71	17.69	57.21	18.22	56.68	18.23
Number of districts	7		105		112	

Sources: Authors' calculations based on a 10% sample from the 2014 Population and Housing Census, and results from the 2014 Annual School Census (Department for Education, Science, Technology and Sport, 2014)



**Figure 4.** District characteristics related to school enrolment, Uganda, 2014 (Sources: Authors' calculations based on a 10% sample from the 2014 Population and Housing Census, and results from the 2014 Annual School Census (Department for Education, Science, Technology and Sport, 2014); authors' design using the Magrit application (<http://magrit.cnrs.fr>))

### 3.3. Remarkably different factors in non-attendance at school

The use of similar logistic regressions reveals marked disparities between the regions studied (**Table 4**).

However, differences in sample size and the distribution

of observations between Karamoja and the rest of Uganda mean that the results presented here should be interpreted with caution. All continuous variables have been standardized.

**Table 4.** Logistic regressions of the probability of not attending school in Karamoja, the rest of Uganda, and Uganda as a whole, 2014

Variables	Karamoja		Rest of Uganda		Uganda as a whole	
	Coef.		Coef.		Coef.	
Constant	2.746		0.890		0.562	
Individual / household characteristics						
Age (Ref. = 9 years)						
10 years	- 0.280	***	- 0.611	***	- 0.523	***
11 years	- 0.403	***	- 0.954	***	- 0.858	***
Sex (Ref. = Boy)						
Girl	0.379	***	- 0.092	***	- 0.032	
Orphan status (Ref. = Orphan)						
Non-orphan	0.003		- 0.147	***	- 0.142	***
Relationship to head of household (Ref. = Child)						
Other relationship	0.168	*	0.168	***	0.105	***
No relationship	1.457	**	1.005	***	0.904	***
Disability status (Ref. = No disability)						
Disabled	0.194		0.637	***	0.551	***
Education of head of household (Ref. = None)						
Primary education	- 1.462	***	- 0.804	***	- 1.021	***
Secondary education	- 2.041	***	- 1.080	***	- 1.259	***
Higher education	- 1.694	***	- 1.128	***	- 1.318	***
Gender of head of household (Ref. = Male)						
Female	- 0.393	***	- 0.230	***	- 0.224	***
Age of head of household (Ref. = 18-34 years)						
35-59 years old	- 0.256	**	- 0.103	***	- 0.150	***
60 and over	- 0.298	**	- 0.195	***	- 0.169	***
Religion of head of household (Ref. = Catholic)						
Anglican	- 0.202	*	- 0.215	***	- 0.390	***
Muslim	- 0.597		- 0.150	***	- 0.467	***
Evangelical Christian (Pentecostal or regenerate)	- 0.397	*	- 0.181	***	- 0.393	***
Other	0.159		- 0.039		- 0.131	**



**Table 4 (Continued)**

Variables	Karamoja		Rest of Uganda		Uganda as a whole	
	Coef.		Coef.		Coef.	
Marital status of head of household (Ref. = Never married)						
Married, monogamous	− 0.200		− 0.165	*	− 0.157	*
Married, polygamous	− 0.170		− 0.193	*	− 0.046	
Widowed	− 0.129		− 0.339	***	− 0.369	***
Separated/divorced	− 0.407		− 0.174	*	− 0.272	**
Number of household members (Ref. = 1–5)						
6–9	0.189	*	− 0.120	***	− 0.071	**
10 or more	0.259	*	− 0.046		− 0.015	
Number of children under 5 (Ref. = None)						
1	0.008		0.057	*	0.010	
2 or more children	− 0.224	**	0.037		− 0.050	
Cash transfers received (Ref. = None)						
Yes, money	0.191		− 0.120	**	− 0.008	
Yes, goods	− 0.048		− 0.024		0.077	*
Yes, money and goods	0.230		− 0.097		− 0.086	
Wealth index (Ref. = Very poor)						
Poor	− 0.736	***	− 0.309	***	− 0.532	***
Average	− 0.957	***	− 0.511	***	− 0.702	***
Rich	− 1.341	***	− 0.672	***	− 0.824	***
Very rich	− 1.179	***	− 0.890	***	− 0.858	***
Main source of income (Ref. = Subsistence)						
Company	− 0.372	*	− 0.080		− 0.049	
Salary	− 0.645	**	− 0.012		0.053	
Family, friends, institutional support	− 0.322	*	0.382	***	0.276	***
Other	− 0.281	*	0.277	***	0.349	***
Place of residence (Ref. = Urban)						
Rural	0.656	***	0.152	***	0.089	***
Distance to nearest primary school	0.074	***	0.101	***	0.078	**
Contextual variables						
Proportion of heads of household with primary education	− 0.868	***	− 0.111	***	− 0.454	***
Ratio of number of school-age children/classroom	− 0.125	***	0.319	***	0.430	***
Ratio of number of pupils per toilet	− 0.217	***	0.043	***	− 0.016	

Significance: \*\*\* p &lt; 0.001; \*\* p &lt; 0.01; \* p &lt; 0.05

Sources: Authors' calculations based on a 10% sample from the 2014 Population and Housing Census, and results from the 2014 Annual School Census (Department for Education, Science, Technology and Sport, 2014)

### 3.3.1. Individual characteristics

The effect of a child's gender on non-enrolment varies from region to region. In Karamoja, the probability of not attending school is significantly higher for girls than for boys, unlike in the rest of the country. However, this variable is not significant at the national level. Young children are more likely to be out of school than older children. In some cases, therefore, the age of entry to school remains high (10–11 years) in Karamoja and in the rest of Uganda.

Orphanhood affects the likelihood of children not attending school in large parts of Uganda. It is a major barrier to access to basic education in the rest of the country, but not in Karamoja. Children of the head of household are less likely to be out of school than other children in the household, let alone children not related to the head of household. A disability does not significantly increase the probability of being out of school in Karamoja, unlike in the rest of the country.

### 3.3.2. Household characteristics

When the head of household is a woman, the probability of not attending school is lower than when the head of household is a man. The coefficient associated with this variable, which is significant in all cases, is higher in Karamoja than in the rest of Uganda. The probability of not attending school is lower when the head of household is older. This factor is also stronger in Karamoja.

Children of educated household heads are less likely to be out of school than children of uneducated household heads. This highlights the intergenerational disadvantage of children of uneducated parents, particularly in Karamoja. Religion has a markedly significant effect in the rest of the country, where the probability of not attending school is higher for children from Catholic households. In Karamoja, where Catholicism predominates, religion is less significant. In the rest of Uganda, children of widowers are less likely to be out of school than other children, regardless of marital status.

In Karamoja, the marital status of the head of the household and the size of the household had no significant effect on non-attendance at school. In the rest of Uganda, medium-sized households (6–9 people) are less likely to be out of school than smaller households.

Household wealth is closely linked to non-attendance at school. This link is even stronger in Karamoja, where most households are considered to be very poor. The relationship between the source of household income and non-enrolment is less clear. In the rest of Uganda, only certain marginal categories are significant (help from family, friends or institutions; other sources). Receipt of remittances and the nature of these do not appear to have a significant influence on school attendance.

The probability of not attending school is higher in rural areas than in urban areas. The coefficients associated with this variable are much higher in Karamoja, reflecting the difficulties experienced by rural children in this region. Finally, proximity to a state primary school reduces the probability of non-enrolment.

### 3.3.3. Contextual variables

In Uganda, in districts where the proportion of educated heads of household is high, the probability of not attending school is lower, and this is particularly marked in Karamoja. High ratios of the number of school-age children per classroom and the number of pupils per toilet cubicle increase the probability of non-enrolment in large parts of the country. However, an inverse relationship is observed in Karamoja, where non-enrolment is associated with low ratios. The effect of the first ratio suggests that, in most of the country, an insufficient number of classrooms may hinder school enrolment. In Karamoja, on the other hand, children appear to be enrolled in places with fewer classrooms per number of children. Although there is a need to increase the number of classrooms in Karamoja, the lack of premises does not explain the lack of schooling. In Karamoja, in contrast to the rest of the country, a lower availability of toilets per number of pupils reduces the probability of non-enrolment.

Although the main determinants of non-enrolment are, in all cases, the relationship to the head of the household, the level of education of the head of the household, and the wealth index of the household, the models for Karamoja and the rest of Uganda paint heterogeneous pictures that also differ from the model aggregated at the national level. The results for the country as a whole are close to those for the rest of the

country, which includes 97.3% of children aged between 9 and 11. However, several coefficients stand out. Differences in sign or significance are even observed for several variables, such as the child's gender (not significant in the model implemented at the national level), remittances received, and factors relating to school provision. As far as these variables are concerned, the results at the national level differ from those for Karamoja and the rest of Uganda. They therefore do not describe the situation in Karamoja or the rest of Uganda, and raise questions about the validity of analyses carried out at the national level in the development of public policy.

#### 4. Better modelling of non-enrolment at the national level

Most studies using national demographic data sets are limited to multivariate analyses at the national level. However, the logistic regression models described above highlight the importance of spatial heterogeneity. Designing relevant public policies requires better modelling of the role of certain specific variables. This objective, together with the hierarchical nature of education data, justifies the use of a multilevel model. The latter extends the logistic regression model<sup>[33]</sup> by taking into account variability between districts.

##### 4.1. Rationale and method

The proportion of children who have never attended school varies significantly between districts. While it is below the national average of 6% in most of the central and western regions of the country, it significantly exceeds this average in the northern and north-western regions.

To assess the value of a multilevel analysis, the estimation of an empty multilevel model (without covariates) is used to measure the variance  $\nu$  between level 2 units (districts). The intraclass correlation is calculated by applying the following formula, following Bringé and Golaz<sup>[33]</sup>:

$$\rho = \frac{\sigma^2}{\sigma^2 + \pi^2/3} \quad (1)$$

The empty model reveals an inter-district variance of 1.372 for Uganda as a whole, corresponding to an

intra-class correlation of 29%. In other words, district characteristics explain almost a third of the model.

These results confirm the value of multilevel modelling. Variables are introduced progressively, group by group: individual variables specific to the child, then household variables, and finally contextual (district) variables. The possible interactions between the child's sex and the district are then modelled in two distinct ways: first by directly introducing an interaction between the child's sex and a district variable, then by allowing the effect of the child's sex to vary between districts.

##### 4.2. Taking account of the hierarchical structure of the data

When individual variables are introduced into the empty model, the variance between districts increases from 1.372 to 1.423 (**Table 5**). Multilevel modelling commonly shows smaller variances between variables within groups than between them<sup>[39]</sup>. The effect of the child's sex is therefore fairly homogeneous within districts but varies considerably between districts.

When all the variables are included (full multilevel model), the variance between districts falls to 0.345 (**Table 5**). The intraclass correlation thus falls from 29% to 9.5%. This shows that the variables added to the model help to explain two-thirds of the differences between districts.

The coefficients obtained for district characteristics differ significantly from those of the logistic regression model. Nevertheless, the logistic model does not overestimate their effects, contrary to what is often observed<sup>[33]</sup>. Thus, multilevel modeling makes the coefficient for the ratio of the number of pupils per toilet cubicle slightly negative and significant, close to the results obtained for the Karamoja region.

In the full multilevel model, the characteristics most strongly associated with non-attendance at school remain the same as those obtained with the logistic model. The youngest children, living in the poorest households, with no family ties to the head of household, or with a head of household with little education, have a reduced chance of attending school. Some variables have a weaker or less significant effect, such as religion and remittances received. The coefficients associated with the religion of the head of household are much lower than in the logistic

**Table 5.** Determinants of children not attending school multi-level model, Uganda, 2014

	Proportion (%)	Empty model	Individual model	Model with household characteristics	Full model
Fixed parameters					
Constant		- 3.057***	- 2.610***	- 1.370***	- 1.475***
Individual characteristics					
Sex (Ref. = Boy)					
Girl	49		- 0.062***	- 0.047**	- 0.047**
Age (Ref. = 9 years)					
10 years old	37		- 0.554***	- 0.585***	- 0.585***
11 years old	29		- 0.902***	- 0.906***	- 0.906***
Orphan status (Ref. = Orphan)					
Non-orphan	91		- 0.118***	- 0.104***	- 0.104***
Relationship to head of household (Ref. = Child)					
Other relationship	25		0.150***	0.162***	0.162***
No relationship	1		0.816***	1.029***	1.028***
Disability status (Ref. = No disability)					
Disabled	6		0.615***	0.603***	0.603***
Household characteristics (treated as individual variables)					
Education of head of household (Ref. = None)					
Primary education	56			- 0.885***	- 0.882***
Secondary education	19			- 1.195***	- 1.192***
Higher education	7			- 1.266***	- 1.265***
Gender of head of household (Ref. = Male)					
Female	22			- 0.283***	- 0.282***
Age of head of household (Ref. = Under 35)					
35–59 years old	66			- 0.108***	- 0.108***
60 and over	14			- 0.163***	- 0.162***
Religion of head of household (Ref. = Catholic)					
Anglican	33			- 0.124***	- 0.127***
Muslim	14			0.003	- 0.000
Evangelical Christian (Pentecostal or Regenerate)	10			- 0.079**	- 0.081**
Other	4			0.072	0.069
Marital status of head of household (Ref. = Never married)					
Married. monogamous	67			- 0.199**	- 0.199**
Married. polygamous	15			- 0.211**	- 0.212**
Widowed	10			- 0.323***	- 0.323***
Separated/divorced	6			- 0.195**	- 0.194**
Number of household members (Ref. = 1–5)					
6–9	57			- 0.076***	- 0.077***
10 or more	19			0.014	0.011
Number of children under 5 (Ref. = None)					
1				0.038	0.039
2 or more children				0.017	0.017
Money transfers received (Ref. = None)					
Yes, money	7			- 0.027	- 0.027
Yes, goods	8			0.004	0.004
Yes, money and goods	1			0.019	0.015

**Table 5 (Continued)**

	Proportion (%)	Empty model	Individual model	Model with household characteristics	Full model
Wealth quintile (Ref. = Very poor)					
Poor	21			−0.342***	−0.340***
Average	22			−0.520***	−0.518***
Rich	22			−0.665***	−0.662***
Very rich	15			−0.909***	−0.901***
Main source of income (Ref. = Subsistence)					
Company	8			−0.123***	−0.123**
Salary	9			−0.129**	−0.125**
Family, friends, institutional aid	2			0.243***	0.244***
Other	3			0.175***	0.176***
Place of residence (Ref. = Urban)					
Rural	80			0.294***	0.290***
Distance to nearest primary school				0.096***	0.095***
Characteristics of the district					
Proportion of heads of household with primary education					−0.310***
Ratio of school-age children to classrooms					0.476***
Ratio of number of pupils/toilet cubicle					−0.100*
Random variables					
Variance (constant)		1.372***	1.423***	0.920***	0.345***

Significance: \*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$

Sources: Authors' calculations based on a 10% sample from the 2014 Census of Population and Housing and the results of the 2014 annual school census (Ministère de l'Éducation, des Sciences, de la Technologie et des Sports, 2014)

model. The Anglican and Evangelical religions are the only ones to significantly reduce the chances of not attending school, compared with the Catholic religion. The multilevel models do not attribute a significant effect to remittances received, whereas according to the logistic model, children from households receiving remittances were more likely to be out of school. For these two variables, significant contrasts within districts could explain these observations.

Three characteristics are more closely linked to non-enrolment in the multilevel models than in the simple logistic regression model: the child's gender, the household's source of income, and the place of residence. The multilevel models estimate a lower probability of non-enrolment for girls than for boys. This result is very close to the results obtained by the logistic model for the rest of the country, and opposite to those obtained for the Karamoja region. Furthermore, the probability of not attending school is lower when the household income comes from a business or a wage than when it comes from subsistence farming. The educational disadvantage

of the children of subsistence farmers in Uganda has been documented previously<sup>[7,40]</sup>. However, the coefficient associated with subsistence farming households was not significant in the logistic regression model. Finally, according to the multilevel model, the probability of not attending school is greater in rural areas than in urban areas. In all these cases, the comparison between Karamoja and the rest of Uganda highlighted significant disparities between the districts in these two parts of the country.

#### 4.3. How can the modeling of the child's sex be refined?

Our initial analyses revealed opposing effects of the child's sex on non-attendance at school: the probability of not attending school was greater for girls in Karamoja than in the rest of Uganda. The coefficients obtained for this characteristic were almost four times higher in Karamoja than in the rest of the country. The coefficients obtained for this characteristic were almost four times higher in the Karamoja region than in the rest of



the country. However, the logistic regression model for Uganda as a whole attributed a non-significant coefficient to the sex of the child, thus masking the marked effect of this characteristic at the regional level, especially for Karamoja. The multilevel random constant model, on the other hand, revealed a significant and negative coefficient. Overall, within Ugandan districts, the probability of not attending school is slightly higher for boys than for girls. These contradictions underline the need for a better-fitting model that would allow different coefficients to be assigned to the characteristic of the child's sex, and possibly coefficients of opposite signs, depending on the district under consideration.

Two methods are explored for this purpose. The first consists of a multilevel model with a random slope assigning a random coefficient to the sex of the child. The second introduces an interaction variable between the child's gender (an individual characteristic) and the ratio of the number of school-age children per classroom (a district characteristic). These two methods produce interesting results. The first produces a more marked estimated effect of the child's sex, as well as a measure of the inter-district variance linked to this characteristic. The second method reduces the overall variance to a greater extent and provides a more detailed analysis of the interaction between the child's gender and school provision at the district level. However, these results remain fairly close to those of the random constant multilevel model, which encourages us to opt for the latter, since it corresponds to the simplest complete multilevel model.

## 5. Conclusion

This article explores the determinants of non-enrolment of Ugandan children aged 9 to 11, estimating their relative effects using logistic and multilevel regressions. The data exploited are from the latest population census of Uganda <sup>[25]</sup>. Our results support the existing literature, while highlighting the low proportion of Ugandan children never enrolled in school (6%) compared to other African countries.

At the national level, all other things being equal, the main predictors of non-enrolment are the relationship between the child and the head of the household, the

latter's level of education, and the household wealth index. Non-enrolment tends to decrease as the child's age increases. It is more likely for children with disabilities and orphans. The specific characteristics of the household are a determining factor when it comes to school attendance. Children are more likely not to attend school if they are not related to the head of household, or if they live with male heads of household who are under 30, Catholic, single, and uneducated. Non-enrolment is more likely for children from very small and very large households, the poorest households with no means of subsistence, and rural households. The latter are penalized a fortiori by the greater distance separating them from the nearest public primary school. Districts where the proportion of heads of household with primary education is low are more likely to be unschooled, as are those where school provision is inadequate. These results underline the predictive nature of both supply and demand factors.

As in many developing countries, there is a gap between the capital (Kampala) and the rest of the country. The Karamoja sub-region stands out in particular: almost 68% of children aged between 9 and 11 living there have never been to school. Only 17% of heads of household have completed primary education (compared with 43% in the rest of the country). Schools, on the other hand, appear to be better equipped with sanitation facilities. The region has one toilet cubicle for every 48 pupils (compared with one for every 57 pupils in the rest of the country). On the other hand, the supply of teachers and classrooms is limited, with a ratio of 140 school-age children per available classroom (compared with 52 per classroom in the rest of the country), reflecting the lack of investment in education in the region. The models used in this article take account of the heterogeneity between Karamoja and the rest of the country. They raise the question of the predictive capacity of models implemented at the national level in terms of non-enrolment. Is the national level appropriate for guiding effective public policies at the sub-national level? The use of multilevel analysis makes it possible to model the effect of a child's gender better than the aggregate models commonly used at the national level. Different multilevel models (with a random constant, a random slope, and a random constant with an interaction variable) make it

possible to refine the understanding of the role played by the child's sex and by the district's contextual variables. Although each of these models introduces specific and relevant elements, the simplest model (with a random constant) represents the best compromise between optimal fit and model complexity. Our results highlight the need for a systematic preliminary study of the spatial structure of the data, to take it into account in the methodology.

Relationship to the head of the household, the level of education of the head of the household, and the poverty level of the household strongly influence the probability of not attending school in Karamoja as in the rest of Uganda. However, other variables produce very contrasting effects depending on the region. In particular, the gender of the child has an opposing influence on school attendance in Karamoja and the rest of Uganda. However, the lack of significance of this variable at the national level suggests that girls and boys have equal access to education. This is in fact what some previous studies have concluded <sup>[6,8]</sup>. However, this conclusion does not hold true at the sub-national level. In most of the country, being a boy slightly increases the probability of not attending school. On the contrary, in the Karamoja region, being a girl greatly increases the probability of not attending school.

A gender gap favoring girls is frequently observed in high-income countries and African countries with high enrolment rates. This is often attributed to higher dropout rates among boys <sup>[6]</sup>. According to UNESCO <sup>[4]</sup>,

out-of-school boys of primary school age are more likely than girls to subsequently attend school. It is not known whether this applies to the age group used in this article (9–11 years). The under-enrolment of boys therefore needs to be the subject of more in-depth research. Concerning Uganda, several hypotheses can be put forward concerning health (boys may be more vulnerable than girls to disability and illness), social position (in many societies, young boys are seen as an embarrassment to their unmarried mothers and may therefore be sent away from home more often than girls) and economic expectations (in situations of great poverty, boys may be expected to work, orphaned boys may become responsible for their younger siblings).

In Karamoja, families are still reluctant to send their children to school, particularly their daughters. Such practices illustrate the need for sub-national public policies targeting girls when their primary education does not seem to be a priority within communities. These practices continue to prevail in other pastoralist communities, such as the Maasai in Tanzania <sup>[41]</sup> or the Tandroy in Madagascar <sup>[42]</sup>. Depending on the region in which the children live, gender-related expectations and constraints differ. Public policies should therefore take this into account. The same applies to many other variables. Any context of strong spatial heterogeneity calls into question the relevance of the models used at the national level and the validity of the results derived from them.

### Disclosure statement

The authors declare no conflict of interest.

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# Social Isolation in a Society of Solidarity: The Case of Sereer Siin in Senegal

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## Abstract:

Although sub-Saharan Africa is undergoing major social changes, including those in the support role played by families, the phenomenon of social isolation has been little studied. This article sets out to identify a theoretical framework for studying social isolation in the solidarity-based societies of sub-Saharan Africa and to describe how such isolation manifests among the Sereer Siin in Senegal. The analysis is based on 52 interviews conducted as part of a survey on social networks by the Niakhar Social Networks and Health Project. These data suggest that isolation happens through the inability to maintain membership in the informal social insurance system. They further suggest that migration (men migrating for work, women for marriage) is an explanatory factor for social isolation when it occurs in such situations as family conflict and impoverishment.

## Keywords:

Social isolation  
Informal support  
Social networks  
Insurance system  
Rural areas  
Senegal

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## 1. Introduction

In Africa, elderly city dwellers are the focus of particular attention, not least because the city is thought to be conducive to a weakening of family solidarity. In contrast, the rural world is perceived as highly traditional and supportive. Yet some villagers live on the fringes of society, not just the elderly. In this article, the authors look at the little-known phenomenon of isolation in a rural region of Senegal and show how certain life events can lead to this situation, which social norms are supposed to prevent.

Social isolation, defined as a lack of meaningful social relationships <sup>[1]</sup>, is a phenomenon in which interest is emerging in sub-Saharan Africa. It is generally discussed as a correlate of the transformations observed in intergenerational relations, in particular those brought about by the social changes associated with modernity <sup>[2,3]</sup>. Although often documented in urban environments, changes in forms of social support are not the sole preserve of cities. In rural contexts, where kinship forms the basis of social organization <sup>[4]</sup>, the social and economic changes of recent decades—in particular, the growing desire for

autonomy within the family circle and migration to cities—suggest a weakening of the norms of family obligations <sup>[2]</sup>.

Social isolation is a complex phenomenon that involves both a quantitative dimension (size of the social network) and a qualitative dimension (quality of relationships maintained and responses to needs provided by members of the network). Moreover, as the norms and values governing behavior vary according to context, culture, and time, social isolation requires a contextual understanding, particularly in the light of social organization and social protection systems (state or non-state).

Social protection systems (state or family) prevail in these environments <sup>[5]</sup>. Addressing social isolation as a corollary of intergenerational relations, however, obscures its specific features. There are several reasons for this state of knowledge. Despite the growing development of the field of social network analysis in African demography <sup>[6]</sup> and in the sociology of the family <sup>[7]</sup>, it is the association between different markers of position in the network and the well-being of individuals that has so far been the focus of attention, rather than their marginality. By focusing on the role of social integration rather than isolation, the latter remains poorly understood. As a result, there is no theoretical basis for understanding social isolation. The few studies that have looked at isolation in Africa have focused on the situation of older people living in cities <sup>[8,9]</sup>. However, in the absence of a theoretical framework, these studies fail to identify the specific features of the phenomenon, in particular the nature of the solidarity and social organization characteristic of these environments.

Understanding how isolation plays out in people's lives is essential to analyzing its impact on well-being. The aim of this article is twofold: firstly, to identify a theoretical framework for studying social isolation in solidarity societies in sub-Saharan Africa; secondly, to describe how social isolation manifests itself among the Sereer Siin, an ethnic group in the groundnut basin of Senegal, and the life-course events that give rise to it. The data used for these purposes comes from interviews conducted during two field surveys (in 2007 and 2019) in Niakhar. This qualitative study contributes to the development of quantitative indicators for measuring the phenomenon in all its complexity.

In sub-Saharan Africa as elsewhere, interest in isolation is emerging in light of the challenges of caring for the elderly <sup>[10]</sup>. The absolute number of elderly people, which is expected to quadruple between 2010 and 2050 <sup>[11]</sup>, combined with the weakness of state social protection systems <sup>[12,13]</sup>, suggests that the elderly are vulnerable to the erosion of family solidarity.

This breakdown in family solidarity is likely to affect other populations, particularly because of the increase in rural-urban mobility. Rural-urban mobility is part of the demographic dynamics of several West African countries <sup>[14,15]</sup> and has been exacerbated by economic and environmental crises. In some countries in the sub-region, such as Mali and Senegal, the migration experiences of men and women from rural areas are underpinned by differentiated logic and expectations <sup>[16–18]</sup>. Men generally meet family financial and material needs, whereas women see them above all as an opportunity to emancipate themselves from community control <sup>[15]</sup>. Young women are also traditionally involved in migratory processes, due to the principle of patrilocality. This mobility often follows migration to work in the city. Mobility, by reorganizing networks and entourages, creates new relational dynamics, in which traditional family models gradually give way to the individual aspirations of younger people and women <sup>[19]</sup>.

## 2. Theoretical framework

### 2.1. The moral economy of solidarity societies

In rural African societies, the so-called moral economy—a vision of the social obligations that members of a community have towards each other—ensures that everyone is protected against the inability to meet basic needs. The “subsistence ethic” and the principle of reciprocity are the moral foundations of this approach <sup>[20]</sup>, upheld by a common system of values. So-called solidarity societies, organized around kinship, neighborhood, or village ties, are home to an informal insurance system characterized by the sharing of risks associated with environmental hazards, potential threats to agriculture. This system is based on the principle of “balanced reciprocity” <sup>[21,22]</sup> where the recipient of aid (financial, material, or moral) must return the favor to anyone in the village in need.

Involvement in these exchange networks, and above all the ability to meet expectations of reciprocity, means that risks can be shared. Reputational issues are particularly important, as reputation serves as insurance in the absence of formal coercion in the event of mutual aid failures. Gossip acts as a social control mechanism. So-called traditional societies are characterized by the constant presence of comments, rumors, and judgments about others<sup>[23]</sup>, potentially undermining the maintenance of relationships based on trust.

## 2.2. The binding nature of the moral obligation to reciprocate

In industrialized societies, it is considered that the reciprocal nature of exchanges, both material (money, gifts, etc.) and immaterial (hospitality, for example), acts as a source of exclusion<sup>[24,25]</sup>. Indeed, individuals who do not have the resources to meet these expectations are particularly vulnerable. Some of them withdraw from these networks, further reducing the availability of support for them.

While the over-romanticized nature of mutual aid networks in solidarity societies has already been highlighted<sup>[26]</sup>, little attention has so far been paid to the potential marginalizing effect of the principle of reciprocity. Not being able to contribute, or no longer being able to contribute, to the mutual aid network could lead to the individuals concerned being excluded, at least temporarily<sup>[27]</sup>. In solidarity societies, lack of financial resources is thought to be a major determinant of exclusion from these networks<sup>[22]</sup>. This mechanism has been documented in several countries, including Ghana, Côte d'Ivoire, and Tanzania<sup>[28-30]</sup>. These studies also show that being a woman or belonging to a minority ethnic group are potential barrier to joining a self-help network<sup>[30,31]</sup>.

Finally, the binding nature of the principle of reciprocity is best understood in the light of the social organization in which it takes shape, an organization produced and reproduced through kinship ties acquired by blood, alliance, or affinity. The social organization of solidarity societies revolves around kitchens, made up of relatives whose respective roles within the economic system are assigned according to sex and age<sup>[32]</sup>. Kinship plays a central supporting role, with the ties maintained with others providing both a source of protection and a

moral obligation to reciprocate. However, the increasing frequency and duration of migration outside the village are contributing to the development of new relationships, potentially altering "traditional" views of the rural world, but above all the roles that each person plays in maintaining this hierarchical system.

It is within this theoretical framework that the manifestations and events at the origin of social isolation in rural Senegal are explored. It is hypothesized that rural-urban mobility and the increasing participation of women in the labor market act as vectors for the transformation of solidarity relationships characteristic of societies where the moral economy prevails. As a result, given family configurations, gender roles, and the restrictive nature of the norm of reciprocity, we can expect the forms taken by social isolation to be illustrated more by the quality of social relationships than their quantity.

## 3. Background, data, and methods

### 3.1. Context of the study: the Niakhar Observatory

Located in the Fatick region, the Niakhar Observatory comprises 30 villages with a population of 44,726 in 2014<sup>[33]</sup>. Its population is young (56% of residents were under 20 in 2014) and is experiencing significant natural growth (3% in 2014). Mortality has fallen considerably, particularly among children under five, and life expectancy rose from 30 to 70 years between the 1960s and 2014. Fertility has begun to decline but remains high, falling from eight to six children per woman between 1984 and 2014.

Residents are 97% ethnic Sereer, with a Muslim majority. Within Sereer society, different markers of social status, such as age, gender, and marital status, interact constantly. Dense networks and frequent social interactions are guided by the geographical proximity of concessions and the nature of economic activities (essentially agro-pastoral). Despite the significant growth in rural-urban mobility, encouraged by the financial precariousness associated with the agricultural and climate crises, the majority of interactions take place within the village<sup>[34]</sup>. Although migrant profiles are now more diverse than before, young single people make up the majority of them<sup>[16]</sup>. The migratory experience of

young men from the village is a family economic strategy, and the migration of young single women generally precedes entry into a union, which is conditioned by the principle of patrilocality. Following a union, the woman returns to her husband's home and takes on a certain number of domestic roles, including taking care of daily household activities such as cooking, laundry, and the specific needs of children and the elderly.

### 3.2. Qualitative data from two surveys

This article uses qualitative data from two surveys conducted as part of the Niakhar Social Networks and Health Project (NSNHP), the aim of which was to understand the diffusion of health behaviors and preferences through social networks. A survey was conducted to reconstruct respondents' complete networks using the "name generator" method, i.e. the list of people with whom the respondent shares a specific activity<sup>[34]</sup>. In 2014, all residents of a village (Yandé) aged 16 and over ( $n = 1,308$ ) were interviewed to record all their social relationships and document the structure of interactions within this space. This so-called sociocentric approach "aims to reconstruct the system of interdependencies between the members that make it up"<sup>[35]</sup>.

For each of the 15 "name generators" in the collection instrument, respondents could name an unlimited number of individuals. The size of the respondents' socio-centric network is measured by the number of times they were cited by the village residents who took part in the survey. The sociometric literature considers the number of quotations received to be an indicator of the prestige enjoyed by an individual<sup>[36]</sup>. Taking all name generators together, the respondents were cited an average of 11.8 times, ranging from a minimum of 0 (a person who any other resident had not cited) to a maximum of 118 (a person who 118 other residents had cited).

The unique protocol of this project makes it particularly suitable for studying social isolation because it overcomes some of the methodological limitations of standard surveys collecting social network data. Typically, surveys are limited to five individuals who can be mentioned in each name generator, and they most often use a single name generator to identify the number of people with whom the respondent communicates.

Finally, the network surveys used to study isolation are generally not socio-centric, which makes it impossible to capture the full structure of respondents' entire networks.

In 2019, a qualitative survey was conducted among the isolates identified in the 2014 survey to better understand their specific situation. This article draws on the qualitative data collected during this latest fieldwork, supplemented by a secondary analysis of interviews conducted as part of a pilot survey dating back to 2007 (details below).

The 135 people below the 10th percentile of the distribution of the number of quotations, i.e. cited by three people or fewer, are considered to be isolated (**Table 1**). The "isolated" population is relatively young, with more women than men being married, never having been to school and born in the village. The profile of these "isolated" people is somewhat atypical compared with the general population: they have a relatively high level of education and a relatively high proportion of non-natives compared with women, especially given the principle of patrilocality.

**Table 1.** Socio-demographic characteristics of people identified as isolated in 2014, by gender (%)

	Women ( $n = 74$ )	Men ( $n = 61$ )
Age group		
20–24 years old	54.1	52.5
25–59 years old	37.8	44.3
60 and over	8.1	3.3
Marital status		
Never married	39.2	60.7
Married	55.4	34.4
Widowed/separated/divorced	5.4	4.9
Level of education		
Never been to school	43.2	34.4
Primary	21.6	23.0
Secondary or higher	35.1	42.6
Migration status		
Native of the village	80.3	58.1
Immigrant	19.7	41.9

Scope: Residents who received three or fewer citations in the 2014 sociometric survey ( $n = 135$ )

Source: Niakhar Social Networks and Health Project



Semi-structured individual interviews were conducted between September and November 2019 with 12 men and 16 women from these 135 people identified as isolated in 2014. This selection was initially carried out on a reasoned basis (according to sex, age, and marital status), then individuals were selected within each of these categories on a random basis. During the interviews carried out in 2019, some people identified as isolated in 2014 were not in fact so. To allow us to discuss the limitations of the sociometric indicator chosen to identify isolated people a priori, as well as the nature of isolation in this context, they were kept in the sample, and these people are referred to as non-isolated in the qualitative analysis.

The interview guide (supplementary material) addressed four themes: the last episode of illness, biographical events and the transformation of the support network, the qualification of the social network and the consequences of isolation on health. Most of the interviews took place in the respondent's compound (a few were conducted in the fields), and all were conducted by the first author accompanied by a Sereer language interpreter. They lasted 51 minutes on average and were recorded in digital audio format, then transcribed into French.

This analysis is also based on 24 interviews (taken from a random sample within the study area, stratified by age and gender) conducted in the Niakhar area during a pilot survey carried out in 2007. The aim of the survey was to identify the nature of social interactions in this context, and to understand the role of local people in providing support<sup>[37]</sup>. These interviews help to describe the solidarity society in this environment.

The demographic characteristics of the respondents to the 2007 and 2019 interviews are presented in **Table 2**. Some information on respondents to the 2007 survey is missing, in particular, age and level of education. Despite our efforts to ensure representativeness, the respondents to the 2019 interviews are older and/or have been married more often than the single people identified in the 2014 survey (**Table 1**). Many single people and young adults go on seasonal migrations, which reduces the chances of being able to interview them in the village.

**Table 2.** Socio-demographic characteristics of respondents to interviews conducted in 2007 and 2019

	2007 Survey (n = 24)	2019 Survey (n = 28)
Gender		
Male	12	12
Female	12	16
Age group	n.a.	
21–24 years old		9
25–59 years old		16
60 and over		3
Marital status		
Never married	15	5
Is/was married	9	23
Level of education	n.a.	
Never been to school		14
Primary		8
Secondary or higher		6
Migration status		
Native of the village	19	21
Immigrant	5	7

Note: n.a. = not available

Scope: People interviewed at the time of the qualitative surveys

Source: Niakhar Social Networks and Health Project

### 3.3. Reflective content analysis

A reflexive thematic content analysis<sup>[38]</sup> was used to address the aims of the study. Deductive coding, based on the literature, and inductive coding, based on the content of the 2019 interviews, were then carried out (available as supplementary material). The 2007 interviews were subject to secondary analysis. NVivo10 software was used to facilitate verbatim handling and coding. Triangulation with informal interviews conducted with key informants enabled us to check the consistency of the participants' points of view. These informants (researchers from the Institut de recherche pour le développement based in Dakar and teachers living in Niakhar) were chosen for their in-depth knowledge of the environment and the diversity of their professional backgrounds.



## 4. Social isolation in Niakhar: social and financial insecurity amplified by the migration experience

Analysis of the interviews on the experience of isolation in Niakhar revealed two main themes. Firstly, the fact that village residents are part of the informal insurance system helps to meet their need for financial support, and social isolation is reflected in the difficulties they have in remaining part of these exchange networks. Secondly, the experience of migration, in different ways for men and women, was shown to be a vector of isolation.

### 4.1. The normative pressure of the informal insurance system

In Niakhar, family and friends are the preferred means of meeting the immediate needs of village residents. The interviews show that, despite the importance of contemporary social changes—particularly rural-urban mobility—the fundamental principles of the moral economy are maintained, at least in discourse, as illustrated by the words of Moussa, who had been identified as isolated in 2014 but no longer appeared to be so when interviewed in 2019. At the time of the survey, he was passing through the village to help his family with farm work. Outside this period and the annual festivities, Moussa lives in Dakar, where he works at the port. This job enables him to contribute to the needs of his family back in the village. Asked about the importance of neighborliness, he explains: “At all times, we have to unite because we all share the same village. If we split up, the village will be ruined. If you have problems and everyone supports you, the village will only prosper,” (non-isolated, single male, migrant, aged 25).

Mutual support is at the heart of the insurance system, but the pressure to comply puts those who are unable to do so in a delicate position. Financial insecurity is seen as a way of sidelining people from solidarity networks, depriving the less well-off of material support. “The isolated are those who are tired because they have no support,” explained a key informant we met in 2019. Not only do they deliberately choose to limit their interactions, but those around them encourage them to do so.

Indeed, the internalization of self-help norms

(assimilated since childhood), but above all the inability to respond to them, are for isolated people the triggers for their withdrawal. Shame in the eyes of those around them and concern about damage to their reputation are the most frequently cited reasons for withdrawal. Shame, a feeling whose consequences are particularly acute in sub-Saharan Africa<sup>[39–41]</sup>, and more specifically the feeling of not meeting expectations of reciprocal help, leads them to distance themselves from their support network. Fatou explains: “Today, if I didn’t have enough to prepare lunch, I’d be ashamed to go and ask,” (single, married woman, non-migrant, aged 54). Fatou’s social and financial insecurity stems from her decision to leave the family home because of domestic violence. Her eldest son, a migrant worker in Dakar, used his savings to build her a hut outside her husband’s compound, where she lives with her two youngest children. With no access to land for farming, her financial resources quickly became very limited. The decision to leave her home to escape the violence may have ostracized her even further within the village.

As the norm of reciprocity acts as an insurance mechanism, an individual’s inability to meet the expectations of others damages his or her reputation. Asking for help represents a potential threat if it reveals future difficulties in meeting the moral duty of reciprocity. Thus, distrust of those around them becomes omnipresent, for fear of being gossiped about and excluded from future exchanges. Fatou adds: “Some people, if you hang around them a lot, they’ll think you’re looking for something when you’re not. In that case, it’s better to stay at home and make do with what you’ve got.”

Avoiding being the subject of comments or rumors, particularly about financial insecurity, is a major challenge in this context of repeated interactions. To avoid being excluded from this network, isolated people refrain from sharing their problems, as Maïmouna puts it: “I have good relations with them [the neighbors], but as for help, I don’t get much because I rarely reveal my problems. Often you can tell someone about your problems and they’ll know all your secrets and I don’t want that. When the children fall ill, for example, if the nurse prescribes medicine and I can’t afford it, I manage to come and pay for it afterward,” (single, married

woman, migrant, aged 35).

Maïmouna is a young woman in a polygamous union who has been immigrating to the village for around ten years. Living with her co-wife is proving particularly difficult because of the physical and verbal violence to which she is subjected. She reports that her co-wife's children, all over 18, insult her by suggesting that her six children are too much of a financial burden on the compound. Despite the gossip about her fueled by her co-wife, whose children's age and success contribute to her claim to a high status, Maïmouna hopes that her own children's future entry into working life will put an end to this situation.

The frequent reluctance of single people to turn to those around them is accompanied by a decline in the support available. Despite the normative nature of mutual aid, illustrated in Fatou's words, "if you have the means, you're not going to wait for him [your neighbor] to come and ask you [for help], that's for sure." The majority of single people said that the expectation to help others spontaneously was generally not honored. According to them, without financial means, it becomes particularly difficult to obtain support. So, contrary to what would have been expected based on the principles of moral economy, reciprocity is not in the balance, but rather conditional on the ability of the parties involved to reciprocate, especially when it comes to helping the needy.

There is, however, a palpable tension among the isolated residents who prefer not to come forward so as not to publicize their situation, but who seek to maintain relationships within the village, a strategy that may enable them to rejoin the self-help network. "Remaining visible" i.e. maintaining relationships despite their non-reciprocal nature, is imperative. Given that to receive help, you need to be known in your environment <sup>[42]</sup>, the withdrawal of isolated people, which manifests itself in their refusal to seek help from those around them, could further compromise their chances of being helped. The importance of maintaining relationships in the village was stressed on several occasions. Biram, a former village party organizer who now owns a small shop, explains: "You have to be close to people so that they can help you. You have to chat and talk. But when you're alone, you don't talk to anyone, you're treated like an

animal. When you don't seek help, you're considered an animal," (isolated, married man, non-migrant, 39 years old).

In his opinion, the loss of interest in him on the part of those around him explains the transformation of his network: "People used to be around me. For example, when you had a baptism, you would come to me for help. When that happened, I was able to reduce [the price of the entertainment]. Since I stopped hosting, the people around me have all withdrawn because the interest they saw in me no longer exists. They've all abandoned me."

Seeing their main source of help drying up, and wishing to minimize comments about them, the isolated people put in place alternative strategies for obtaining support. Firstly, by appealing to family members living outside the village. Isolated men and women mentioned that they had called on their children, most of whom had migrated to Dakar, during their most recent episode of illness. While close family and friends provide moral support to the isolated, it is the lack of financial resources that the children contribute.

Many women who immigrated to the village after marrying, like Fatou, often choose to turn to their families in their village of origin: "You can go to someone's house and they'll know about your problem, but they won't help you. That's why when I need something, I go home [to my family]."

Extra-familial relationships outside the village also appeared to be an important source of support, both for women who did not wish to inform their families of the origin of the difficulties they were experiencing at home and for men from the village who had not met their family's expectations in terms of financial support. The discomfort caused by the need to ask for help is illustrated by Bougna's story. Originally from the south of the country and an immigrant following her marriage, her daily food needs and those of her children are struggling to be met. Her husband, formerly a Koranic master, has stopped his activities due to health problems, reducing the household's source of income. Her brother, who shares the same plot, has decided to stop supporting them, accusing Bougna of having too many children and incurring too many expenses. She explains that she has had to ask one of her husband's friends to feed her family.

Maintaining frequent relations with those close to them is therefore essential for isolated people, both to aspire to rejoin mutual aid networks and to guard against gossip about behavior deemed to be anti-social. Isolated people's relationships with village residents are frequent but superficial. This is easy to understand in light of the fears mentioned about the risk of their problems being known by several villagers, despite their nature. When asked about her relationship with the village women, Bougna says: "They can't hold their tongues and I don't have the means, but I'm proud. If they help you and are under the palaver tree or in the fields picking leaves, they'll start saying: 'Such a person, if it wasn't for me...' That's why I don't give myself over to them," (isolated, married woman, migrant, 33 years old)

#### **4.2. Migration and social isolation of women and men**

The experience of migration is a decisive element in the biographical journey for understanding the size of respondents' social networks. Two cases were illustrated, depending on whether the migration took place in the present or the past.

On the one hand, for migrants at the time of the survey, having a restricted network reflects a prolonged absence from the village rather than a situation of social precariousness. Indeed, for these respondents, having been little mentioned mainly reflects a geographical distance. Numerous interviews with migrants visiting the village, such as Babacar, showed that the ties forged before their departure had been maintained: "Basically, they [the ties to the village] have neither increased nor decreased. Those who knew me continue to know me. There are no changes and no one has forgotten me either," (non-isolated, single male, migrant, aged 25).

On the other hand, past migratory experience plays an important role in understanding the changes that isolated individuals' social networks have undergone, and this applies to men and women separately. Gendered norms of behavior and the expectations associated with positions in the social hierarchy are central to understanding the reasons for marginalization.

For men, it was forced return migration, together with the expectations of relatives regarding the help expected, that came to the fore. Various events that

disrupt the migration experience, such as widowhood and illness, are at the root of premature returns to the village. The men's role in providing financial support to the family proved decisive in changing the attitudes of those around them. This is what Cheikh, who returned after the death of his first wife, said: "When you're outside your village and you have money, life is interesting. But when my wife died and left the children here with me, it was difficult. You don't have the means and people don't respect you," (isolated, married man, former migrant, 64 years old).

Cheikh, who emigrated to work for over twenty-six years, attributes the change in attitude of those around him to his dissatisfaction with the management of the income he earned during his migration. He says that when he returned with no savings and had to start farming, his family turned their backs on him, criticizing him for failing to support them financially during his migration and since his return.

His story, combined with those of other respondents highlighting the transformation in the quality of the relationships maintained following their early return, raises the question of the conditions under which they maintained their support obligations until their return. Did they try to emancipate themselves from the mutual support system through migration? Current migrants, who are mostly younger than non-migrants and single, seem to be under less pressure, possibly because they do not yet have the status of married men with families.

In the case of lone women, marital mobility appeared to be an explanatory factor for their isolation. In the sample, seven isolated women out of eight were not natives of the village. In Niakhar, as in most traditional societies in sub-Saharan Africa, marriage is a major step in the life course. Its main function is to maintain the social organization dominated by kinship relationships<sup>[43]</sup>. Perceived as a tradition to be honored, this institution is valued by the majority of women of all ages: "Marriage is a woman's paradise" declares Coumba (non-isolated, married woman, non-migrant, aged 64). However, the obligations imposed by entering into a union are restrictive for these women, who acquire a new status, and even more so for those who have settled in their spouse's village following the principle of virilocality<sup>[44]</sup>.

Many of the norms guiding the behavior of married



women limit the development of social relationships outside the compound or beyond the immediate neighborhood. Maintaining friendships with neighbors who are “too far away,” especially for a woman new to the village, is criticized: “You know, when you’re a Sereer woman and you move around a lot, people are bound to slander you. When you decide to go and visit a friend, if it’s more than two or three houses [away from your own compound], you’ll get the reputation of a woman who doesn’t take it easy,” (married woman, 2007 interview).

Meeting these requirements as a married woman, and a migrant at that, makes it particularly difficult to develop a social network, especially if relations with other members of the kitchen are conflictual. For women who have recently immigrated to the village, relationships within the compound are essential to the development of an external entourage. For them, marriage-induced migration represents an important vector for transforming social relationships, but also for losing the autonomy they acquired during any work migration. Awa’s story illustrates this type of situation: “Really, when I was at home, I felt joy because I was going to Dakar and coming back. I had my own money and I made my mother happy. Today, I don’t have that any more. Before, I was independent, I bought what I wanted... Now, I manage. I don’t have a little brother or an older brother to ask. No one,” (isolated, married woman, migrant, aged 30).

Hierarchical relationships within the concessions, particularly concerning in-laws, can act as a brake on mutual assistance with family and friends. The power relations between the young bride and her mother-in-law, for example, are likely to lead to considerable tension. As well as having to come to terms with the new environment created by her migration, Awa finds herself unable to contribute to good neighborly relations through reciprocal exchanges because of the obstacles posed by her mother-in-law. Her mother-in-law opposes all her initiatives to trade within the village. Awa associates these behaviors with a personality incompatibility, described as “complicated.” “Interpreter: As she [the mother-in-law] doesn’t accept you giving anything to anyone, do people sometimes come to ask you for help? Interviewee: Yes, they do, but when she’s not there.

When people come and I have something to give, if she’s not there, I rush to help them. They say to me, ‘You don’t need to give anything because your mother-in-law won’t let you,’ but I tell them not to dwell on it and to help me, otherwise, nothing will get better.”

Knowing how central participation in the mutual aid system is not only to maintain good neighborly relations but above all as an alternative source of financial support to her husband, Awa’s inability to contribute makes her particularly bitter about her marriage.

In addition to the integrating role played by in-laws in the village, in Senegal there is the practice of twinning (*Ndeye Dikké*) two women, the first “adopting” the second, which enables her to become part of networks of exchanges between women <sup>[45]</sup>. In Niakhar, this practice, which previously favored the social integration of newly married women, who at the time were deprived of many social relations, would no longer have the same importance. This change, combined with conflicts in the immediate circle, makes it difficult to develop social relationships based on trust and reciprocity. The quantitative data from the network survey (2014) also highlights the fact that unions can play a role in female isolation. In our sample (**Table 1**), 61% of isolated women were married, compared with only a third of men.

For the isolated women surveyed, marriage, and especially migration to a new village and a new family, therefore seems difficult to reconcile with successful integration into a new environment. Those who marry in their home village may also experience isolation. Mariama’s story bears witness to this reality. This young woman, recently married to a man whose work takes him away from home for much of the year, is also the mother of a young child. She explains that since her best friend left to get married, the relationships she has in the village are not as strong as they used to be: “They’re not even friends, they’re just companions, little sisters whom I advise on studies, telling them to make an effort to get what they want before they find a husband,” (isolated, married woman, non-migrant, aged 30).

The situation of relative isolation in which she finds herself could also be understood in the light of the results of a qualitative study carried out among residents of a predominantly Wolof town (Senegal’s majority

ethnic group) highlighting the case where the wife of a migrant is often the subject of rumors about the couple's fidelity given the distance, which increases the feeling of isolation <sup>[44]</sup>. Mariama, the only isolated woman in our sample to be a native of the village, may have been affected both by the departure of her confidante and by derogatory comments about her marriage, raising doubts about the couple's fidelity, for example.

Migration plays a central role in the recomposition of social networks and the difficulties associated with integrating into new environments. Given the major role that marriage plays in the development of new alliances based on kinship, as well as the constraints imposed especially on women who have migrated following their union, particular attention should be paid to the strategies developed by these women in response to the immediate needs of their families.

## 5. Understanding isolation among the Sereer Siin

Analysis of the interviews conducted among the Sereer Siin in Niakhar has enabled us to gain a better understanding of how solidarity manifests itself and its limits in this rural Senegalese environment. More specifically, we looked at the characteristics of this society and those of social isolation, as well as the biographical events likely to lead to situations of social and financial insecurity.

How the informal insurance system operates in the experience of the isolated people of Niakhar suggests that mutual aid is based on conditional rather than balanced reciprocity. The former relates to potential support conditional on the assurance that it will be returned to the giver, while the latter relates to one-off exchanges where the recipient is anyone who might need it. These findings are in line with those of a study carried out in Côte d'Ivoire and Ghana, which suggests that the principles of the moral economy are being transformed, particularly as a result of the economic crisis <sup>[31]</sup>. This conditionality of mutual aid is echoed in research highlighting the role of financial insecurity as a vector for exclusion from mutual aid networks. Not being able to participate in the informal insurance system creates a self-withdrawal effect for the individuals concerned (linked to the shame

of finding themselves in this situation), combined with the rejection to which they are subjected by those around them (because they represent a threat to the balance of the mutual aid system) <sup>[46]</sup>. It is also interesting to note that all the isolated people referred almost exclusively to the financial support they were unable to return, although this type of mutual aid was not specifically mentioned during the interviews. They try to stay within solidarity networks by offering non-material support (washing, cooking, or shopping at the market), but it is to the lack of financial means that they attribute their social precariousness.

The theoretical framework also highlighted the importance of the quality of social relations in understanding isolation. In this context, it is reflected in the fact that the isolated maintain dense and frequent social relationships, but which appear to be more constrained than chosen. This paradoxical observation—that isolated people are socially surrounded—is fairly well explained by traditional norms of social interaction and local social organization. In a context of repeated interactions, and in an environment where relationships are built on family alliances forged through unions, it is necessary to maintain cordial relations within the village. In this way, the embarrassment felt by isolated people about their difficulty in contributing to the insurance system has to be combined with the need to remain involved in village life. This reality is part of a context of close-knit relationships where anything negative about an individual, made known to others, becomes a source of dishonor and shame <sup>[40]</sup>. The maintenance of seemingly cordial social relations with the local community should not, therefore, conceal the existence of socially isolated individuals, although physically well-integrated.

In line with our hypothesis, work and marital mobility play an important role in the emergence of social isolation. While these phenomena are not new, the forms they are taking today have contributed to the weakening of the relationships of solidarity that are characteristic of African societies <sup>[47]</sup>. The interactions between the migration experience and other biographical events that play a decisive role in the inability to maintain lasting relationships within mutual aid networks are illustrated in different ways for men and women. For men, it was the forced returns from migration that were



most significant, raising the question of the conditions of return, more specifically about participation in the informal insurance system during migration. The expectations of the family back in the village are such that it is sometimes difficult to reconcile work and success so the sense of shame referred to above is also illustrated for those who return “involuntarily,” having to deal with the inability to honor the expectations placed on them. This reality, which has been documented in the context of international migration <sup>[48]</sup>, remains little explored in the context of internal migration. However, the stories of Biram (married) and Moussa and Babacar (single) highlight the importance of linking migration experience and marital status in understanding isolation. In fact, 61% of the men who received only three quotes or less at the time of the survey had never been married (Table 1).

For women, marital mobility can be a source of isolation. The interviewees’ accounts reveal the difficulty of reconciling the autonomy temporarily achieved during previous migrations with the obligations and responsibilities associated with each person’s position in the family hierarchy (daughter-in-law and mother-in-law in particular). The stories of several respondents, such as Fatou and Maïmouna, also highlight the existence of conflicts and the experience of violence within the family, which contribute to the isolation of these immigrant women in the village. Growing participation in the labor market and the more or less assertive questioning of traditional support roles have emerged as key factors in the emergence of situations of female isolation. Increasingly frequent work migration by young women calls into question the established order, between respect for the norm and the expectations of those around them and the urban lifestyles they have experienced. In this context, marriage and intra-family conflicts appear to be obstacles to the autonomy acquired through work migration. This participation in the labor market raises the issue of the durability of the social organization of solidarity societies, and more specifically of gender roles in the provision of help for the most dependent.

This finding differs from those in West African literature (particularly from Mali), which suggests that young migrant women emancipate themselves from their family environment through a migratory work path <sup>[49]</sup>.

The young women of Niakhar are subject to traditional domestic role norms and their agency remains limited by the patriarchal organization that keeps them in a certain dependence <sup>[3]</sup>. Sereer society is characterized by a strong attachment to traditions <sup>[43]</sup>, which makes it difficult to adopt alternative behaviors and attitudes to the norm.

Finally, the interpretation of the results requires us to highlight their limitations. Firstly, choosing the size of the network as an indicator of social isolation only allowed us to identify one of the modalities of the phenomenon and limited the analysis in terms of sample size. During data collection, we were confronted with the fact that several individuals in the sample of 135 were absent due to migration. In addition, some of the respondents in the sample turned out not to be isolated, but rather involved in work migration. In addition, there were more non-native men than women in the 135-person sample, a surprising distribution given the principle of virilocality, but also the circumstances of female isolation documented in this article. It is possible that some of the men were born in a neighboring village, but grew up in Yandé. However, this provides information on the role of migratory experience in the composition of networks, as well as on expectations differentiated by marital status. The temporality of migratory experiences, especially for women who migrated to the village following their marriage, requires particular attention to understand whether certain events help to avoid isolation.

Secondly, the socio-centric approach assumes isolation within the village, but it is possible that those isolated within the village are not isolated on a wider geographical scale. That said, looking at proximity relationships remains a subject of interest in these contexts, particularly for individuals who are not part of a migration process.

Thirdly, the years separating the data collections (2014 and 2019) raise the question of the stability of the networks over time. However, the interviews were conducted in such a way as to identify situations of social isolation that might have changed in the meantime.

Lastly, although the results cannot be generalized to all rural populations, they highlight mechanisms of social isolation that may be at play in other contexts and may, in this sense, help future studies on isolation in Africa.

## 6. Conclusion

The inability to meet the moral obligation of reciprocity is the main manifestation of social isolation, and the conditionality of support suggests that the mutual aid system is more a promoter of inequality than a social safety net for all. The theoretical framework used has made it possible to identify the key elements of social isolation in a context characterized by the cohabitation of the principles of the moral economy and the transformations brought about by modernity. These elements argue in favor of paying greater attention to the transformation of the foundations of the mutual aid

system, initially maintained by moral obligations towards relatives. Finally, the results raise the question of the durability of informal support systems, but also of the possible pillars of resilience in the face of situations of isolation. While certain demographic events (migration and marriage) have been shown, in specific contexts such as family conflict and impoverishment, to play a decisive role in the emergence of isolation, the question arises as to which events would enable the re-establishment of the relationships of trust and informal exchanges necessary for re-entry into mutual support networks.

### Disclosure statement

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