SCUOLA DI DOTTORATO
UNIVERSITÀ DEGLI STUDI DI MILANO-BICOCCA

Dipartimento di / Department of

Sociologia e Ricerca Sociale

Dottorato di Ricerca in / PhD program Analysis of Social and Economic Processes

Ciclo / Cycle XXXVII

Micro-Class Reproduction and Mobility in Italy

Cognome / Surname Bussi Nome / Name Davide

Matricola / Registration number 803657

Supervisor: Mario Lucchini

Coordinatore / Coordinator: Alberta Andreotti

ANNO ACCADEMICO / ACADEMIC YEAR 2024/2025

ABSTRACT

The project aims to investigate micro-class reproduction and mobility in Italy. More specifically, four research questions will be addressed: 1) is micro-class reproduction the main mechanisms through which classes are inherited? 2) How has micro-class reproduction changed over the 20th century? 3) Given a class of origin and destination, is the micro-class of destination dependent on the micro-class of origin? and 4) Can the differences in class reproduction between Italy, Germany, and the US be explained by variations in micro-class reproduction?

The results show that, among men, micro-classes play a crucial role in shaping class reproduction and mobility. In contrast, fathers are less likely to pass on their occupation to their daughters, and class resources are more influential than occupation-specific resources in shaping daughters' mobility. Finally, the difference in class reproduction between Italy and the US can only be partially explained by differences in micro-class dynamics.

Keywords: *Micro-class*, *Occupations*, *Reproduction*, *Intergenerational Mobility*, *Log-linear Model*.

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Part I

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CHAPTER 1

Introduction

Social mobility is one of the most relevant concepts in sociology and economics, and it has been studied since the birth of social sciences. The inheritance of parental social class is usually interpreted as a measure of fairness, but, in a broader sense, it allows scholars to analyze both the action and the identity formation of people, linking the individuals to the structure of the society. In other words, "mobility rates and patterns may be seen as a persisting and pervasive factor shaping the ways in which members of a society define themselves, and in turn, the goals they pursue and the beliefs and values that they seek to uphold or contest" (Erikson and Goldthorpe, 1992, p. 2). Therefore, studying social mobility means analyzing the ways in which people attain a certain standing within a society's social stratification. Belonging to a particular social class or having a specific income or socioeconomic status involves not only different economic resources but also varying levels of human capital, power, culture, and relationships. It is thus evident that moving up or down the stratification ladder is not merely a matter of gaining or losing economic resources.

Sociologists have extensively studied class mobility, and a vast body of research has been produced over the years, with important theories, key findings, and methodological contributions emerging in succession. The aim of this thesis is to analyze social mobility and class reproduction by measuring stratification, not through social class, income, socioeconomic status, or prestige scores, but by using the foundation of all these measures: occupation. People's occupations have often been overlooked in mobility research in favor of measurements that either group multiple occupations into broad categories or translate occupational distributions into continuous variables — such as income and socioeconomic status. Therefore, to better introduce the contribution of this thesis, it is worth summarizing how research on this topic has evolved since the early 20th century and explaining how this thesis can offer new insights into the mobility debate.

Contributions by researchers in the intergenerational mobility literature can be divided into three generations (Ganzeboom et al., 1991). First, it is worth

mentioning that most of the literature has considered neither the mother's social class nor women's occupations when defining social origin and social destination. Nevertheless, during the first generation, scholars started to inquire about the relationship between social origin and destination. During this first generation, researchers were also interested to understand to what extent and why intergenerational mobility was different among countries, in particular between industrialized and non-industrialized countries (Sorokin, 1927; Lipset and Zetterberg, 1956; Lipset and Bendix, 1959; Kerr et al., 1960; Miller, 1960; Featherman et al., 1975). Therefore, new theories which tried to explain the latter research question emerged. For example, Sorokin (1927), using historical and ethnographic materials, claimed that the relatively high mobility rate and its growth in western society is not the result of a "structural" increase in mobility rates rather than of a "trendless fluctuation": some historical phases are characterized by high mobility rates and others by low mobility rates. Later, Lipset and Zetterberg (1956) argued that there is a *threshold effect*: countries reached high mobility rates after the society's economy has grown beyond a certain level. This hypothesis - also called LZ hypothesis - is more similar to Sorokin's: a high level of mobility characterizes some historical phases more than others (Erikson and Goldthorpe, 1992). The LZ hypothesis has been further modified by the FJH hypothesis, which claims that cross-national similarities occur not at the "phenotypical" level but at the "genotypical" level (Featherman et al., 1975). More precisely, the former is the observed mobility rate, which is influenced by structural factors such as demographic circumstances, division of labor, technological advancement, and economic development. Once the "genotypical" level is considered, societies characterized by market economy and nuclear family display similar mobility patterns. Therefore, the FJH hypothesis implies that after a society has reached a certain level of industrialization and economic development, it tends to stabilize around a certain mobility pattern.

Along with this theory, the liberal theory tried to conceptualize intergenerational mobility within the functionalist framework. More precisely, it states that in comparison with non-industrial societies, the industrial ones have: first, higher mobility rate; second, upward mobility rate that exceeds downward mobility rate; third, more equality of opportunity; fourth, mobility and equality of opportunity growth (Erikson and Goldthorpe, 1992). According to the liberal theory, higher rates of mobility are due to the constant change in the division of labor: high-skilled jobs tend to replace older jobs, improving the level of employment. Industrial societies are also characterized by bureaucratic organizations that require more managerial and administrative positions than non-

industrial societies. Furthermore, since the expertise for getting a high-skilled job are related to what people can do, industrial societies are more meritocratic, and achievement process replaces the ascriptive one. Finally, the more the economy of a society grows, the more the proportion of people characterized by a higher mobility rate exists. Therefore, there could be some differences among industrial societies according to their level of economic development, but they would eventually converge to similar mobility rates.

After the first generation, innovations were introduced in how social stratification is measured, as well as in the analytical tools and research questions. During the second generation, Duncan and colleagues coded occupations into the US Census occupational classification categories; second, they computed a measure of occupational status, the Socioeconomic Index (SEI); third, they introduced the status attainment model (Duncan and Reiss, 1961; Blau and Duncan, 1967). The third innovation was crucial for formulating new research questions (Ganzeboom et al., 1991). In particular, the scholars were not only interested in quantifying intergenerational mobility, but they were mainly interested in assessing the direct effect of parents' social origin on children's social class and how much children's education mediated it. This relationship can be symbolized by the OED triangle, where O stands for origin, E stands for education, and D stands for destination. The origin (parent's socioeconomic status) is linked to E (children's education) and D (children's socioeconomic status), and education is linked to the status of destination. Blau and Duncan (1967) found that in the United States, the respondents' occupational status is more dependent on education than on father's occupation attainment. Furthermore, the effect of education is, for the most part, independent of social origin. Therefore, education is a way to increase intergenerational mobility, but on the other hand, social reproduction is transmitted mostly from social origin. Blau and Duncan (1967) propose the hypothesis that in industrialized society, the link between education and destination (the achievement process) becomes more important than the link between origin and destination (the ascriptive process). Also, Treiman (1970) hypothesized that the effect of family background on individuals' occupation and education is weaker in most developed countries. Later, Shavit and Blossfeld (1993) compared 13 industrial countries in order to model the inequality in education. The authors did not find empirical support for the modernization theory (or liberal theory), they rather found a *persistent inequality*. In fact, the origin effect on education has not decreased over the years, but it has shown a stable pattern. However, their analysis had some limitations, and further research showed contrary results (Breen and Jonsson, 2005). Indeed, Breen and

Müller (2020) recently compared intergenerational mobility in eight countries. They found two different patterns between people born before and after 1950. In fact, people born before 1950 experienced an increase in upward mobility, social fluidity, education expansion, and a weakening association between social origin and education. As the authors suggested, the modernization theory seems to be right if we look at only this period of the 20th century. However, men born after 1950 experienced a stable social fluidity rate and an increase in downward mobility, a pattern that recalls the "trendless fluctuation" theory. Therefore, the idea that, economic growth provides a one-time boost in intergenerational mobility, seems more accurate (Breen and Müller, 2020). Finally, they conclude that reduction in education inequality influences the rate of social fluidity since the increase in educational equalization (the reduced association between O and E) is followed by an increase in social fluidity (reduced association between O and D).

Finally, the third generation introduced an innovation in the analysis, allowing to distinguish between absolute and relative mobility. As said before, the first generation of mobility research could not separate structural effect from net intergenerational mobility (Ganzeboom et al., 1991). In fact, a change in occupation distribution (for example, a reduction in the number of incumbents in farmer occupations) produces an increase in mobility. The third generation used log-linear models to solve this problem. Therefore absolute mobility is the probability of achieving a social class, given the social class of origin. In contrast, relative mobility is the probability of achieving a social class rather than another for people belonging to different social classes. Relative mobility is also called social fluidity and is considered a measure of society openness.

Furthermore, during this generation one of the most influential social class schemes was proposed by Erikson and Goldthorpe (1992) in their seminal work "The constant Flux". The authors also contributed to the theoretical discussion on intergenerational mobility across countries. More precisely, they did not find empirical support for the liberal theory. First, they found that, over the period covered by their data, the total intergenerational mobility did not steadily increase but rather moved in a directionless way. Second, they found that the upward mobility rate is higher in the least economically developed countries they have considered, and that convergence between absolute rates did not seem to occur. Third, most developed countries do not seem to be more open than less developed ones. In particular, the relative rate of intergenerational mobility is quite stable over time, and when changes occur, they do not follow a consistent direction. Finally, the authors improved the FJH hypothesis by implementing

a testable model (the common social fluidity model) and substituting the "basic similarity" of relative rates - stated by the FJH hypothesis - with a broad cross-national commonality of relative rates, deviation from which are better explained in terms of national peculiarities.

Breen (2004) wrote another important contribution to the literature studying intergenerational mobility among 11 European countries from 1970 to 2000. The authors found that social fluidity does not seem to change over decades or across countries. However, they also found an increase in social fluidity in France, Netherlands, Sweden, Hungary, and Ireland, and, on the other hand, a lack of relative rate increase in Germany. Finally, Breen and colleagues found that differences among countries' absolute rates become smaller. More precisely, all the countries considered have experienced, first, a decline of the farmer class and a growth of the manual working class during the transition from an agricultural to an industrial society and, second, a decline of the working class and a growth of the service class during the transition from an industrial to a post-industrial society. After the work of Breen and colleagues, other studies analyzed the intergenerational trends across countries, and some of them tried to find institutional explanations for differences, or lack of it, among countries (Beller and Hout, 2006; Esping-Andersen and Wagner, 2012; Esping-Andersen, 2015; Bernardi and Ballarino, 2016; Breen and Müller, 2020; Bukodi et al., 2020).

Finally, Bukodi et al. (2020) carried out a new account of intergenerational mobility across 30 European countries, updating the evidence of Breen (2004) and Erikson and Goldthorpe (1992). They assessed the intergenerational mobility of people born until the 1965-75 cohort, and they found some different empirical results from the research cited above. First, they did not find a higher upward mobility rate than the downward mobility rate in all the countries considered. In particular, they distinguished between three groups: (1) Netherlands, Luxembourg, Switzerland, and West-Central European countries have higher upward mobility rates; (2) France, UK, and Nordic countries have a similar levels of downward ad upward mobility rates; (3) post-socialist countries have higher downward mobility rate. Furthermore, they distinguished between high and low fluidity sets of countries, and within each set, the European countries show a common social fluidity.

After the third generation, research on mobility did not stop and new advancement can be identified. Indeed, Treiman and Ganzeboom (2000) defined a fourth generation where scholars engaged in new projects, from data collection developments to the introduction of new statistical analysis. For example,

Logan (1983) and Breen (1994), taking advantage from the mathematical equivalence between log-linear models and logit models, proposed a way to estimate the effect of individual continuous variables for the analysis of mobility table.

Nonetheless, with regard to this thesis, the most significant contribution of this fourth generation concerns the definition of social class. Indeed, whatever the new techniques or research questions may be, in the first three generations of mobility research, stratification has been measured by either aggregating occupations into a few categories or by using continuous variables. The third generation introduced the EGP class scheme (Erikson et al., 1979), which has been widely used since. Later, the ESeC classification was introduced, based on the EGP class scheme (Rose and Harrison, 2007), as well as the Oesch class scheme, which sought to adapt the EGP class scheme to more recent economic developments (Oesch, 2006). Class schemes are also typically associated with the "trendless fluctuation" theory and its derivatives, while gradational measures are more aligned with the liberal theory. The second generation introduced socioeconomic status as a benchmark for continuous measurement of social stratification, and Ganzeboom and colleagues later derived an international version of this measure (Ganzeboom et al., 1992).

As can be seen, the measurement of social stratification has not changed significantly since the first generation of mobility analysis. However, the concept of class has been criticized over the years by some scholars who argued that people's lives are more individualized and that the old concepts of social class no longer structure their chances as they did in the past (Giddens, 1991; Beck, 1992; Beck and Beck-Gernsheim, 2002). As a response to these critics Grusky and Galescu (2005) proposed to disaggregate social classes into groupings of fewer occupations, called micro-classes. The aim of Grusky and colleagues is to introduce a new class scheme that can substitute the well-known class schemes and, using their words, "savage" class analysis (Grusky and Sørensen, 1998). More precisely, micro-class can be defined as "a grouping of technically similar jobs that is institutionalized in the labor market through such means as (a) an association or union, (b) licensing or certification requirements, or (c) widely diffused understandings (among employers, workers, and others) regarding efficient or otherwise preferred ways of organizing production and dividing labor" (Grusky and Galescu, 2005, p. 66). For example, doctors and engineers are no longer part of the social class of professionals but they belong to two distinct micro-class: the one of the doctors and the one of the engineers. As will be explained in more detail in the next Chapter, this approach has received several critics, but there is evidence that show how reproduction within social class is

actually the result of reproduction within micro-classes (Stier and Grusky, 1990; Jonsson et al., 2009; Erikson et al., 2012; Jarvis and Song, 2017). Indeed, the theoretical contribution of the micro-class scheme is to problematize the use of social classes and to investigate whether, in contemporary society, stratification is structured at the occupational level.

The contribution of this thesis pertains to the use of a micro-class scheme, and it can therefore be placed within the fourth generation of intergenerational mobility research. At the best of my knowledge there is no a study that uses the micro-class scheme to estimate reproduction in Italy. Therefore, the first two research questions are: is micro-class reproduction the main mechanisms through which classes are inherited? And, how has micro-class reproduction changed over the 20th century? These first two research questions closely follow what has been investigated in previous works by Jonsson et al. (2009, 2011) and can address whether, even in Italy, reproduction within classes is primarily explained by reproduction within the same micro-class. Moreover, the second research question allows for the estimation of changes in reproduction at both micro and macro levels, inquiring whether the changes in reproduction vary differently at different levels of aggregation or if reproduction within micro-classes and big-classes changes similarly.

Nonetheless, Erikson et al. (2012) highlighted two limitations of the micro-class approach, referring in particular to the paper by Jonsson et al. (2009). The first issue pertains to the lack of micro-class reproduction when daughters, rather than sons, are considered in the relationship between the occupation of origin and destination. Therefore, the micro-class scheme seems to explain men's inheritance better than women's, when fathers' occupations are taken into account. Unfortunately, due to data limitations, this thesis will not investigate the relationships between daughters and mothers, between sons and mothers, or the combination of mothers' and fathers' micro-classes in the transmission of inequalities. The second critique that Erikson and colleagues propose, regards the lack of attention to micro-class mobility. Indeed, Jonsson et al. (2009) focused only on micro-class reproduction, relegating the analysis of micro-class mobility in the background. However, a class scheme that aims to substitute the most used class schemes and gradational measures, must be able to describe not only reproduction but also mobility. Indeed, as Erikson et al. (2012) explained, a large percentage of the association between micro-class of origin and destination is not accounted only by reproduction.

In light of this, the third research question try to make a step further by asking: given a class of origin and destination, is the micro-class of destination

dependent to the micro-class of origin? If the answer to this question is positive than it means that the mobility of people belonging to the same social class is not the same but it depends on their occupation and on that of their fathers. This result would suggest that, even when mobility is analyzed, it is worth breaking down social classes to a lower level of aggregation. As will be explained in Chapter 3, due to the sparseness of the data, it was not possible to estimate a single model that accounted for both reproduction and mobility. This is a clear limitation of the micro-class approach. Nonetheless, homogeneity tests, in addition to being a useful tool for addressing the third research question, align with the suggestion made by Erikson et al. (2012). Specifically, rather than considering micro-classes as a substitute for classes, their effects should be understood as conditional on class effects.

So far only the Italian context has been considered, but in order to reveal, even if indirectly, the mechanisms of micro-class reproduction it is useful to compare Italy with other countries. More precisely, the other countries considered are Germany and US which were included in the paper by Jonsson et al. (2009). Germany is considered as a country with high micro-class and class reproduction, while US is a country characterized by high micro-class and low class reproduction. Other than revealing the reproduction mechanism the comparison can show whether Italy has a higher or lower micro-class reproduction than Germany and US and it can also answer to the fourth research question: is the difference in class reproduction explained by micro-class reproduction?

To conclude, the thesis is structured as follows. Chapter 2 describes the theory behind the micro-class approach, the contributions to the social mobility literature and the critics that have been proposed. Furthermore, a brief summary of the main results found by intergenerational mobility research in Italy is given. Chapter 3 describes the datasets used, defines the micro-class scheme that will be use throughout thesis and explaines the statistical analysis that are used. Chapter 4 shows the results of the analysis on reproduction in Italy and tries to answer at the first two research questions, while Chapter 5 is dedicated to the analysis of micro-class mobility. Finally, Chapter 6 considers again micro-class reproduction, and shows the results of the comparison between Italy, Germany and US.

CHAPTER 2

Literature Review

2.1 Why Use a Micro-Class Scheme?

As mentioned in the Introduction, in this study social class is defined by the micro-class theory of social stratification. While every research on class mobility should justify the chosen definition of social class, this necessity becomes even more pressing when considering a novel approach to measuring a long-studied concept. Indeed, sociological literature has a long tradition of class analysis, and various class schemes and socioeconomic statuses have emerged along the way. In general, measures of social class can be organized into two distinct groups: gradational and big-classes measures. The former defines families' resources by a single unidimensional variable such as income, prestige score, or socioeconomic status (Duncan and Reiss, 1961; Treiman, 1976; Ganzeboom et al., 1992). People born in a family with the highest prestige score or the highest socioeconomic status are advantaged because they can benefit from more resources than children born at the bottom of the socioeconomic ladder. On the contrary, big-classes define people's social background through exhaustive and mutually exclusive categories. These categories can be measured across different economic and productive dimensions including, for example, the productive sector, the employment and authority relations, the employment contract, the workers' autonomy, the exploitation of resources or assets, the technical expertise, and the administration and organizational power (Wright, 1984; Erikson and Goldthorpe, 1992; Oesch, 2006; Rose and Harrison, 2007). People belonging to same social class not only share economic resources but they exhibit similar chances of mobility, culture, tastes, and human and social capital.

Starting from the late twentieth century, a new definition of social class, already mentioned in the Introduction, has been proposed. To summarize, micro-classes group together technically similar jobs and the boundaries of each micro-class are defined by the division of labor, closure mechanisms (such as licensing) and, associations or unions (Grusky and Galescu, 2005).

Big-class schemes commonly define social classes according to the intellectual work of either Karl Marx or Max Weber (Grusky and Galescu, 2005), while unidimensional measures of social stratification are rooted in the liberal theory (Featherman et al., 1975). For example, Marx argues that society is characterized by a dichotomy between two classes: the oppressed and the oppressor (Marx and Engels, 1964). This dichotomy characterizes every historical epoch, even though the names of these two social classes have changed over the years. Later, Marx distinguishes between three different social classes, which can be defined according to people's revenues and the source of their revenues: the wage-laborers, whose income comes from wages, the capitalists whose main source of income is profit, and landowners whose primary source of income is ground rent (Marx, 1967). Additionally, Weber, claims that there are two separate stratifications within society: social classes result from the stratification based on people's economic interests in the market, while status groups emerge from the stratification based on the consumption of goods and, therefore, on people's lifestyles. In other words, the class situation refers to a group of people who share the same economic interests and chances of achieving some goods and life experiences. The primary distinction between classes is between those who own property and those who do not (also called, respectively, property class and acquisition class); however, within these two categories, there are other differences: those in the property category are distinguished by the kind of property they own, while those in the acquisition class are differentiated by the type of services they can offer (Weber, 1946).

Unlike the other two aforementioned class measures, the micro-class scheme finds its theoretical justification in the work of Émile Durkheim. It is not surprising that micro-class theorists oriented towards Durkheim's work, since the author was more interested in occupations rather than social classes. On the other hand, Durkheim is not generally cited by class analysts, as those scholars do not see in Durkheim's work a justification to define either aggregated social classes or socioeconomic scales (Grusky and Galescu, 2005).

It is therefore necessary to justify the choice of using the micro-class framework and to discuss whether a new conceptualization of social class is desirable and why micro-classes should provide a better understanding of social stratification compared to well-established measures, whether it be the gradational or categorical.

Part of the justification can indeed be found in Durkheim's work, in which he predicted that professional groups would have been more relevant in industrialized societies than classes. According to the author, economic and social

disorders should be attributed to the state of *anomie* in which the society was found at that time. The differentiation and specialization of the labor market, resulting from the industrial revolution, have diminished the cohesive power of traditional forms of organization (Grusky and Galescu, 2005). However, to hold together a society there is the need for organizations that connect individuals to the State and, according to Durkheim, professional groups would have filled this gap. More precisely, occupational ethics evolves within each professional group where individuals find their shared ideas and interests. This shared ethics will lead to a "moral polymorphism" where individuals are linked to the moral life expressed by occupations rather than to the larger society (Grusky and Galescu, 2005). Detailed occupations, more so than big classes, should be seen as the main site at which ideas, attitudes, usages, ways of seeing things, and styles of life are generated. The ethic developed within occupations would help to counterbalance the egoism or individualism brought by industrialization. This process happens because similar people are self-selected into the same occupations where workers tend to interact and share tastes, attitudes, and life styles. Finally, Durkheim also thinks that professional groups would express more than just professional tasks. For example, professional groups would also work as education and mutual assistance, and they would be the foundation of political organizations. Indeed, individuals working in the same occupation would come to realize that they share common interests and, eventually, would seek to pursue collective goals (Grusky and Galescu, 2005). On the contrary, political society and the State would not be able to regulate the activity within the occupations and, as a consequence, professional groups would have emerged as the link between individuals and the State. Furthermore, big-classes would have been less relevant because the class conflict would have been dissipated by the rise of equal opportunity and the State growth. More precisely, class conflict would have been institutionalized, controlled and finally reduced through occupational regulation. On the other hand, inequality would have been legitimated by mobility based on talent and capacities rather than diverse starting opportunities (Grusky and Galescu, 2005). In other words, the decline of big classes and the growth of professional groups are linked together by the "institutionalization" of conflict and the "legitimization of inequality".

If Durkheim was right, then the big-class schemes have failed to represent the social stratification adequately. Therefore, micro-class approach emerges also as a reaction to the criticism towards social class and a way to reaffirm the relevance of this concept, albeit at a lower level of aggregation (Grusky and Sørensen, 1998). Indeed, criticisms of big-class schemes have been proposed

by post-modernist and anti-Marxist scholars who claim that the concept of class is outmoded, and it is no longer useful for understanding the society in which we live. More precisely, some of the changes that brought Western society into the postindustrial era have undermined the strength of the social class concept in describing societal inequalities (Grusky and Sørensen, 1998; Jonsson et al., 2009; Barbieri et al., 2020). Therefore, class is a useful concept to describe the social stratification of the United Kingdom during the industrialization period, when the inequalities between the owner of the means of production and the laborers were vivid (Pahl, 1989). The contemporary societies are however far from 19th Century United Kingdom and the concept of social class should therefore account for the most crucial changes. Indeed, globalization, advances in science and technological, the decline of the manufacturing sector, the rise of the service sector, and the creation of supranational political entities (such as the European Union) have, according to some scholars, made the role of classes less clear (Pahl, 1989; Clark and Lipset, 1991). In other words, class society is an "historical entity", born during industrialization, and it is dying as a consequence of post-industrialization: "individualized" and "disembedded" societies have made social class an empty concept (Giddens, 1991; Beck, 1992; Beck and Beck-Gernsheim, 2002; Pakulski and Waters, 2008). According to Savage et al. (2013), nowadays big-class schemes seem to be used more for practical reasons than theoretical ones, as income inequalities within occupations are increasing and this makes social classes less internal homogeneous. Furthermore, traditional and economical hierarchies have been declining, leading to less structured social classes (Clark and Lipset, 1991). The decline of big industries, the emerging of smaller market-oriented firms and the evolution of technologies make the workplace more equal than before. For example, unskilled jobs have been substituted by automated machines, increasing the need of equally skilled workers, which in turn reduces the inequalities within the workplace. Even within the family the hierarchies have been declining, the male breadwinner is not the main model anymore and roles within the families are more flexible than before. Family seems also less important than education in determining the future occupations of children. Social classes have lost their relevance even in the political realm: left-wing's and right-wing's political proposal are no longer rooted in the distinction between control of economic resources and exploitation (Pahl, 1989). Indeed, the electorate and political parties are less interested in defining themselves through social classes: left-wing concerns revolve around gender, race, ecology, and human rights issues, while the right-wing focuses on nationalist and moral challenges. Finally, less structured social classes lead

people to seek other areas where they can build their identity, and, as a result, social classes seem therefore less capable of shaping people's life-style, cultural or political preferences (Savage et al., 2013). According to Pakulski and Waters (2008), the "economic-class society" (i.e., society where social classes emerged from the conflict between property owners and employees) no longer exists. The contemporary society is interested in issues that have nothing to do with classes, people are rather living in a "status-conventional society" where "[...] oppression, exploitation, and conflict are being socially constructed around transcendent conceptions of individual human rights and global values that identify and empower struggles around such diverse focuses as postcolonial racism, sexual preferences, gender discrimination, environmental degradation, citizen participation, religious commitments, and ethnic self-determination" (Pakulski and Waters, 2008, pp.1026).

However, the idea that class is an outmoded concept should not be taken for granted. There are other studies that show how social classes are still relevant in contemporary society (Marshall et al., 1988; Breen, 2004; Ballarino et al., 2016; Barbieri et al., 2020; Breen and Müller, 2020). Nonetheless, as it will be discussed more extensively later, micro-classes can show inequalities that are concealed when big-class schemes are used. Indeed, the first justification for using the micro-class approach is that, compared with socioeconomic statuses or conventional social classes, it better accounts for the changes occurring in national and supranational economies. As class analysts noted, it would be a mistake to believe that contemporary societies are no longer economically stratified. However, even if the labor market is still organized by social classes, the latter might not be defined at the aggregated level, as sociologists usually do. Instead, they are more accurately characterized as balkanized into occupational classes (Grusky and Galescu, 2005). Therefore, according to Grusky and Sørensen (2008), it is not useful to entirely throw away the class concept - as post-modernist scholars think - but at the same time, classes should be conceptualized more seriously than defenders of social classes have done so far.

There is another advantage of examining classes at the occupational level: micro-classes are realist social groups, meaningful to the lay public (Grusky and Sørensen, 1998). On the contrary, conventional classes are nominal classes and while individuals often define themselves based on their occupations, the same does not hold true for big-classes. However, it is not straightforward that micro-classes are indeed realist social groups. According to Wright (1980), unlike social classes which are defined by their relationship with other social classes, occupations are differentiated only according to their technical requirements.

Occupations are therefore just functional groups that cannot be the basis for the construction of social groups. In fact, the division of labor at the occupational level is determined by the technical functions of each occupation. Yet, Grusky and Weeden (2002) claim that occupations are not exclusively classified by technical and functional principles. On the contrary, the emerging occupational group is the one that won the political, economic and legal battle over its "technical niche". These struggles obviously have a functional content, but members of professional occupations are constantly striving to achieve, defend, or expand their claims over functional niches, and their success does not depend solely on functional discourses (Grusky and Sørensen, 1998). The intensity of this struggle can obviously vary across different sectors, but this process is what makes occupational groups realist classes, where people share, as mentioned earlier, a common set of interests, culture, lifestyles, and political preferences. However, Erikson et al. (2012) claim that Grusky and colleagues do not provide a systematic explanation for these variations across occupations: why occupations may differ in their propensity for immobility and in the degree to which they are realist social groups? Indeed, Erikson et al. (2012) show that for men, 70% of the association between social class of origin and occupation of destination lies on the main diagonal if they were born within the class of farmers. The same percentage is 63% for those born in the class of technicians, supervisors and skilled manual workers. However, when the class of routine non-manual is considered, only the 16% of the origin-destination association lies on the main diagonal.

Moreover, according to Goldthorpe (2002) the concern about having realist social classes is not actually so urgent. According to this author, scholars should also not be worried about using operational concept that are not familiar to the lay public. More precisely, scholars should be more focused on showing how people belonging to different social classes face different opportunities, constraints and life-chances. Therefore, it is not necessary to prove that those social classes are realist social groups. Furthermore, individuals belonging to a given social class – if it accurately measures the underlying variables, such as resources and employment status – act according to the opportunities and constraints associated with that social class. Disregarding social classes in order to have realist social groups is not necessary: even if social classes are not realist groups, people rationally take into account the class context in which they are living, even if they do not identify themselves with their social class.

According to Grusky and Weeden (2002), Goldthorpe's critique does not contemplate that other meaningful mechanism unfold if scholars rely on realist

social groups rather than nominal social classes: people might tend to choose professions that align with their same occupational stereotype, undergo professional training that expose them to occupational cultures, and engage in frequent social interactions with co-workers. All these processes reinforce occupation-specific cultures and interests, occurring more frequently within realist micro-classes compared to nominal classes, which are defined more by abstract principles (such as autonomy, exploitation, or employment status). Micro-classes are realist social groups where the boundaries are socially constructed and where people share the same culture, interests and networks. This can reveal rigidity in the class structure that are covered defining classes at the aggregate level (Grusky and Weeden, 2001).

At this point it would be useful to address another relevant question: why should micro-classes be defined as classes instead of occupations? After all, micro-classes seem closer to the latter concept than the former.

Micro-classes can be thought as social classes because they satisfy the most common analytical criteria considered crucial in class analysis: collective action, lifestyle, identification, social closure, and awareness (Grusky and Sørensen, 1998). Therefore, most of the class mechanisms traditionally attributed to big classes are still present, but they are realized at the occupational level (Jonsson et al., 2009).

For example, the collective action model based on big-class interests no longer seems to accurately represent reality (Grusky and Sørensen, 2008). However, collective actions continue to exist at the occupational level and are primarily organized around three goals: first, to restrict access to occupational positions; second, to compete with other occupations for functional niches in the division of labor; and third, to secure occupation-specific benefits (Grusky and Sørensen, 2008). Therefore, collective action at the occupational level pursues sectional objectives, even if their effects on the macro level are not obvious.

Furthermore, occupations are crucial for building people's lifestyle. Recent research on social class mainly documents the effect of classes on individual outcomes such as voting, life experience, and consumption practice. Therefore, most researchers analyze categorical effects of social classes or gradational effects of socioeconomic statuses on individual outcomes. However, since closure is played at the occupational level, the occupations are also the place where subcultures grow (Grusky and Sørensen, 2008). In fact, workers must attend a long training before working in certain occupations, and they might also choose their occupation according to their previous values. At the same time, employers might choose workers with values that match the occupation they are offering.

Therefore, the combination of self-selection, training, and social closure helps to build specific occupational cultures. Empirical evidence shows that the micro-class approach is crucial when scholars seek to analyze the effect of social class on individual outcomes (Weeden and Grusky, 2005, 2012). Weeden and Grusky (2005) estimated the remaining association between micro-classes and several domains (such as income, tenure, consumption practices, institutional participation, political attitudes, social attitudes, and demographic composition) after controlling for class and gradational effects. Considering the institutional participation domain, for example, the average percentage of association unexplained ranges between 61.8% to 85%. Overall, the unexplained association varies from 50% to 68%. Their results show that half of the association at the site of production is concealed when big-class studies are carried out. Similarly, Weeden and Grusky (2012) showed that, in the United States, life-style social attitudes, political attitudes, and demographic composition domains are becoming less organized at the class level. On the contrary, inequalities generated at the micro level remains unchanged from the 1970, resulting in the most important form of inequality.

Identification is another relevant class mechanism. However, class models based on Marxian or Weberian theories appear to be less significant in the identity formation of individuals, as nowadays social classes are considered passive identities. Critics of the class concepts actually theorize that people form their identity outside the realm of production. Nevertheless, considering occupations, it becomes challenging to argue that they have not been a significant source of identity formation. As said before, people perceive and define themselves according to their occupations rather than their social class and they aspire to be in a specific occupation rather than a specific social class (Grusky and Sørensen, 1998). In other words, occupations are more institutionalized than social classes.

Occupational identity is also linked to social closure mechanisms. Indeed, identity within occupations might be even stronger when it is required an intense training to get the job, or when mechanisms of self-selection and social closure are in place. Grusky and Sørensen (2008) claim that a theory of social closure does not necessarily need an aggregate conceptualization of social class. Incumbents of occupations protect themselves from external competition in several ways. Licensing, for example, does not work at the aggregate level, but instead, it serves to control entry and exit within occupational groups. Therefore, institutions like professional associations or craft unions represent occupation interests by creating tasks monopolies and preventing the access to

outsider. Once again, these occupational barriers are concealed when scholars analyze big-class mobility.

For example, Stier and Grusky (1990) analyzed the career mobility using 18 occupational groups, referred to as "sub-occupations". More precisely they construct a class scheme made of 18 categories which are defined by eight occupations (professionals, managers, sales, clerical, crafts, service, operatives, and laborers) divided between core and peripheral sector, and two other occupations (farmers and farm laborers). In addition, they estimated a log-linear model, referred to as Overlapping Persistence model. This model incorporates the estimation of "sub-occupational persistence" effects for the 18 "sub-occupations", along with seven "occupational persistence" effects. Additionally, the model includes five "sub-stratum persistence" effects (i.e., upper nonmanual, lower nonmanual, upper manual, upper nonmanual, farmer), a "stratum persistence" effect and a "sectoral persistence" effect. Using this Overlapping Persistence model the author estimated the net "holding power" of the five macro classes, after controlling for "sub-occupational" inheritance. More precisely, the two authors showed that, if immobility is analyzed at the aggregate level, the inheritance effect of social classes follows a U-shaped curve: the classes at the top and at the bottom of the stratification show the highest immobility effect. However, when they move their attention to the occupational level, they found that even lower nonmanual occupations and occupations in the service and craft sector have strong inheritance effects. Furthermore, the "holding power" of the lower nonmanual class is very low, meaning that occupations within this class are characterized by a low density of exchanges: workers belonging to the nonmanual class are more attached at their occupations than at their social class, a conclusion that wouldn't be evident looking only at the aggregate level.

Even if the Stier and Grusky's paper has been published before micro-classes have been theoretically defined, the two authors use the same approach that will be adopted in later micro-classes studies. Indeed, Jarvis and Song (2017) carried out a multilevel class scheme to analyze intragenerational mobility over time in the United States, where micro-classes are nested into meso and macro-classes. More precisely they defined 75 micro-classes nested into 10 meso-classes, 5 macro-classes and 2 sectors (manual and nonmanual sector). Even if the model is slightly different from the Stier and Grusky's model, the idea behind it is actually the same: decomposing the gross mobility into net mobility at the four levels of aggregation. Overall, they found rising trend in intragenerational mobility from 1969 to 2011 in the United States even if with some differences between women and men. More precisely they found: first, an increased mobil-

ity trend between non-manual and manual sectors for both men and women, in particular from 1987 onward (the exchange mobility for women is higher than the structural mobility); second, an increased mobility between macro-classes within the nonmanual sector for both men and women, but mobility was steeper for women than for men due to structural changes; third, the meso-class mobility trend within macro-classes increases for both men and women but women's meso-class mobility within professional and managerial occupations was due to structural changes; fourth, the mobility between micro-classes increased only within sales, clerical, craft, and lower manual meso-classes.

However, even if social closure can be seen at work when looking at intra-generational mobility, is less clear how this mechanism works in passing on the occupation from one generation to the other (Grusky and Sørensen, 1998). Indeed, closure mechanisms might be useful to protect incumbents of occupations from external competitor but might be less effective in transmitting privileges from parents to children: the son of a professional must acquire the specific knowledge and credentials if he wants to be a professional too. Nevertheless, there still can be other mechanisms of inequality transmission which are fostered at the micro level. As already said, occupational culture might be created by training regimes that expose workers to codes of behavior, and closure mechanism that make workers interact principally with other co-workers. In turn, the occupational cultures will influence skills, tastes, preferences and aspirations of children (Grusky and Sørensen, 1998). All these mechanisms are occupational determined; for example, parents might transmit aspirations and share a way to make sense of the world by talking to their children about their job or by bringing their work at home. Children are also exposed to occupational specific networks and economic resources which can allow them to have an easier access to parents' workplace. Of course, cultural and human capital, networks and economic resources might produce big-class reproduction as well. For example, a doctor can pay law school to his children and even if his occupation is different from that of his father, he's still in the upper class. However, according to Jonsson et al. (2009), resources may assume an occupation-specific form and converting them into broader, big-class resources is more costly.

On the other hand, Goldthorpe (2002) claims that scholars should not be interested only in the holding power of micro-classes. The point is not whether big classes conceal the inheritance power of some occupations, but rather the relative chances to go into a given social class instead of another for people who were born into different social classes. Similarly, Therborn (2002) observes that scholars shouldn't be interested in whether nurses exploit non-nurses, it is not

relevant. Contrary to this point, Grusky and Weeden (2002) argue that questioning whether barriers are located at the micro level rather than the macro level, and whether class reproduction occurs at the occupational level instead of at the aggregate level, is a reasonable and worthwhile question to ask. Otherwise, studying social mobility using well-established macro-class measures might mistake the effects of class inheritance for occupational immobility.

Jonsson et al. (2009) tried to prove the last point. They studied the micro-class reproduction within four countries: United States, Germany, Sweden and Japan. They used a micro-class scheme which comprises 82 micro-classes nested within 10 meso-classes, 5 macro-classes and 2 sectors (manual and non-manual). They employed a log-linear model to estimate the gradational effect and inheritance effects of each class at each level of aggregation. More precisely, to answer at their research question Jonsson and colleagues modelled first a log-linear model without the micro-class inheritance effect and then a model with micro-immobility effects. What they found is that the "trimmed model" (the one without "blocking-out" the micro diagonal) shows the usual big-class inheritance effects, but once the micro-class diagonal is taken into account the big-class coefficients shrunk: "[...] conventional big-class analyses have generated the appearance of big-class reproduction because it is confounded with micro-class reproduction" (Jonsson et al., 2009, pp. 1008). They still found persisting reproduction at the aggregate level as well. In particular, children born into classical-professions benefit from all big-class, gradational, and micro-class resources. However, the largest coefficients for the big classes (proprietors and primary sector workers) are smaller than the majority of the micro-class coefficients; and proprietors and primary sectors workers are not actually big-classes, since the proprietors comprises only shopkeepers and most of the primary sector workers are farmers (Jonsson et al., 2009). These results are the same for all the country they considered: the average micro-immobility parameters are far larger than the big-class and gradational ones. However, US, Japan, Sweden and Germany show some differences in the evolution of class reproduction (Jonsson et al., 2011). More precisely the decline in social reproduction assumes different configuration according to each country. For example, Germany shows a decline in the micro-class reproduction, while Sweden shows the largest decline in the gradational effect. Generally, reproduction at the aggregate level is only declining in non-European countries. Nevertheless, these results have been questioned (Erikson et al., 2012). First, the high micro-class reproduction seems to be true only for sons and not for daughters. Second, and most importantly, most of the association in the mobility table is not explained by reproduction,

but it is accounted for by pattern of mobility (Erikson et al., 2012). Indeed, the model proposed by Jonsson and colleagues focuses primarily on immobility, relegating mobility to a secondary role.

Concluding, the micro-class approach has the merit of showing where inequalities are reproduced and the mechanisms through which sons remain in the same class as their fathers. However, due to the number of categories in the micro-class scheme, estimating micro-class mobility is challenging. Nevertheless, the value of micro-classes is well summarized by the following sentence: "should we really care, for example, that the child of the truck driver has a special propensity to become a truck driver while the child of a gardener has a special propensity to become a gardener? The answer is that we should care about this mechanism not because they show relative opportunities but because the micro-class mechanism is what ensure that meso or big-classes reproduce themselves" (Jonsson et al., 2009, p. 1023).

2.2 Intergenerational Mobility in Italy

To the best of my knowledge, this study represent the first examination of micro-class reproduction in Italy. While Ruggera (2016) and Ruggera and Erola (2022) delved into the micro-class reproduction of licensed professions within the upper class, this study takes a broader approach. In this section an overview of previous literature on traditional class mobility in Italy is provided, which will serve as context for future results.

The Italian mobility regime can be summarized as follows: coexistence of high level of absolute intergenerational mobility and unequal relative chances of achieving a given social class for people born in families with different social backgrounds (Cobalti and Schizzerotto, 1994).

Starting with absolute mobility, literature shows that in Italy the absolute mobility has always been high, and it has increased during industrialization (i.e., from the 1950s to the end of the 1960s). Generally speaking, Italy is one of the late comers to industrialization, therefore the modernization of the Italian economy and of the school system started after the Second World War. Radical changes that have taken a century to display in the early comers to industrialization; in Italy, they took half of a century (Toniolo and Bastasin, 2020). Indeed, Italy introduced more openness in the educational system only during the 1960s. In 1962, a new law reformed lower secondary school and raised the compulsory age to 14 years; in 1969, another law allowed enrollment in university for students who had attained a vocational or technical secondary school (before 1969, only those who had completed a general secondary school, called *Licei*, had the

opportunity to attend university) (Bernardi and Nazio, 2005). Even if the Italian school system seems relatively open, drop-out is still a problem and the rate of students with a tertiary degree is still low compared to other European countries (Barone and Guetto, 2020). On the other hand, the modernization of the Italian economy reduced the number of people in the primary sector while increasing the number in industry and the tertiary sector. The distribution of occupations in the country increased opportunities for farmers and farm laborers, who moved toward the working class or the small urban bourgeoisie (Cobalti and Schizzerotto, 1994). Pisati (2000) shows that the structural mobility (i.e., the difference between the class distribution between parents and offspring) increased from 1963 to 1968 and this effect counterbalanced the increase of inequality (i.e., the influence of the fathers' social class on the offspring's social class), leading to an increase of total mobility (i.e., the percentage of children belonging to a different social class of their fathers). In other words, the upgrading of the economy and labor market offset the ongoing rise in inequalities. To summarize, after half a century, Italy was completely transformed: while in the mid-19th century, the percentage of workers in the primary sector and people without an educational degree were, respectively, 45% and 30%, by the beginning of the 21st century, the primary sector comprised 4% of the workforce, and almost everyone had at least an elementary school degree (Bernardi and Nazio, 2005; Fullin and Reyneri, 2015).

However, after the *economic boom*, Italian economy stagnate and so did absolute mobility. More precisely, from the 1970s the Italian economy stopped growing, the economic structure ceased to upgrade, and school inequality stopped to reduce (Barone and Guetto, 2020). Indeed, the structural mobility started to decreased at the end of the 1960s and remained almost flat from the half of the 1970s (Pisati, 2000). It seems that the tertiarization of the Italian economy did not lead to a radical change in occupational distribution as modernization did. This could be due to several reasons: tertiarization might not yet be complete; changes brought by tertiarization might not be as significant as those resulting from modernization; and the expansion of the service class has been limited (Cobalti and Schizzerotto, 1994; Barone and Guetto, 2020). Indeed, Barone and Guetto (2020) showed that in the most recent cohort of their study (i.e., those born between 1955-1964 and 1965-1974) the class structure has not improved and the absolute mobility rate has stayed relatively low. This was more evident for men than for women.

Regarding the social fluidity, studies agree that the openness of the Italian society follows a trendless fluctuation. More precisely, Cobalti and Schizze-

rotto (1994), and Schadee and Schizzerotto (1990) found that class inequality has remained consistent for individuals born in the 1930s and in the 1960s. These inequalities do not change when the authors examined mobility within sub-populations defined by gender or area of residence. Even Ballarino et al. (2016) found that, when regressing the respondents' ISEI on the parental ISEI and controlling for education, gender, and area of residence, the association between origin and destination shows a trendless fluctuation. Social fluidity among women, however, presents a different picture: from the beginning of the 20th century to the mid-1970s, the association between daughters and fathers constantly decreased (Barone and Guetto, 2020).

Other studies showed an increase in social fluidity, especially for men born in the 1935–1944 and 1945–1954 cohorts, who therefore started working around the 1950s and 1960s (Barone and Guetto, 2020). Pisati and Schizzerotto (2004), and Schizzerotto et al. (2008) found greater fluidity in the stratification system during the late 1990s. More precisely, Pisati and Schizzerotto (2004) found a slightly decrease in the association between origin and destination from the 1985 to the 1997. However, this reduction is quite modest from a substantive point of view and might be the result of, on one hand, the reduced role of immobility in the agricultural sector and, on the other hand, the increased level of education among farmers' offspring (Pisati and Schizzerotto, 2004). However, even if the greater Italian openness was the effect of increased level of education reached by the children of farmers and agricultural laborers, the return of education has remained stable since the end of the *economic boom* (Barone and Guetto, 2020). According to these results, Ballarino et al. (2016) showed a decrease in the association between education and ISEI of the first job for students with a tertiary degree, while the return of education for other educational degrees has been stable since the 1930s.

The resons for the relatively low social fluidity can be found in the characteristics of the Italian labor marker. Indded, along with a stable association between social origin and education, a low level of students with a tertiary degree and an unsolved problem of drop-outs (especially in the lower classes), Italy also exhibits a rigid labor market. On the one hand small or micro enterprises, which employ almost half of the workers, demand less highly educated workers than large enterprises, and, on the other hand, large enterprises employ workers that even if are old and not well educated, are highly protected by collective contracts (Barbagli and Schizzerotto, 1997). As a result, large enterprises demand lower level of young graduates than expected. Furthermore, the combination of collective contracts and large share of micro and small enterprises

make Italy one of the European countries with the least income disparity across various educational degrees, meaning that men and women born in lower social classes are less encouraged to get a tertiary degree (Barbagli and Schizzerotto, 1997). However, even if the job market was less regulated in the 1990s than in the 1970s and 1980s, the overall mobility stayed stable even in the late 1990s. Indeed, even if the upward mobility for men slightly increased from the 1985 to the 1997, the passage from the urban manual class to the white-collar class became harder at the end of the the 20th century (Pisati and Schizzerotto, 2004).

Finally, large share of self-employment also means that more entrepreneurs and professionals can quite easily transmit their business to their children. In addition, they can also use their cultural, economic and social resources to help their children achieve a high education and to stay in their same social class (Barbagli and Schizzerotto, 1997; Barone and Guetto, 2020). This process is also helped by the high level of liberal profession regulation which characterized Italian professions (Barone and Guetto, 2020; Ruggera and Erola, 2022).

The last point is made even clearer by Ruggera (2016) and Ruggera and Erola (2022), by looking at reproduction of inequalities within professional occupations. Ruggera and Erola (2022) analyzed the micro-class inheritance at the top level of the social class distribution. More precisely the authors worked with a class scheme which considers professions as micro-classes. The authors found that the inheritance at the top of the occupational distribution works by two mechanisms: self-employment and regulated professions. The more the regulation of the profession the more the immobility at the micro-class level. The combination of these two mechanisms allows parents to pass on their economic and cultural resources and to close off the competition from outsiders. They also found that there are no gender differences at the top of the occupational distribution. The regulated micro-classes allow for more gender equality than non-regulated occupations.

Similarly, Ruggera (2016) showed that there is no significant difference across big-classes in the probability of graduated in an educational path that guarantee access to licensed professions. For instance, the probability of graduating in engineering for people born in high social classes is not statistically different from the same probability for people born in the working class. The only educational degree that makes a difference is medicine: the probability of graduating in medicine is higher for people born in a family of professionals or directors than for people born in the working class. However, when the author takes into account the micro level, some differences emerge. For instance, the probability of graduating in engineering or architecture is higher for people

whose parents are engineers or architects rather than laborers. Moreover, children born in a family of pharmacists, doctors, or social scientists are more likely to graduate in, respectively, pharmacy, life science, and jurisprudence than children born in a working class family. In conclusion, the author argues that the influence on children's education exhibits at the micro level instead of at the macro level. Indeed, even if engineers and doctors belong to the same big-class, the probability of graduating in engineering rather than in medicine is lower for people who were born in a family where the parents are doctors.

In conclusion, the history of the Italian intergenerational mobility seems to be far from what the modernization theory predicted (Cobalti and Schizzerotto, 1994). According to this theory, industrial societies, compared to non-industrial societies, exhibit a higher mobility rate, with an upward mobility rate that exceeds downward mobility rate, and offer more equal and increasing opportunities (Erikson and Goldthorpe, 1992). On the contrary, the literature on Italian mobility shows that, except for a brief period of industrialization, the association between class of origin and class of destination has generally remained constant over the years. In addition, even though modernization theory has proven wrong in other developed countries (Lipset and Zetterberg, 1956; Featherman et al., 1975; Erikson and Goldthorpe, 1992; Shavit and Blossfeld, 1993; Breen, 2004; Ballarino et al., 2016; Breen and Müller, 2020), the stability of social fluidity in Italy can be explained by its unique configuration of the labor market and education system.

CHAPTER 3

Data, Variables and Analysis

3.1 Data and Variables

To address all the research questions defined in the Introduction, data was gathered by merging information from two distinct surveys: the Italian Lives longitudinal study (ITA.LI) and the Italian Longitudinal Household Panel (ILFI).

ITA.LI is a panel survey promoted by the Department of Sociology and Social Research of the University of Milano-Bicocca, collecting information on 4900 families selected from 280 municipalities using a multistage stratified sampling design (Lucchini et al., 2023). In particular, a random sample of addresses was drawn from the *Registro Base Degli Individui*, starting from a random sample of municipalities. Each address had a probability proportional to the number of families living at each address. Finally, the interviewer randomly selected a family for each address. In particular, for each eligible family - i.e., a family is eligible if at least one member of the family usually lives in the selected house and at least one member has officially registered the residence in the Municipality considered - all the individuals aged 16 or older are interviewed (if a family has more than three eligible members at least two of them are interviewed).

The Italian Longitudinal Household Panel (ILFI) is a longitudinal survey developed by three Italian universities and public and private institutions (including ISTAT) (Schizzerotto, 2002). The survey consists of five waves conducted from 1997 to 2005. The first wave includes 9770 individuals belonging to 4407 families aged 18 or older. ILFI is based on a two-stage stratified sampling design, slightly different from ITA.LI's sampling design. More precisely, the Italian municipalities have been divided in 30 strata, from which a representative sample of municipalities has been drawn, along with 12 metropolitan municipalities. Successively, a simple random sample of families has been drawn within each of the 42 strata.

The combination of these two surveys allows for an accurate description of the social change that occurred from the first half to the end of the 20th

century, as both longitudinal panels collected information using a retrospective questionnaire that recorded the life history of each respondent, from birth to the day of the interview. Most importantly, both the surveys have collected description of jobs held by respondents and their parents, coding the occupation at the 4-digit ISCO level. Even if it was necessary to harmonize the ISCO codes of the two surveys, as ILFI used the 1988 version of the ISCO scheme and ITA.LI the 2008 version, this information is fundamental to construct the micro-class scheme. Furthermore, respondents also have information on their parent's educational qualifications, employment status, number of employees (if they had any), and economic sector, all information useful to construct the micro-class of origin.

The combination of the two survey results in a dataset of 19999 observations. Unfortunately, the ISCO code is missing for some observations either because interviewees are out of the labor market or they did not give enough information to code their occupation. Furthermore, not all the observation can be included in the analysis because some respondents are too young. Indeed, only the occupation of the respondents when they were 30 years old has been selected, allowing for a comparison of careers. If respondents were not employed when they were 30 years old the closest occupation has been considered, and if the respondents have been unemployed until the age of 35, only those who have been employed for at least 10 years has been taken into account. After selecting observations with sufficient information and discarding individuals with missing values on key variables, the final dataset comprises 5,801 observations of male respondents and 5,179 of female respondents.

Therefore, the micro-class of destination has been defined as the respondents' micro-class when they were 30-35 years old, while social origin has been defined as the fathers' micro-class when respondents were 14 years old. Unfortunately, the father's micro-class is only a component of the social origin, as it would be better to consider also the micro-class of mothers (Stevens and Boyd, 1980; Korupp et al., 2002; Marks, 2008; Beller, 2009; Kong et al., 2020; Thaning and Hällsten, 2020). Indeed, defining social origin by separating the effects of the mother and father would provide important insights, especially when considering female respondents, as fathers seem less inclined to pass on their micro-class to their daughters than to their sons (Jonsson et al., 2009). However, the number of mothers with a coded occupation are too few to be considered, as the micro-class scheme requires to have a considerable number of categories. One possible solution is to define micro-class of origin according to the dominance criterion (Erikson, 1984), where the highest occupation held

between the mother and the fathers is considered to be the best representation of the family's class. However, this solution seems less useful when the focus is on the intergenerational transmission of inequalities at the micro level. Indeed, The literature on class mobility generally defines social origin at the family level rather than at the individual level (Cobalti and Schizzerotto, 1994). However, even if a micro-class can be thought as a social class (as said in Section 2.1), the dominance model would confuse the effect of the micro-class of origin: for example, children have the same occupation of their "family" because they have taken advantage of the family resources or because the father simply transmitted his own occupation to his children?

Nevertheless, the dominance model is widely used in the literature on intergenerational mobility and might serve as a useful check on the results obtained by modeling mobility as the transmission of the father's micro-class to the children's micro-class. Therefore, the results based on the dominance model will be presented in the Appendix. As mentioned, under the dominance model, the higher-ranking micro-class between the mother and the father is used. However, since micro-classes, like big-classes in any other class scheme, cannot be ordered hierarchically, they were grouped at an aggregational level where hierarchy can be established. Therefore, under the dominance model, the micro-class of origin was constructed as follows: the first five micro-classes (Engineers and Science Professionals, Architects and Designers, Health Professionals, Accountants and Jurists, Primary and Secondary Teachers) represent the highest hierarchical level. These are followed by the self-employed, Routine Nonmanuals (Office Clerks, Sales Agents, Financial Clerks), and, finally, by Manufacturing Workers (MetalWorkers, Textile and Woodworkers Mechanics, Electricians, Bricklayers, Elementary Manufacturing Workers), Service Workers (Cooks, Waiters and Bartenders, Taxi Drivers and Related, Elementary Service Workers, Protective Service Workers), and employed agricultural workers. This classification closely follows the approach adopted by Cobalti and Schizzerotto (1994). Therefore, if the mother's micro-class belonged to a higher hierarchical level than father's, the mother's micro-class is used a the micro-class of origin, and vice versa. Nonetheless, it is worth noting that the results under the dominance model do not differ substantially from those obtained using the father's micro-class, as only 10% of mothers belong to a macro-class higher than that of the father.

Finally, in order to assess the evolution of immobility over the years, three cohorts of birth have been defined. Admittedly, dividing the 20th century into only three cohorts offers a simplified representation of the events that unfolded

throughout this period. Nonetheless, considering the sample size, defining more than three cohorts would have led to a mobility table characterized by sparse data. The three cohorts have been selected based on the most significant economic transformations that took place in Italy from 1900 to 1990. The first cohort spans from 1900 to 1944. Italy was still an agricultural country during the first half of the 20th Century, and it experienced two World Wars, the Great Depression of the 1929, and the rise and fall of the fascist regime. The second cohort, spanning from 1945 to 1967, mirrors the economic boom of the Italian economy, as it caught up with other developed countries. Finally, the third cohort spans from 1968 to 1990 and captures the period where Italy began to gradually slowdown and diverge from other more developed country. During this third cohort Italy ceased its previous economic growth around 1963-1964, faced the 1973 oil crisis, and witnessed an increase in its economic debt. The evolution of Italian immobility will be addressed only for the men sub-sample due to data limitation in the women sub-sample.

In order to compare Italian reproduction, two other countries are considered: Germany and the US. Therefore, two other cross-sectional surveys are considered in addition to the Italian dataset described above. The US data are drawn from the General Social Survey (GSS) (Davern et al., 2024), while the German data are drawn from the Allbus Survey Data (Baumann, 2021; Baumann et al., 2024). The General Social Survey recorded information on opinions, attitudes, and behaviors from 1972 to 2022. The cumulative sample comprises 72,390 observations drawn from a sample of English-speaking respondents aged 18 or over, and starting from 2006, Spanish-speakers were also interviewed (Davern et al., 2024). The German General Social Survey (Allbus) has been collecting data biennially since 1980 resulting a cumulative sample size of 68,161 observations. Until 1990 the target population consisted of all the people living in the Federal Republic and West Berlin who were eligible to vote in federal elections. Since 1991 the target population included people who live in the former German Democratic Republic. More precisely, since 1991 all Germans and non-Germans aged 18 or over and living in private household within the Federal Republic of Germany at the time of sampling are eligible for interview. Both GSS and Allbus are cross-sectional studies and collect information on the occupation of the respondents and the respondents' parents. Since both GSS and Allbus are cross-sectional surveys, they record the occupation of the respondents at the time of the interview. On the contrary, the Italian dataset consists of two panel surveys which record the entire career of the respondents. Therefore, if the occupation at 30 years old is considered, the three dataset (Italian,

German and American) are not be comparable. Indeed, the Italian dataset also includes individuals who were employed in the 1930s., while in the GSS and Allbus dataset the first occupation recorded is in 1970 and 1980, respectively.

To make the three datasets comparable, the current or most recent occupation is considered in the Italian dataset, rather than the occupation around 30 years old. More precisely, ILFI started in 1997, therefore all the individuals who were working at the time of the first wave of ILFI are considered. Furthermore, ILFI collected data in four subsequent waves and some individuals who were interviewed in 1997, had a different job in 1999 (the year of the second wave). In this case, the occupation recorded in 1999 is considered as individuals' last occupation. The same procedure is carried out for respondents who changed jobs between the second and third wave, the third and fourth way, and the fourth and fifth wave. On the contrary, ITA.LI has only one wave started in 2019 and ended in 2020, therefore, most of the last or current occupations are in 2019 or 2020. There are, however, some individuals who have never changed their job, or have changed their job few times. In this case, only people who were working from 1997 onwards are considered. For example, an individual was not included in the final sample if he retired or became unemployed before 1997, and has never found a new job after 1997. On the contrary, if an individual retired or became unemployed after 1997, he is considered in the final sample. This way, the Italian dataset contains information on the current or most recent occupation from 1997 to 2020; while the years considered for GSS and Albuss range from 1996 to 2021, as both the German and American survey did not occur in 1997. Finally, people aged between 25 and 65 are selected. The Italian, German and US dataset include, respectively, 4,310, 5,578, and 7,348 male respondents. It is worth mentioning that the comparison concerns male respondents only, due to the of few female observations in the Italian dataset.

3.1.1 The Italian Micro-Class Scheme

Following the definition of micro-class already mentioned in the Introduction, and the configurations of micro-class schemes found in literature, Figure 3.1 shows the nested micro, macro, manual and nonmanual scheme used for the following analysis. It is worth reminding that micro-class scheme usually comprise at least 70 or 80 categories (Jonsson et al., 2009; Weeden and Grusky, 2005, 2012; Jarvis and Song, 2017). However, as evident from Figure 3.1, the micro-class scheme proposed here, dealing with only 23 micro-classes, is quite different from the ideal micro-class scheme. The categories at the micro level are therefore fewer than should have been, resulting in only two macro levels (macro, and manual and nonmanual level) instead of three macro levels (meso,

macro, and manual and nonmanual level).

The micro-class scheme illustrated here is the result of some compromises due to sample size issues. First, some professions have been combined. There is no theoretical reason to combine Engineers with Science Professionals or Accountants with Jurists, the only reason behind this decision is practical. Previous researches showed that professional occupations employ social closure mechanisms to avoid outsider to enter into the professional occupation (Stier and Grusky, 1990; Jonsson et al., 2011; Ruggera and Erola, 2022). Therefore, this decision makes less clear the "holding power" effect of each professional group, as it is the result of two different professions. Second, occupations defined as different micro-classes in previous micro-class schemes have been grouped together into a broader micro-class. Just to give an example, in Jonsson et al. (2009) real estate agents are defined as a micro-class, while in the scheme reported here they are considered as Sales Agents, together with insurance representatives, commercial sales representatives, buyers, and other business service agents.

However, unlike previous researches, the Italian micro-class scheme proposed here, considers more explicitly self-employed in manufacturing sector. Indeed, Jonsson et al. (2009) and Jarvis and Song (2017) define, for example, the carpenters as a micro-class, but they do not distinguish between self-employed and employed carpenters. This might be a limitation, particularly when considering the Italian labor market, where self-employment comprises a significant portion of the work force and serves as one of the main mechanism through which occupations are passed on from one generation to the next (Ruggera and Erola, 2022). Therefore, Craft Workers (SE) encompasses all the self-employed occupations in the manufacturing sector, whereas the remaining micro-classes in the manufacturing sector comprise employed workers. It is evident that the sample size does not allow for the subdivision of Craft Workers (SE) into smaller micro-classes, despite it being the optimal solution.

Finally, the macro-class and the manual and nonmanual sectors are theoretically defined and are based on previous multilevel micro-class schemes. This could lead to some groupings that, given the Italian labor market, might be objected to. For example, Primary and Secondary Teachers are grouped at the macro level together with other professionals, however there may be good reasons to place teachers in the Routine Nonmanual class (Cobalti and Schizzerotto, 1994). However, teachers are kept in the professionals class, so to have the same nested micro-class scheme when Italy will be compared with Germany and United States.

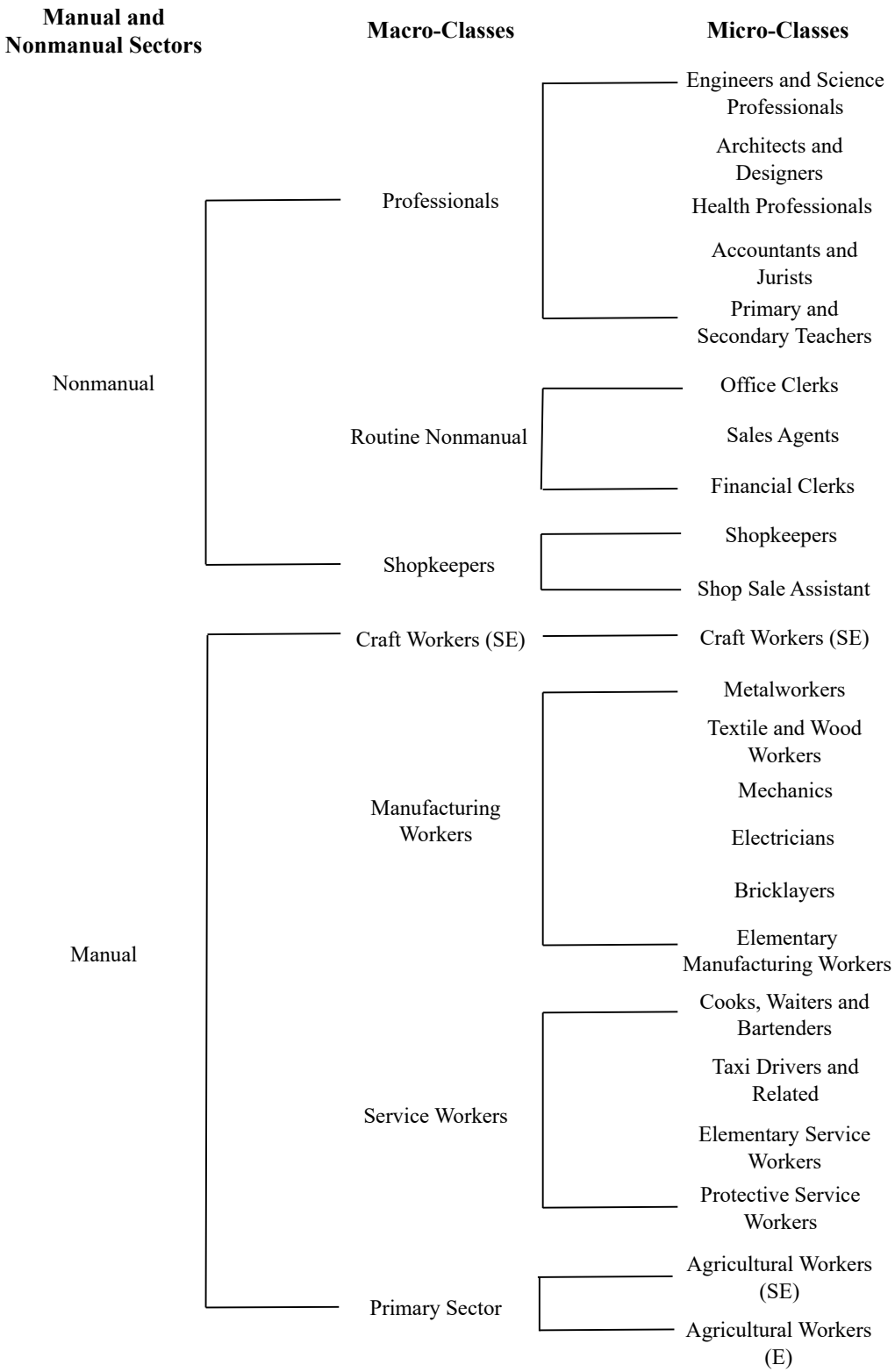

Fig. 3.1 Manual and Nonmanual-, Macro-, Micro-Class Scheme. SE = Self-employed; E = Employed

As Figure 3.1 shows, self-employed Craft Workers are not included within any of the macro-classes considered. While one could have categorized self-employed Craft Workers within manufacturing workers, this approach allows for estimating the effect of manufacturing workers net of employed micro-classes, addressing the inheritance effect of self-employment more explicitly. On the contrary, the Shopkeeper macro-class comprises both the Shopkeepers and the Shop Sales Assistants because both micro-classes comprise self-employed workers. Indeed, some individuals have been coded as Shop Sale Assistants even if they are self-employed. This might have been a mistake during the coding process, but it could also be reasonable considering the extent of family businesses in Italy. To account for the possibility that a father is a Shopkeeper and his son or daughter a Shop Sale Assistant in the same business of the father, these two micro-classes are combined at the macro level. This allows to trace micro immobility that, for occupational coding reasons, might unfold only at the macro level.

3.2 Analysis

When social classes are defined using mutually exclusive and exhaustive categories, intergenerational mobility is typically analyzed recurring to topological and multiplicative log-linear models. These models are particularly noteworthy as they allow for estimating the row-column association, while taking into account the marginal distribution of classes of origin and destination (Hout, 1983; Everitt, 1992; Bishop et al., 2007; Powers and Xie, 2008; Agresti, 2012). In other words, a society can be mobile as the result of an increased number of occupations at the top of the distribution. However, log-linear models allow to assess whether individuals born in two different social classes have the same chance of achieving a social class of destination instead of another one, controlling for the aforementioned expansion of certain classes. Therefore, the starting point of the analysis is the mobility table where the rows are the micro-classes of origin and the column are the micro-class of destination. More precisely, the two-way table that will be analyzed is a 23 by 23 mobility table.

As said in the Introduction, the main research question of this work revolves around the micro-class reproduction and, more broadly, whether inequalities are reproduced at the micro level rather than the macro level. This research question can be tackled from two sides. First, how much immobility there is at the macro level once the micro level is considered? If the answer at this question is positive, that is immobility at the macro level is less consistent than immobility at micro level, it means that the "holding power" of occupations is stronger than

the "holding power" of macro classes. This is a relevant question since class immobility is a relevant factor in shaping the intergenerational mobility. Indeed, one of the common procedure when analyzing a mobility table is to "block out" the main diagonal (Hout, 1983). This means that perfect mobility (independence of origin and destination) only applies to people that are mobile. However, the question about how much of the immobility at the macro level is actually the result of immobility at the micro level has not been already addressed in Italy. If most of the immobility that is seen at the macro level is actually the result of immobility at the micro level, it means that analyzing a mobility table considering only social class would conceal part of the intergenerational immobility process (Jonsson et al., 2009). Log-linear models, as defined in Section 3.2.1, will be used to address this point.

A second way to analyze intergenerational mobility when considering micro-classes is to examine whether there are macro-classes that can explain mobility between micro-classes: how much of the micro-class association still remain when the social classes are considered? If the association between micro-class of origin and micro-class of destination disappear after "controlling" for social classes, it means the people end up in a micro-class only by chance. More precisely, an ideal society is characterized by a perfect mobility, that is a mobility regime where the occupation – or the class – of the father would not influence the occupation – or the class – of his children. Even though this is clearly not possible in the real world, the aim is to identify social classes where the association between the micro-class of origin and the micro-class of destination is zero. For example, if the likelihood of becoming a doctor instead of a sales agent is the same for all the children with a father in the Professionals class, it means that the occupation of the father does not influence the occupation of the children. In other words, professionals are characterized by a perfect mobility regime. Furthermore, it is known that the class of the father influences the class of the children, as showed in Section 2.2, but this mechanism might conceal the role of occupations, if the association between micro-class of origin and destination is not zero. Indeed, if the likelihood of becoming a doctor instead of a sales agent is distributed differently among the micro-classes within the origin class of professionals, it means that inequality in the chance of achieving a social class unfolds at the micro level rather than the macro level. Looking at mobility between micro-classes, given a social class, allows also to make a step further in the analysis of micro-class reproduction. Indeed, Jonsson et al. (2009), for example, analyzed only the occupational immobility in four countries, because of limitation in the data. However, it is also relevant to see

whether micro-classes matter more than macro-classes for intergenerational mobility too, and not only for occupation reproduction. This way, the focus is not only, for example, on the children of a plumber who became a plumber but also on his likelihood of changing his occupation compared to other children belonging to the same social class. Homogeneity test, as explained in Section 3.2.2, will be employed to analyze this aspect.

Finally, as stated in the Introduction, the conclusions drawn from the answer to micro-class reproduction is also tested by considering time (Has micro and macro immobility changed over the years in Italy?) and space (Is there a difference in the reproduction of micro and macro immobility between Italy and other countries?). Considering the time dimension, the research question is not only interesting from a substantial point of view but also from a methodological one. Indeed, the Italian dataset comprise respondents born throughout the last century, from 1900 to 1990, therefore overall immobility effects might be an average of immobility effects occurred in different periods of time, characterized by different labor market conditions. To address this problem inheritance effects at micro and macro level are estimated in three different cohorts. Considering the space dimension, comparing Italy to other countries also allows to understand the size of the immobility effects: is Italy comparable to other countries, or has some peculiar characteristics?

3.2.1 The Overlapping Persistence Model

To estimate how much micro, macro, and manual and nonmanual immobility there is in Italy, how they have changed over the years, and, finally, how much Italy is different in immobility from the United States and Germany, log-linear models have been employed. More precisely, the inheritance effects at the micro level are estimated alongside the inheritance effects at the macro level, as well as at the manual and nonmanual levels. The occupations belonging to each level are shown in the nested micro-class scheme in Figure 3.1. Furthermore, a socioeconomic effect is also estimated to "control" for the possibility that the micro, macro, and manual and nonmnaual inheritance only reflects the tendency of children to have a job socioeconomically similar to that of their parents. The socioeconomic effect is measured by the International Socioeconomic Index of Occupational Status (ISEI) which is estimated as "the intervening variable between education and income that maximizes the indirect effect of education on income and minimizes the direct effect" (Ganzeboom et al., 1992, pp. 10-11). Therefore, ISEI partially controls for the role of education in reproduction of micro-class.

If that is the case, the inheritance effects at the micro level would become

not significant (Jonsson et al., 2009). The estimated log-linear model can be expressed as follows:

$$F_{ij} = \alpha\beta_i\gamma_j\phi^{u_i u_j}\delta_{ij}^{MIC}\delta_{ij}^{MAC}\delta_{ij}^{MAN} \tag{3.1}$$

where α is the main effect, β_i is the row marginal effect, γ_j is the column marginal effect, $\phi^{u_i u_j}$ is the socioeconomic effect and u_i and u_j represent the ISEI assigned to each of the 23 micro-classes of origin and destination[1] (Ganzeboom et al., 1992). Moreover, ϕ is a linear-by-linear parameter that measures the "buying power" of each micro-class, i.e., the tendency of children to have a job socioeconomically similar to that of their parents (Hout, 1984; Pisati, 1997; Jonsson et al., 2009). Finally, δ_{ij}^{MIC} is the micro-class immobility effect, δ_{ij}^{MAC} is the macro-class immobility effect, and δ_{ij}^{MAN} is the manual and nonmanual immobility effect.

Model 3.1 can be re-expressed in the following way:

$$Log\left(F_{ij}\right) = O + D + ISEI + MIC + MAC + MAN \tag{3.2}$$

where O and D reproduce exactly the marginal distribution of the mobility table, $ISEI$ estimates the socioeconomic effect, and MIC, MAC, and MAN represent the immobility effects at the micro, macro, and manual and nonmanual level, respectively.

To understand how much immobility is concealed when only social classes are considered, Model 3.1 is also estimated without the inheritance effect at the micro level (i.e., without the MIC parameter). This last model, called "trimmed model" (Jonsson et al., 2009), can be defined as follows:

$$Log\left(F_{ij}\right) = O + D + ISEI + MAC + MAN \tag{3.3}$$

Model 3.3 only fits the macro, and manual and nonmanual inheritance effects, while the former log-linear model (Model 3.2) fits the inheritance effects at the macro levels net of the inheritance effects at the micro level. The idea is that, while Model 3.3 shows how much inheritance there is at the macro level if micro-classes are not taken into account, Model 3.2 allows for estimating immobility at both micro and macro level simultaneously. In other words, Model 3.3 estimates the inheritance effect of classes as it has typically been done, while Model 3.2 estimates the inheritance effect of classes net of the inheritance effect of micro-classes. If the inheritance at the micro level is higher than at the

[1]The ISEI of each respondent has been derived from ISCO-08 using the STATA command `iscogen` (Jann, 2019). Finally, the ISEI of each micro-class has been computed by averaging the sons and father ISEI within each micro-class

macro level, and if the macro immobility is lower in Model 3.2 than in Model 3.3, it implies that occupations play a significant role in reproducing inequalities, making them more relevant than social classes. This analytical strategy has been commonly pursued in the literature on micro-class immobility (Stier and Grusky, 1990; Jonsson et al., 2009; Jarvis and Song, 2017).

So far, only the frequencies of a two-way table have been modeled using the Overlapping Persistent model. The next step is to look at how the inheritance effects vary either over the year of birth of the respondents or across countries (specifically across Italy, Germany and United States). Indeed, the second research question inquire whether the immobility effects have changed over the years and whether there is a difference between the evolution of immobility at the micro level rather than the macro level. Finally, the change of the socioeconomic effect is also estimated. To do so, Model 3.1 is estimated for each sub-table defined by the birth cohort of respondents and can be re-expressed in the following way:

$$\begin{aligned} Log\left(F_{ij}\right) = O + D + C + O \times C + D \times C + \\ ISEI + MIC + MAC + MAN + \\ ISEI \times C + MIC \times C + \\ MAC \times C + MAN \times C \end{aligned} \tag{3.4}$$

where the first five parameters fit exactly the marginal distribution of the three-way table, derived from the cross-classification of Origin (O), Destination (D) and Cohort (C). The interactions between the three inheritance effects and the birth cohorts estimate the shift in the inheritance effect from the first cohort to the second one, and from the first cohort to the third one. $ISEI \times C$ estimates the shift of the linear-by-linear interaction in the last two cohorts compared with the socioeconomic association in the first cohort.

Finally, the fourth research question concerns the variability of the inheritance effects across three countries: Italy, Germany and United States. Model 3.1 can be re-expressed in the following way:

$$\begin{aligned} Log\left(F_{ij}\right) = O + D + N + O \times N + D \times N + \\ ISEI + MIC + MAC + MAN + \\ ISEI \times N + MIC \times N + \\ MAC \times N + MAN \times N \end{aligned} \tag{3.5}$$

All the parameters estimated in Model 3.5 have the same meaning of parameters in Model 3.4, except that term C is replaced by the term N, which indicates the country considered. Indeed, Model 3.5 analyzes the three-way table derived from the cross-classification of Origin (O), Destination (D), and Country (N).

3.2.2 Breiger and Goodman's Homogeneity Tests

A Homogeneity test is typically used to assess which rows and columns of a mobility table can be aggregated together into, respectively, one row and one column. The only requirement is that, to be collapsed, rows and columns must be independent of each other. Homogeneity tests are, therefore, a useful tool to answer whether micro-classes of origin are independent of micro-classes of destination within a given aggregation of rows and columns. Inequalities persist at the micro level if it is not possible to identify social classes that adequately explain occupational mobility. This point is made particularly clear by Breiger (1981). The author not only proposed an empirical way to aggregate rows and columns, but he also gave a theoretical justification to partitioning occupations into meaningful social classes. Breiger is indeed dissatisfied with how class analysts typically construct social classes, and he is interested in finding what are the meaningful boundaries across social classes. This point is particularly intriguing because Breiger's critique closely resemble the underlying motivation for introducing a new micro-class scheme (see Section 2.1). Indeed, Breiger started his paper by stating "Social mobility analysts do not take social classes seriously: that is the problem" (Breiger, 1981, pp. 579). Later, he adds: "There does not exist a model of the mobility table that takes the proper number and composition of occupational categories as an explicit theoretical decision" (Breiger, 1981, pp. 581).

More precisely, Breiger (1981) proposed three theses on social class structure: the aggregation thesis, the internal homogeneity thesis and the class hierarchy thesis. The first two are the most noteworthy for this work. The aggregation thesis states that rows and columns can be simultaneously aggregated, and this partition is called social class structure. The internal homogeneity thesis states that the mobility from any row to any column is explained by the social class structure; therefore, rows and columns within each mobility table are independent of one another. The first two theses proposed by Breiger are useful for addressing the third research question stated in the Introduction. Indeed, the class structure is equivalent to the macro level in the micro-class scheme (Figure 3.1): the 23 by 23 mobility table can be partitioned into eight classes (the aggregation thesis). Finally, according to the internal homogeneity thesis, the mobility between micro-classes should be explained by the defined macro level.

However, the reason behind using the Breiger's Internal homogeneity test is not to find empirical boundaries across occupations, as a theoretically micro-class scheme already exists: the meaningful boundaries across occupations are those showed in Figure 3.1 at the micro level. Therefore, if some micro-classes are internal homogeneous it does not mean that they should be aggregated into the same macro-class. Nonetheless, it means that inequalities are reproduced at the macro level rather than the micro level, as the homogeneity thesis states that once the class structure is controlled for, the dependence between micro-classes of origin and micro-classes of destination should be zero. For example, if Professionals is an internal homogeneous class, it means that it does not matter which profession your father were doing when you were young, because your chance to become a doctor, an engineer or a craftsman are the same. In other words, occupations are not useful to predict your occupation of destination once the class structure is taken into account. As clear from this example, the focus is not only on children of engineer who become engineer but also on the relative chance to end up in any occupation given the class of the father. Contrary to the log-linear models defined above, Breiger's Internal Homogeneity test allows for shifting from micro-class reproduction to micro-class mobility. However, because of the sparseness of data, the intergenerational mobility rates are compared across micro-classes belonging to the same class. It is not possible to study the relative chance of a son of an engineer rather than a plumber of becoming a doctor, because plumbers and engineers belong to two different macro-classes. Nonetheless, analyzing the intergenerational mobility rate within each class is a step forward that can give other insights into the role of micro-classes in modelling class mobility.

The internal homogeneity test takes the following form (Breiger, 1981):

$$F^*_{ij} = \alpha^* \beta^*_i \gamma^*_j \qquad for(i,j) \in S_k \tag{3.6}$$

Model 3.6 tests for row-column independence within each sub-table, accounting for the row and column marginal effects of both the sub-tables and the original mobility table. Each sub-table is the result of the intersection between the micro-classes belonging to the social class of destination and the micro-classes belonging to the social class of origin. For example, given the origin class of the professionals and the destination class of the office clerks, the resulting sub-table comprises the origin micro-classes included in the former class (i.e., Engineers and Science Professionals, Architects and Designers, Health Professionals, Accountants and Jurists, and Primary and Secondary Teachers) and destination micro-classes included in the latter social class (i.e., Financial

Clerks, Sales Agents and Office Clerks). Model 3.6 is equivalent to estimating an independence model within each sub-table and then summing the resulting χ^2 values and degrees of freedom to test the null hypothesis of independence between origin and destination (Breiger, 1981; Hout, 1983). Model 3.6 can be made clearer by re-expressing it in the following way:

$$Log(F_{ij}) = O + D + S + OS + DS \tag{3.7}$$

where O and D represent, respectively, the origin and destination effects, and OS and DS fit the marginal configuration of each sub-table S_k (Breiger, 1981). Clearly, the interaction OD is not fitted because Model 3.7 test for row-column independence.

To be precise, in Breiger's paper the homogeneity test "blocks-out" the main diagonal, as this is a common practice in intergenerational mobility studies (Breiger, 1981). This implies that the sub-tables located on the main diagonal are considered homogeneous even if the test shows that the occupations comprising the respective sub-tables are quasi-independent of each other. Using the same notation of Model 3.7, the internal homogeneity test of quasi-independence takes the following form:

$$Log(F_{ij}) = O + D + S + OS + DS + IMM \tag{3.8}$$

where IMM is a set of dummy variables that take value 1 when the occupation of destination is the same as the occupation of origin. Model 3.8 can also be estimated by, first, testing for row-column independence within each sub-table that does not contain the main diagonal and for quasi-independence within each sub-table that contains the main diagonal. Then, summing up the resulting χ^2 values and degrees of freedom allows for testing the null hypothesis of origin and destination independence.

Both Model 3.8 and Model 3.7 will be estimated, but only the former is the one that truly matters for answering to the third research question. Indeed, inequalities are reproduced at the macro level rather than the micro level only if a given social structure makes micro-classes of origin independent of micro-classes of destination (i.e., when the null hypothesis cannot be rejected after Model 3.7 is estimated). To be clearer, Model 3.7 and Model 3.8 are equivalent when considering the sub-tables resulting from, for example, the intersection of origin class of Professionals and the destination class of Routine Nonmanual, as this sub-table does not include the main diagonal. More precisely, the null hypothesis is that Engineers and Science Professionals, Architects and Designers, Health Professionals, Accountants and Jurists and Primary and Secondary

Teachers are independent of Financial Clerks, Sales Agents, and Office Clerks. However, if the sub-table considered is the one resulting from the intersection of origin class of Professionals and destination class of Professionals, Model 3.7 is different from Model 3.8. Indeed, the latter tests the null hypothesis that origin is independent of destination only for the "movers" (i.e., those who move to any occupation only by chance) and not for the "stayers" (i.e., those who are immobile) (Hout, 1983). However, as showed in Section 2.1, the inheritance effect of occupations is significant and stronger than the inheritance effect of social classes (Jonsson et al., 2009; Stier and Grusky, 1990). In other words, if the aim of the homogeneity test is to find classes where the micro-class of origin is independent of the micro-class of destination, there is no use in considering only the "movers", as immobility within the same occupation is an important means of transmitting inequalities. On the other hand, Model 3.7 allows for testing whether, within a given social class structure, all individuals move into a micro-class only by chance, even if they remain in the same micro-class as their fathers. It is reasonable to conclude that, in this context, Model 3.7 is more useful for understanding whether the micro-classes of origin influence the future micro-classes of children more than the class in which they were born.

The internal homogeneity test, however, has some downsides. For example, if a partition of the mobility table aggregates just two occupations together or if one occupation is considered as a single social class, not all the cells are used for the test (Hout, 1983). For example, Breiger (1981) considered a 17 by 17 mobility table and tested the internal homogeneity of the following 8 social classes: (1), (2, 3, 4), (5), (6, 7), (9, 10), (8, 13, 14), (11, 12, 15), (16, 17)[2]. For example, the sub-table formed by the intersection between origin occupation 1 and destination occupation 1 comprises only one cell. It is evident that the resulting test has 0 degrees of freedom. Hout (1983) shows that, the homogeneity test carried out by Breiger, the 30.2% of the sample is not tested for the internal homogeneity.

To overcome this limitation Goodman (1981) defined a test where none of the sub-tables considered will result in a test with 0 degrees of freedom and therefore his homogeneity test will also be used for analyzing the 23 by 23 mobility table. Even if it lacks of a theoretical framework behind its formulation, it will still be helpful in providing further insights into the combination of origin and destination micro-classes.

As the internal homogeneity test, Goodman's homogeneity test allows to assess whether some rows and some columns in a IXJ mobility table can be

[2]Each parenthesis is a social class which comprise a given number of occupations

aggregate together into one row and one column. More precisely, to test whether row i and rows $i + n$ as well as column j and column $j + n$ are homogeneous, where n ranges from 1 to $I - 1$ and from 1 to $J - 1$, all the entries in the mobility table, except those corresponding to the rows and columns being tested for homogeneity, must be removed (Goodman, 1981). Subsequently, the remaining entries are tested for independence or quasi-independence.

The two tests differ not only because the internal homogeneity test might result in sub-tables with 0 degrees of freedom, but also due to the restrictions imposed on the odds-ratio among sub-tables (Goodman, 1981; Hout, 1983, 1984; Marsden, 1985). Generally speaking, the internal homogeneity test is less strict than Goodman's homogeneity test. Indeed, the former allows for variability of odds-ratio among social classes that compose the social class structure, while the latter requires that the odds-ratio from row i versus row $i + 1$ must be 1 for all the columns j, except for the diagonal cells when those are deleted (Hout, 1983, 1984). Marsden (1985) makes this point clear. The author analyzed the same mobility table examined by Goodman (1981) and tested both the internal homogeneity model and the Goodman's homogeneity model (the latter is called "collapsibility" model by Marsden). The hypothesis tested aggregated the eight classes into three classes, resulting in 9 latent classes (i.e, all the 3 by 3 combinations of macro-class of origin and macro-class of destination). The author divided the classes in the following way: (1 2 3), (4, 5), (6, 7, 8). He then sets some constraints on the probability of belonging to a given latent class. For example, the origin occupation 1 (i.e, the first row) belongs to the first latent class, the fourth latent class (originated by the intersection of the first class of origin and the second class of destination) and, the seventh latent class (originated by the intersection of the first class of origin and the third class of destination). Therefore, the first probability constriction is that the origin occupation 1 has a positive conditional probability of coming from latent class 1, latent class 4 and latent class 7 (Marsden, 1985). Similarly, the destination occupation 1 (i.e, the first column) belongs to the first latent class, the second latent class (originated by the intersection of the first class of destination and the second class of origin), and the third latent class (originated by the intersection of the first class of destination and the third class of origin). The second restriction is that destination occupation 1 has a positive conditional probability of coming from the first three latent classes (Marsden, 1985). The third restriction is that the conditional probabilities imposed in the first two restrictions are equal (Marsden, 1985). Therefore, origin occupation 1 has a conditional probability of coming from latent class 1 which is equal to the conditional probability of coming from latent

class 4, which is equal to the conditional probability of coming from latent class 7. The only difference between the internal homogeneity model and the "collapsibility" model is that the former relaxes the third restriction. As said above, the internal homogeneity test allows for some variability in the odds-ratio.

Finally, the Breiger's test will not consider all the sub-cells, not only because some of them have 0 degrees of freedom, but also as a result of the sparseness in the mobility table. For example, in the women sub-sample, the sub-table comprising professionals (as micro-class of origin) and agricultural workers (as micro-class of destination) has no observations and therefore cannot be used in the test. This is clearly a limitation, and it suggests that the results of the internal homogeneity test must be taken cautiously, especially when female respondents are considered. However, the sparseness of the mobility table is less harmful when the Goodman's homogeneity test is employed, since it only considers the columns and rows marginal distribution of the entire mobility table (the internal homogeneity test also models the marginal distribution of the sub-tables, as said above). Indeed, under the assumption of row-column independence, the expected frequencies are given by:

$$\hat{F_{ij}} = \frac{f_{i.} f_{.j}}{N} \tag{3.9}$$

where $f_{.i}$ is the row marginal, $f_{j.}$ is the column marginal and N is the number of observation in the mobility table and equals $N = \sum_{ij} f_{ij}$. It is clear that the sub-table resulting from the cross-classification of professionals and agricultural workers might have zero observation (as in the case of the female respondents), but the marginal distribution of professionals and agricultural workers is not zero. Both the homogeneity tests are worth considering because if the Goodman test does not show any homogeneous aggregation of occupation the internal homogeneity test can still allow for aggregation of some occupations, given that the test is less restrictive. Similarly, if the Breiger test shows some homogeneous category the Goodman test can further confirm the homogeneity. Finally, Breiger (1981) proposed a theoretical framework to his homogeneity test which is useful for the interpretation of the results.

CHAPTER 4

Micro-class Reproduction in Italy

4.1 How Much Micro-Class Immobility Is There in Italy?

The first aim of this Chapter is to show how much reproduction there is in Italy at the micro, macro, and manual and nonmanual levels, comparing the level of inheritance at the macro level with immobility at the micro level. In other words, the aim is to discover whether social classes are inherited from one generation to the other mainly because fathers pass on their occupation to their children. The second aim of this Chapter is to investigate whether reproduction has decreased over the years and at which level of aggregation: if immobility has changed at all over the years, has it happened at the micro or macro level? As explained in Section 3.2.1, to answer at this research questions a log-linear model with all the inheritance effects fitted and a "trimmed" model without the micro-immobility effect are estimated. This procedure allows for assessing whether micro-class immobility is higher than macro-class immobility and how much macro-class reproduction is actually explained by the micro-class immobility.

Figure 4.1 shows the inheritance effects of each micro-class and macro-class for the male sub-sample (see Figure A1 for the estimates under the dominance model). Inheritance effects at the micro level are generally higher than those at the macro level. The micro-classes within the Professionals class have an inheritance effect greater than that at the macro level, even if the confidence intervals of Engineers and Science Professors, and Teachers overlap with the corresponding big class effect. However, Engineers and Science Professors' inheritance effect might be the result of the average between engineers and science professors, as previous researches showed the relevance of engineers' inheritance effect (Ruggera, 2016; Ruggera and Erola, 2022). Nonetheless, if the inheritance effect of Professionals at the macro level is $e^{0.13} = 1.1$, the lowest micro-class inheritance effect within this class is $e^{0.6} = 1.8$, which refers to Engineers and Science Professionals, while the highest micro-class inheritance effect is $e^{2.6} = 13.0$, attributed to Architects and Designers.

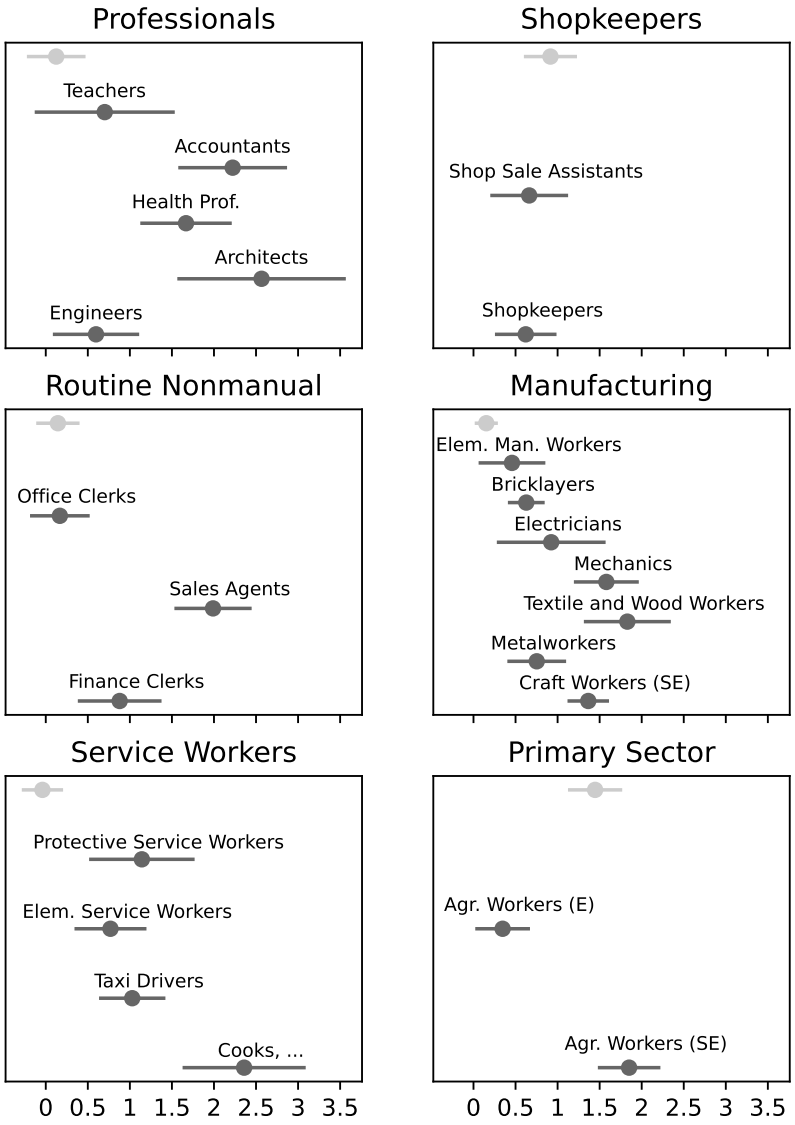

Fig. 4.1 Men's inheritance effects at the micro level are represented by dark gray dots, while inheritance effects at the macro level, net of micro-class inheritance, are shown by light gray dots. Due to space constraints, some labels have been abbreviated. For the full label, refer to Figure 3.1. The title of each sub-graph corresponds to the title of light gray dots belonging to the given sub-graph

Even within the Routine Nonmanual class the inheritance effects at the micro level are larger than the big-class inheritance effect, except for the Office Clerks. The point estimate of Financial Clerks is higher than the point estimate of the big-class effect and the two parameters are statistically different, as the confidence intervals almost overlap[1]: the big-class effect ranges from $e^{-0.1} = 0.9$ to $e^{0.4} = 1.5$, while the inheritance effect of Finance Clerks ranges from $e^{0.4} = 1.5$ to $e^{1.4} = 4.0$.

Even within the Manufacturing and Service classes, the inheritance effects at the micro level are higher than at the macro level. Indeed, only the Elementary Manufacturing Workers show an inheritance effect that, even if higher than the big-class effect, overlap with the inheritance effect at the macro level. More precisely, the inheritance effect of the Elementary Manufacturing Workers ranges from $e^{0.06} = 1.1$ to $e^{0.85} = 2.4$, while the inheritance effect of the big-class ranges from $e^{0.02} = 1.0$ to $e^{0.29} = 1.3$. Furthermore, the two highest inheritance effects in this class belong to Textile and Woodworkers and Mechanics, which show an inheritance effect of, respectively, $e^{1.8} = 6.2$ and $e^{1.6} = 4.9$. The inheritance effect of the Craft Workers (SE) is slightly lower than the last two effects and stands at $e^{1.4} = 3.9$. It is worth reminding that the Manufacturing class does not comprise the Craft Workers (SE), therefore the inheritance effect at the macro level is net of the inheritance effect at the micro level for only the employed workers. In other words, even without considering self-employed, the inheritance effect of the micro-classes are higher than the big-class immobility.

Within the Service Sector, the micro-class reproduction is even more evident as all the micro-class effects are larger than macro-class inheritance effects, and the confidence intervals do not overlap. If the big-class effect is $e^{-0.04} = 0.96$, the inheritance effect of Cooks, Waiters and Bartenders, Taxi Drivers and related, Elementary Service Workers, and Protective Service Workers are, respectively, $e^{2.4} = 10.6$, $e^{1.0} = 2.8$, $e^{0.77} = 2.1$, and $e^{1.1} = 3.1$. Therefore, the Service class is characterized by high fluidity, children belonging to this class are more likely to move out of this class than staying in it. The opposite is true at the micro level: sons tend to follow their father occupation instead of ending up in the same class but in another micro-class.

However, not all macro level inheritance effects are lower than the corresponding effects at the micro level. More precisely, Shopkeepers and Agricultural workers show macro-class inheritance effects that are comparable with the inheritance effects at the micro level. Indeed, Shopkeepers and Shop-Sale Assistants have a micro-class effect of $e^{0.62} = 1.9$ and $e^{0.66} = 1.9$, while the

[1]The null hypothesis of equality of the two parameters yields a χ^2 value of 5.25 with 1 degree of freedom and a $p - value$ of 0.02

corresponding big-class effect is $e^{0.91} = 2.5$. Furthermore, the confidence intervals overlap and the coefficients are not statistically different from each other. Similarly, the Primary Sector has a big class effect of $e^{1.4} = 4.2$ and the micro-class effect of Agricultural Workers is $e^{1.9} = 6.4$ if they are self-employed and $e^{0.35} = 1.4$ if they are employed. The inheritance effect of Agricultural Workers (E) is actually lower than the big-class inheritance effect.

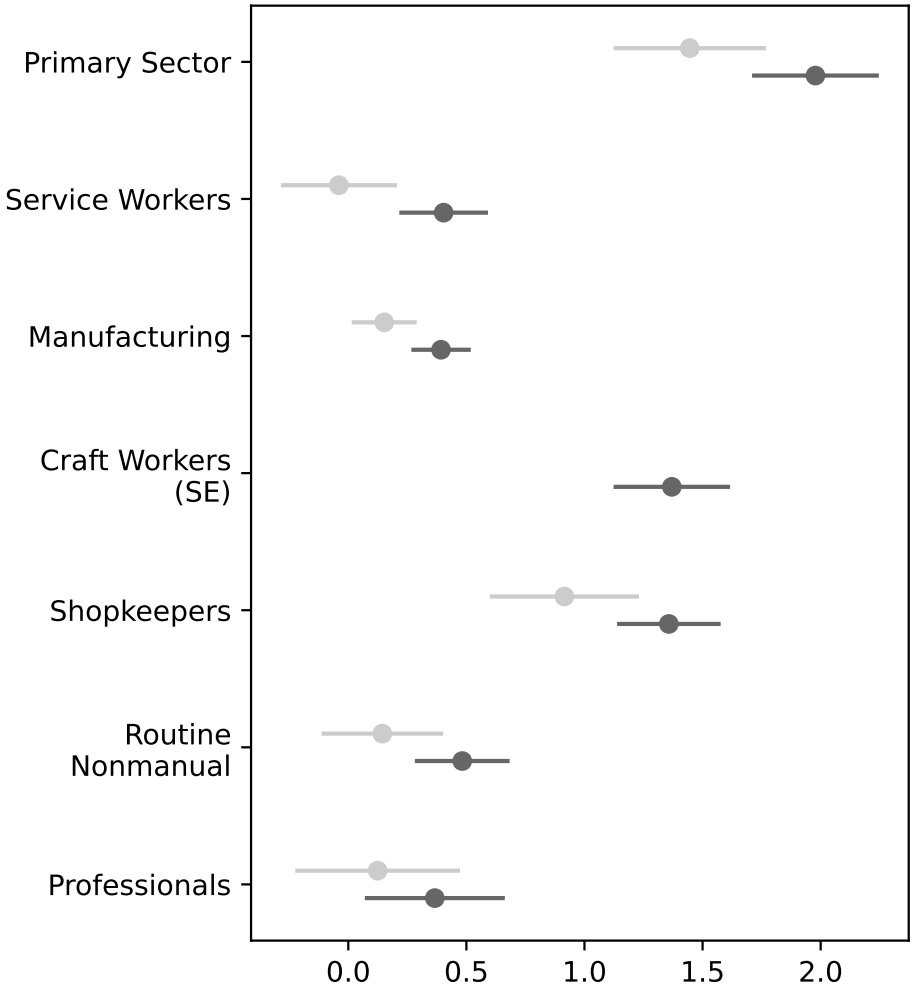

Fig. 4.2 Men's inheritance effects at the macro level. Dark gray dots represent the inheritance effect when the micro-diagonal is not fitted, while light gray dots indicate class reproduction net of the micro-class inheritance effect

All the social classes considered seems to be weak in ensuring that the next generations remain in the same class as their fathers. Indeed, sons are more likely to end up in the same class of their father because they are in his

same micro-class, rather than choosing another occupation but in his same class. However, it is noteworthy that the only classes that show an effect comparable (or even greater) than the effect at the micro level are those who comprise few micro-classes and where one of the two micro-classes include self-employed workers. Indeed, Shopkeepers and Agricultural Workers comprise very similar jobs, the only distinction is that one micro-class comprises self-employed workers and the other does not (this distinction is even more blurred within the Shopkeepers as said in Section 3.1.1). Therefore, moving from one micro-class to the other means moving between two very close occupations. It is in fact reasonable that this happens: fathers who own a business can pass on their business to their children (the inheritance effect of Shopkeepers and Agricultural Workers (SE) are quite strong), but it can be also the case that fathers employ their children. For example, a father who is a self-employed farmer might employ his own child to work on his farm. This way, the children becomes a farmer laborer rather than self-employed agricultural worker, increasing the big-class effect, but the job of the children is very close to the job of the father. Therefore, the big-class reproduction showed by Shopkeepers and Agricultural Workers is still very tied to the occupation of the fathers.

Finally, the gradational effect is positive and statistically significant ($e^{0.0011}$), but the micro-class effects do not reflect just the tendency of sons to end up in a socioeconomically similar occupation given that inheritance effects at the micro level are quite strong.

Figure 4.2 shows the inheritance effects at the macro level either net of the micro-immobility effect or estimated by the "trimmed" model (see Figure A2 for the estimates under the dominance model). The inheritance effect of the Craft Workers (SE) is the same as the micro effect because the Manufacturing macro-class only comprises employees. All the immobility effects at the macro level reduce in size when the micro-diagonal is fitted. Even the inheritance effect for Primary Sector and Shopkeepers, that are similar to the effect at the micro level, show a reduction of the effect when the micro-diagonal is fitted, even if the confidence intervals slightly overlap. Indeed, the Primary Sector effect reduces from $e^{2.0} = 7.2$ to $e^{1.4} = 4.3$, while the Shopkeepers effect reduces from $e^{1.4} = 3.8$ to $e^{0.9} = 2.5$. However, the reduction is more evident for the Manufacturing and the Service classes. The reproduction in those two macro-classes can be explained by the transmission of the same occupation from one generation to the other. The Manufacturing and Service classes reduces from $e^{0.4} = 1.5$ to $e^{0.2} = 1.2$, and from $e^{0.4} = 1.5$ to $e^{-0.04} = 1.0$, respectively. Less evident is the reduction in the Professional and Routine Nonmanual classes. Even in those

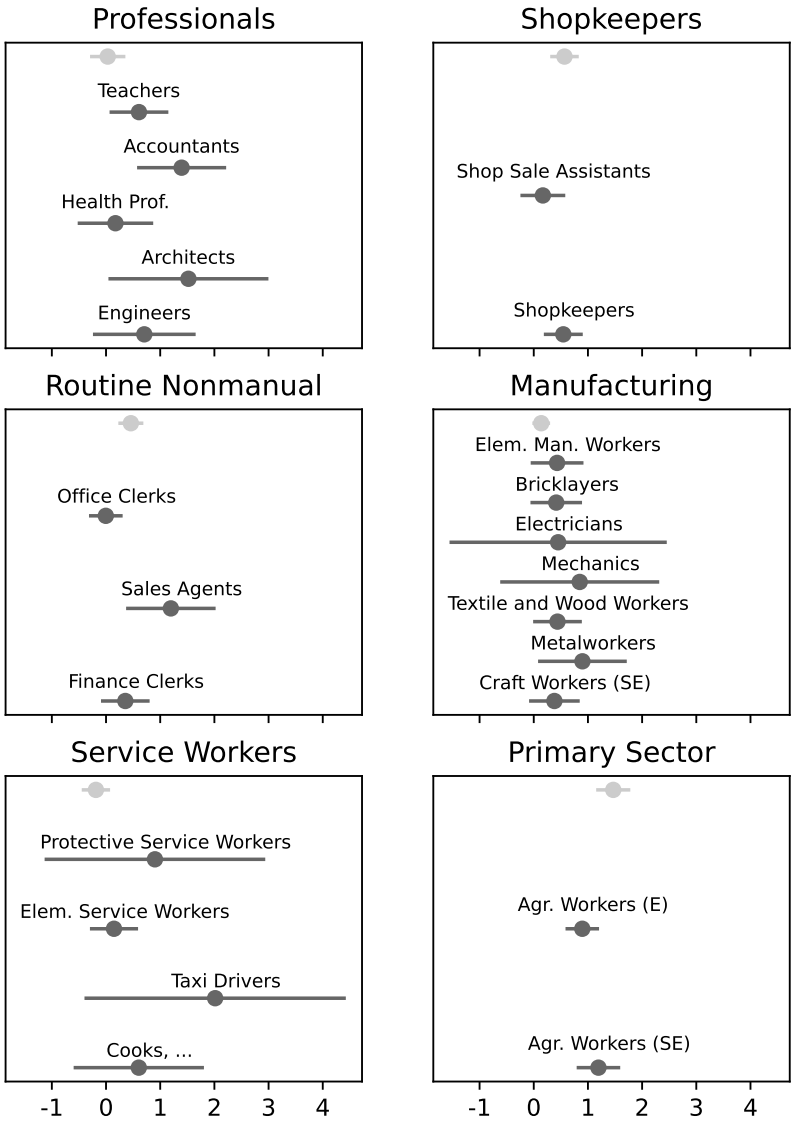

Fig. 4.3 Women's inheritance effects at the micro level are represented by dark gray dots, while inheritance effects at the macro level, net of micro-class inheritance, are shown by light gray dots. Due to space constraints, some labels have been abbreviated. For the full label, refer to Figure 3.1. The title of each sub-graph corresponds to the title of light gray dots belonging to the given sub-graph

two big-classes there is a reduction in the inheritance effects, but the confidence intervals overlap, so it seems that not all the reproduction in the two highest macro-classes can be explained simply by occupational reproduction. However, it still holds true that after controlling for the micro-diagonal the big-class effects overlap with the zero. For example, the inheritance of Professionals net of the micro-class immobility effect ranges from $e^{-0.2} = 0.8$ to $e^{0.5} = 1.6$. Therefore, all macro-classes, except for the self-employed big-classes, do not show strong inheritance effects when the micro-diagonal is fitted. On the contrary, it seems that children are more likely to end up in a different macro-class than their fathers. The opposite is true when the micro-class inheritance effect is not considered. Thus, from Figure 4.1 and Figure 4.2, it appears that for men, class reproduction is primarily occupational.

Among women, the results are less clear due to high variance in the estimates, resulting in wide confidence intervals. Therefore, the interpretation of the results should be done with caution. However, the variance around the estimates might be interpreted as a result of fewer counts on the main diagonal compared to the men sub-sample. Therefore, the uncertainty could also suggest that women are less likely to be in the same occupation as their father, or at least not as likely as sons.

Figure 4.3 shows the inheritance effects at the micro level within each big-class (see Figrue A3 for the estimates under the dominance model). Overall, the effects of the micro-classes are not different from the effects at the macro level. As said, this is the result of the uncertainty aorund the estimates, but even when only the point estimates are considered, the size of the effects are much smaller than the same effects for men. For example, in the Manufacturing Sector the micro-class inheritance effects range from $e^{0.4} = 1.5$ to $e^{0.9} = 2.5$. Among women, even Craft Workers (SE) have a low inheritance effect: the odds of being a self-employed craft worker if your father was a self-employed craft worker is $e^{0.4} = 1.5$ times higher than moving to another occupation. Among men, the same odds ratio is $e^{1.4} = 4.1$.

More micro-class reproduction can still be seen in the Professionals class, where some occupations show inheritance effects higher than big-class inheritance effects. For example, Primary and Secondary Teachers, and Accountants and Jurists have inheritance effects of, respectively, $e^{0.6} = 1.8$ and $e^{1.4} = 4.0$, while the macro-class effect is $e^{0.03} = 1.0$.

The great variability around the estimates and the low inheritance effect at the micro level can be interpreted as a lower propensity of fathers to pass on their occupation to their daughters, while they prefer to pass on class resources

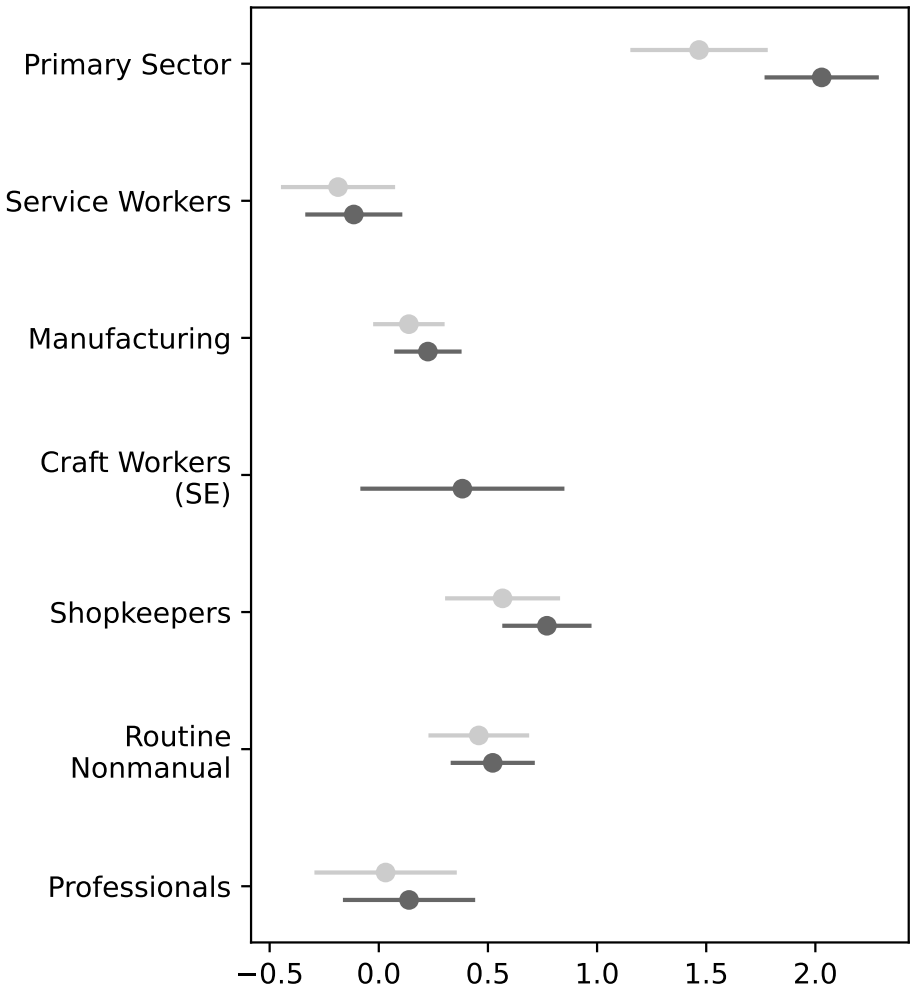

Fig. 4.4 Women's inheritance effects at the macro level. Dark gray dots represent the inheritance effect when the micro-diagonal is not fitted, while light gray dots indicate class reproduction net of the micro-class inheritance effect

rather than occupation-specific ones. It might also be that women are less interested in doing the same job as their father, especially if it is not within the Professionals class. Furthermore, class reproduction for women is not really the effect of micro-class inheritance. As Figure 4.4 shows, the inheritance effects at the macro level are basically the same, even when the micro-diagonal is fitted (see Figure A4 for the estimates under the dominance model). Professionals and Service classes exhibit a weak inheritance effect even when the micro-diagonal is not fitted. It seems that women are more likely to move out of these two classes than to stay in them. This is not because women move to another occupation within the same class, but rather due to their lower propensity to end up in the same occupation as their fathers.

There is however an exception: the net inheritance effect in the Primary Sector is $e^{1.4} = 4.1$, while the effect estimated by the "trimmed" model is $e^{2.0} = 7.4$. Therefore, part of the class reproduction in the Primary Sector can be explained by reproduction in the agricultural micro-classes. Interestingly, even if the class effect in the Agricultural class is higher than the micro-class effects, the effect of the employed agricultural workers is as strong as the effect of self-employed agricultural workers. This might be further proof that fathers are more prone to pass their more profitable occupations to their sons than to their daughters. Indeed, the odds of being an employed agricultural worker if the father is an employed agricultural worker is as high as the odds of being self-employed if the father is self-employed in the agricultural sector. This does not hold true for men. For sons, the odds of being an employed agricultural worker if their father is an employed agricultural worker is low. Therefore, an employed father does not tend to pass his occupation to his son. However, the big-class effect is quite high even for men, suggesting an exchange between self-employed and employed agricultural workers. Given that the likelihood of being a self-employed farmer is high if your father was a self-employed farmer, the direction of the exchange in the Primary Sector seems to go from employment to self-employment: employed farmers use their "class resources" to allow their sons to become self-employed agricultural workers. On contrary, the women class reproduction mechanism in the primary sector seems different. Indeed, if a father is an employed worker in the agricultural sector, he does not use the "class resources" to enable his daughter to become self-employed, instead, he passes on his same occupation to her.

4.2 Micro-Class Reproduction Over the Years

The last section showed that micro-class reproduction is the main force driving the reproduction of social classes, especially for male respondents. This section will instead address the following question: has micro-class reproduction changed over the years? As already said, this question is interesting for both a substantive and methodological reasons. Indeed, the micro-class reproduction showed in the previous Section might be the average of micro-class reproduction in different years.

Before discussing the inheritance estimates, it is worth examining the absolute immobility trend, which represents the percentage of respondents who remain in the same micro, macro, or manual and nonmanual class as their father across the three cohorts. Table 4.1 shows that immobility at each level of aggregation reduces in the first cohort and then, slightly increases or stays stable, according to the level of aggregation. Specifically, until 1944, 25% of male respondents remained in the same micro-class as their father. In the next cohort the percentage drops to 16%, followed by a partial recover in the last cohort. A similar trend is observed at the macro level: the 1945-1967 cohort shows a decrease in the percentage of men remaining in the same class as their father, with a slight rise in the last cohort. Finally, at the sector level, the percentage of immobile men falls from 79% to 69% between the first and second cohort, and remains at 69% in the last cohort. Unsurprisingly, the percentage of immobility is higher at the most aggregate levels. However, it is noteworthy that, overall, 19% of men remain in the same micro-class as their father, a significant proportion given that micro-classes encompass a narrower range of occupations than social classes. Additionally, as mentioned in Section 3.2, the absolute immobility rate does not account for the marginal distribution of occupations, and immobility at the macro level, as shown in the previous Section, is largely a result of immobility at the micro level.

Then trend showed by Figure 4.1 is consistent with what is known about Italian intergenerational mobility. As said in Section 2.2, Italy experienced an increase in mobility after the Second World War, along with the *economic boom*. More precisely, the modernization that occurred in Italy from the 1950s to the end of the 1960s, changed the class distribution of the Italian economy, reducing the share of people in the primary sector. The industrialization increased the chances of the farmers and farm laborers to move toward the working class or the small urban bourgeois. However, after that period the Italian economy stagnated and the class structure stopped to upgrade. As described above, the absolute immobility rate follows this trend: for people born between 1945 and

1967 the percentage of sons with the same occupation or class of the father reduced, and then immobility has stayed stable until 1990.

	Birth Cohort		
Level of Aggregation	1900-1944	1945-1967	1968-1990
Micro	0.25	0.16	0.18
Macro	0.39	0.31	0.34
Manual/Nonmanual	0.79	0.69	0.69

Table 4.1 Percentage of absolute immobility by level of aggregation and birth cohort

Moving from absolute immobility to relative immobility rates the estimates of the log-linear model defined in Section 3.2.1 will be discussed. More precisely, the model will be specified in two different ways. The first model, which will be called Model 1, considers two shift parameters for each micro, macro and manual nonmanual class. The second model, which will be called Model 2, estimates two shift parameters for all the micro, macro, manual and nonmanual levels of aggregation. In other words, if Model 1 estimates at the micro level $23{\cdot}2$ parameters, at the macro level $6{\cdot}2$ parameters, and at the manual and nonmanual level $1{\cdot}2$ inheritance effects. Model 2 estimates only $1{\cdot}2$ parameters for each level of aggregation. The second model is therefore more parsimonious than the first one, and assumes that the inheritance effects at each aggregation level have changed over the years uniformly. Both Model 1 and Model 2 have the advantage of estimating the macro inheritance effects net of the micro immobility effects and of identifying the forces that drive the reproduction of classes. If there is a reduction in class reproduction, is this due to a weakening of classes' "holding power", or is it the result of reduced inheritance at the micro level? Furthermore, does social class reproduction show a different trend than micro-class reproduction?

However, deciding which model to use is not straightforward. If the likelihood ratio test is considered, Model 1 fits the data better than Model 2. The test yields a χ^2 value of 83.0 with 54 degrees of freedom ($p\text{-}value = 0.00$). However, the likelihood ratio test has been criticized by (Raftery, 1986, 1995), and BIC measure is considered another useful statistic for testing models' goodness of fit. BIC usually compares a given model against a saturated model, but it can also be used to compare two different models using the difference in likelihood ratio and degrees of freedom (Hendrickx and Ganzeboom, 1998; Powers and Xie, 2008). More precisely, BIC can be defined by the following formula:

$$BIC = L^2 - df \cdot Log(N) \tag{4.1}$$

where L^2 is the likelihood ratio, df are the degrees of freedom, and N is the sample size. If BIC is negative then the most parsimonious model should be chosen, i.e. Model 2 in this case. The resulting BIC is -385 and therefore, according to the BIC statistic, Model 2 is better than Model 1. Since two different measures lead to two distinct results, both models will be discussed; however, for the sake of convenience in presentation, only the estimates of the least parsimonious model will be shown in this section, with the estimates of Model 1 provided in the Appendix (see Table A1 for Model 1 estimates and Table A4 for Model 1 estimates under the dominance model).

Table 4.2 shows the inheritance effect at each aggregation level and the ISEI linear-by-linear association (see Table A3 for Model 2 estimates under the dominance model). As said above, Model 2 estimates a base inheritance effect for each micro, macro, manual and nonmanual class, a socioeconomic status, and a uniform shift for each birth cohort. Therefore, the base inheritance effects and ISEI association refer to the first birth cohort, i.e. those born between 1900 and 1944. An important point to note is that inheritance effects at the micro level are generally higher than those at the macro level, even in the first birth cohort. More precisely, within each macro-class the micro inheritance effects are higher than the corresponding effects at the macro level. There are two exceptions, which recall what it was already showed in Section 4.1. First, the inheritance effects of Shopkeepers and Shop-Sale Assistants are comparable with the corresponding big-class effect. Second, self-employed Agricultural Workers shows a higher inheritance effect than employed farmers, and it is comparable with the effect at the aggregate level. Finally, Engineers and Science Professionals, and Primary and Secondary Teachers still show the lowest inheritance effects within the Professionals class, even in the first cohort.

Coefficients	β	SE	p-value	95% CI
Base Micro Immobility				
Engineers and Science Professionals	0.55	0.26	0.04	0.04 - 1.07
Architects and Designers	2.47	0.52	0.00	1.45 - 3.48
Health Professionals	1.73	0.28	0.00	1.19 - 2.28
Accountants and Jurists	2.30	0.34	0.00	1.63 - 2.96
Primary and Secondary Teachers	0.85	0.43	0.05	-0.001 - 1.70

Coefficients	β	SE	p-value	95% CI
Shopkeepers	0.70	0.19	0.00	0.32 - 1.07
Shop Sale Assistants	0.77	0.24	0.00	0.30 - 1.25
Finance Clerks	1.00	0.26	0.00	0.49 - 1.51
Sales Agents	2.07	0.24	0.00	1.59 - 2.54
Office Clerks	0.31	0.19	0.11	-0.07 - 0.68
Craft workers (SE)	1.46	0.14	0.00	1.19 - 1.73
Metalworkers	0.89	0.19	0.00	0.52 - 1.26
Textile and Woodworkers	1.98	0.27	0.00	1.45 - 2.52
Mechanics	1.78	0.21	0.00	1.36 - 2.20
Electricians	1.11	0.34	0.00	0.44 - 1.78
Bricklayers	0.82	0.14	0.00	0.55 - 1.10
Cooks. Waiters and Bartenders	2.60	0.39	0.00	1.83 - 3.37
Taxi Drivers and Related	1.30	0.23	0.00	0.85 - 1.75
Elementary Service Workers	1.06	0.25	0.00	0.57 - 1.54
Elementary Manufacturing Workers	0.68	0.23	0.00	0.24 - 1.13
Agricultural Workers (SE)	1.92	0.20	0.00	1.52 - 2.32
Agricultural Workers (E)	0.49	0.18	0.01	0.13 - 0.84
Protective Service Workers	1.46	0.35	0.00	0.78 - 2.15
Micro Uniform Change				
1945-1967	-0.016	0.008	0.05	-0.03 - -0.0003
1968-1990	-0.016	0.009	0.10	-0.03 - 0.003
Base Macro Immobility				
Professionals	0.17	0.18	0.35	-0.19 - 0.52
Routine Nonmanual	0.11	0.14	0.41	-0.16 - 0.38
Shopkeepers	0.90	0.17	0.00	0.56 - 1.23
Manufacturing	0.16	0.11	0.14	-0.05 - 0.37
Service Workers	-0.13	0.17	0.50	-0.45 - 0.20
Primary Sector	1.27	0.19	0.00	0.90 - 1.63
Macro Uniform Change				

Coefficients	β	SE	p-value	95% CI
1945-1967	0.01	0.02	0.72	-0.04 - 0.05
1968-1990	0.01	0.03	0.60	-0.04 - 0.06
Base Sector Immobility				
Manual and Nonmanual	0.50	0.09	0.00	0.34 - 0.67
Sector Uniform Change				
1945-1967	-0.06	0.10	0.55	-0.26 - 0.14
1968-1990	0.01	0.11	0.93	-0.20 - 0.22
Base ISEI	0.0018	0.0003	0.00	0.0012 - 0.0022
ISEI Uniform Change				
1945-1967	-0.0008	0.0003	0.01	-0.0013 - -0.0002
1968-1990	-0.001	0.0003	0.00	-0.0016 - -0.0004

Table 4.2 Estimated uniform inheritance effects and gradational effects across three cohorts for male respondents. The parameters are presented in multiplicative form

However, the most noteworthy aspect of Table 4.2 are the uniform shifts from the base inheritance effects. Indeed, the inheritance effects at the micro level uniformly decreased by a factor of $e^{-0.016} = 0.98$ moving from the first to the second cohort. However, according to Model 2 the decrease in immobility stopped in the third cohort and although the parameter is negative $e^{-0.016} = 0.98$: the 95% CI ranges from $e^{-0.03} = 0.97$ to $e^{-0.003} = 1.0$; making it less clear whether there is a reduction also in the third cohort. Nonetheless, the reduction showed in the absolute immobility rate seems confirmed even after controlling for micro-class distribution. Interestingly, once the micro diagonal is fitted, there is no change at the other two levels of aggregation. Indeed, the uniform change at the macro level is not statistically different from zero in both the 1945-1967 and 1968-1990 cohorts. Finally, the change at the Sector level is negative when the second cohort is compared with the first one, and positive when the third cohort is considered. However, the confidence intervals range, respectively, from $e^{-0.26} = 0.8$ to $e^{0.14} = 1.1$, and from $e^{-0.20} = 0.8$ to $e^{0.22} = 1.3$.

Finally, a constant change in the Italian mobility regime can be seen at the gradational level. Indeed, the ISEI association in the first cohort is 0.0018 and

drops to 0.001 in the second cohort, and to 0.0007 in the third cohort. This means that, considering for example the Accountants and Jurists micro-class, which has a mean ISEI of 74, and the Electricians micro-class, which has a mean ISEI of 41, the likelihood of moving to a micro-class with the same socioeconomic status for sons of Accountants and Jurists born before 1945 is $1.0017^{(74-41)\times(74-41)} = 6.5$ times higher than that of sons of Electricians. The same likelihood reduces to $1.001^{(74-41)\times(74-41)} = 2.9$ in the second cohort and to $1.0007^{(74-41)\times(74-41)} = 2.2$ in the last cohort.

When considering Model 1, the reduction of micro-class immobility in the first cohort is less evident because few micro-classes show a statistically significant change in the second and third cohort compared with the first one (see Table A1). Indeed, only Health Professionals shows a statistically significant reduction over the three cohorts in the inheritance effects. More precisely, before 1945 the odds of staying in the Health Professional micro-class is $e^{3.5} = 32.0$ times the odds of moving to another micro-class, while the same odds is $e^{3.5-1.8} = 5.4$ in the second cohort, and $e^{3.5-2.6} = 2.4$ in the last cohort. However, even Office Clerks, Textile and Woodworkers, and Cooks, Waiters and Bartenders show a reduction in the inheritance effect, but only in the last cohort. For example, before 1945 the odds of staying in the Textile and Woodworkers micro-class is $e^{2.5} = 11.8$ times higher than ending up in another micro-class, while the same odds is $e^{2.5-1.7} = 2.1$ in the 1968-1990 cohort. On contrary, the inheritance effect of Accountants and Jurists shows a statistically significant increase in the second cohort. Therefore, before 1945 the odds of becoming either a jurist or an accountant if your father belonged to this micro-class is $e^{1.2} = 3.2$ times higher than ending up in another micro-class, and it is $e^{1.2+2.2} = 29.2$ times higher in the 1945-1967 cohort. However, as Table A1 shows most of the inheritance effect at the micro level are negative (30 out of 46) and all the immobility effects, except 4 micro-classes, reduces at least in either one of the two last cohorts. Therefore, estimating just one uniform shift parameters for all the micro-classes, might be capturing this overall trend. It might be reasonable to conclude that there is a reduction in the inheritance effect at the micro level, at least from people born between 1945-1967 and that this reduction stopped afterwards.

Considering the other aggregation levels, even Model 1 does not show significant changes in class and sector reproduction over the years. Indeed, all the parameters estimated by Model 1 are not statistically significant, except for the Routine Nonmanual class. Finally, there is still a reduction in the gradational effect even when Model 1 is considered.

Concluding, as said in Section 2.2, not only the absolute mobility reduced during the *economic boom* but, some studies shows, in the same period, a weak association between origin and destination compared to before the Second World War. However, after that period of more openness the association between origin and destination remained stable. Considering the results described above, it seems that this trend is followed at the micro level rather than the macro level. On contrary, the macro level shows a stable trend over the cohorts a result that recall what Cobalti and Schizzerotto (1994) and Ballarino et al. (2016) found. Clearly, this does not imply that the increased social fluidity during the *economic boom* is the result of a less micro-class association, since Model 1 and Model 2 only estimate micro and macro class reproduction. It is, however, noteworthy that the reduction in immobility seems to occur only at the micro level while at the macro level there is stability. This result would not been found if the analysis were carried only at the macro level. However, contrary to Ballarino et al. (2016), who find that the association between fathers and sons' ISEI follows trendless fluctuation, this study show a constant decrease in the association of ISEI.

Concluding, how Italy compares to other countries? The picture of the Italian immobility described above does not look very different from what previous researches have documented. As said in Section 2.1, Jonsson et al. (2011) analyzed micro-class reproduction across four countries over the years. Comparisons between the results for Italian reproduction and those of other countries must be made with caution, given that the micro-class schemes used comprise different numbers of categories, and the analyses presented above only consider three birth cohorts, while Jonsson and colleagues analyzed a broader span of years. Nevertheless, this comparison may still provide some insights into Italian micro-reproduction.

Considering the absolute immobility at the macro and manual and nonmanual level, Italy shows a decline in the percentage of immobile men from the first to the second cohort and then this percentage slightly increased at the macro level, while stayed stable at the sector level. Jonsson et al. (2011) showed that this trend is present also in Germany, Japan and United States: the reduction of the agricultural sector led to a reduction of immobility at the macro level. As mentioned above, industrialization in Italy increased the chances for primary sector workers to improve their conditions, leading to a rise in absolute mobility during that period. However, after that period also in Germany, United States, Japan and Sweden, the absolute macro and manual and nonmanual immobility stopped to decline and, especially in the latter three countries it slightly

increased. This increase in immobility at the macro level can be seen in Italy too, as described above. Considering the absolute micro-immobility, Jonsson et al. (2011) showed that the four countries either exhibit a trendless fluctuation, a slight reduction, or a stable trend. On the contrary, the Italian micro-class immobility slightly increased in the latter period. However, to draw more definitive conclusions, the time span should be divided into more birth cohorts to determine whether this recent increase represents a stable trend or if Italian micro-reproduction is characterized by trendless fluctuations, similar to those observed in the United States.

Considering the relative change in the inheritance effect over the years, Jonsson et al. (2011) estimated a model similar to the one discussed in this Section 2.1 and explained in Section 3.2. However, they estimated just one uniform shift parameter instead of one parameter for each period of time. The Italian reproduction looks very similar to the German one, where only the inheritance effects at the micro level show a significant reduction over the years. On contrary, Japan and United States show, respectively, a reduction at the meso level and manual and nonmanual level. Sweden, instead, shows a reduction at all the level considered, except for the meso level. However, Italy also shows a reduction at the gradational level, making it slightly different from Germany. Even though the conclusions drawn from this comparison must be taken with caution, it seems that, as Jonsson et al. (2011) pointed out, class reproduction evolves in nation-specific ways.

CHAPTER 5

Micro-class Mobility in Italy

The previous Chapter demonstrated that micro reproduction is an important factor of class reproduction in Italy. However, while immobility is part of the inequality transmission dynamic, class mobility is generally the primary focus of stratification literature. Due to the sparseness of the data, analyzing intergenerational mobility using a 23 by 23 mobility table is not feasible. Nonetheless, homogeneity tests can be useful for analyzing micro-classes mobility within each macro-class. More precisely, the aim of this chapter is to determine whether social classes comprise occupation with a similar or equal intergenerational mobility rate: do people who are born in this social class differ in their chance of ending up in any of the other occupation based on their father's occupation? If so, this would indicate that micro-classes are significant not only for class reproduction but also for mobility.

Therefore, in this Chapter, both Goodman and Breiger's homogeneity tests are employed. As explained in Section 3.2.2, the two tests differ in the restrictions placed on the odds ratio. Since the internal homogeneity test is less restrictive than Goodman's homogeneity test, the former will be employed first. The idea is that if some classes are homogeneous according to the less restrictive test, it is necessary to determine whether the same classes are homogeneous under the more restrictive test. Furthermore, the micro-classes have been tested for both quasi-homogeneity and homogeneity, i.e., the former test fits a model of quasi-independence, while the latter fits the usual model of row-columns independence. The model of independence is what matters the most in this context since micro immobility is one of the main mechanisms of inequality transmission, as discussed in Section 4.1. However, testing for quasi-independence is still interesting, as it shows whether occupations still matters even after immobility is taken into account.

Before moving on to the analysis, there are a few important considerations to address. First, given the 23 by 23 mobility table, micro-classes can be partitioned into several groups; however, not all possible partitions will be tested.

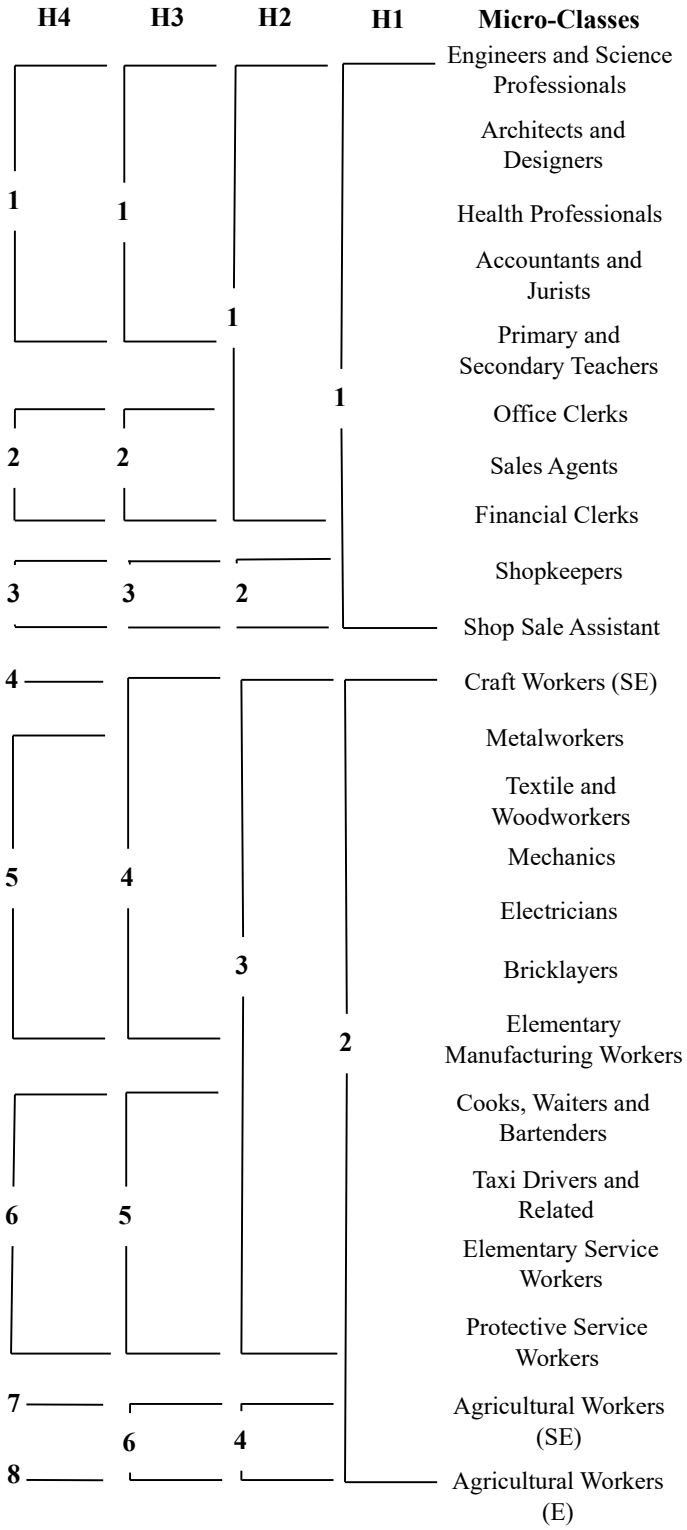

Fig. 5.1 Hypotheses Tested by the Internal Homogeneity Test

While certain partitions may make empirical sense, the key question in this context is whether there are big-classes in which the micro-classes of origin are independent of the micro-classes of destination. Generally, social classes group coherent occupations together; therefore, a class that includes both doctors and office clerks does not exist, regardless of the theoretical assumptions behind the classification scheme. This is because these occupations are considered to differ significantly in terms of resources, human capital, employment relations, and other factors. In other words, it would be unnecessary to test for homogeneity Health Professionals and Office Clerks, even if, empirically, one might find that Health Professionals and Office Clerks share similar intergenerational mobility rates. Furthermore, some potential partitions group together only two micro-classes. However, given the aforementioned research question, it is clearly insufficient to conclude that inequalities are reproduced at the macro level if it is found that Professionals is not a homogeneous class, while Engineers and Science Professionals and Accountants and Jurists are homogeneous. Finally, it is worth noting that, as said in Section 3.2.2, Internal Homogeneity is tested using fewer cells than Goodman's test; therefore, the results of the former should be interpreted with caution.

Starting with the internal homogeneity test, Figure 5.1 shows the four hypotheses for both women and men (see Table A5 and Table A6 for the estimates under the dominance model). The first hypothesis aggregates, on one hand, all the Manual occupations and, on the other hand, all the Nonmanual occupations. This is the broadest macro-class and, as Table 5.1 and Table 5.2 show, this social class structure does not explain mobility among micro-classes for both women and men, even when the micro-diagonal is "blocked out". More precisely, the test yields a χ^2 value of 734 with 418 degrees of freedom for men and a χ^2 value of 626 with 418 degrees of freedom for women.

The second hypothesis partitions the micro-class scheme into four classes. The first class comprises Professionals and Routine Nonmanual; the second class comprises Shopkeepers and Shop Sale Assistants; the third class comprises workers in the Manufacturing and the Service Sector; and the fourth class comprises workers in the Primary Sector. Among men, the second hypothesis of quasi-homogeneity does not fit the data well as the test yields a χ^2 value of 407 with 340 degrees of freedom. However, when women are considered, the second hypothesis of quasi-homogeneity is accepted. It is worth noting that the most commonly used social class schemes do not partition occupations at this level of aggregation. Indeed, professionals and office clerks are usually considered to hold different economic resources and employment relation. However,

when women are considered, hypothesis 2 yields a χ^2 value of 340 with 339 degrees of freedom and the null hypothesis of quasi-independence cannot be rejected. This is a preliminary suggestion that, when the daughter are considered, there is more big-class then micro-class inequality.

	Quasi-independence			Independence		
Hypotheses	df	χ^2	p	df	χ^2	p
H1	418	734	0.00	441	1990	0.00
H2	340	407	0.01	361	1089	0.00
H3	268	305	0.06	289	847	0.00
H4	206	215	0.32	225	586	0.00

Table 5.1 Results of the Internal Homogeneity test for men

	Quasi-independence			Independence		
Hypotheses	df	χ^2	p	df	χ^2	p
H1	418	626	0.00	441	1077	0.00
H2	340	339	0.51	361	484	0.00
H3	268	270	0.45	289	386	0.00
H4	206	194	0.72	225	245	0.17

Table 5.2 Results of the Internal Homogeneity test for women

Moving to the third hypothesis, the class structure is defined by six classes which are similar to the big-classes in Figure 3.1 and used in the log-linear models to estimate class reproduction. However, contrary to the micro-class scheme, self-employed Craft Workers are grouped together with the other employed Manufacturing workers. Considering men, the hypothesis of quasi-independence yields a χ^2 value of 305 with 268 degrees of freedom and the hypothesis of independence yields a χ^2 value of 847 with 289 degrees of freedom, meaning that those six classes are not internal homogeneous when the micro-diagonal is considered. Among women, the results are the same. The test for quasi-independence does not reject the null hypothesis of quasi-independence and therefore the six classes are quasi-homogeneous, but the model for independence does not fit the data well.

Finally, the fourth hypothesis treats self-employed Craft Workers and Agricultural Workers (SE) as distinct macro-classes. The self-employed may be considered separate from other employed occupations, as they own their means of production and can more easily transmit their businesses to the next generation. The situation differs for Shopkeepers and Shop-Sale Assistants, who are

grouped into the same macro-class for reasons already explained in Section 2.1. Among men, the fourth hypothesis of homogeneity does not fit the data accurately: the test yields a χ^2 value of 225 with 586 degrees of freedom. Therefore, the social class structure proposed by hypothesis four does not explain the mobility between micro-classes if the micro diagonal is not "blocked out". Not only sons' micro-class immobility is generally higher than class immobility, but fathers' occupations influence also the future occupation of their sons. However, the fit of the fourth hypothesis is acceptable for daughters: the test yields a χ^2 value of 245 with 225 degrees of freedom. The eight classes are internal homogeneous even when the main diagonal is not "blocked out". Therefore, given the big-class structure characterized by 8 classes, the association between micro-class of origin and micro-class of destination is not significant among female respondents.

It seems that not only reproduction, but also sons' mobility, is determined by their fathers' occupations. For example, if a daughter is born in a family of professionals, her chance of becoming a Health Professional rather than a Primary or Secondary Teacher does not depend on the profession of the father. Contrary, for a son born in a family of professionals, the chance of becoming a Health Professional rather than a Primary or Secondary Teacher does depend on the profession of the father. Similarly, the chance for a daughter to become a Taxi Driver is the same whether her father was an Engineer or a Health Professional. This does not apply when considering sons. The likelihood of a son becoming an Engineer or a Science Professional still depends on his father's occupation rather than his social class. Therefore, while daughters take advantage or are limited by class resources, sons' mobility (and not only immobility) is more influenced by the occupation of the father rather than his class.

The more restrictive homogeneity test allows to see whether the results just discussed are confirmed, especially for women's class homogeneity. Figure 5.2 shows all the hypotheses tested, while Table 5.3 shows the results of the Goodman's test for male respondents (see Table A7 and Table A8 for the estimates under the dominance model). As in Breiger's test, the Nonmanual Sector groups together all the Professionals, the Shopkeepers and Shop Sales Assistants, and all the Routine Nonmanuals, while the Manual Sector aggregates all the remaining micro-classes (Manufacturing class, Service class, and Agricultural Workers). As we can see neither of the two sectors are homogeneous or quasi-homogeneous. More precisely, the test for quasi-independence yields a χ^2 value of 483 with 305 degrees of freedom. Again, this is not surprising considering that the two sectors aggregate many occupations together.

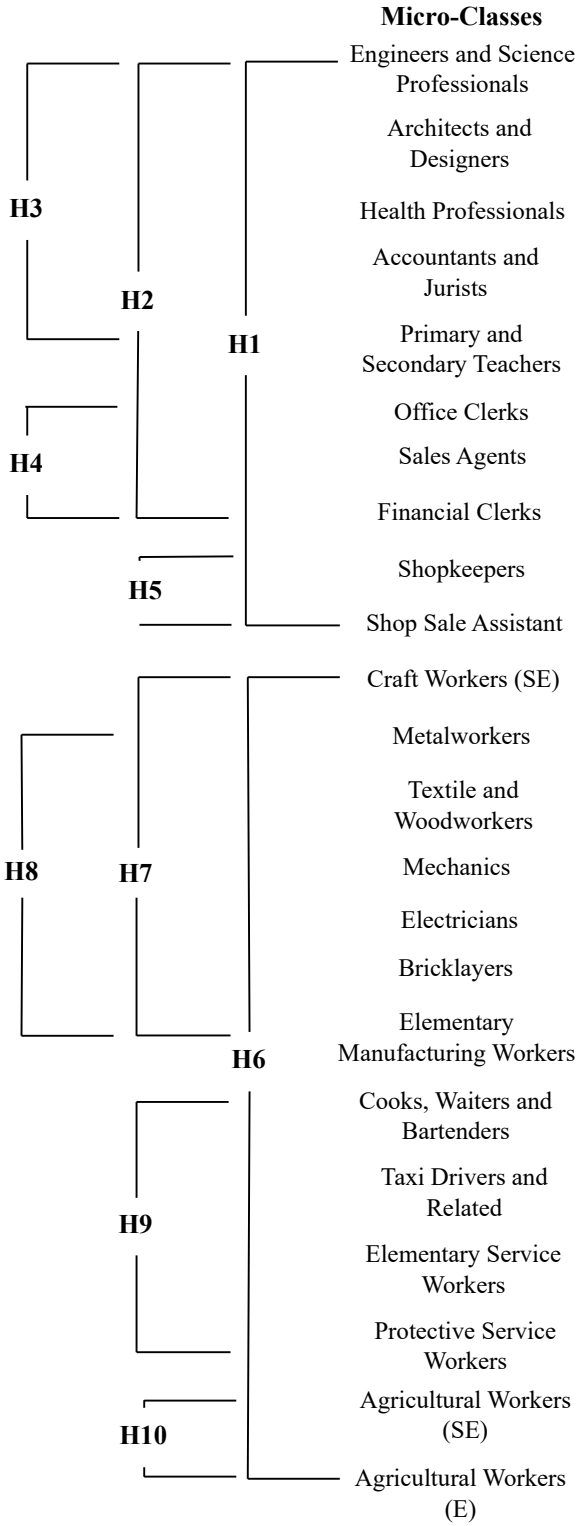

Fig. 5.2 Hypotheses Tested by the Goodman's Homogeneity Test

The second hypothesis tests all the Professionals and all the Routine Nonmanuals for homogeneity, but the model does not fit the data adequately, even when the diagonal is "blocked out": the quasi-homogeneity test yields a χ^2 value of 324 with 251 degrees of freedom. However, the quasi-independence test for only Professionals (i.e., hypothesis 3) yields a χ^2 value of 184 with 155 degrees of freedom, This shows that when the main diagonal is "blocked out", the likelihood of sons ending up in any of the micro-classes does not depend on the father's profession. Similarly, the likelihood of being a professional does not depend on any of the micro-classes of the father.

Hypothesis 4 shows that Routine Nonmanuals are quasi-homogeneous: the test yields a χ^2 value of 86 with 81 degrees of freedom. However, the row-column independence model does not fit the data well, and therefore micro-classes cannot be grouped according to the partition defined by these two hypotheses. It is anyway interesting to notice that even "white collar" have a significant "holding power".

Shopkeepers and Shop Sale Assistants are instead a homogeneous class even when hypothesis 5 is tested for independence. More precisely, the model of independence fits the data well: the test yields a χ^2 value of 56 with 43 degrees of freedom. This means that the chance of ending up in any micro-class for a son of either a Shopkeeper or a Shop Sale Assistant is the same. In other words, it seems that the specific occupational resources, skills and taste of these two micro-classes are quite similar and do not influence differently the future micro-class of destination. This can be explained by the fact that Shop Sale Assistants comprise some self-employed and, more broadly, given the diffusion of micro and small enterprises in the Italian labor market Shopkeepers and Shop Sale Assistant share a quite similar range of skills.

	Quasi-independence			Independence		
Hypotheses	df	χ^2	p	df	χ^2	p
H1	305	483	0.00	315	875	0.00
H2	251	324	0.00	259	560	0.00
H3	155	184	0.05	160	294	0.00
H4	81	86	0.32	84	168	0.00
H5	41	37	0.67	43	56	0.08
H6	371	807	0.00	384	1728	0.00
H7	221	311	0.00	228	557	0.00
H8	189	263	0.00	195	405	0.00
H9	119	208	0.00	123	276	0.00
H10	41	49	0.19	43	170	0.00

Table 5.3 Results of the Goodman's Homogeneity test for men

Considering the manual sector, hypothesis 6 does not fit the data well: the test yields a χ^2 value of 807 with 371 degrees of freedom when testing for quasi-independence and a χ^2 value of 1728 with 384 degrees of freedom when testing for independence.

Hypothesis 7 tests the homogeneity of all the manufacturing workers, however both the independence and quasi-independence model do not fit the data adequately. It is interesting to notice that all the occupations in the manufacturing sector are not quasi-homogeneous even when the Craft Workers (SE) are not considered. Indeed, Hypothesis 8 shows that the chance of a son ending up in any of the micro-classes depends on the micro-class of origin when the father works in the Manufacturing Sector. Similarly, the chance of sons ending up as a Manufacturing workers is dependent on the micro-class of the father. This is still true when the micro-diagonal is "blocked out". More precisely, hypothesis 7 yields a χ^2 value of 311 with 221 degrees of freedom and hypothesis 8 yields a χ^2 value of 263 with 189 degrees of freedom. Even within the working class the micro-classes play significant role in shaping the intergenerational inequalities.

Finally, the occupations in the Service Sector are neither homogeneous nor quasi-homogeneous: the test for independence yields a χ^2 value of 276 with 123 degrees of freedom. On the contrary, the hypothesis 10 fits the data well when the main diagonal is "blocked out", yielding a χ^2 value of 41 with 49 degrees of freedom.

It is reasonable to say that, among men, the transmission of inequalities is carried mainly at the micro level than at the macro level. However, these results were expected considering the internal homogeneity test described before.

	Quasi-independence			Independence		
Hypotheses	df	χ^2	p	df	χ^2	p
H1	305	487	0.00	315	612	0.00
H2	251	280	0.10	259	336	0.00
H3	155	154	0.50	160	176	0.18
H4	81	76	0.62	84	88	0.37
H5	41	40	0.52	43	52	0.15
H6	371	759	0.00	384	1194	0.00
H7	221	300	0.00	228	322	0.00
H8	189	256	0.00	195	272	0.00
H9	119	143	0.07	123	148	0.06
H10	41	64	0.01	43	131	0.00

Table 5.4 Results of the Goodman's Homogeneity test for women

Table 5.4 shows the results for female respondents. Unlike men, women

show a higher level of aggregation but only within the Nonmanual sector. More precisely, the first two hypotheses do not fit the data accurately: hypothesis 1 yields a χ^2 value of 612 with 315 degrees of freedom and hypothesis 2 yields a χ^2 value of 336 with 259 degrees of freedom. However, Professionals can be considered as a homogeneous class: the chance for a daughter to go into any micro-class of destination is independent of what is the profession of the father, and, similarly, the chance for a daughter to be a professional is independent of the father's micro-class. Indeed, the test for independence yields a χ^2 of 176 with 160 degrees of freedom.

The fit for hypothesis 4 and hypothesis 5 is also acceptable. More precisely, office clerks seems to be a homogeneous class as the test for independence yields a χ^2 value of 88 with 84 degrees. Finally, the homogeneity test of Shopkeepers and Shop Sales Assistants yields a χ^2 value of 52 with 43 degrees of freedom.

On the contrary, within the manual sector only Service workers can be considered a homogeneous class. For example, even if the main diagonal is 'blocked out", the occupation of the daughter still depends on the occupation of the father if she is born in the Manufacturing class, and vice versa, the chance of ending up in a manufacturing occupation vary based on the occupation of the father, regardless of his class. This is true even when the self-employed Craft Workers are not considered: the test for hypothesis 8 yields a χ^2 value of 256 with 189 degrees of freedom. However, hypothesis 9 yields a χ^2 value of 123 with 148 degrees of freedom. Finally, unlike men, the Primary Sector does not comprise neither homogeneous nor quasi-homogeneous micro-classes: hypothesis 10 yields a χ^2 value of 43 with 131 degrees of freedom when it is tested for independence. Therefore, unlike sons, daughters have different chances of reaching a micro-class depending on whether their father was self-employed or employed in the Primary Sector. Similarly, the chance of being either a self-employed or an employed agricultural worker depends on the micro-class of the father.

Both the homogeneity tests yield the same results: inequalities seem to be reproduced at the micro level rather than the macro level when men are considered. Therefore, not only fathers tend to pass on their occupation to their children, but, within each class, their occupation is crucial in determining the occupation of their sons. Among women, the results are the opposite: inequalities are primarily reproduced at the macro level rather than at micro level. Instead of passing on the same occupation to their daughters, it seems that fathers tend to pass on class specific resources (Jonsson et al., 2009). Therefore, additional to a difference in micro-class reproduction, as showed in Section 4.1, there is also

a difference between women and men in their micro-class mobility. Women, contrary to men, seem to benefit more from or be influenced by class resources rather than occupation-specific ones. Therefore, women born in the Professionals class are mobile in similar way, either their father is a Health Professional or an Engineer and Science Professional, because their economic and human capital resources are similar. This does not hold true for men, even if class resources are similar their mobility is still influenced by occupation-specific resources. This can be explained also by the fact that micro inheritance is higher in men than women. Indeed, Professionals and Routine Nonmanuals are quasi-homogeneous even when men are considered. However, micro-classes within the Manufacturing and Primary sector do not share similar or equal mobility rates. Within the Manufacturing class women and men are similar. However, if this can be again explained by micro-class immobility for men, the same explanation does not hold for women since they are characterized by low micro-class reproduction in Manufacturing Sector. Therefore, it seems that, on one hand, women belonging to these two classes does not take advantage of class resources. Indeed, daughters of professionals have similar economic resources, human capital, and social networks that they can use to move to other micro-classes. Similarly, ending up in a professional occupation instead of another professional occupation is more a matter of human capital than micro-class of origin. However, this is not true in the manufacturing and agricultural classes. Within these two sectors women seems to be more limited by the scarcity of resources and therefore occupations still matter.

Part II

Micro-class Reproduction in Comparative Perspective

CHAPTER 6

Italy, Germany, and US: a Comparison

6.1 Theoretical Framework for the Comparative Analysis of Italy, Germany, and the United States

This Chapter will describe how micro-class reproduction in Italy compares to that in Germany and United States and the following research question will be addressed: is the difference in class reproduction explained by micro-class reproduction?

To provide a theoretical background for the comparison it is worth starting from the typology proposed by Grusky and Galescu (2005) where countries are cross-classified by their level of micro and big-class structure. In this typology, Germany has high level of both micro and macro structure, while Japan is characterized by low level of both micro and macro structure. Sweden and US take up the middle position: the former has high level of big-class structure and low level of micro-class structure, the latter has low level of big-class structure and high level of micro-class structure.

The typology was drawn by considering mainly three aspects of each country's labor market and educational system: the extension of the vocational system, the relevance of trade unions in bargaining labor contracts, and the importance of occupation associations. To sum up, these aspects shape each country's structure in the following way.

First, the extension of the vocational system allows parents to acquire specific skills on the job that can be transmitted to their children. The vocational system can also create a common culture among people who have the same job. Finally, children can see the occupation of their father as an occupation to aspire to. The country that best fit this example is Germany.

Second, a high prevalence of occupational associations increases the micro-class structure of a country. As mentioned in Section 2.1, the mechanism of social closure causes individuals in the same occupation to share a common occupational culture, develop social networks with others in the same job, and

expose their children to aspirations, skills, and tastes that encourage micro-class reproduction (Grusky and Galescu, 2005). For example, United States are considered as a country with a high micro-class structure because it has developed professional associations and craft unions (Jonsson et al., 2009).

Finally, strong trade unions with significant bargaining power in labor contracts contribute to the formation of a big-class structure in a country. For example, both Germany and Sweden are considered as countries characterized by high big-class structure, because trade unions are important players in labor contract bargaining, and are also representative of a certain political view. In fact, they are usually associated with left-wing parties, and this makes workers identify with the class they belong.

Therefore, the first step will be to compare Italy to Germany and US according to these three aspects in order to determine which type of structure characterizes Italy. Nevertheless, it is worth mentioning that micro-class reproduction seems not to follow strictly the typology proposed by Grusky and colleagues (Jonsson et al., 2009). Indeed, micro-class reproduction is higher in Germany and Japan and lower in the United States and Sweden. On the other hand, meso, and manual and nonmanual reproduction does not change across countries. Finally, big-class reproduction follows the aforementioned typology. Indeed, macro-class reproduction is higher in Germany and Sweden.

Now that the typology has been clarified, how does Italy compare with other countries? As mentioned, the presence of vocational training increases a country's class reproduction at the micro level, and Germany can be considered a typical example of a country with a developed vocational system. Furthermore, in Germany, educational tracking begins at around age 10, with additional track differentiation occurring at upper secondary level (Pollak and Müller, 2020). Although reforms and educational expansion have made this system less rigid over the years, the link between social origin and school track remains strong, as does the connection between education degree and occupation attainment (Pollak and Müller, 2020). In contrast, in Italy, tracking occurs around age 14 within an open educational system that focuses on general academic skills, and vocational training is much less developed compared to Germany. Therefore, Italy should be considered a country with a less pronounced micro-class structure compared to Germany, making it more similar to Sweden or Japan. Indeed, these latter countries are characterized by a general rather than vocational education system. Furthermore, when considering the relationship between the educational system and the labor market, Italy appears more similar to Japan than to Germany or US. Specifically, according to Jonsson et al. (2009), Japan's

general education system fosters the development of firm-specific skills, leading people to be more closely tied to their employer rather than the specific job they perform.

According to Barbieri and Gioachin (2022), Italy also represents a firm-based skill regime where skills required by an employer are learned on the job and may become less useful when individuals change firms, even if they hold the same occupation, as different employers may require different skills. Consequently, workers in Italy tend to identify more with their employer than with their occupation, which reduces the transmission of occupational cultures and tastes and, as a result, diminishes the micro-class structure (Jonsson et al., 2011).

Based on the aforementioned points, Italy should be considered a country with a low level of micro-class structure. However, a more in-depth analysis of certain aspects of the Italian labor market and educational system provides good reasons to believe that Italy has, on the contrary, a high micro-class structure. Specifically, three aspects support the argument for high micro-class reproduction in Italy: the presence of a vocational training (even if not as developed as in Germany), the existence of licensed professions, and the significance of micro-enterprises.

Starting with the educational system, even if Italy does not have a vocational system comparable to the German one, it cannot be considered equivalent to either Japan or US. Müller and Shavit (1997) showed that regarding the vocational specificity of secondary education, Italy is in between Germany on one hand, and Japan and US on the other hand. The school system in US is decentralized, career training is achieved either on the job or through special professional school, the tracking happens relatively late, and college curricular are broad (Pisati, 1997). Compared to US, the Italian curricula is more differentiated, and Italian universities and high schools are intended to prepare for specific occupations (Pisati, 1997). Italy and US differ also in the level of inequality that characterizes the two educational systems: inequality in educational degree is higher in Italy than US where the possession of higher education mitigates the effect of social origin (Pisati, 1997). Furthermore, the direct link between education and occupation is stronger in Italy than US, and educational resources to allocate people to certain occupation is less strong in US than in Italy (Pisati, 1997).

To be more precise, Maurice et al. (1986) distinguished between countries belonging to a qualification space and countries belonging to an organizational space. Qualification space means that a country is characterized by a ”dual system” in which on the job training is combined with a vocational system. Stu-

dents therefore spend time in school acquiring theoretical knowledge and time in firms gaining practical skills. The vocational system in qualification space countries is also characterized by a limited intertrack mobility, i.e., curricula taught in each track are very differentiated from one another. Therefore, the degree students get is a clear signal for employers of what they have learned. To make the dual system work, the organization is carried out by a cooperation between government, business organizations, and trade unions. The qualification space makes therefore workers identify with their occupation rather than the firm they work in, making the mobility between firm more common than the mobility between occupations.

On the other hand, in the organizational space the educational system provide more general than vocational education. The latter is usually addressed to students who perform poorly in school. Contrary to the qualification space, in the organizational space workers are less identified with the occupation they do and since they have been trained in a specific firms by a specific employer, they tend to stay in the same organization for a long period of time, making the change from one firm to the other less likely than in the qualification space. Furthermore, the organizational space is characterized by high intertrack mobility because the differences between each curricular are less pronounced, since education is on average general rather than vocational. Finally, younger workers are penalized, because they do not enter the labor market with a specific knowledge and have to compete with well-trained workers in the same firm. For the employer is a cost to hire young and not trained workers than keeping old but trained workers.

Therefore, if Germany is representative of the qualification space and US is representative of organizational space, Müller and Shavit (1997) considered Italy as a mixture of the two spaces. In conclusion, if the presence of a vocational training and of a ”dualistic system” make a country more micro-class structured than a country with a more general educational system, Italy should be characterized by a micro-class structuration that is in between US and Japan on one side and Germany on the other. Nevertheless, other aspects must be considered. Indeed, if only the educational criteria is taken into account, US should be characterized by a low micro-class structuration. However, Grusky and Galescu (2005) placed US in the high micro-class structuration because of the relevance of occupational association, especially developed in professions and craft sector. Similarly, Italy is characterized by high social closure in the professional occupations too, and the level of professional regulation is similar to Germany (Ruggera, 2016; Ruggera and Erola, 2022). As said in Section 2.2,

even in Italy social closure mechanisms (i.e., entry-market regulations) increase the immobility at the top of occupational distribution (Ruggera and Erola, 2022).

Finally, the diffusion of micro and small enterprises make Italy an exception in Europe. Italy is a firm-specific regime but small and micro-firms are more widespread than in Germany and other European countries. The contribution of Italian small and micro enterprises to employment (in the non-fanancial sector) is higher than the European average and higher than Germany. More precisely, the share of employment in SMEs is 63.4% in Germany and 78.6% Italy, but most importantly the contribution of micro-enterprises is 46.0% in Italy and 20.2% in Germany (Muller et al., 2017). Micro-enterprises are an important factor of micro-class reproduction. Indeed, Japan is considered as a country with low micro-class structure, but it turns out that it has more micro-class reproduction than US and Sweden (Jonsson et al., 2009). This is partially explained by the fact that micro-class reproduction is higher in micro enterprises than big enterprises (Jonsson et al., 2009).

Concluding, micro-class reproduction might also be lower in Italy than in Germany, because the former has a more general educational system compared to the latter. However, the presence of a vocational system that is more developed than Japan and US, the diffusion of licensed professions and the relevance of micro enterprises in the Italian labor market make Italy a micro-class structured country. The obvious and consequent hypothesis is that Italy has higher micro-class reproduction than US and at least as high as Germany.

Finally, considering the big-class structure, Italy is comparable to Sweden and Germany. Despite the consistent share of employees working in small firms, and employment protection and unemployment compensation that have been more limited to large company than small ones (Reyneri et al., 2005), Italy should still be considered as a country with high big-class structure. Indeed, the decision regarding the Italian labor market are negotiated between trade unions, employer organization and government; even after the 1970s, when trade unions lost most of their influential power (Reyneri, 1990). Furthermore, the three main Italian trade unions are proponents of distinct political views and, as said before talking about Sweden, this makes represented people share a common social class culture, enhancing social class reproduction. Finally, reproduction within social class is higher in Italy than in US, especially for people belonging to a family of entrepreneurs, professionals, urban petty bourgeois, and farmers (Pisati, 1997). Therefore, the consequent hypothesis is that Italy has a social class reproduction comparable to Germany, but higher than US.

6.2 Is Italy a Micro-Class Structured Country?

Before describing the model's results, it is useful to examine the differences in absolute immobility among the three countries. The percentages showed in Table 6.1 are consistent with what Jonsson et al. (2009) have found. Indeed, Germany has more immobility than US at both micro and macro level, while the percentage of immobile individuals is similar at the sector level. Italy has as much immobility as Germany at the micro level (17%), but has fewer respondents who stay in the same social class as their fathers than Germany. However, class immobility is still higher in Italy than US. Finally, Italy is the country with the highest percentage of immobile respondents in the Manual and Nonmanual sector (69%). Table 6.1 supports what it is has been said in the previous Section: Italy is a country characterized by a micro-class immobility which is higher than US and at least similar to Germany. Furthermore, social class immobility is higher in Italy than US as the literature shows (Pisati, 1997).

	Country		
Level of Aggregation	Italy	Germany	US
Micro	0.17	0.17	0.13
Macro	0.32	0.36	0.30
Manual/Nonmanual	0.69	0.66	0.66

Table 6.1 Percentage of absolute immobility by level of aggregation and country

However, as already said, absolute immobility does not take into account class reproduction after micro-class reproduction is accounted for. Therefore, before moving to the results of Model 1 and Model 2, it is worth examining whether the differences in social class reproduction shown in Table 6.1 are solely the effect of micro-class reproduction. This was formally explained in Section 3.2.1, and has been done in Section 4.1, where a model with all the inheritance effect (Model 1 in this Section) and a "trimmed" model without the micro-immobility effect are estimated. In this way it is possible to estimate how much of the difference in social class reproduction between the three countries is actually the result of micro-class reproduction. Indeed, if there is no difference in the shift parameters at the macro level between Model 1 and the "trimmed" model, than micro-class reproduction does not explain any difference in class reproduction among the countries. Figure 6.1 shows the shift effects for each class (see Figure A5 for the estimates under the dominance model). Considering Germany, the only statistically different parameters are those of Craft Workers (SE) and Primary Sector. Although the former is not a social class, it seems that

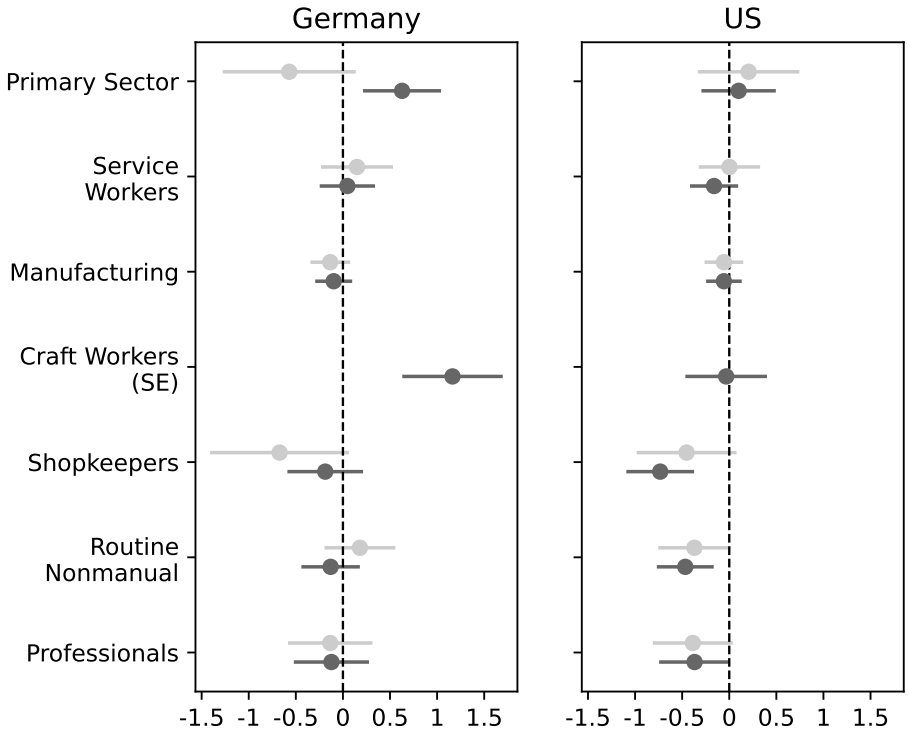

Fig. 6.1 Inheritance effects at the macro level for each country (Italy is the reference category). Dark gray dots represent the inheritance effect shift when the micro-diagonal is not fitted, while light gray dots indicate difference in class reproduction net of the micro-class inheritance effect

respondents whose father is a farmer or a farm laborer tend to stay in the same social class as their fathers more than in Italy. However, this difference is the result of micro-class reproduction. Indeed, the odds ratio of staying in the Primary Sector for respondents born with a father who worked in the same sector is $e^{0.63} = 1.9$ times higher in Germany than Italy, but the net inheritance effect ranges from $e^{-1.3} = 0.3$ to $e^{0.1} = 1.1$, making the social class reproduction in the Primary Sector not statistically different between Germany and Italy.

Instead, comparing Italy and US, the class reproduction seems to be higher in the former than in the latter country at the top, as predicted by the literature (Pisati, 1997). However, this difference can partially be explained by micro-class inheritance. Indeed, as Figure 6.1 shows the confidence intervals of inheritance effects for Routine Nonmanual and Shopkeepers does not comprise the zero when the "trimmed model" is estimated, but as the micro-diagonal is fitted the effects shift to the right. Therefore, Shopkeepers and Routine Nonmanual reproduction is, respectively, $e^{-0.7} = 0.5$ and $e^{-0.5} = 0.6$ times lower in US than in Italy. However, the net inheritance effect for Shopkeepers and

Nonmanuals range, respectively, from $e^{-1.0} = 0.4$ to $e^{0.08} = 1.1$, and from $e^{-0.8} = 0.5$ to $e^{0.01} = 1.0$. In other words, the difference between Italy and US in class reproduction is statistically significant only when the micro-diagonal is not fitted in the model. This is only true for Shopkeepers and Routine Nonmanual classes. However, Figure 6.1 shows clearly that the distance between the shift parameters in the two models is not markedly evident, as the confidence intervals mostly overlap. Concluding, the higher big-class structure of Italy and Germany is only partially confirmed when micro-classes are not taken into account, since the model does not show statistically significant difference when micro-class reproduction is fitted.

Moving to the core of this Chapter and trying to estimate the difference in micro and macro class reproduction between Italy, Germany and US, two log-linear models have been estimated. The first one, called Model 1, estimates two shift parameters for each micro, macro and manual and nonmanual class. On the contrary, the second model, hereafter referred to as Model 2, estimates two shift parameters for all the micro, macro, manual and nonmanual inheritance effects. This is the same strategy adopted in Section 4.2, with countries that take the place of cohorts. Therefore, two statistics have been employed to choose between Model 1 and Model 2: BIC and Likelihood ratio test. However, as in Section 4.2, the two statistics choose a different model. More precisely, the likelihood ratio tests yields a χ^2 value of 179.7 with 54 degrees of freedom ($p\text{-}value = 0.00$) and Model 1 should be preferred. On the contrary, BIC statistics is -343 and therefore the most parsimonious model (i.e., Model 2) should be chosen. As already did in Section 4.2, both Models 1 and Model 2 will be commented but the results of Model 1 will be shown in the Appendix (see Table A2 for Model 1 estimates and Table A10 for Model 1 estimates under the dominance model).

Coefficients	β	SE	p-value	95% CI
Base Micro Immobility				
Engineers and Science Professionals	0.34	0.09	0.00	0.18 - 0.51
Architects and Designers	1.39	0.29	0.00	0.81 - 1.96
Health Professionals	1.65	0.15	0.00	1.36 - 1.93
Accountants and Jurists	0.77	0.17	0.00	0.43 - 1.11
Primary and Secondary Teachers	0.92	0.18	0.00	0.57 - 1.28
Shopkeepers	0.98	0.15	0.00	0.69 - 1.27

Coefficients	β	SE	p-value	95% CI
Shop Sale Assistants	0.36	0.17	0.04	0.02 - 0.70
Finance Clerks	0.58	0.18	0.00	0.23 - 0.92
Sales Agents	1.01	0.14	0.00	0.74 - 1.28
Office Clerks	0.15	0.13	0.24	-0.10 - 0.40
Craft Workers (SE)	1.38	0.10	0.00	1.18 - 1.58
Metalworkers	0.88	0.10	0.00	0.68 - 1.08
Textile and Woodworkers	1.40	0.21	0.00	0.98 - 1.81
Mechanics	0.97	0.13	0.00	0.72 - 1.22
Electricians	0.85	0.20	0.00	0.45 - 1.24
Bricklayers	0.52	0.10	0.00	0.34 - 0.70
Cooks. Waiters and Bartenders	1.17	0.31	0.00	0.57 - 1.77
Taxi Drivers and Related	1.00	0.13	0.00	0.75 - 1.25
Elementary Service Workers	0.56	0.15	0.00	0.27 - 0.84
Elementary Manufacturing Workers	0.48	0.14	0.00	0.20 - 0.76
Agricultural Workers (SE)	2.07	0.17	0.00	1.74 - 2.41
Agricultural Workers (E)	0.39	0.18	0.02	0.05 - 0.74
Protective Service Workers	1.59	0.18	0.00	1.23 - 1.94
Micro Uniform Change				
Germany	-0.007	0.005	0.21	-0.004 - 0.018
US	-0.011	0.005	0.05	-0.02 - 0.00
Base Macro Immobility				
Professionals	0.08	0.08	0.31	-0.08 - 0.24
Routine Nonmanual	0.21	0.08	0.01	-0.06 - 0.37
Shopkeepers	0.67	0.12	0.00	0.43 - 0.91
Manufacturing	0.19	0.06	0.00	-0.07 - 0.31
Service Workers	0.01	0.09	0.94	-0.17 - 0.18
Primary Sector	1.05	0.14	0.00	0.78 - 1.32
Macro Uniform Change				
Germany	-0.01	0.01	0.51	-0.04 - 0.02

Coefficients	β	SE	p-value	95% CI
US	-0.01	0.01	0.40	-0.04 - 0.02
Base Sector Immobility				
Manual and Nonmanual	0.28	0.05	0.00	0.19 - 0.38
Sector Uniform Change				
Germany	-0.11	0.07	0.11	-0.25 - 0.02
US	-0.04	0.06	0.57	-0.16 - 0.09
Base ISEI	0.003	0.0003	0.00	0.002 - 0.003
ISEI Uniform Change				
Germany	-0.0006	0.0003	0.10	-0.0013 - 0.0001
US	-0.001	0.0003	0.00	-0.002 - -0.0007

Table 6.2 Estimated Uniform inheritance effects and gradational effect in Italy, Germany and US for male respondents. The parameters are in multiplicative form

Table 6.2 shows the results of Model 2 (see Table A9 for Model 2 estimates under the dominance model). Looking at the micro-class reproduction, the difference between Germany and Italy is not statistically significant since the shift parameter ranges from $e^{-0.004}$ to $e^{0.02}$. On the contrary, the US appears to exhibit less micro-class reproduction than Italy, even though the shift parameter is modest in size, at $e^{-0.011}$. These results are quite consistent with what it has been said earlier and with the literature on intergenerational mobility. Indeed, US is generally considered as a country characterized by a higher social fluidity than some European countries, including Italy and Germany (Pisati, 1997; Bernardi and Ballarino, 2016; Breen and Müller, 2020).

Nonetheless, as previously hypothesized, Italy should be considered a country with a high level of micro-class structure, and the results seem to support this hypothesis. Even if the micro-class reproduction mechanism is only indirectly tested, it seems to be confirmed that Italy reaches a high micro-class reproduction differently than Germany and similarly to Japan. Rather than be a result of vocational system, the Italian reproduction seems to be the result of micro-enterprises and closure mechanisms. The effect of micro-enterprises might also be increased by the way people generally find their job: weak links (Reyneri et al., 2005). It is reasonable to assume that people employed in micro-

enterprises are likely to know others who work in the same firm or in similar firms. Furthermore, since the firm is small it is also reasonable that employees know directly the employer. Therefore, workers might leverage these kinds of social networks when their children are about to enter the labor market.

On the other hand, there seems to be no statistically significant differences in the macro and sector reproduction between Italy and the other two countries. This is not surprising since, as showed before, part of the reproduction at the higher level of aggregation is partially explained by micro-class reproduction.

As mentioned, there seems to be no difference between Germany and Italy at the micro level. However, if instead of considering a uniform shift for each country, Model 2 is used, some differences between Italy and Germany become more evident. First, there are some specific micro-classes where the reproduction is higher in Italy than in Germany and US. These occupations are: Accountants and Jurists, Sales Agents, Mechanics, and Elementary Service Workers. However, it seems hard to interpret this difference as the result of systematic dissimilarity between, for example, the labor market or the educational system of the three countries. Indeed, these occupations belong to different macro-classes and are quite different in terms of resources, class culture, and skills required. Therefore, the reason why these occupations exhibit more reproduction in Italy than in other two countries should be found in some specific features of these occupations. For example, it would have been different if all the micro-classes belonging to the Professionals class showed more reproduction in Italy than Germany and US. The more reproduction in the Accountants and Jurists micro-class, therefore, must be explained by some specific feature of this occupation within the Italian context rather than, for example, the more social closure of professions in Italy than in Germany or US. The same holds true for the other micro-classes. Because of data sparseness, Model 1 seems to be less useful to find some structural differences between the countries.

However, there is a systematic difference between Italy and Germany: self-employed reproduction in Germany is higher than Italy. More precisely, children whose father is self-employed and is either a Shopkeeper, a Craft Workers or an Agricultural Worker stay in the same micro-class, respectively, $e^{0.9} = 2.6$, $e^{1.2} = 3.2$, and $e^{1.5} = 4.7$ times more in Germany than in Italy. This is a counterintuitive result since Italy is the European country with more self-employed and with the highest percentage of inheritance of self-employment (Müller and Arum, 2004). Indeed, in Italy 48.2% of men inherited the business from the father, while in Germany only 16.8% of men with a self-employed father become self-employed (Arum and Müller, 2004).

Self-employment in Germany and Italy are the product of two different labor markets and therefore the higher reproduction in Germnay than in Italy might be the result of these differences (Lohmann and Luber, 2004; Barbieri and Bison, 2004). However, the higher reproduction in Germany than in Italy can be simply explained by the data at hand. Indeed, the percentage of shopkeepers whose father was also a shopkeeper is slightly higher in Italy than in Germany, but the percentage of self-employed craft Workers whose father was in the same micro-class is similar in both countries. Additionally, the percentage of self-employed agricultural workers whose father was also self-employed in agriculture is higher in Germany than in Italy. Therefore, the stronger inheritance effect in German self-employment might simply result from an underestimation of these micro-classes in the Italian dataset, particularly in the agricultural sector.

This aspect combines with the way in which inheritance effects are estimated. The inheritance effects are estimated by the following equation (Hout, 1983):

$$\delta_{ij}^{MIC} = Log\left(\frac{f_{ij}}{F_{ij}^{*}}\right) \tag{6.1}$$

where f_{ij} is the frequency of people who stay in the same micro-clas of the father and F_{ij}^{*} is the estimated number of sons who stay in the same micro-class of father only by chance. Looking for example at the Shopkeepers class, where the number of "stayers" is higher in Italy than Germany is the result of the following eqautions:

$$\delta_{Shop.Shop.}^{MIC-IT} = Log\left(\frac{85}{42}\right) \qquad \delta_{Shop.Shop.}^{MIC-DE} = Log\left(\frac{46}{8.8}\right) \tag{6.2}$$

As can be seen the number F_{ij}^{*} is relatively high in Italy compared to Germany and this is the result of the hihg number of shopkeepers in the old Italian cohorts. Therefore the combination of (possibly) underestimated number of Shopkeepers and the high number of Italian fathers who were shopkeepers, give a low inheritance effect. The opposite happens in Germany, where F_{ij}^{*} is relatively low compared to Italy and therefore the inheritance effect is higher than in Italy.

CHAPTER 7

Conclusions

As discussed at the beginning of the thesis, in Italy, the class schemes proposed to analyze intergenerational mobility primarily refer to the theories of Marx or Weber, and little, if any, attention has been paid to occupations, even though they form the basis of the most widely used class schemes. This thesis tried to fill this gap. To the best of my knowledge, there are no studies in Italy that have attempted to analyze intergenerational mobility measuring social stratification by a micro-class scheme. As said in the Introduction and Chapter 2, the literature has shown that reproduction is the result of occupational inheritance rather than class transmission, and therefore the main aim of the thesis was to prove that this result holds true in Italy as well. More precisely, this project aimed to give an account of the Italian intergenerational reproduction and mobility using a micro-class scheme.

The project builds on the paper by Jonsson et al. (2009), that explicitly used the micro-class approach to measure intergenerational reproduction in Germany, Sweden, US and Japan. The micro-class approach and the paper have received criticisms by other scholar; nonetheless Jonnson and colleagues demonstrated how class reproduction appears to be, in fact, the result of micro-class reproduction. In other words, sons who remain in the same class as their fathers tend to follow the same occupation. This is not the case for daughters.

Italy differs from all the countries included in Jonsson's analysis in terms of its economy, labor market, and welfare regime, making it interesting to examine whether micro-class reproduction is also the main mechanism of inequality transmission in Italy. Nonetheless, Italy is not different from other countries in terms of micro-class reproduction. In fact, all micro-classes exhibit a stronger inheritance effect than big-classes. This holds true for all macro-classes, with a few exceptions (such as Engineers and Science Professionals, Primary and Secondary Teachers, Shopkeepers, Office Clerks, Shop Sales Assistants, Elementary Manufacturing Workers, and Agricultural Workers), when considering the relationship between fathers and sons. As shown in other studies, this pattern

does not hold for daughters. Although the results for women may be affected by the sparseness of the data, the point estimates suggest that micro-class immobility does not differ significantly from the effects observed in larger classes. It seems confirmed that fathers are more likely to pass on their occupation to sons rather than daughters. It is reasonable to assume that in the Manufacturing Sector, fathers pass on their occupations to their sons rather than their daughters because jobs in this sector have traditionally been held by men rather than women. However, this pattern is also observed in the Service and Professionals classes, which include occupations accessible to women as well.

Furthermore, among men, big-class inheritance effects significantly decrease when estimated net of micro immobility. The inheritance effect of the Service class even turns negative when the micro-diagonal is fitted: children from this class are more likely to move out of it than to remain within. The opposite is true at the micro level: within the Service class, sons tend to follow their father's occupation rather than ending up in the same class but in a different micro-class. However, the reduction in immobility effects is not uniform across all classes: it is larger in the Service and Manufacturing classes and less pronounced in the Professionals and Routine Nonmanual classes. This may result from class resources available to Professionals and Routine Nonmanuals, which help their sons avoid downward mobility and stay in the same class even when choosing a different occupation. Nonetheless, even in these latter two classes, when the micro-diagonal is fitted, their confidence intervals include negative values, indicating that incumbents of these classes might be more likely to move out of them than to stay. The Agricultural and Shopkeeper classes, even if reduced in size, are the only two with high and positive net big-class inheritance effects. However, it is true that these two classes differ from all others, as they encompass a range of very similar occupations, making them more aligned with the micro-class concept than with the big-class one.

Among women, the mechanism is different. First, the reduction of big-class inheritance effect is not significant for all of the macro-classes considered. There is, however, an exception: class reproduction in the Primary Sector can be explained by reproduction within each agricultural micro-class. What is interesting is that, the immobility of self-employed agricultural worker is as strong as the immobility of employed agricultural workers. This is not true among men where the inheritance effect of employed in the Primary Sector is quite low. This result suggest that, among men, employed farmers tend to use their "class resources" to help their sons transition into self-employed agricultural work. In contrast, among women, an employed agricultural worker, rather than

using his "class resources" to enable his daughter to become self-employed, he passes on the same occupation to her. These results further confirm that, among men, rigidities in social stratification are more evident at the occupational level than at the class level. Occupations are considered classes because, through mechanisms of closure, collective action, identity formation, and lifestyle influence, people within the same occupation tend to protect their shared interests, secure their position in the labor market, and develop similar occupational values and cultures. As a consequence, incumbents of the same micro-class tend to preserve their occupational advantages and that of their children.

Nonetheless, comparing Italy with Germany and US allows to highlight another mechanism of occupational transmission, starting from the differences in the size of micro inheritance effects. The results show that micro level reproduction in Italy is slightly higher than in the US and comparable to Germany. This align with the literature, which indicates that Germany has more micro-class reproduction than the US. However, the mechanism through which Germany and Italy achieve a high micro-class reproduction differ. In Germany, micro-class reproduction is largely driven by a well-developed vocational system. While Italy also has a vocational system that is more advanced than that of the US (Müller and Shavit, 1997), the primary mechanism for micro-class reproduction in Italy appears to be the widespread prevalence of small-scale self-employment. Indeed, Italy stands out in Europe for the high concentration of small and micro-enterprises. As showed by Jonsson et al. (2009), the micro reproduction in Japan's small businesses sector is a key factor in that country's high micro-class reproduction. Italy seems to follow the same pattern. Moreover, the combination of small businesses and the large share of Italian workers who find a job trough familiar networks, strengthen the transmission of occupation from one generation to the other. Indeed, fathers can help sons (and in a lesser extent daughter) to find a similar job because, given the small size of the firms, it is reasonable to assume that employees have a direct relationship with the employer. They might also be familiar with others workers who have a job in the same or similar companies and, as a result, workers may use these social connections to help their children when they are about to enter the job market. Obviously this mechanism increases micro-reproduction than class reproduction: an employed bricklayer is more likely to know whether his firm or another similar firm is hiring a bricklayer, than knowing that a certain car repair company is hiring a mechanic. In other words, a son of a bricklayers is more likely to stay in the same micro-class of the father than ending up in the Mechanics micro-class.

Finally, there is a difference in big-class inheritance effects when micro-classes are not considered. Italy shows slightly higher big-class inheritance than the US, a finding also supported by the literature. However, when micro-classes are taken into account, this difference disappears at the macro level and, as said, reappears at the micro level. Even though the big-class inheritance effect slightly reduces when the micro-diagonal is fitted, it seems that the observed difference in big-class reproduction between Italy and the US can be partially explained by differences in micro-class reproduction.

Looking at the evolution of micro-class inheritance permits revealing other interesting results. More precisely, during the *economic boom* the inheritance effect at the micro level decrease and then stabilize in the last period. The increased opportunities created by the *economic boom*, the industrialization of the country, and the liberalization of the educational system boosted the chances for upward mobility. This is something that has already been shown in literature. However, when only one uniform shift parameter is estimated for each level of aggregation, the reduction of immobility occurs only at the micro level moving from the first cohort (i.e., 1900-1944) to the second cohort (i.e., 1945-1967), while no changes are detected at the macro level. This is far from concluding that previous results on intergenerational mobility, only conceal micro-class mobility, because, as said in the Introduction, the model mostly focuses on reproduction. Nevertheless, it is reasonable to conclude that reproduction at the micro level contributed to the reduction of reproduction at the macro level and the increase in mobility during the post-war period. What is interesting is that, at the macro level, reproduction has not changed over the years. If micro-class approach had not been employed the reduction in reproduction at the micro level would have been concealed.

Nonetheless, the origin-destination association is not only explained by reproduction, but also by mobility. Indeed, studies on intergenerational mobility are not only interested in the immobility within each class, but also in the relative chance of ending up in a class instead of another for people born in two different classes. Because of the sparseness of the data in micro-class mobility tables, previous studies only focused on reproduction. To overcome this limitation, in this thesis, the mobility has been studied conditioned on the class of origin or the class of destination. In other words, is the chance of ending up in any of the micro-class of destination the same for people whose fathers belonged to a different micro-class but in the same class? Similarly, given a class of destination, are the chance of ending up in any of the occupation within the given class of destination the same for people belonging to any of the micro-

class of origin? This way was possible to complete the analysis on micro-class reproduction with the analysis on mobility. The results show a difference between daughters and sons. Among men, the likelihood of entering a particular occupation, given the father's class, is influenced by the micro-class of origin. Similarly, for each class of destination, the odds of ending up in a specific occupation depend on father's occupation. In other words, there is no class structure that can account for mobility between micro-classes: for sons, the father's occupation shapes their likelihood of mobility, beyond mere reproduction within the same micro-class. This holds true across all classes for sons, with the exception of Shopkeepers and Shop Sale Assistants. For example, the chance of sons born in the Manufacturing of becoming a health professional rather than a mechanic depends on whether the father was in one of the following micro-classes: Metalworkers, Textile and Wood Workers, Mechanics, Electricians, Bricklayers, Elementary Manufacturing Workers. Unfortunately, it is not possible to disentangle which occupations give the highest chance of becoming a doctor neither which occupations lead to upward or downward mobility. It is however noteworthy that occupations sharing the same class resources influence the occupation of the sons in different ways. Furthermore, this is not only a result of micro-class reproduction since most classes are not homogeneous even when the main diagonal si "blocked out": only within the Routine Nonmanual, the Shopkeepers and the Agricultural Workers the micro-class of origin are quasi-independent from micro-class of destination.

Among women, the results are quite opposite: the 23 micro-class scheme could be aggregated into 8 homogeneous classes: Professionals, Routine Nonmanual, Shopkeepers, Craft Workers (SE), Manufacturing Workers, Service Sector, Agricultural Workers (SE), and Agricultural Workers (E). According to the internal homogeneity thesis stated by Breiger (1981), and explained in Chapter 5, if classes are internal homogenous, mobility from any row to any column is explained by the social class structure and therefore the mobility between micro-classes is explained by the defined macro level. In other words, the chance for a daughter whose father was a mechanic of becoming a health professional is the same for a daughter whose father was either an electricians, a metalworker, a textile or woodworker, a bricklayer or an elementary manufacturing worker. The main difference between daughter and sons is that, while daughters benefit from or are constrained by class resources, sons' mobility and reproduction are influenced more by their father's occupation even if they share similar class resources. The only exception among women is represented by daughters of fathers in the Manufacturing and Agricultural sectors. When class resources are

limited, as in these two sectors, the father's occupation influences not only the sons' but also the daughters' occupational outcomes. In other words, the likelihood of ending up in any micro-class differ for the daughters of, for example, mechanics or bricklayers, as well as for employed or self-employed agricultural workers.

Even when mobility is taken into account, occupations work as classes only among men. As said before, occupations are considered as classes because they are a realist social group in which people identify themselves and share occupational specific resources, skills, cultures and tastes. While it easier to see how these mechanisms influence micro-class reproduction, it is harder to explain which mechanism is responsible for making occupations belonging to the same class differ in their mobility rate. Clearly this thesis has not the ambition to answer at this research question, but it is however true that occupation-specific resources shape the mobility rate of sons. Nonetheless, it would be interesting for future research to understand what are the mechanisms that can explain mobility from one occupation to another. Furthermore, the analysis showed only looked at mobility rate without distinguishing between upward and downward mobility. Therefore, future research should focus also on which occupations guarantee a better placement in the social stratification and which one does not.

Nevertheless, the thesis has some limitations. First, the micro-class scheme used comprises fewer categories than what it is typically defined in the literature. As a result, some aspects of micro-reproduction are not strictly at the occupational level but fall between meso-class and micro-class categories as outlined in Jonsson's micro-class scheme. Furthermore, some professions are grouped together. For example, engineers and science professionals instead of represent two distinct micro-classes are in the same micro-class. This leads to the reproduction of this micro-class reflecting an average of two occupations with different characteristics. Second, as in Jonsson's paper, the log-linear model does not fit the data adequately, but since the large number of categories this is difficult to avoid. However, this means that the model takes into account only the reproduction and not the mobility. Therefore, mobility is only considered within each class of origin and destination. Finally, as already shown in literature, daughters do not exhibit strong inheritance effects at the micro-class level. This suggests that the theory of micro-classes applies more to men than women, not only in terms of reproduction but also in terms of mobility. To address this limitation, it would be important to consider the mother's occupation alongside the father's. However, due to the limited number of observations, it was not possible to explore the relationship between mothers and daughters in this study.

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Appendices

	1900-1944		1945-1967		1968-1990	
Level of aggregation	β	SE	β	SE	β	SE
Micro class Level						
Engineers and Science Professionals	0.36	0.83	0.55	0.91	-0.29	0.94
Architects and Designers	3.13	0.99	0.40	1.74	-1.14	1.21
Health Professionals	3.47	0.72	-1.79	0.83	-2.60	0.90
Accountants and Jurists	1.16	0.77	2.22	0.98	0.82	0.92
Primary and Secondary Teachers	1.17	0.89	-0.49	1.10	-0.38	1.18
Shopkeepers	0.38	0.40	0.33	0.49	0.34	0.51
Shop Sale Assistants	0.77	0.53	0.21	0.63	-0.60	0.69
Finance Clerks	-0.13	1.07	0.67	1.14	1.58	1.14
Sales Agents	1.59	0.65	-0.18	0.77	0.95	0.74
Office Clerks	1.01	0.45	-0.93	0.52	-1.17	0.55
Craft Workers (SE)	1.63	0.23	-0.38	0.30	-0.37	0.34
Metalworkers	0.72	0.35	-0.01	0.45	0.11	0.48
Textile and Woodworkers	2.47	0.44	-0.65	0.59	-1.72	0.87
Mechanics	1.69	0.44	-0.63	0.54	0.57	0.55
Electricians	1.93	0.55	-1.32	0.76	-1.63	0.92
Bricklayers	0.66	0.21	-0.16	0.27	0.26	0.31
Cooks, Waiters and Bartenders	3.96	0.84	-1.57	0.98	-2.65	1.16
Taxi Drivers and Related	1.43	0.45	-0.67	0.54	-0.08	0.57
Elementary Service Workers	0.71	0.56	0.36	0.63	-0.28	0.69
Elementary Manufacturing Workers	0.81	0.36	-0.21	0.45	-1.35	0.70
Agricultural Workers (SE)	1.93	0.27	-0.21	0.45	-0.65	0.57
Agricultural Workers (E)	0.47	0.22	-0.09	0.39	-0.87	0.53
Protective Service Workers	0.97	0.81	0.21	0.91	0.36	1.04
Macro Level						
Professionals	-0.28	0.44	0.48	0.53	0.56	0.52
Routine Nonmanual	-0.53	0.36	0.96	0.41	0.58	0.42

	1900-1944		1945-1967		1968-1990	
Level of aggregation	β	SE	β	SE	β	SE
Shopkeepers	1.07	0.35	-0.41	0.43	0.13	0.44
Manufacturing	0.15	0.14	0.10	0.17	-0.01	0.20
Service Workers	-0.24	0.32	0.19	0.36	0.22	0.39
Primary Sector	1.42	0.28	-0.38	0.40	0.22	0.46
Sector Level						
Manual and Nonmanual	0.55	0.09	-0.11	0.11	-0.05	0.12
Gradational Level						
ISEI	0.0018	0.0003	-0.0008	0.0003	-0.0010	0.0003

Table A1 Estimated inheritance effects and gradational effects shifts from first cohort. The parameters are in multiplicative form

	Italy		Germany		US	
Level of aggregation	β	SE	β	SE	β	SE
Micro class Level						
Engineers and Science Professionals	0.41	0.24	-0.21	0.27	0.04	0.27
Architects and Designers	2.03	0.53	-0.73	0.67	-1.33	0.90
Health Professionals	1.70	0.27	0.31	0.37	-0.46	0.37
Accountants and Jurists	1.98	0.33	-1.30	0.48	-1.78	0.42
Primary and Secondary Teachers	0.68	0.42	0.64	0.48	-0.41	0.58
Shopkeepers	0.70	0.20	0.95	0.41	-0.01	0.39
Shop Sale Assistants	0.68	0.24	-1.13	0.82	-0.43	0.36
Finance Clerks	0.82	0.26	-0.66	0.41	-0.25	0.44
Sales Agents	1.83	0.24	-1.15	0.37	-1.02	0.32
Office Clerks	0.23	0.19	-0.40	0.29	0.03	0.33
Craft Workers (SE)	1.16	0.14	1.18	0.27	-0.02	0.22
Metalworkers	0.79	0.21	-0,03	0.25	0.28	0.26
Textile and Woodworkers	1.70	0.32	-0.53	0.44	0.10	0.63
Mechanics	1.64	0.21	-0.86	0.31	-1.04	0.28

	Italy		Germany		US	
Level of aggregation	β	SE	β	SE	β	SE
Electricians	0.38	0.47	0.58	0.55	0.58	0.57
Bricklayers	0.41	0.14	0.33	0.18	-0.09	0.18
Cooks, Waiters and Bartenders	1.81	0.41	-0.09	0.86	-1.72	0.73
Taxi Drivers and Related	1.03	0.21	-0.03	0.30	-0.19	0.28
Elementary Service Workers	0.96	0.21	-1.00	0.39	-0.62	0.29
Elementary Manufacturing Workers	0.08	0.26	0.68	0.31	0.34	0.35
Agricultural Workers (SE)	1.77	0.26	1.55	0.44	-0.50	0.37
Agricultural Workers (E)	0.32	0.25	0.23	0.48	0.08	0.36
Protective Service Workers	1.16	0.35	0.48	0.47	0.45	0.41
Macro Level						
Professionals	0.30	0.18	-0.13	0.23	-0.39	0.22
Routine Nonmanual	0.28	0.14	0.18	0.19	-0.37	0.20
Shopkeepers	0.92	0.17	-0.67	0.37	-0.45	0.27
Manufacturing	0.22	0.08	-0.13	0.11	-0.06	0.10
Service Workers	-0.07	0.13	0.15	0.19	0.002	0.17
Primary Sector	1.01	0.20	-0.57	0.36	0.21	0.27
Sector Level						
Manual and Nonmanual	0.28	0.06	-0.10	0.08	-0.03	0.07
Gradational Level						
ISEI	0.0018	0.0003	-0.0008	0.0003	-0.0010	0.0003

Table A2 Estimated inheritance effects and gradational effects shifts from Italy for men. The parameters are in multiplicative form

Coefficients	β	SE	p-value	95% CI
Base Micro Immobility				
Engineers and Science Professionals	0.55	0.25	0.03	0.06 - 1.03
Architects and Designers	2.30	0.50	0.00	1.31 - 3.29
Health Professionals	1.37	0.26	0.00	0.86 - 1.88
Accountants and Jurists	2.33	0.33	0.00	1.69 - 2.97
Primary and Secondary Teachers	0.57	0.32	0.08	-0.06 - 1.20
Shopkeepers	0.86	0.19	0.00	0.49 - 1.22
Shop Sale Assistants	0.72	0.23	0.00	0.27 - 1.17
Finance Clerks	1.01	0.25	0.00	0.51 - 1.51
Sales Agents	2.15	0.25	0.00	1.66 - 2.63
Office Clerks	0.49	0.18	0.01	0.13 - 0.85
Craft Workers (SE)	1.42	0.13	0.00	1.16 - 1.69
Metalworkers	0.83	0.20	0.00	0.44 - 1.22
Textile and Woodworkers	1.95	0.27	0.00	1.43 - 2.47
Mechanics	1.68	0.23	0.00	1.24 - 2.13
Electricians	1.18	0.34	0.00	0.51 - 1.85
Bricklayers	0.86	0.14	0.00	0.58 - 1.14
Cooks. Waiters and Bartenders	2.42	0.39	0.00	1.66 - 3.18
Taxi Drivers and Related	1.41	0.23	0.00	0.96 - 1.86
Elementary Service Workers	0.98	0.24	0.00	0.50 - 1.46
Elementary Manufacturing Workers	0.79	0.23	0.00	0.34 - 1.23
Agricultural Workers (SE)	2.13	0.21	0.00	1.71 - 2.54
Agricultural Workers (E)	0.54	0.18	0.00	0.18 - 0.89
Protective Service Workers	1.46	0.36	0.00	0.75 - 2.16
Micro Uniform Change				
1945-1967	-0.019	0.008	0.02	-0.035 - -0.004
1968-1990	-0.017	0.009	0.07	-0.036 - 0.001

Coefficients	β	SE	p-value	95% CI
Base Macro Immobility				
Professionals	0.16	0.16	0.31	-0.15 - 0.46
Routine Nonmanual	0.08	0.14	0.54	-0.18 - 0.35
Shopkeepers	0.74	0.17	0.00	0.42 - 1.07
Manufacturing	0.18	0.11	0.08	-0.03 - 0.39
Service Workers	-0.08	0.16	0.63	-0.40 - 0.24
Primary Sector	1.14	0.19	0.00	0.78 - 1.51
Macro Uniform Change				
1945-1967	0.01	0.02	0.76	-0.04 - 0.05
1968-1990	0.02	0.03	0.55	-0.04 - 0.07
Base Sector Immobility				
Manual and Nonmanual	0.46	0.08	0.00	0.30 - 0.63
Sector Uniform Change				
1945-1967	-0.03	0.10	0.74	-0.22 - 0.16
1968-1990	-0.01	0.10	0.90	-0.22 - 0.19
Base ISEI	0.0018	0.0003	0.00	0.0012 - 0.0025
ISEI Uniform Change				
1945-1967	-0.0009	0.0004	0.01	-0.0016 - -0.0002
1968-1990	-0.0008	0.0004	0.04	-0.0016 - -0.00003

Table A3 Estimated uniform inheritance effects and gradational effects across three cohorts for male respondents under the dominance model. The parameters are presented in multiplicative form

	1900-1944		1945-1967		1968-1990	
Level of aggregation	β	SE	β	SE	β	SE
Micro class Level						
Engineers and Science Professionals	0.31	0.82	0.49	0.89	-0.10	0.91

	1900-1944		1945-1967		1968-1990	
Level of aggregation	β	SE	β	SE	β	SE
Architects and Designers	3.04	0.98	0.41	1.73	-1.17	1.19
Health Professionals	2.63	0.61	-1.30	0.71	-1.99	0.77
Accountants and Jurists	1.38	0.70	1.95	0.92	0.61	0.85
Primary and Secondary Teachers	1.14	0.65	-0.77	0.80	-0.90	0.91
Shopkeepers	0.36	0.40	0.45	0.48	0.67	0.50
Shop Sale Assistants	0.90	0.51	-0.05	0.60	-0.82	0.65
Finance Clerks	-0.08	1.07	0.79	1.13	1.29	1.14
Sales Agents	1.66	0.65	-0.06	0.78	0.85	0.74
Office Clerks	0.95	0.45	-0.76	0.51	-0.74	0.53
Craft Workers (SE)	1.48	0.23	-0.30	0.29	-0.14	0.33
Metal Workers	0.89	0.35	-0.23	0.45	-0.39	0.50
Textile and Wood Workers	2.48	0.42	-0.79	0.57	-1.85	0.86
Mechanics	1.53	0.46	-0.46	0.57	0.47	0.58
Electricians	1.97	0.55	-1.30	0.77	-1.63	0.93
Bricklayers	0.73	0.21	-0.26	0.27	0.17	0.32
Cooks. Waiters and Bartenders	3.94	0.83	-1.76	0.97	-2.90	1.16
Taxi Drivers and Related	1.44	0.44	-0.67	0.54	0.14	0.57
Elementary Service Workers	0.73	0.52	0.23	0.60	-0.48	0.66
Elementary Manufacturing Workers	0.83	0.34	-0.24	0.45	-1.10	0.70
Agricultural Workers (SE)	2.24	0.29	-0.47	0.47	-0.90	0.59
Agricultural Workers (E)	0.47	0.22	-0.11	0.39	-0.73	0.53
Protective Service Workers	0.85	0.80	0.18	0.91	0.89	1.05
Macro Level						
Professionals	-0.16	0.40	0.49	0.46	0.21	0.46
Routine Nonmanual	-0.49	0.36	0.89	0.41	0.49	0.42
Shopkeepers	1.02	0.35	-0.53	0.42	0.03	0.44
Manufacturing	0.15	0.14	0.12	0.18	0.04	0.20
Service Workers	-0.17	0.31	0.15	0.35	0.19	0.38

	1900-1944		1945-1967		1968-1990	
Level of aggregation	β	SE	β	SE	β	SE
Primary Sector	1.37	0.28	-0.46	0.40	0.05	0.46
Sector Level						
Manual and Nonmanual	0.51	0.09	-0.08	0.11	-0.08	0.12
Gradational Level						
ISEI	0.0018	0.0003	-0.0008	0.0003	-0.001	0.0003

Table A4 Estimated inheritance effects and gradational effects shifts from first cohort under the dominance model. The parameters are in multiplicative form

	Quasi-independence			Independence		
Hypotheses	df	χ^2	p	df	χ^2	p
H1	418	721	0.00	441	1988	0.00
H2	340	407	0.01	361	1084	0.00
H3	268	315	0.02	289	860	0.00
H4	206	233	0.10	225	590	0.00

Table A5 Results of the Internal Homogeneity test for men under the dominance model

	Quasi-independence			Independence		
Hypotheses	df	χ^2	p	df	χ^2	p
H1	418	651	0.00	441	1213	0.00
H2	340	360	0.22	361	564	0.00
H3	268	293	0.14	289	455	0.00
H4	206	197	0.67	225	261	0.05

Table A6 Results of the Internal Homogeneity test for women under the dominance model

	Quasi-independence			Independence		
Hypotheses	df	χ^2	p	df	χ^2	p
H1	305	510	0.00	315	903	0.00
H2	251	355	0.00	259	584	0.00
H3	155	203	0.01	160	309	0.00
H4	81	101	0.07	84	182	0.00
H5	41	44	0.33	43	70	0.01
H6	371	765	0.00	384	1682	0.00
H7	221	291	0.00	228	524	0.00
H8	189	242	0.01	195	369	0.00
H9	119	198	0.00	123	263	0.00
H10	41	51	0.14	43	188	0.00

Table A7 Results of the Goodman's Homogeneity test for men under the dominance model

	Quasi-independence			Independence		
Hypotheses	df	χ^2	p	df	χ^2	p
H1	305	525	0.00	315	688	0.00
H2	251	311	0.01	259	383	0.00
H3	155	181	0.07	160	207	0.01
H4	81	74	0.69	84	84	0.47
H5	41	35	0.72	43	54	0.13
H6	371	748	0.00	384	1255	0.00
H7	221	310	0.00	228	344	0.00
H8	189	239	0.01	195	257	0.00
H9	119	138	0.11	123	146	0.08
H10	41	78	0.00	43	168	0.00

Table A8 Results of the Goodman's Homogeneity test for women under the dominance model

Coefficients	β	SE	p-value	95% CI
Base Micro Immobility				
Engineers and Science Professionals	0.46	0.08	0.00	0.30 - 0.61

Coefficients	β	SE	p-value	95% CI
Architects and Designers	1.28	0.29	0.00	0.71 - 1.85
Health Professionals	1.19	0.12	0.00	0.94 - 1.43
Accountants and Jurists	0.82	0.16	0.00	0.50 - 1.14
Primary and Secondary Teachers	0.51	0.15	0.00	0.22 - 0.80
Shopkeepers	1.14	0.14	0.00	0.86 - 1.41
Shop Sale Assistant	0.39	0.15	0.01	0.09 - 0.69
Finance Clerks	0.51	0.16	0.00	0.20 - 0.82
Sales Agents	0.92	0.14	0.00	0.65 - 1.20
Office Clerks	0.34	0.11	0.00	0.13 - 0.55
Craft Workers (SE)	1.40	0.10	0.00	1.20 - 1.59
Metal Workers	0.89	0.10	0.00	0.69 - 1.10
Textile and Wood Workers	1.31	0.21	0.00	0.90 - 1.72
Mechanics	0.96	0.14	0.00	0.68 - 1.24
Electricians	0.64	0.24	0.01	0.17 - 1.11
Bricklayers	0.55	0.09	0.00	0.37 - 0.73
Cooks. Waiters and Bartenders	0.90	0.25	0.00	0.41 - 1.39
Taxi Drivers and Related	1.11	0.14	0.00	0.85 - 1.38
Elementary Service Workers	0.59	0.14	0.00	0.32 - 0.86
Elementary Manufacturing Workers	0.53	0.15	0.00	0.24 - 0.82
Agricultural Workers (SE)	2.04	0.17	0.00	1.71 - 2.37
Agricultural Workers (E)	0.44	0.18	0.01	0.10 - 0.79
Protective Service Workers	1.41	0.21	0.00	1.01 - 1.82
Micro Uniform Change				
Germany	0.006	0.006	0.26	-0.005 - 0.017
US	-0.02	0.01	0.00	-0.03 - -0.009
Base Macro Immobility				
Professionals	0.05	0.07	0.50	-0.09 - 0.19
Routine Nonmanual	0.11	0.07	0.13	-0.03 - 0.24
Shopkeepers	0.47	0.11	0.00	0.25 - 0.70

Coefficients	β	SE	p-value	95% CI
Manufacturing	0.21	0.06	0.00	0.09 - 0.33
Service Workers	-0.03	0.09	0.74	-0.20 - 0.14
Primary	1.01	0.13	0.00	0.75 - 1.27
Macro Uniform Change				
Germany	-0.01	0.01	0.57	-0.04 - 0.02
US	0.005	0.01	0.72	-0.03 - 0.02
Base Sector Immobility				
Manual and Nonmanual	0.27	0.05	0.00	0.19 - 0.36
Sector Uniform Change				
Germany	-0.15	0.06	0.02	-0.27 - -0.03
US	-0.06	0.06	0.26	-0.17 - 0.05
Base ISEI	0.0029	0.0003	0.00	0.0024 - 0.0035
ISEI Uniform Change				
Germany	-0.0005	0.0003	0.11	-0.0012 - 0.0001
US	-0.0014	0.0003	0.00	-0.0020 - -0.0008

Table A9 Estimated Uniform inheritance effects and gradational effect in Italy. Germany and US for male respondents under the dominance model. The parameters are in multiplicative form

	Italy		Germany		US	
Level of aggregation	β	SE	β	SE	β	SE
Micro class Level						
Engineers and Science Professionals	0.52	0.23	-0.24	0.27	0.03	0.26
Architects and Designers	1.98	0.52	-0.67	0.66	-1.57	0.89
Health Professionals	1.43	0.25	0.10	0.33	-0.70	0.32
Accountants and Jurists	2.11	0.32	-1.40	0.47	-1.90	0.41

	Italy		Germany		US	
Level of aggregation	β	SE	β	SE	β	SE
Primary and Secondary Teachers	0.17	0.35	0.95	0.41	-0.16	0.43
Shopkeepers	0.90	0.19	0.99	0.39	-0.31	0.38
Shop Sale Assistant	0.66	0.23	-0.20	0.50	-0.49	0.32
Finance Clerks	0.78	0.26	-0.67	0.39	-0.39	0.37
Sales Agents	1.92	0.25	-1.25	0.39	-1.51	0.32
Office Clerks	0.40	0.18	-0.25	0.26	-0.17	0.24
Craft Workers (SE)	1.16	0.14	1.14	0.27	0.01	0.22
Metal Workers	0.63	0.23	0.09	0.27	0.51	0.27
Textile and Woodworkers	1.56	0.33	-0.43	0.45	-0.26	0.58
Mechanics	1.49	0.23	-0.77	0.34	-0.93	0.32
Electricians	0.22	0.52	0.46	0.62	0.58	0.66
Bricklayers	0.44	0.14	0.29	0.19	-0.19	0.19
Cooks. Waiters and Bartenders	1.65	0.41	-0.57	0.85	-1.46	0.53
Taxi Drivers and Related	1.19	0.22	-0.25	0.32	-0.27	0.29
Elementary Service Workers	0.81	0.21	-0.55	0.36	-0.55	0.27
Elementary Manufacturing Workers	0.25	0.26	0.52	0.31	-0.04	0.38
Agricultural Workers (SE)	1.78	0.27	1.57	0.44	-0.76	0.36
Agricultural Workers (E)	0.39	0.26	0.11	0.49	-0.07	0.37
Protective Service Workers	1.18	0.36	0.56	0.50	-0.20	0.47
Macro Level						
Professionals	0.16	0.15	-0.10	0.20	-0.17	0.18
Routine Nonmanual	0.17	0.14	0.12	0.18	-0.22	0.17
Shopkeepers	0.71	0.17	-0.71	0.35	-0.33	0.25
Manufacturing	0.23	0.08	-0.07	0.11	-0.07	0.11
Service Workers	-0.05	0.13	0.01	0.20	-0.01	0.16
Primary Sector	0.91	0.20	-0.52	0.36	0.37	0.27
Sector Level						

	Italy		Germany		US	
Level of aggregation	β	SE	β	SE	β	SE
Manual and Nonmanual	0.27	0.05	-0.15	0.07	-0.05	0.06
Gradational Level						
ISEI	0.0026	0.0004	-0.0002	0.0005	-0.0009	0.0004

Table A10 Estimated inheritance effects and gradational effects shifts from Italy for men under the dominance model. The parameters are in multiplicative form

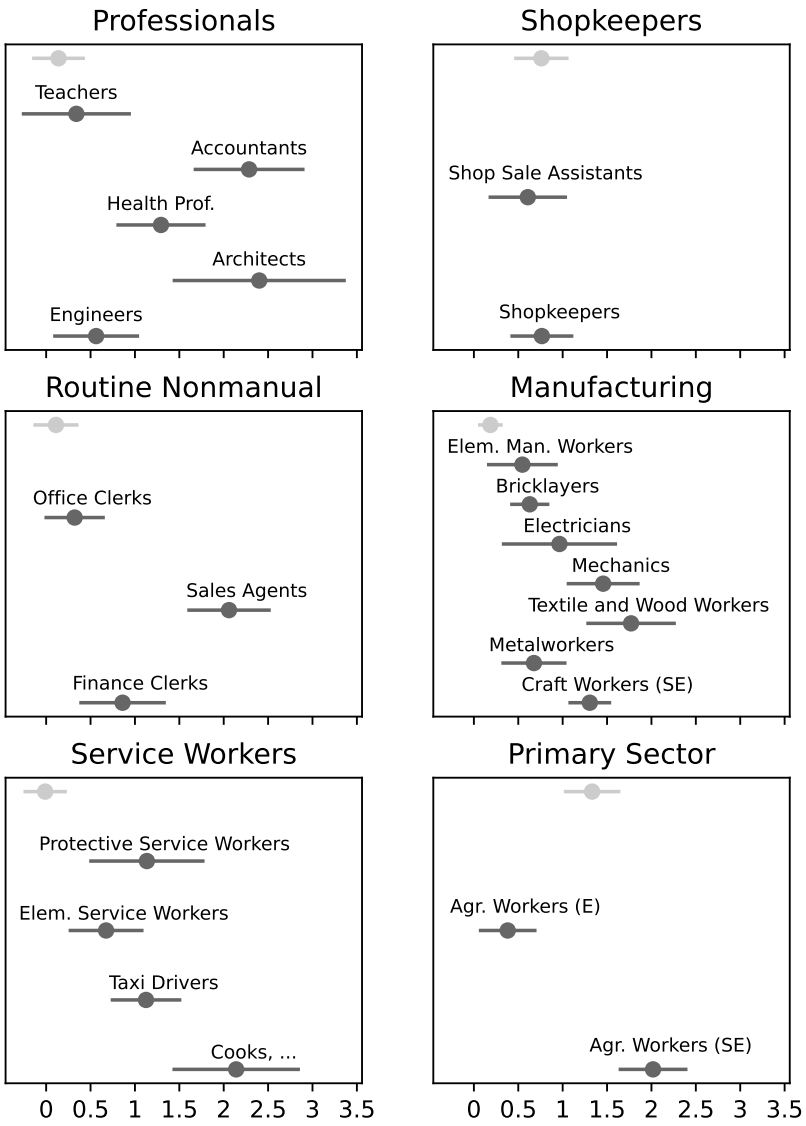

Fig. A1 Men's inheritance effects at the micro level under the dominance model are represented by dark gray dots, while inheritance effects at the macro level, net of micro-class inheritance, are shown by light gray dots.Due to space constraints, some labels have been abbreviated. For the full label, refer to Figure 3.1. The title of each sub-graph corresponds to the title of light gray dots belonging to the given sub-graph

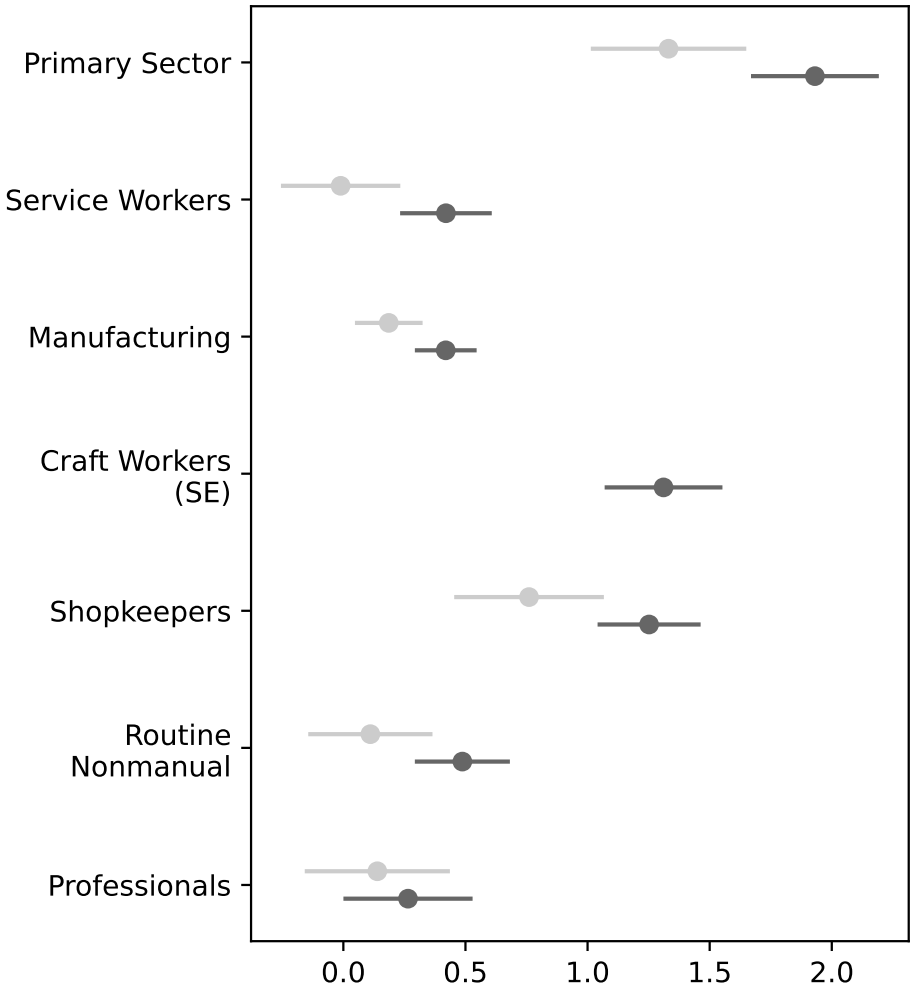

Fig. A2 Men's inheritance effects at the macro level under the dominance model. Dark gray dots represent the inheritance effect when the micro-diagonal is not fitted, while light gray dots indicate class reproduction net of the micro-class inheritance effect

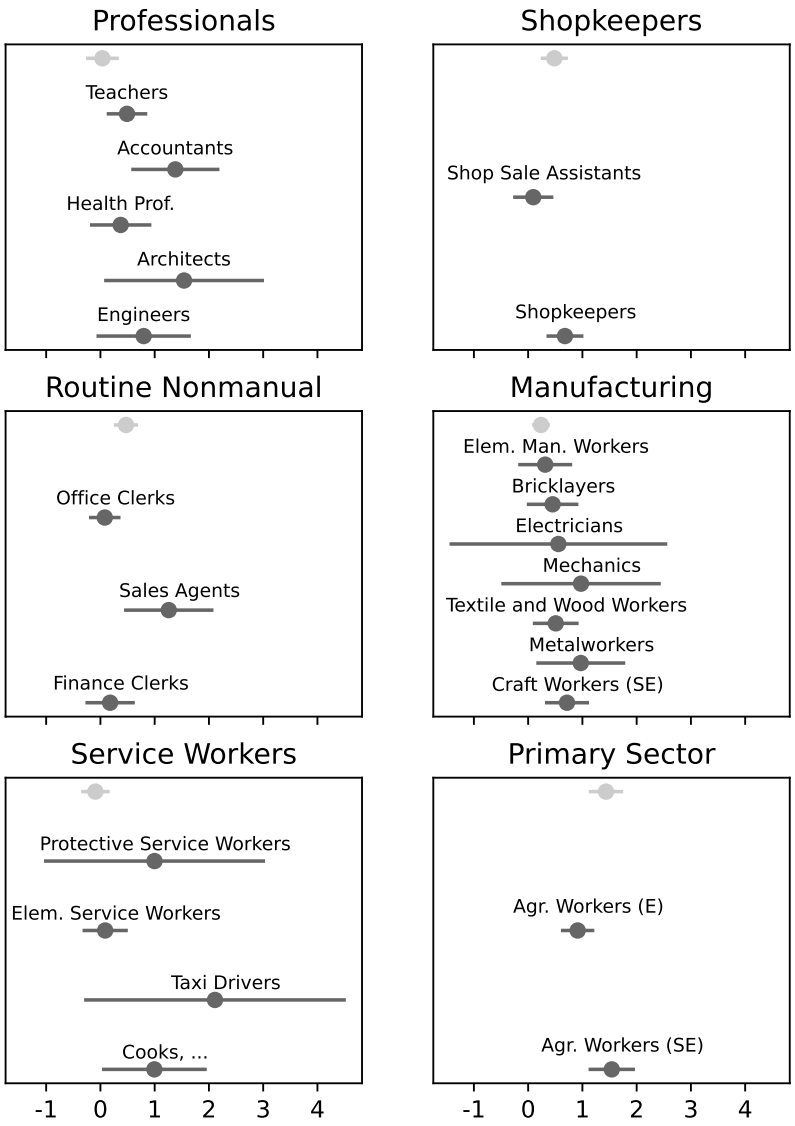

Fig. A3 Women's inheritance effects at the micro level under the dominance model are represented by dark gray dots, while inheritance effects at the macro level, net of micro-class inheritance, are shown by light gray dots. Due to space constraints, some labels have been abbreviated. For the full label, refer to Figure 3.1. The title of each sub-graph corresponds to the title of light gray dots belonging to the given sub-graph

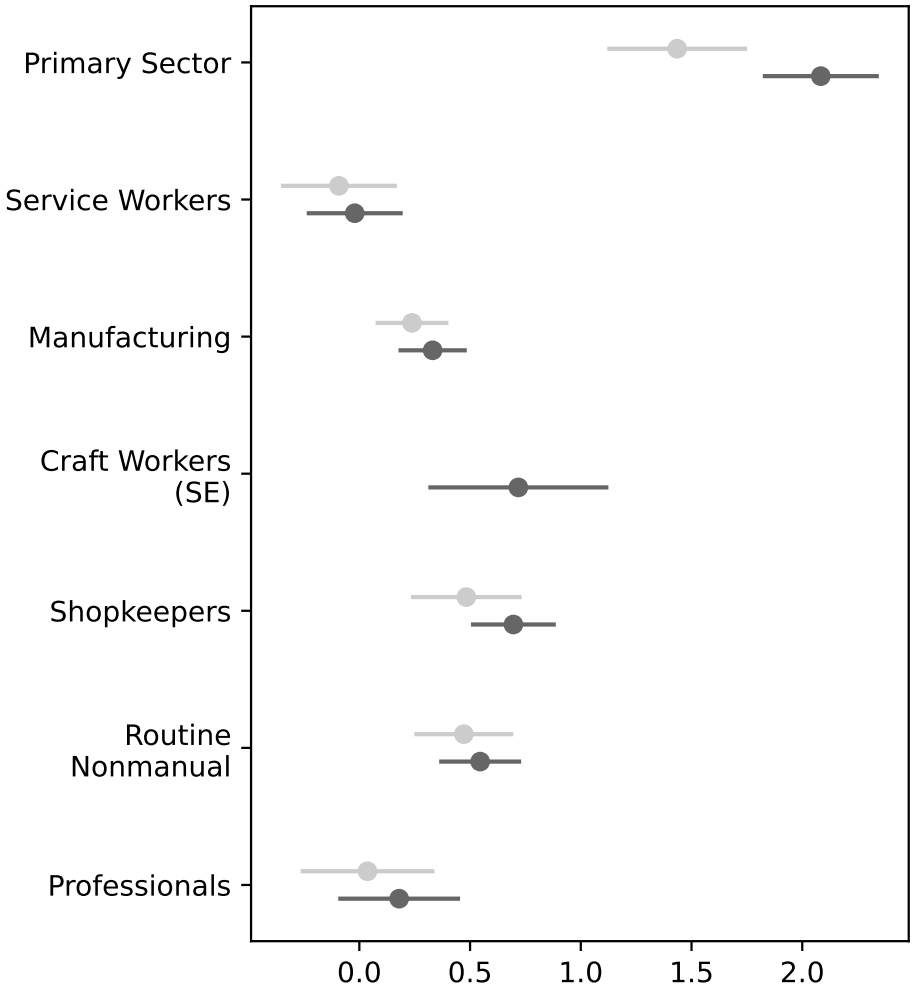

Fig. A4 Women's inheritance effects at the macro level under the dominance model. Dark gray dots represent the inheritance effect when the micro-diagonal is not fitted, while light gray dots indicate class reproduction net of the micro-class inheritance effect

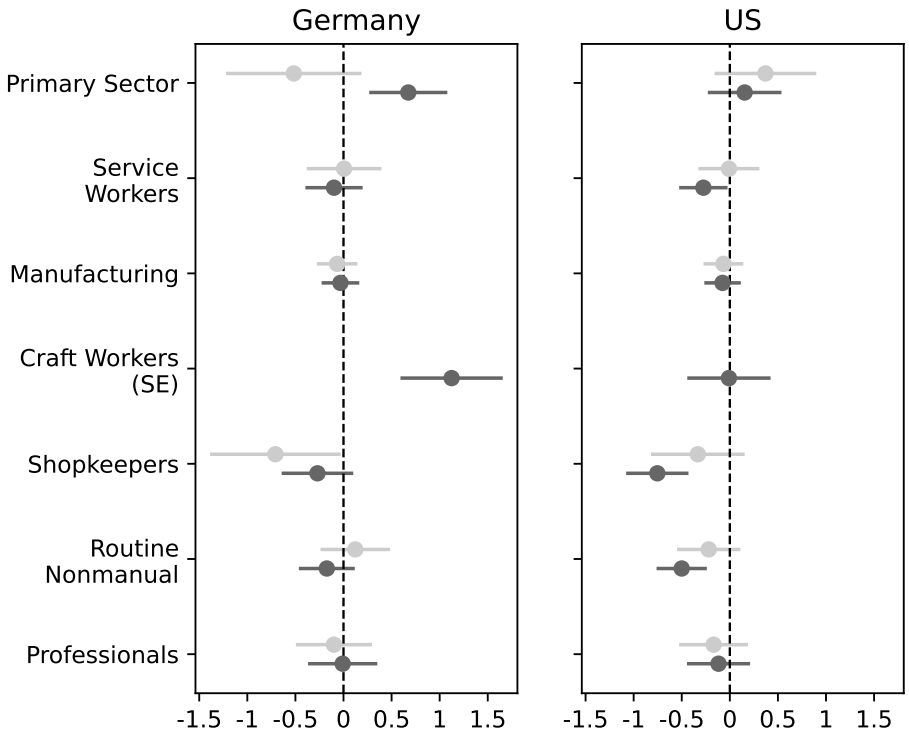

Fig. A5 Inheritance effects at the macro level for each country under the dominance model (Italy is the reference category). Dark gray dots represent the inheritance effect shift when the micro-diagonal is not fitted, while light gray dots indicate difference in class reproduction net of the micro-class inheritance effect