Micro-Class Mobility
Social Reproduction in Four Countries

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Abstract

In the sociological literature on social mobility, the long-standing convention has been to assume that intergenerational reproduction takes one of two forms, either a categorical form that has parents passing on a big-class position to their children, or a gradational form that has parents passing on their socioeconomic standing to their children. These conventional approaches ignore in their own ways the important role that occupations play in transferring advantage and disadvantage from one generation to the next. In log-linear analyses of nationally representative data from the United States, Sweden, Germany, and Japan, we show that (a) occupations are an important conduit for reproduction, (b) the most extreme rigidities in the mobility regime are only revealed when analyses are carried out at the detailed occupational level, and (c) much of what shows up as big-class reproduction in conventional mobility analyses is in fact occupational reproduction in disguise. Although the four countries studied here differ in the extent to which the occupational form has been institutionalized, we show that it is too prominent to ignore in any of these countries. Even in Japan, which has long been regarded as distinctively "deoccupationalized," we find evidence of extreme occupational rigidities. These results suggest that an occupational mechanism for reproduction may be a fundamental feature of all contemporary mobility regimes.

The scholarly literature on social mobility has long been fixated on questions about the *amount* of mobility and has paid little attention, by contrast, to the logically prior question of the *form* that mobility takes. The convention among mobility scholars has simply been to assume that intergenerational reproduction takes one of two forms: (a) class scholars have sought to model how parents pass on their social class to children; and (b) gradationalists have sought to model how parents pass on their socioeconomic standing to their children. Under both approaches, detailed occupations are treated as the appropriate starting point in representing the underlying structure of inequality, but they are deemed unusable in disaggregate form and are transformed either by aggregating them into big classes (i.e., the class approach) or by scaling them in terms of their socioeconomic status or prestige (i.e., the gradational approach). The study of mobility has in this sense been reduced to the study of either class or socioeconomic reproduction, yet quite strikingly these simplifying assumptions have come to be adopted with little in the way of evidence that they adequately characterize the structure of unequal opportunity.

Is it possible that both class and gradational representations are incomplete and obscure important rigidities in the mobility regime? The purpose of our paper is to show that indeed these simplifying representations provide only partial accounts of mobility and that the full extent of inequality is only revealed by supplementing them with a third representation that treats occupations as fundamental conduits of reproduction. Because occupations are often deeply institutionalized social groups, we suggest that they play a featured role in intergenerational reproduction, a role that has gone largely unappreciated in conventional mobility analyses. We will ask whether occupational reproduction is a generic feature of late industrialism by comparing the mobility regimes of the United States, Germany, Sweden and Japan.

The skeptic might contend that, after decades of relentless research on social mobility, it is hardly likely that any important misunderstanding of its structure could have gone undetected and have persisted. This reaction, while understandable, fails to appreciate that the class-based approach to analyzing mobility tables has been so dominant as to preclude any meaningful experimentation with alternative representations (e.g., Breen 2004; Erikson and Goldthorpe 1992a; Sobel, Hout, and Duncan 1985). With few exceptions, sociologists have focused on describing and modeling mobility among big classes, and the decision to begin analysis with a big-class table has gone largely unchallenged (but see Stier and Grusky 1990; Rytina 1992; 2000). Although the main competitor to a big-class formulation, that of gradationalism, was once popular within sociology (e.g., Blau and Duncan 1967; Featherman and Hauser 1978), it has by now been superseded by big-class analysis and thus lives on principally within economics in the form of increasingly popular analyses of income or earnings mobility (e.g., Solon 2002; Bradbury and Katz 2002; Björklund and Jäntti 1997; cf. Harding et al. 2005; Morgan, Fields, and Grusky 2006).

In what follows, we argue that these two conventional characterizations of reproduction (i.e., class-based, gradational) fail to capture some of the important rigidities in the mobility regime and understate, as a result, just how rigid contemporary mobility regimes in fact are. This argument is best developed by first reviewing the two existing approaches to characterizing mobility regimes and turning thereafter to a review of our occupational approach. Throughout this review, we will often refer to occupations as "micro classes," as they embody mechanisms (e.g., closure) and traits (e.g., culture) that are often attributed to big classes.

Gradational regime: The gradational approach to studying mobility has inequality taking on a simple unidimensional form in which families are arrayed in terms of either income (as economists would have it) or occupational status (as sociologists would have it). The life chances

of children growing up within such systems are a function, then, of their standing within this unidimensional queue of families. When children are born high in the queue, they tend to secure high-status and highly rewarded occupations by virtue of (a) their privileged access to the economic resources (e.g., wealth, income) needed to either purchase training for the best occupations (e.g., an elite education) or to "purchase" the jobs themselves (e.g., a proprietorship), (b) their privileged access to social networks providing information about and entree to the best occupations, and (c) their privileged access to cultural resources (e.g., socialization) that motivate them to acquire the best jobs and that provide them with the cognitive and interactional skills (e.g., culture of critical discourse) to succeed in them. Under the gradational model, it is the total *amount* of resources that matter, and children born into privileged circumstances are privileged because they have access to so many resources (e.g., Hout and Hauser 1992). The imagery here is accordingly that of two unidimensional hierarchies, one for each generation, smoothly joined together through the mediating mechanism of total resources (economic, social, or cultural). In Figure 1a, an ideal-typical gradational regime is represented by projecting a detailed cross-classification of occupational origins and destinations onto a third dimension, one which represents the densities of mobility and immobility. This graph, which orders origin and destination occupations by socioeconomic score, shows the characteristic falloff in mobility chances as the distance between origin and destination scores increases.[1]

*** Figure 1 About Here ***

Big-class regime: The big-class regime, by contrast, has inequality taking the form of mutually exclusive and exhaustive classes. These classes are often assumed to convey a package of conditions (e.g., working conditions, rewards), a resulting social environment that structures behavior and decision-making, and a culture that may be understood as an adaptation (or

maladaptation) to this environment. For our purposes, the relevant feature of this formulation is that all children born into the same class will have largely the same mobility chances, even though their parents may hold different occupations with different working conditions and socioeconomic standing. The logic of the class situation is assumed, then, to be overriding and to determine the life chances of the children born into it. Obversely, two big classes of similar status will not necessarily convey to their incumbents identical mobility chances, as they may differ on various non-status dimensions that have implications for mobility. For example, proprietors and routine nonmanuals are roughly similar in socioeconomic status, yet the children of proprietors will tend to become proprietors and the children of routine nonmanuals will tend to become routine nonmanuals. This pattern arises because tastes and aspirations develop in class-specific ways (e.g, the children of proprietors develop tastes for autonomy and the children of routine nonmanuals develop tastes for stability), because human capital is cultivated and developed in class-specific ways (e.g., the children of proprietors develop entrepreneurial skills and the children of routine nonmanuals develop bureaucratic skills), and because social capital is distributed in class-specific ways (e.g., the children of proprietors are apprised of entrepreneurial opportunities and the children of routine nonmanuals are apprised of routine nonmanual opportunities). By virtue of these processes, children do not have generic access to all occupations of comparable standing (as gradationalists would have it), but instead are especially well positioned to assume occupations that align with the culture, training, and contacts that their class origins entail. In Figure 1b, we represent an ideal-typical class regime of this sort, albeit with the (gross) simplification that inter-class densities of exchange are fixed to be the same.

Micro-class regime: The main question posed in this paper is whether the class form, as rendered above, has been operationalized in a way that fully captures the rigidities in the mobility regime. The micro-class approach shares with the big-class model the presumption that

contemporary labor markets are balkanized into discrete categories, but such balkanization is assumed to take principally the form of institutionalized occupations (e.g., doctor, plumber, postal clerk) rather than institutionalized big classes (e.g., routine nonmanuals). By implication, occupations comprising big classes will have differing propensities for mobility and immobility, a heterogeneity that obtains because the distinctive occupational worlds into which children are born have consequences for the aspirations they develop, the skills that they value and to which they have access, and the networks upon which they can draw. The children of carpenters, for example, may be especially likely to become carpenters because they are exposed to carpentry skills at home, are socialized in ways that render them especially appreciative of carpentry as a vocation, and are embedded in social networks that provide them with information about how to become carpenters and how to secure jobs in carpentry. Although a micro-class regime again assumes a very lumpy class form, the lumpiness is much finer, then, than big-class analysts would allow (see Figure 1c). Additionally, one would anticipate all manner of specialized off-diagonal affinities (DiPrete and McManus, 1993), but we have suppressed such affinities in Figure 1c.

In past mobility research, there has been considerable debate about which of the first two forms (i.e., gradational, big-class) best represents the structure of contemporary mobility regimes, an older debate that we will not review here (see Erikson and Goldthorpe 1992b, 1993; Hout and Hauser 1992; Sørensen 1992). Rather, we incorporate both of these mechanisms in our models, thus allowing us to ask whether they exhaust the structure of mobility or must instead be supplemented with a new micro-class mechanism. We apply this approach to test for two possible misrepresentations of the structure of mobility: (a) the mobility regime may appear to be more fluid than it truly is because the potentially extreme closure at the detailed occupational level is simply ignored (i.e., *overestimated fluidity*), and (b) the inequalities that are found in

conventional analyses may be taken as evidence of class reproduction when in fact occupational reproduction is the underlying process (i.e., *misrepresented form*). The latter misunderstanding is of course the source of the former; that is, because conventional representations of the reproductive process have us looking for rigidities in the wrong place, we can fail to find much rigidity and come to represent the mobility regime as more fluid than it truly is. We will be exploring the data for evidence of either of these two types of misrepresentations.

It is unlikely that any one of these ideal-typical mechanisms has ever been realized in pure form. However, our strategy is to analyze countries that, at least by reputation, draw on these different mechanisms to varying degrees. Although Germany and the United States might be understood as the home ground of occupationalization, Sweden has a long tradition of big-class organization, while Japan is typically assumed to be stratified more by family and firm than by big class or occupation. We seek to explore in this fashion the reach of micro-class mechanisms into labor markets that have not historically been regarded as taking a micro-class form. If a micro-class mechanism nonetheless emerges as fundamental in these labor markets, the case for building that mechanism more systematically into our models is thereby strengthened.

The main intellectual backdrop to our analysis is the ongoing sociological debate about the types of social groupings that have taken hold in contemporary industrialism. Throughout much of the 20th century, sociologists were fascinated, arguably obsessed, with theorizing about the conditions under which big classes might form, an understandable fascination insofar as individual life chances and even collective outcomes (e.g., revolutions) were taken to depend on class processes. The occupationalization of the labor market has, by contrast, been treated as a mere surface phenomenon that is neither complicated, subtle, or consequential enough to merit much attention. With the exception of Durkheim (e.g., [1893] 1933) and a few intrepid neo-

Durkheimians (e.g., Bourdieu 1984), scant attention has therefore been paid to the occupational balkanization of contemporary labor markets, however profound this process appears to be. To be sure, occupations have long been represented in sociological rhetoric as the "backbone" of the inequality system (e.g., Parkin 1971), yet the tendency has been to reduce occupations to gradational scores (e.g., Hauser and Warren 1997; Ganzeboom et al. 1992) or to use them as aggregates in constructing big classes (e.g., Erikson and Goldthorpe 1992a). These conventional approaches do of course bring in the occupational dimension indirectly. We argue, however, for explicitly bringing it out by treating detailed occupations as real, discrete groups that shape experiences in the family of origin and that are often envisaged as future labor market positions. We will explore the hypothesis that, because detailed occupations are often deeply institutionalized, a host of mechanisms come into play that bring about occupation-specific intergenerational reproduction (Grusky 2005).

The remainder of our paper is organized as follows. First, we discuss the mechanisms underlying intergenerational reproduction, distinguishing in particular between the mechanisms making for micro-class reproduction and those making for big-class reproduction. We next discuss how these mechanisms play out in our four countries and produce different combinations of micro-class and big-class reproduction. The resulting hypotheses about the structure of cross-national variation in mobility are then tested by applying loglinear models to highly disaggregate father-to-son and father-to-daughter mobility tables. We conclude with a discussion of the results and their bearing on the debate between micro-class and big-class proponents.

The reproduction of micro-classes

We turn now to a discussion of the mechanisms that underlie the reproduction of micro-classes. Following Table 1, we will first review the mechanisms that may generate big-class

reproduction, as doing so sets the stage for examining whether similar mechanisms are also activated on behalf of micro-class reproduction. Although we will not be directly measuring these mechanisms, it is revealing nonetheless to clarify how reproduction is likely to be achieved at the micro-class and big-class levels.

*** Table 1 About Here ***

For the purposes of this discussion, we will treat professionals as an illustrative big class (e.g., Gouldner 1979; Bell 1973), and we will ask why the children of professionals may be especially likely to become professionals themselves. It is not enough in addressing this question to simply make reference to the general resources available to professional children (e.g., money, prestige) and to the generic advantages that these resources convey in the competition for all high-status positions. We must additionally ask why professional children are more likely to assume professional positions than non-professional positions of equivalent standing. The objective, in other words, is to explain why reproduction takes on a pure class form that cannot be explained in simple gradational terms. To be sure, some class analysts prefer an encompassing definition of class reproduction, one that would label both gradational and "pure" class reproduction as different types of a more broadly understood form of class reproduction. We are not averse to this broad definition of class reproduction, but it is useful even in the context of such a definition to distinguish between two types of class reproduction, a pure or "class-specific" form involving mechanisms that bring about a direct correspondence between origin and destination class, and a gradational or "general" form involving mechanisms that locate children in destinations that are socioeconomically close to their origin class (but not in the origin class itself).[2]

If we focus on the sources of pure class reproduction and consider professional reproduction as an illustrative case, a natural starting point is the standard argument that

professional families transmit specialized cognitive abilities that pay off principally in the professional class. The ability, for example, to write effectively is useful in many professional occupations and will presumably be inculcated in professional children because their parents stress the importance of reading, frequently discuss newspapers and written texts at home, and may even provide hands-on instruction in writing. This transmission of cognitive skills is of course carried out in the context of a wider class-specific culture that likewise prepares children for professional destinations (see Erikson and Jonsson 1996). The culture of "critical discourse" (Gouldner 1979; Bell 1973), which may be understood as the reigning culture of the professional class, is transmitted to professional children because their parents practice and reward abstract argumentation, justify claims on the basis of argument rather than authority, and openly discuss all topics no matter how sacred, obvious, or illicit others might deem them. It is surely plausible that children exposed to and trained in such critical discourse will be well-suited for occupations that rely on it in their everyday business. More generally, children are exposed to various types of class-specific capital that leads them to develop class-specific personalities or proclivities, with such personalities or proclivities then proving attractive to employers hiring within that class (Jackson 2006; Barrick and Mount 1991).[3]

The children growing up in professional families are also exposed to professional networks that may have a similar reproductive effect. Because professional children come into frequent contact with other professional families, they will (a) learn about the world of professions and come to be oriented toward that world, (b) develop knowledge about how to prepare for professional occupations, and (c) have a ready supply of contacts who can assist them as they begin their careers (e.g., provide internships, inform them of jobs). These social advantages can be exploited by professional children because they have the economic resources that make it easier to secure professional credentials (e.g., medical degree, law degree, Ph.D.).

As indicated in Table 1, a purely economic mechanism doesn't tell us why professional children might aspire to become professionals, but it does speak to why, once such aspirations are in place, they are especially likely to be realized.

The foregoing accounts emphasize, then, the transmission of abstract resources that putatively have payoff across all professional occupations. We have referred to generic skills that pertain to all professional occupations (e.g., writing skills), to a generic culture that characterizes all professional occupations (e.g., a culture of "critical discourse"), and to a broad professional network that cuts across all the occupations comprising the professional class. Although classwide transmission processes of this sort undoubtedly play out, it is unclear how strong they are and whether they exhaust all forms of class reproduction. Are we underestimating the extent of rigidity in the mobility regime by simply assuming, without any substantiating evidence, that all reproduction is of this classwide variety? We outline below the various mechanisms through which skills, culture, networks, and economic resources are passed on in ways that facilitate not just class reproduction but occupation reproduction as well.

Occupation-specific human capital

We begin by asking whether occupation-specific human capital is reliably transmitted from parent to child. Although the historic separation of home and workplace has made it more difficult for parents to transmit occupational human capital, it obviously does not follow that such capital is no longer transmitted at all. The sociologist, for example, may well talk shop with her or his children at the dinner table, litter the home with books, magazines, and newspapers that betray a sociological orientation, and in all other ways inculcate a sociological perspective in the natural course of everyday childrearing. The engineer, by contrast, may bring home toys that involve building things, may focus conversation and inquiry on the world of things, and may

impart a special interest in understanding "how things work." In the aftermath of the World Trade Center collapse, we can imagine the engineer's family talking mainly about why the building failed structurally, while the sociologist's family talks mainly about why there is terrorism.

The transmission of occupation-specific human capital is likely to occur outside the professional sector as well. The mechanic is especially likely to spend time at home engaging in repairs, may take her or his children into the repair shop, and may otherwise encourage an interest in taking things apart and fixing them (i.e., a "practical" engineer). Likewise, the seamstress may talk frequently about fashion at home, may take her or his children to fashion shows, and may train them in sewing and designing clothes. These examples make the simple point that the occupational commitments of parents can affect what they discuss at home, how they spend time with their children, and hence the skills that they impart to their children.

Occupation-specific cultural capital

The second assumption of conventional big-class analysis is that cultural reproduction is also an abstract process that plays out principally at the classwide level. By "cultural reproduction," we are referring to the tendency of parents to transmit tastes, values, and orientations that make their children want to hold the same class or occupation as their parents (i.e., the supply-side effect) and that make their children more attractive to potential employees within those classes or occupations (i.e., the demand-side effect). The key question for our purposes is whether parents pass on not just abstract classwide cultures that lead to big-class reproduction but also more concrete occupation-specific cultures that lead to micro-class reproduction.

This question cannot be well answered without some understanding of the conditions under which cultures form and are maintained. The two-pronged foundation of all cultures is (a)

a training regimen that inculcates a set of values and way of life (i.e., the training condition), and (b) some type of closure mechanism that ensures that class or occupation members interact principally with one another and thus protects against extraneous influences that could undermine the shared values into which members have been trained (i.e., the closure condition). These two conditions are, we shall argue, met more reliably within detailed occupations than big classes. For example, lawyers undergo intensive training within law school (i.e., the training condition) and interact frequently with one another in a relatively closed workplace (i.e., the closure condition), thus creating and sustaining an occupational culture that, in this case, rests on a celebration of rhetoric, argumentation, and instrumental action. As Grusky (2005) stresses, not all occupations have well-developed training regimens and dense intra-occupational networks of this sort, but those that do will develop an "esprit de corps" that can then be passed on to children and contribute to micro-reproduction (e.g., Van Maanan and Barley 1984; Hughes 1958; Caplow 1954).

These occupational cultures will affect not only the skills that are developed and that employers select on (i.e., the demand-side effect) but also the tastes and preferences that underlie aspirations (i.e., the supply-side effect). As Goldthorpe (1987, p. 99) put it, one might expect "particularistic variations" in the perceived desirability of different positions, variations that stem in part from culturally-specific judgments about what types of tasks are honorable, desirable, or valuable. These particularistic variations can operate to make typically attractive occupations yet more attractive or typically repellant occupations less repellant. For example, the offspring of parents in undesirable occupations (e.g., morticians, plumbers, garbage collectors) may "overvalue" these positions because their parents, perhaps in part through dissonance reduction processes, tend to talk up the virtues of their occupations or to stress advantages that others may overlook.[4] Because children cathect to parents, they of course tend to value and embrace what

their parents value and embrace, thus leading to the intergenerational reproduction of aspirations. We are suggesting here that such reproduction takes on principally a micro-class form: When a daughter cathects to her nursing mother, it leads to a commitment, for example, to become a "nurse like mom," not necessarily a commitment to become a "middle-class worker like mom."

Other occupation-specific mechanisms

The two remaining mechanisms in Table 1, networks and economic resources, operate in uncomplicated ways. For example, parents can clearly draw on both micro-class and big-class networks, the former arising because the workplace is often occupationally structured (e.g., the "law firm"), and the latter arising because the workplace also privileges some types of classwide interactions (e.g., attorneys interacting with paralegals) and because residential segregation typically takes on a classwide rather than occupational form (e.g., attorneys living in the same neighborhood as doctors). These class networks, both in their big-class and micro-class forms, affect the reproduction process by exposing children to particular types of positions and by giving them access to contacts who can assist them in securing those positions.

As for economic resources, the main point to be made is that liquid economic resources can be harnessed for the purpose of big-class reproduction, an obvious example being the financing of law school training by a parent who is a medical doctor (and hence has the requisite liquid resources). It is of course possible that such liquid resources will also be harnessed for the purpose of micro-class reproduction: The same doctor might use her or his wealth to finance a child's medical school training rather than law school training. Although liquid resources can therefore be used to further big-class, micro-class, or gradational reproduction, fixed resources often come in occupation-specific form (e.g., the family dentistry practice) and will therefore further occupation-specific reproduction alone. The dentist with a dentistry practice could cash in

that practice and convert it to liquid form, but such "cashing in" would entail all manner of transaction costs (e.g., sales commission, loss of particularistic customer information) that would be avoided by a direct inheritance. These transaction costs create an incentive, then, for the dentist's child to take her or his inheritance in fixed form, thus resulting in micro-class reproduction.

This review suggests that many of the mechanisms underlying intergenerational reproduction should generate rigidities at a more detailed level than has typically been appreciated. At minimum, our review calls into question the conventional assumption that *all* reproduction occurs at the big-class level, an assumption that underlies the construction of mobility tables that cross-classify big-class origins and destinations. We treat this long-standing assumption as a hypothesis and examine whether it is consistent with the data.

Cross-national differences in reproduction

For didactic purposes, we have presented our argument for a micro-class approach in general and universal terms, but it likely holds to a greater extent in some countries than in others. The usefulness of a micro-class approach in any given country will depend on whether the labor market encourages parents to accumulate occupation-specific or classwide capital (human, cultural, social) and whether, in light of the type of capital accumulated, parents are motivated to identify with their occupation or their big class. We expect micro-class reproduction to be strongest in countries in which parents accumulate much occupation-specific capital, identify with their occupation, and accordingly "bring home" their occupation in ways that then make it salient to their children and lead them to invest in it. Likewise, micro-class reproduction will be strengthened insofar as employers can (a) directly discriminate on behalf of individuals with the requisite occupational background (i.e., "direct micro-class discrimination"), or (b) indirectly

privilege such individuals by setting up recruitment protocols that covertly select for attributes that family-trained workers are more likely to embody (i.e., "indirect micro-class discrimination"). The same supply-side and demand-side forces could of course equally operate at the big-class level and thereby produce big-class reproduction.

As shown in Table 2, big-class and micro-class structuration may be viewed as analytically independent of one another, thus generating four ideal-typical mobility regimes. In a recent paper on class formation, Grusky (2005) suggests that Germany, United States, Sweden, and Japan come closest to approximating these four ideal types, and our point of departure in this paper is therefore precisely those countries. We review below how class formation is conventionally represented in Germany, United States, Sweden, and Japan and how, based on such representations, one might expect their mobility regime to take on a big-class or micro-class form.

*** Table 2 About Here ***

The case of Germany provides an example of a society that is stratified at once in occupational and big-class terms. Because Germany has a well-developed system of vocational training, parents accumulate considerable occupation-specific skills and will typically view their occupations as important identities, and the family accordingly becomes a site in which such skills or commitments can be conveyed and in which aspirations for occupational reproduction can emerge (e.g., Müller and Gangl 2003; Burkhauser, Holtz-Eakin, and Rhody 1998; DiPrete et al. 1997; DiPrete and McManus 1996; Blossfeld and Mayer 1988; Shavit and Müller 1998). At the same time, Germany is also the home ground of big-class structuration, as expressed particularly in the difference in employment regulations for wage earners, employees (Angestellte), and civil servants (Beamte) and the importance of big-class trade unions in collective bargaining and codetermination (Ebbinghaus and Visser 2000; Kocka 1981). The

typical German parent will therefore embrace both a big-class and occupational identity and presumably transfer those commitments to their children.[5] This account, standard though it is, does not align well with conventional practice in modeling mobility regimes. When applied to Germany, the conventional big-class mobility model will not only gloss over substantial within-class rigidities, but will also misrepresent these omitted micro-level rigidities as big-class reproduction.

By contrast, Japan can be said to represent an entirely contrary case, one with low structuration at both the micro-class and big-class levels. The educational system is general rather than vocational, and labor market attachments are firm-specific rather than occupation-specific and hence entail much within-firm mobility that cuts across occupational lines (e.g., Kato 2001; Ishida 1993). For the ideal-typical Japanese parent, there is little opportunity to develop occupational skills, and indeed the tendency is to identify with the firm rather than the occupation (at least for big-firm employees). Although recent commentators have suggested that occupational commitments may be strengthening with the breakdown of the permanent employment system (e.g., Brinton 2004; Kosugi 2003), it is still conventional to assume that, relative to such micro-class strongholds as Germany, Japan is distinctive for its weak occupational structuration. Likewise, Japanese workers are not strongly committed to their big class, as aggregate trade unions of the big-class variety have not emerged and collective bargaining at the big-class level is entirely undeveloped.

The Swedish case may be understood as a hybrid of the German and Japanese cases. As in Japan, guilds in Sweden early on lost in importance, although occupational trade unions do exist in Sweden. Even so, industrial relations are principally a matter of negotiation between centralized trade unions and employer federations, and indeed even professional unions have an overarching negotiating association.[6] The trade union for manual workers (LO) has traditionally

been very closely tied to the Social-Democratic Party, meaning that the political influence of aggregate-level organizations has been substantial, amplified by the corporatist organization of the state. The Swedish case resembles, then, the German case in its well-developed big-class organization (e.g., Esping-Andersen 1985; Korpi 1981), while it resembles Japan in its suppressed occupational organization. It follows that the conventional big-class mobility model is tailor-made for the Swedish case.

Finally, the case of the United States is one of moderately developed vocationalism and occupational associations, especially in the professional and craft sectors. Whereas the vocationalism of Germany is coupled with equally strong big-class organization, it has served in the United States mainly to strengthen craft unions and to undercut big-class unions and organization. As a result, parents in the United States will typically identify quite strongly with their occupation and have substantial occupational skills that may then be conveyed to children, whereas their commitment to big classes tends to be weak. In the context of this highly occupationalized labor market, the conventional big-class mobility model has to be understood as quite problematic, as it glosses over substantial intra-class rigidities and misrepresents the rigidities that it does capture as exclusively big-class in form. Given such problems, it is hardly surprising that some of the main critics of big-class mobility models are from the United States (e.g., Weeden and Grusky 2005; Grusky and Sørensen 2001) or from countries, such as Canada (e.g., Rytina 2000) or Australia (e.g., Pakulski 2005), that have U.S.-style mobility regimes.

This is all to suggest that countries may differ not merely in the amount of mobility but also in its form. We proceed, then, by developing a new and more encompassing mobility model that allows all forms of rigidity to surface and that can capture possible inter-country differences in the underlying shape of mobility. If some scholars have emphasized cross-national similarities in the mobility regime (e.g., Erikson and Goldthorpe 1992; but see Breen 2004), it is perhaps

because their analyses have been carried out with a big-class model that conceals any differences that fall outside the big-class form. This possibility is explored in much detail below.

Data, variables, and class schemes

The analyses presented here will be carried out with data from four countries (United States, Sweden, Germany, and Japan) that provide information on the father's occupation, the child's occupation, sex, age, and other variables that aid in occupational and big-class coding (e.g., employment status, branch of industry). Because our analyses are pitched at the occupational level, our father-by-respondent mobility tables will have many cells, and large data sets for each country are needed. We meet this requirement by drawing on multiple surveys in all countries save Sweden. For Sweden, the respondent's data come from the 1990 Census (FoB), and the parent's occupations are then recovered by linking to the 1960 and 1970 Censuses (Erikson and Jonsson 1993). The data from the remaining countries come from the sources listed in Table A1.

We carry out our cross-national analyses with data that are as comparable as possible. Given our need for large data sets, some compromises nonetheless had to made, most notably pertaining to the period covered and the age of the respondents. The data from the United States, for example, are drawn disproportionately from earlier time periods, although more recent data from the United States are used as well (see Table A1 for details). Additionally, the Swedish data set only covers respondents between 30 and 47 years old, whereas all other data sets cover respondents between 30 and 64 years old. We correct for these incomparabilities to the extent possible by fitting models that control for period and age.

We next proceeded by constructing a detailed occupational coding scheme that may be faithfully applied to all four countries (see Table 3 and Table A2).[7] This scheme, which includes 82 occupations, captures many of the fundamental boundaries in the division of labor that are

socially recognized and defended (see Sørensen and Grusky 1996 for a closely related scheme). In constructing the scheme, we sought to ensure that the jobs constituting each occupational category were comparable across countries, but inevitably some compromises had to be made because the source classification schemes were not detailed enough or because of real cross-national differences in how the division of labor is constructed.[8] The Japanese classification was quite idiosyncratic and sometimes difficult to reconcile with the others, but for the most part the same detailed occupations could be identified even in Japan.[9] This isomorphism, to the extent that it held, may be traced to three sources: (a) each country independently settled on the same way of dividing labor and defining occupations (perhaps owing to the "efficiency" of that shared solution); (b) a particular solution to the division of labor diffused across countries; or (c) a shared classification scheme diffused among statisticians, sociologists, and other classifiers even though it mapped only imperfectly onto the actual division of labor.[10] Although the latter, artifactual source of cross-national similarity is no doubt partly at work, there is clearly a real isomorphism in the division of labor producing many occupations that are deeply institutionalized (e.g., architect, electrician, miner). For such categories, the residual inconsistencies in coding appear to be quite small, and such cross-national differences as emerge in our data almost certainly signal real rather than artifactual variability.

*** Table 3 About Here ***

The careful reader will have noticed that our occupational scheme does not distinguish self-employed and employed workers (see Table 3). To be sure, we have coded storekeepers as "proprietors" and distinguished farmers from farm laborers, but otherwise the occupational affiliation takes precedence and employed and self-employed workers are combined in a single category. This raises the possibility that, for occupations with substantial self-employment, high rates of inheritance may be generated not because the occupation has unusual holding power but

because of the well-known holding power of self-employment itself (Erikson and Goldthorpe 1992a). We will correct for the potentially confounding effects of self-employment by completing separate mobility analyses for respondents with and without self-employed fathers.[11]

The distinctive feature of our analysis is that micro-class effects are layered over more conventional big-class effects. Given our suspicion that big-class effects may be weak, it is clearly important to adopt a big-class scheme that fully captures such big-class effects as can be found, as otherwise any possible shortfall in big-class explanatory power might be attributed to a poor operationalization. We have accordingly proceeded by fitting a multiplicity of nested big-class contrasts that capture the many and varied big-class distinctions that scholars have identified. As shown in Table 3, we begin by distinguishing the manual and nonmanual classes, a big-class distinction so important that early class scholars often focused on it alone. We next identify three "macro classes" in the nonmanual category (i.e., professional-managerial, proprietor, routine nonmanual) and another two macro classes in the manual category (i.e., manual, primary). Within three of these macro classes, we then allow further "meso class" distinctions to emerge: the professional-managerial class is divided into classical professions, managers and officials, and other professions; the routine nonmanual class is divided into sales workers and clerks; and the manual class is divided into craft, lower manual, and service workers. The resulting scheme, which embodies three layers of big-class distinctions (i.e., manual-nonmanual, macro class, and meso class), may be understood as a non-denominational hybrid of conventional schemes that assembles in one scheme many of the contrasts that have historically been emphasized by big-class scholars.

These distinctions will be introduced in our mobility model as a nested set of contrasts (see Herting et al. 1997; Stier and Grusky 1990). This approach not only allows us to tease out the net residue of reproduction at the meso-class, macro-class, and manual-nonmanual levels but

also allows for patterns of exchange that are more complicated than those conventionally allowed. The stylized father-to-child mobility table in Figure 2 depicts these three sets of overlapping big-class parameters and shows how they capture quite complicated affinities. If we had instead proceeded by fitting meso-class effects alone (as is conventional), we could absorb excess densities in the dark-gray regions of Figure 2 but not the surrounding light-gray regions. This simple extension of conventional mobility models thus opens up room for a powerful big-class account of intergenerational mobility.

*** Figure 2 About Here ***

In evaluating our big-class scheme, our main point of vulnerability is that, as a "non-denominational" scheme, it does not align perfectly with any standard class scheme on offer (e.g., Erikson and Goldthorpe 1992a; Wright 2005). To be sure, the scheme does exploit effectively the shared information available in each of the 10 data sets analyzed here (see Table A1), but it may discomfit purists who believe that their preferred big-class scheme best represents the true structure of mobility chances. The available evidence on this point, although limited, is nonetheless reassuring. Because the data sets from Sweden and Germany may be readily coded into the standard Erikson-Goldthorpe (EG) big-class scheme, we went forward and carried out those codings (for father's class) and then compared the explanatory power of the EG and non-denominational scheme for such dependent variables as income (for sons and daughters) and occupational prestige (for sons and daughters). The variances explained were quite similar across the two schemes and thus supported the claim that our non-denominational classification can well represent big-class effects (see Weeden and Grusky 2005 for similar results).[12]

We should note, finally, that most of our analyses in this paper pertain to men. As is frequently emphasized, women's mobility is complicated to model and represent because, even more so than for men, the process of intergenerational transmission operates through both

parents. We nonetheless present here selected results on women's mobility that set the stage for the more comprehensive results presented elsewhere (citation suppressed).

Absolute mobility

As a precursor to modeling the association between origins and destinations, we report gross immobility rates at four levels of aggregation, each presented separately for our four countries. The statistics presented in Table 4 pertain to the percentage of total observations that fall on the main diagonal of (a) a 2×2 manual-nonmanual table, (b) a 5×5 macro-class table, (c) a 10×10 meso-class table, and (d) an 82×82 micro-class table.

*** Table 4 About Here ***

We find that at the manual-nonmanual level about two-thirds of respondents in all countries are intergenerationally stable. At the macro-class level, the expected cross-national differences emerge, with Germany (51 percent) and Sweden (49 percent) having substantially more inheritance than either Japan (41 percent) or the United States (39 percent). These cross-national differences persist in attenuated form at the meso-class level. At the detailed micro-class level, the overall amount of immobility reduces substantially (ranging from 10 to 23 percent), and the pattern of cross-national variability changes as well. As expected, Germany evinces high rates of micro-class immobility, at least relative to what prevails in Sweden. However, micro-class immobility is surprisingly high in Japan, a result that cannot be entirely attributed to the large farming sector in Japan (coupled with the characteristically high immobility rates in that sector). In our side analyses (not reported here), we have found that even outside the farming sector there is much micro-class immobility in Japan, indeed substantially more than would be expected under the stereotypical view that occupational commitments are suppressed in that country. We explore the sources of this surprising result in our subsequent analyses.

The more important point to be stressed at this point is that only a minority of respondents in any country (i.e., 10-23 percent) experience micro-class immobility. This result is of course potentially consistent with substantial inequality of opportunity at the micro-class level. We do not know, as yet, whether children have privileged access to their micro-class of origin, although an immobility rate between 10 and 23 percent suggests extraordinary inequality of opportunity given how small micro-classes are. The comparatively higher immobility rates at the big-class level partly arises because chance alone (i.e., the model of independence) will generate much big-class immobility when classes are so big. Moreover, conventional mobility tables suppress the distinction between big-class and micro-class immobility, the latter contributing to the appearance of the former. It is altogether possible, then, that the big-class immobility observed in conventional mobility tables is propagated by two wholly artifactual sources: (a) the operation of chance clustering on the main diagonal of the sort that the model of independence would generate, and (b) the operation of micro-class clustering that misleadingly shows up as big-class clustering in a conventional big-class table (i.e., an artifact of excessive aggregation). The radical hypothesis that big-class immobility is entirely an artifact of these two sources can only be tested by turning, as we do next, to an analysis of relative rates in which the marginals are fit and immobility at each of the four levels (i.e., manual-nonmanual, macro class, meso class, micro class) is teased out. This analysis of relative rates allows us to speak to the inequality of opportunity expressed in a mobility table (i.e., "social fluidity").

Relative mobility

The model applied throughout this paper represents all three of the mobility mechanisms that we have discussed by including parameters for gradational exchange and for big-class and micro-class immobility. This model takes the following form in each country:

$$m_{ij} = \alpha\beta_i\gamma_j\varphi^{u_i u_j}\delta_{ij}^{S}\delta_{ij}^{M}\delta_{ij}^{B}\delta_{ij}^{O}$$

where i indexes origins, j indexes destinations, m_{ij} refers to the expected value in the ij^{th} cell, α refers to the main effect, β_i and γ_j refer to row and column marginal effects, φ refers to the socioeconomic effect, μ_i (origin) and μ_j (destination) are socioeconomic scale values assigned to each of the 82 micro-classes,[13] and δ^S, δ^M, δ^B, and δ^O refer to manual-nonmanual, macro-class, meso-class, and micro-class immobility effects respectively. The latter parameters are layered on one another and therefore capture net effects. The manual-nonmanual parameter, for example, indexes the average density across those cells pertaining to manual or nonmanual inheritance after purging the additional residue of inheritance that may obtain at the macro-class, meso-class, and micro-class levels (see Herting et al. 1997). This layering of effects is portrayed graphically in Figure 2. The particular occupations that constitute the manual-nonmanual, macro-class, meso-class, and micro-class categories are represented in Table 3.

The socioeconomic parameter, φ, captures the tendency of children to assume occupations that are socioeconomically close to their origins (see Hout 1988). If the apparent clustering at the micro-class, meso-class, macro-class, or manual-nonmanual levels reflects nothing more than this gradational tendency, then the inheritance parameters will become insignificant when the socioeconomic parameter is included. The big-class and micro-class parameters, taken together, thus speak to the extent to which the mobility regime is lumpy rather than gradational, while the relative size of these parameters speaks to whether conventional big-class analyses have correctly represented the main type of lumpiness. We will also estimate a trimmed model that omits the gradational parameter (φ). As we noted above, some class analysts prefer an encompassing definition of "class reproduction," one that treats both socioeconomic and pure class reproduction as different types of a more broadly understood form of class

reproduction. We can represent this broadened definition of class reproduction by omitting the socioeconomic term.

We begin our loglinear analysis by exploring the common features of mobility across all four countries. As shown in Table 5, we fit a model of the general type expressed in Equation 1, but now that model is applied to four countries and occupational supply and demand are allowed to freely vary across these countries (see Line A1). The resulting index of dissimilarity, 13.0, is quite large in comparison with typical values for comparable big-class mobility models. It is reassuring, however, that this lack of fit is generated principally by misclassification *within* big classes; that is, the index of dissimilarity for Model A1 declines to 4.5 when the expected values are aggregated up to the meso-class level, and it declines to 1.3 when the expected values are aggregated up to the macro-class level. For our purposes, it is the *average* densities within the regions of meso-class and macro-class inheritance that are principally of interest, and any lack of fit across the various cells pertaining to such inheritance (and to inter-class mobility) is quite unproblematic, in effect nothing more than noise around the means of interest to us. In presenting the coefficients from Model A1, it is useful to reweight each of the national samples to 10,000 cases, as doing so ensures that our pooled estimates are not unduly affected by large-sample countries. We have listed these reweighted estimates in Table 6 and graphed them in Figure 3.

Tables 5 and 6 and Figure 3 About Here

The most striking feature of Figure 3 is the micro-diagonal clustering that appears as a palisade protecting occupational positions from intruders. This palisade represents very substantial departures from equality of opportunity. For example, children born into the classical professions are 4.2 times more likely to remain in their micro-class of origin than to move elsewhere within their meso-class (i.e., $e^{1.44} \approx 4.2$), while the corresponding coefficients for

children born into managerial, craft, and service occupations are 4.6, 7.9, and 5.6 respectively (i.e., $e^{1.53} \approx 4.6$; $e^{2.07} \approx 7.9$; $e^{1.72} \approx 5.6$). Although the interior regions of the class structure are typically represented as zones of fluidity (e.g., Featherman and Hauser 1978), we find here substantial micro-class reproduction throughout the class structure, even among the "middle classes." It follows that conventional analyses have underestimated how rigid the mobility regime is and have failed to appreciate that such rigidities obtain throughout the class structure. These rigidities have been concealed because big-class analyses aggregate across occupations and fail, as a result, to capture the strong inter-occupational barriers.

How do the micro-class and big-class coefficients compare? Of the 14 big-class coefficients, the two largest are for proprietors ($e^{1.19} \approx 3.3$) and primary sector workers ($e^{1.18} \approx 3.3$), but even these two are smaller than all but the very smallest micro-class coefficients. It also bears noting that both of these big classes are big classes in name only. That is, because the proprietor class comprises only shopkeepers, it is not the characteristic big-class amalgam of many occupations; and there is accordingly good reason to regard proprietors as effectively a micro class. Likewise, the primary sector is not much of an amalgam, dominated as it is by farmers. The remaining twelve big-class effects, all of which pertain to true amalgams, are comparatively weak. The strongest of these effects, those for classical professions, sales work, clerical work, and manual-nonmanual divide, range in size from 1.3 to 1.4 (in multiplicative form). When the status term is omitted (Model A2, Table 5), the professional-managerial and classical profession effects become stronger, but even under this more sympathetic test the big-class coefficients, which now capture big-class *and* gradational processes, remain much smaller than the average micro-class coefficient ($e^{.45} \approx 1.6$; $e^{.89} \approx 2.4$).

The right side of Table 6 presents coefficients from a model that purges the effects of age and period. As shown in Table A1, our samples are drawn from populations of different ages and

time periods, raising the possibility that our conclusions are sensitive to the idiosyncratic combination of ages and periods that happens to prevail in our data. We have explored this possibility by disaggregating the mobility table for each country into subtables defined by age group (30-49 years vs. 50-64 years) and period (1962-1975 vs. 1976-2003). In some countries, one or more of the four possible mobility tables couldn't be constructed, given that the available data pertained only to one of two age groups or one of two periods.[14] We can still identify age and period effects on big-class, micro-class, and gradational parameters by constraining these interactions to be the same in each country. Additionally, we are obliged to summarize age and period effects with a single shift effect for each of the five types of mobility and immobility (i.e., status, manual-nonmanual, macro class, meso class, and micro class), as otherwise we would be awash in more interactions than could be reliably estimated with our relatively sparse data. The parameter estimates under this specification, as displayed on the right side of Table 6, reveal that age and period effects are simply too small to have much impact on our conclusions. To be sure, there are non-trivial age and period effects on most of the parameters, but none so strong as to alter our overall conclusion that micro-class rigidities are stronger than big-class rigidities. It is also worth noting that micro-class closure is 25 percent stronger in the later time period than the earlier (i.e., $e^{.22} \approx 1.25$), whereas big-class rigidities appear to have evolved in more complicated and ambiguous ways. The long-term decline in father-by-son association observed in some analyses (e.g., Ganzeboom, Luijkx, and Treiman 1989) may well conceal a more complicated pattern of (a) decline in big-class association, and (b) increase in micro-class association.

The skeptic might at this point suggest that our micro-class estimates are large because the micro-diagonal in our mobility tables captures the holding power of self-employment as well as the effects of true occupational closure. The son of a self-employed doctor, for example, may opt to inherit his father's practice not because of some special skill or interest in doctoring but

simply because the practice itself is so valuable (and illiquid) that it would be foolhardy to opt for something else. This hypothesis is most straightforwardly addressed by reestimating the same mobility models after restricting the samples in each country to employed fathers. As shown in Figure A1, the micro-class coefficients for Model A1 (Table 5) remain much the same for employed fathers, implying that a pure occupational effect is indeed at work and accounts for most of the clustering on the micro-diagonal. Although some occupations, especially those in sales and crafts, evince less clustering under this restriction, the main conclusion is that micro-class inheritance remains a formidable force even when there is no physical capital to be transferred.

Is big-class reproduction a myth?

The foregoing results raise the possibility that the big-class inheritance showing up in generations of mobility studies is largely micro-class inheritance in disguise. Have conventional mobility studies indeed created the false impression that big-class reproduction is the dominant form of reproduction? We can address this question by examining whether the big-class effects that appear in conventional mobility analyses are much reduced in size when micro-class effects are overlaid on them. As shown in Table 5, we have accordingly reestimated Model A1 after omitting the micro-class inheritance terms (i.e., Model A3), thus replicating a conventional big-class analysis in which big-class and micro-class terms are confounded. The resulting trimmed model reveals again the importance of micro-class processes by returning a fit statistic that is significantly worse than that for Model A1 (i.e., L^2 increases by 20,915 with 81 df). We have reported the inheritance coefficients for the trimmed and full models in Figure 4. Here, attention is properly focused on the meso-class effects, as the manual-nonmanual and macro-class effects

are already purged of lower-order effects and will not be much affected by further purging at a yet more detailed level.[15]

It bears noting first that the meso-class effects under the trimmed model are indeed strong and roughly in line with the effects secured in conventional mobility analyses. The coefficient for managers, for example, implies that children born into the managerial class are 1.62 times more likely to remain in that class than to exit it (i.e., $e^{.48} \approx 1.62$). The corresponding inheritance coefficients for craft workers, lower manual workers, and service workers are 1.40, 1.63, and 1.93 respectively. It is coefficients such as these, all of which are net of gradational effects, that have motivated generations of mobility scholars to regard big-class reproduction as a powerful force.

The results from our full model imply that this conclusion, for all its popularity, is somewhat misleading. When micro-class effects are allowed, we find that some big-class effects are greatly reduced in strength (i.e., classical professions, sales, clerical), while others disappear altogether or become quite small (i.e., managers and officials, other professionals, craft workers, service workers, lower manual workers). It follows that much of the putative big-class reproduction appearing in conventional big-class analyses is generated only because it is confounded with micro-class reproduction.[16] This is not to suggest that all big-class reproduction is just micro-class reproduction in disguise. Clearly, some big-class reproduction persists even in the presence of micro-class controls, a result that was also revealed in Figure 3.

For many mobility analysts, the distinction between big-class and gradational processes is not stressed, and the objective instead is to estimate for each big class a total effect that incorporates the hierarchical position of that class. It is therefore useful to present results that are consistent with this specification. Also, some analysts prefer to allocate self-employed workers into a petty bourgeoisie class, again an operational decision that is adopted frequently enough

that it is worth considering how it might affect our own results. We have accordingly recalculated the results of Figure 4 after omitting the gradational term and restricting the sample to self-employed fathers. The estimates under this specification, as presented in Figure 5, are slightly more favorable for big-class proponents. In particular, the classical profession effect remains quite strong in the presence of micro-class controls, implying that children born into the classical professions profit from a pronounced gradational effect. It should be noted that the coefficients for the other inheritance terms are less affected (except perhaps sales). Although there are, then, somewhat more residual big-class effects under this alternative specification, the difference is not so great as to alter our main conclusion that the big-class reproduction appearing in conventional analyses is largely generated by the tendency for children to inherit their micro-class.

Women's mobility and the fungibility hypothesis

We next ask whether the same conclusion holds for daughters. In a related paper (citation suppressed), we report in full on parallel analyses for daughters, but here we only review select results of special relevance. We focus on results that are relevant to the claim that most children are principally interested in inheriting their big class but will often attempt to achieve this big-class objective by pursuing a more detailed form of micro-class inheritance. The "fungibility hypothesis" implies that micro-class inheritance is nothing more than a particular form of big-class inheritance that is pursued mainly because it serves to realize the big-class aspirations of children. The son of a dentist, for example, may well be principally oriented to remaining in the professional class even while appreciating that the safest path to achieving that diffuse big-class objective is to exploit the considerable illiquid, occupation-specific resources (e.g., networks, training) that his parents can convey. Because of gender segregation, micro-class inheritance is

often a less viable alternative for daughters, implying that their big-class aspirations can only be realized via out-mobility from their father's occupation. The results for women may in this regard be understood as providing a critical negative test of the fungibility hypothesis.

As shown in Table A1, all but two of our surveys include data for women, and we analyze here all those surveys. Although a few of the surveys include data on mother's occupation, we will restrict our attention here to father-by-daughter tables, leaving the more complicated three-way analyses to our follow-up paper (citation suppressed).[17] The occupation coding, big-class coding, and mobility models are otherwise the same as for the preceding male analyses. We present in Table 7 the inheritance coefficients for our father-by-daughter tables estimated under the model of common social fluidity (i.e., see Models A1 and A2, Table 5).[18]

*** Table 7 About Here ***

The coefficients for micro-class inheritance in Table 7 are relatively weak (compared to the corresponding coefficients for men), but the fall-off for women is not as dramatic as might be anticipated given how extreme sex segregation is in all four of our countries (see Charles and Grusky 2004). The gender disparity is especially attenuated in the classic professions; here, a woman is 3.2 times more likely to inherit her father's occupation than to move to some other classic profession ($e^{1.15} \approx 3.2$), only about 23 percent smaller than the corresponding estimate (i.e., 4.2) for a man. It is striking that micro-class inheritance remains quite strong even when sex segregation putatively works to undermine it. If ever there were a home ground for a big-class reproduction story, it would presumably have to be the father-by-daughter mobility table.

We can still salvage the fungibility hypothesis insofar as there is evidence among women of compensatory big-class reproduction. There is, however, little such evidence to be found. To the contrary, Table 7 reveals that (a) women's big-class coefficients are much smaller than their micro-class coefficients (save, again, for proprietors and the primary sector), and (b) women's

big-class coefficients are not consistently larger than the corresponding men's big-class coefficients. The slightly weakened micro-class reproduction among women does not, then, appear to produce any compensatory increase in big-class reproduction. Although we cannot pretend to a definitive test of the fungibility hypothesis, there is certainly little to be found here in support of it.

Cross-national variation in relative mobility

We have to this point made the case for a micro-class approach in general terms, but we appreciate that the institutions that support micro-class reproduction are better developed in some countries (e.g., Germany) than in others (e.g., Japan). Likewise, some countries have well-developed big-class institutions (e.g., Sweden), whereas others have backed alternative institutions, such as craft unions, that can serve to undermine big classes (e.g., United States). The four countries analyzed here were selected for the purpose of representing this variability in micro-class and big-class institutionalization. At least until recently (e.g., Breen 2004), the widely accepted view has been that big-class mobility is cross-nationally quite similar, a conclusion that may have proven more attractive than was warranted because standard mobility models cannot capture such variability as obtains at the micro-class level.

The question that then arises is whether our 2x2 typology (i.e., Table 2) adequately represents the structure of cross-national variability. Additionally, we wish to examine the extent of occupational reproduction in Japan and other putatively "deoccupationalized" labor markets, thereby revealing the reach of the micro-class form and the extent to which it is a generic feature of contemporary societies. We address these questions by estimating a series of models in Panel B of Table 5 that reveal the various ways in which our four mobility regimes are similar or different. The first model in Panel B allows all father-by-son interaction terms to vary freely

across countries, while the second model in Panel B forces such variability to be captured in a set of country-specific shift parameters pertaining to each type of inheritance and exchange (Erikson and Goldthorpe 1992a; Xie 1992). We also estimate this model without the gradational term (Model B3). The final model in Panel B fits for each country a single shift parameter that pertains at once to all inheritance terms. If this model fits, it implies that a country with an excess or deficit of micro-inheritance must also have a corresponding excess or deficit of meso-class, macro-class, and manual-nonmanual inheritance. The logic of this model is accordingly inconsistent with our expectation that micro-class and big-class inheritance can vary independently of one another (see Table 2). We have argued, for example, that the United States embodies strong micro-class reproduction and weak big-class reproduction, whereas Sweden embodies weak micro-class reproduction and strong big-class reproduction.

The BIC statistics of Table 5 suggest that cross-national variability can indeed be summarized with a set of country-specific shift parameters (i.e., Model B2). At the same time, these shift parameters must also be allowed to vary across the four types of inheritance, as the BIC and L^2 statistics increase substantially when a *single* shift parameter for each country is imposed (i.e., Model B3). We will therefore confine our discussion to Model B2 and its analogue, Model B4, that omits the gradational term. The coefficients of exchange and mobility for these two models are presented in Table 8.

*** Table 8 About Here ***

The first column of Table 8 shows baseline estimates in which the United States is taken as reference category. As before, the full complement of 82 micro-class effects is not presented, and instead meso-class averages of these effects are reported. The adjacent columns in Table 8 indicate whether Sweden, Germany, and Japan deviate from the reference country (i.e., the

United States) for the gradational parameter and for each of the four types of inheritance parameters.

The estimates in this table suggest three conclusions. First, gradational effects are strongest in Germany and weakest in Japan, with the United States and Sweden taking middling positions. Second, the manual-nonmanual and meso-class terms are much the same in each country, whereas macro-class effects are somewhat stronger in Sweden and German than in the United States and Japan. Third, micro-class effects are strong in Germany and Japan, yet comparatively weak in the United States, especially relative to our expectations (as expressed in Table 2).

We can conclude, then, that the macro-class parameters do show the anticipated cross-national differences, but these are modest in size and arguably consistent with the conventional view that a fundamental "family resemblance" cuts across all contemporary industrial big-class mobility regimes (Erikson and Goldthorpe 1992a). Of the nine big-class effects in Table 8, the very largest pertains to the U.S.-German contrast for macro-class inheritance, with Germany returning a parameter here that is only 1.38 times stronger than that for the United States (i.e., $e^{.32} \approx 1.38$). As anticipated, the micro-class parameters are somewhat more variable, but even here one finds consistently extreme micro-class reproduction. Indeed, even in countries with poorly-developed occupational training, such as Sweden and Japan, it is difficult not to be impressed with how much micro-class reproduction there is. The Japanese results are especially notable in this regard and do not conform at all to conventional expectations. In fact, micro-class reproduction in Japan is 1.49 times stronger than micro-class reproduction in the United States (i.e., $e^{.40} \approx 1.49$), a result that reflects not just surprisingly strong micro-class reproduction in Japan but also unexpectedly weak micro-class reproduction in the United States.

The prominence of micro-class inheritance in Japan is so unexpected that we have carried out additional analyses to cast light on it. In Table A3, we report on an analysis that divides the Japanese data into subsamples pertaining to fathers who work in large firms, small firms, and the public sector.[19] The resulting model, again based on a simple shift-effect specification, reveals that there is 1.73 times more micro-class inheritance in the small-firm sector than in the large-firm sector ($e^{.55} \approx 1.73$). Because relatively few fathers work in the large-firm or public sectors (approx. 20.5% in our samples), the pooled parameter estimates reported in Table 8 principally reflect the small-firm sector, where micro-class processes are not at all weak. It follows that, just as the ideal type implies, Japanese occupationalization is indeed suppressed, but only for the minority of workers employed in large firms or in the public sector.

In motivating our cross-national analysis, we suggested that the big-class mobility model was tailor-made for Sweden, whereas it potentially distorted mobility processes in Germany and the United States by (a) ignoring micro-level rigidities and thus underestimating how unequal contemporary mobility regimes are, and (b) misrepresenting micro-level reproduction as a more diffuse form of big-class reproduction. The results presented in this section suggest that the big-class model cannot well represent the structure of social mobility even in Sweden and the numerically dominant small-firm economy of Japan. Although micro-level inheritance is somewhat suppressed in Sweden and large-firm Japan, it remains such a prominent source of rigidity even in these labor markets that there is little justification for continuing to ignore it.

Conclusions

The scholarly literature on social mobility has treated questions about the form of mobility as resolvable principally by fiat rather than evidence. For the most part, the convention has simply been to assume that intergenerational reproduction takes one of two forms, either a categorical

form that has parents passing on a big-class position to their children, or a gradational form that has parents passing on their socioeconomic standing to their children. The purpose of our paper has been to consider whether these conventional representations of the structure of mobility are incomplete. We have suggested that occupations are an important conduit for reproduction and that incorporating this conduit into mobility models will improve our understanding of the mobility process.

The results from our cross-nationally harmonized data for the United States, Sweden, Germany, and Japan bear out this argument. We have found that conventional models misrepresent the structure of opportunity in two ways: (a) the mobility regime appears in standard analyses as more fluid than it truly is (i.e., *overestimated fluidity*), and (b) the main rigidities in the mobility regime have been taken as evidence of big-class reproduction when in fact occupational reproduction is the principal underlying mechanism (i.e., *misrepresented form*). We argue below that these results should trouble those who take relative mobility rates as a core indicator of inequality of opportunity.

Although this occupational mechanism is more entrenched in some countries than in others, we have shown that it is too prominent to ignore in any of the countries we studied. The coefficients for occupational inheritance are very strong in Germany and quite strong in the United States and Sweden. Even in Japan, which has long been regarded as distinctively "deoccupationalized," there is evidence of very strong occupational rigidities. These results imply that a micro-class reproduction mechanism has impressive cross-national reach and may well be a fundamental feature of all contemporary mobility regimes.

Why are occupations such an important conduit for social reproduction? In all countries, parents accumulate much occupation-specific capital, identify with their occupation, and accordingly "bring home" their occupation in ways that then make it salient to their children and

lead them to invest in it. It follows that children develop a taste for occupational reproduction, are trained in the requisite skills for occupational reproduction, and have access to the occupational networks that facilitate occupational reproduction. Additionally, employers or training institutions (e.g., professional schools) may sometimes discriminate in favor of workers or students who have a long family involvement in their chosen trade or profession, a potentially important demand-side source of occupational reproduction. In subsequent analyses, it would be useful to examine the role of aspirations, training, networks, and discrimination in furthering micro-class reproduction, surely an important task insofar as any headway is to be made in reducing such reproduction.

We have to this point studiously avoided the question of whether inequalities at the micro-class level are as normatively troubling as strictly gradational inequalities involving access to widely valued social rewards (e.g., income, prestige). This question is important because it speaks directly to whether we should much care about the micro-class rigidities that we have uncovered here. Do these rigidities imply that we must now rededicate ourselves to far more extensive ameliorative efforts? Or do they pertain to mere horizontal distinctions that are trivial in their normative implications and, insofar as they are to be addressed at all, are best understood as a purely secondary concern?

It might well be tempting to take the position that micro-class inequalities are not all that objectionable. Should we really care, in other words, that the son of the truck driver is very likely to become a truck driver while the son of a gardener is very likely to become a gardener? Must we truly commit ourselves to equal access to truck driving and gardening? In answering this question, it is important to recognize that, insofar as we choose to leave micro-class reproduction untouched, it is tantamount to deciding that big-class reproduction should also be left largely untouched. Put differently, a main reason why we *should* care about the immobility of truck

drivers and gardeners is not that truck driving and gardening are understood as crucially different in their relative attractiveness, but rather because micro-class immobility of this sort is the principal mechanism ensuring that the working class reproduces itself. The results from our models indeed make it clear that big-class reproduction arises largely because children frequently remain within their micro class of origin. It follows that one cannot blithely dismiss occupational rigidities as normatively unimportant without also believing that big-class rigidities are normatively unimportant.

The committed gradationalist might at this point respond that she or he cannot be bullied into caring about micro-class rigidities just because they are the main foundation of net big-class rigidities. What if such big-class rigidities are themselves unimportant? If there is no normative rationale for caring about net big-class rigidities, then obviously one cannot leverage an interest in micro-class rigidities via them. The latter reaction, which we elaborate below, thus requires us to commit to the view that we ought not care much about *either* big-class or micro-class rigidities (once gradational effects are netted out) and that instead we should focus first and foremost on gradational inequalities. Below, we lay out the main rationale for that position, and we then compare it with two alternatives that suggest that we should care about net micro-class or big-class rigidities.

Socioeconomic imperialists: The radical gradationalist position rests on the view that we should care mainly about ensuring that everyone, regardless of origins, has an equal opportunity to secure consensually-valued rewards. If one thought, for example, that socioeconomic status exhausted all the rewards that mattered, it would follow that the socioeconomic component of the total origin-by-destination association is the only normatively problematic component. By implication, the micro-class or big-class rigidities that persist after removing all socioeconomic association would have to be understood as quite unimportant, revealing as they do non-

hierarchical affinities rather than true inequalities of access to the rewards that matter (i.e., socioeconomic status). Under this formulation, there is no need, for example, to worry that the children of truck drivers are more likely to become truck drivers than are the children of gardeners, insofar as truck drivers and gardeners are equivalent socioeconomically. Likewise, there is no need to concern ourselves with net big-class effects, as here too such affinities signal purely horizontal difference rather than unequal access to the rewards that matter. To be sure, the socioeconomic imperialist should care about the "total" big-class and micro-class effects that emerge whenever a socioeconomic term is omitted from a mobility model, but these effects are of interest only to the extent that they reflect that omitted socioeconomic term.

Big-class and micro-class multidimensionalists: The latter conclusion stands or falls on the assumption that socioeconomic status exhausts all the rewards that matter. If one instead adopts a multidimensional view of the inequality space in which *many* rewards matter (e.g., authority, autonomy, income, prestige, wealth), then net big-class or micro-class rigidities are also objectionable insofar as they signal unequal access to these non-socioeconomic rewards. The attraction of a big-class or micro-class framework is precisely that the constituent categories are organic bundles of a great many consensually-valued rewards, not just prestige or status but also other desirable goods and conditions. Although one might attempt to model the mobility table by reducing occupations to these constituent dimensions (e.g., Hout 1984), one can alternatively allow classes to simply "stand in" for these rewards and understand that class reproduction is generated by this complicated amalgam of rewards. When we uncover, then, a net tendency for professional reproduction (after purging all socioeconomic association), it is partly because the professional class has a cumulation of multidimensional advantages that is passed on to children and that allows them to reproduce their origins at a higher rate than mere socioeconomic advantage would imply. By implication, a class theorist should care about the

non-socioeconomic association in the mobility table because, at least in part, it is signalling a more complicated pattern of cumulative advantage and disadvantage than simple socieconomic scales can possibly capture.

Open society advocates: There is no disputing, however, that some of the non-socioeconomic association that we have uncovered is purely horizontal in structure. If we assume, for example, that truck drivers and gardeners are equally desirable on *all* the dimensions that are consensually valued, then the tendency for self-reproduction within each of these micro-classes should be understood as a purely horizontal form of association in the mobility table. Is there any reason to be troubled by such horizontal association? We think there still is. It must in this regard be appreciated that the association in a mobility table is of interest to scholars of inequality for two quite different reasons. To this point, we have only made reference to scholars who object whenever social origins affect the total amount of rewards that will on average be available, either simple socioeconomic rewards (i.e., the socioeconomic imperialists) or perhaps a more heterogeneous constellation of socioeoconomic and other rewards (i.e., the big-class and micro-class multidimensionalists). However, a second but no less important reason for objecting to origin-by-destination association is that it implies that human choice has been circumscribed, a circumscription that is wholly determined by the accident of birth. We care, in other words, that the truck driver is fated to become a truck driver at birth because that amounts to a stripping away of choice, and most of us would embrace an open society in which choices are expanded, not stripped away. Although our illustrative non-choice (i.e., being a truck driver vs. gardener) may not have implications for total rewards (of the sort that are *consensually* valued), it is nonetheless a fateful non-choice that determines the texture and content of a human life. It is this commitment to an open society, sometimes left quite implicit, that underlies the discipline's

long-standing interest in monitoring marital homogamy, occupational sex segregation, and many other forms of ascription that are hybrids of vertical and horizontal processes.

The moral to this discussion is that only socioeconomic imperialists of the most narrow sort can dismiss the class inequalities that we have discovered. These inequalities should, however, be troubling to multidimensionalists who recognize that some of the net class association pertains to the reproduction of vertical awards as well as to "open society" theorists who care about opportunities for choice even when the choice at hand pertains to horizontal rather than vertical outcomes. We have not carried out the comprehensive trend analysis needed to speak to the conventional view among open society theorists that recent human history has involved a spectacular, if sometimes fitful, expansion of opportunities for horizontal as well as vertical choice (e.g., decline of caste systems, occupational sex segregation). Although it is entirely possible that trend data would bear out this postulated trend (see Table 6 for suggestive contrary results), it is also clear from our results that intergenerational choice remains very circumscribed and that residues of caste-like reproduction persist to a greater extent than most of us had probably imagined. This result suggests that contemporary efforts to equalize opportunity have underperformed and that some rethinking of how to approach equalization may be in order.

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Notes

[1] We have added random noise to the densities of mobility and immobility in Figures 1a, 1b, and 1c.

[2] It is equally important to distinguish between occupational and gradational effects. That is, just as incumbents of big classes may either remain in their class of origin or move to a "close" class, so too incumbents of detailed occupations may either remain in their occupation of origin or move to a "close" occupation. We will fit models that distinguish these two types of effects at both the big-class and micro-class levels.

[3] The professional personality, for example, features intellectual prowess and command over arcane forms of human capital (e.g., emphasis on abstract argumentation), whereas the managerial personality rests rather more on social prowess of various kinds (e.g., being outgoing, extroverted, interpersonally smooth).

[4] Similarly, children have to explain to themselves why their parents remain in seemingly undesirable occupations, an analogous form of dissonance reduction that plays out among children rather than their parents. These processes may induce parents and children to make reference to little-known features of the occupations that render them more desirable than others appreciate.

[5] This vocational tradition emerges also in Holland, Denmark, and Austria.

[6] The history of Swedish trade unions is distinctive in five ways. First, manual workers created an overarching organization in the late 19th century (LO), and only after that were occupational unions formed. Second, all manual laborers in a given production unit are traditionally organized by the numerically dominant occupational trade union, thereby avoiding a division of manual laborers and increasing the negotiating strength of the local trade union. Third, LO has had a strong ideological commitment to equalized wages within the working class, leading to very

small differences in material circumstances and life-chances between skilled and unskilled workers, particularly in comparison to Germany (e.g., Shavit and Müller 1998). Fourth, professionals have formed an overarching organization (SACO) that represents them at central negotiations, as have clerks and lower-level white-collar workers (TCO). Fifth, the proportion of employees associated with a trade union is very high (compared to what prevails in other countries), both among manual and non-manual workers.

[7] The occupations are ordered within each meso-level class according to their socioeconomic score (ISEI) in the United States (see Ganzeboom, de Graaf, and Treiman [1992] for information on the ISEI).

[8] In most cases, our "occupations" were created by aggregating several detailed occupations into a single category, thus making the label "micro-class" more apt than "occupation." We nonetheless use these terms interchangeably here.

[9] We provide detailed documentation of our occupation classification decisions at http://www.classmobility.org.

[10] The national occupational classification schemes differed across the early and late surveys used in the United States, Germany, and Japan (see Table A1).

[11] It is very much a European tradition to distinguish the propertied classes. In the United States, private property hardly appears to be without consequence, but even so the self-employed are commonly merged with other "middle-class" occupations. When the self-employed are singled out in U.S. mobility studies, the resulting pattern is one of quite strong inheritance, just as in Europe (e.g., Hout 1984; Erikson and Goldthorpe 1985).

[12] In the Swedish data, the EG scheme outperfoms our nondenominational scheme, both for income and occupational prestige. The two schemes perform almost identically in Germany (although here only prestige outcomes were available). We also sought to validate the

nondenominational scheme by regressing income on respondent's class. For these tests, the results in Sweden sometimes favored the EG scheme and sometimes favored the nondenominational scheme, whereas the results in Germany always favored the nondenominational scheme.

[13] We have calculated the 82 micro-class scores by assigning international socioeconomic scores (Ganzeboom et al. 1992) to detailed occupations within the U.S. samples and then aggregating these detailed occupations up to the micro-class level. The resulting scores are therefore weighted by the relative size of the detailed occupations comprising each micro-class in the United States. Although we could have allowed cross-national differences in internal weights, we instead opted to use a cross-nationally consistent scale.

[14] The Swedish data, for example, pertain to a single time period (1976-2003) and a single age group (30-49 years).

[15] The manual-nonmanual and macro-class effects will in fact be identical in the trimmed and full models when the gradational term is omitted. The primary sector effect, which we have formally labeled a macro-class effect, is in this context similar to a meso-class effect because the micro-class effects are the only effects nested within it. It follows that the primary sector effect can weaken in the presence of micro-class controls.

[16] The gradational effect, which is not reported in Figure 4, does not decline as precipitously when micro-class effects are included. The gradational effect from the model without micro-class effects is 1.26, while the gradational effect from the model with such effects is 1.14.

[17] We reexamine the fungibility hypothesis with a three-way classification of mother's occupation, father's occupation, and daughter's occupation (citation suppressed).

[18] The sample size is 189,786 cases. The L^2 statistic for Model A1 is 24,239 (with 22,826 df), and the L^2 statistic for Model A2 is 28,289 (with 22,827 df). We report in Table 7 the coefficients that obtain when sample sizes are standardized to 10,000 cases.

[19] We have defined large firms as those with 30 or more employees. Although this is a relatively low threshold, we are still able to secure a strong firm size effect (see below). It is of course plausible that this effect would be yet larger for more stringently defined "large" firms.

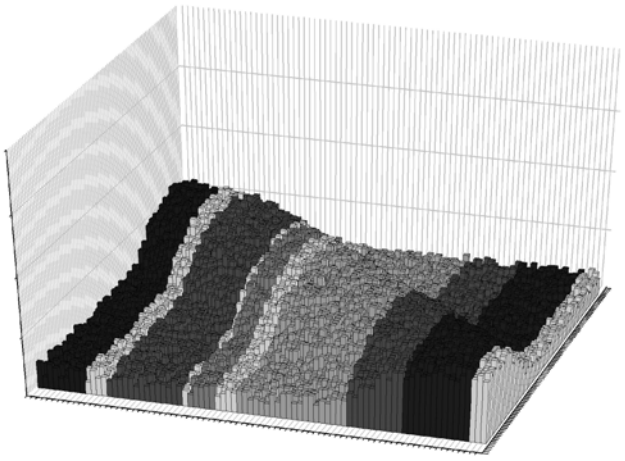


Figure 1A. Gradational Regime

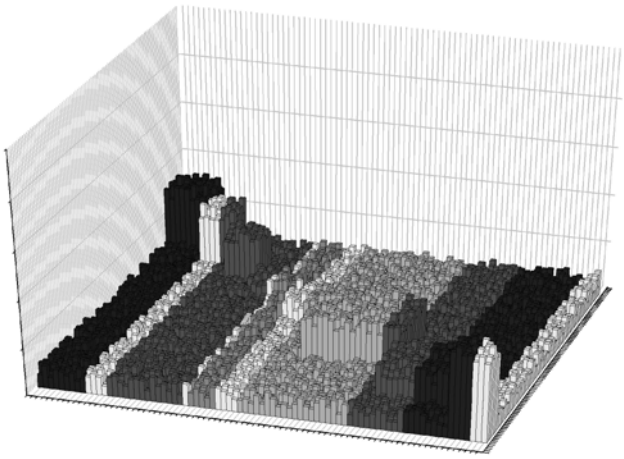


Figure 1B. Big-Class Regime

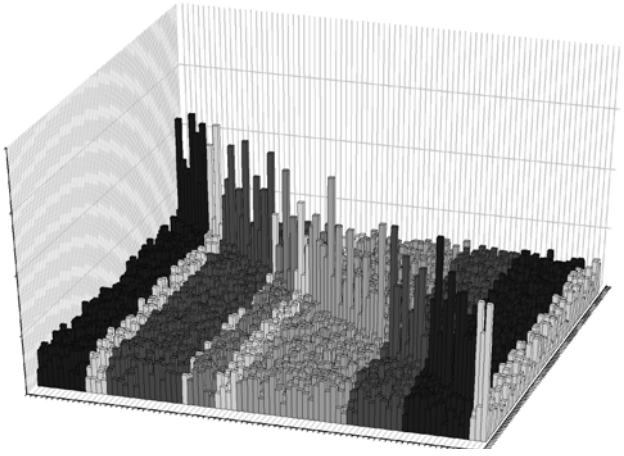


Figure 1C. Micro-Class Regime

Figure 1. Ideal typical mobility regimes

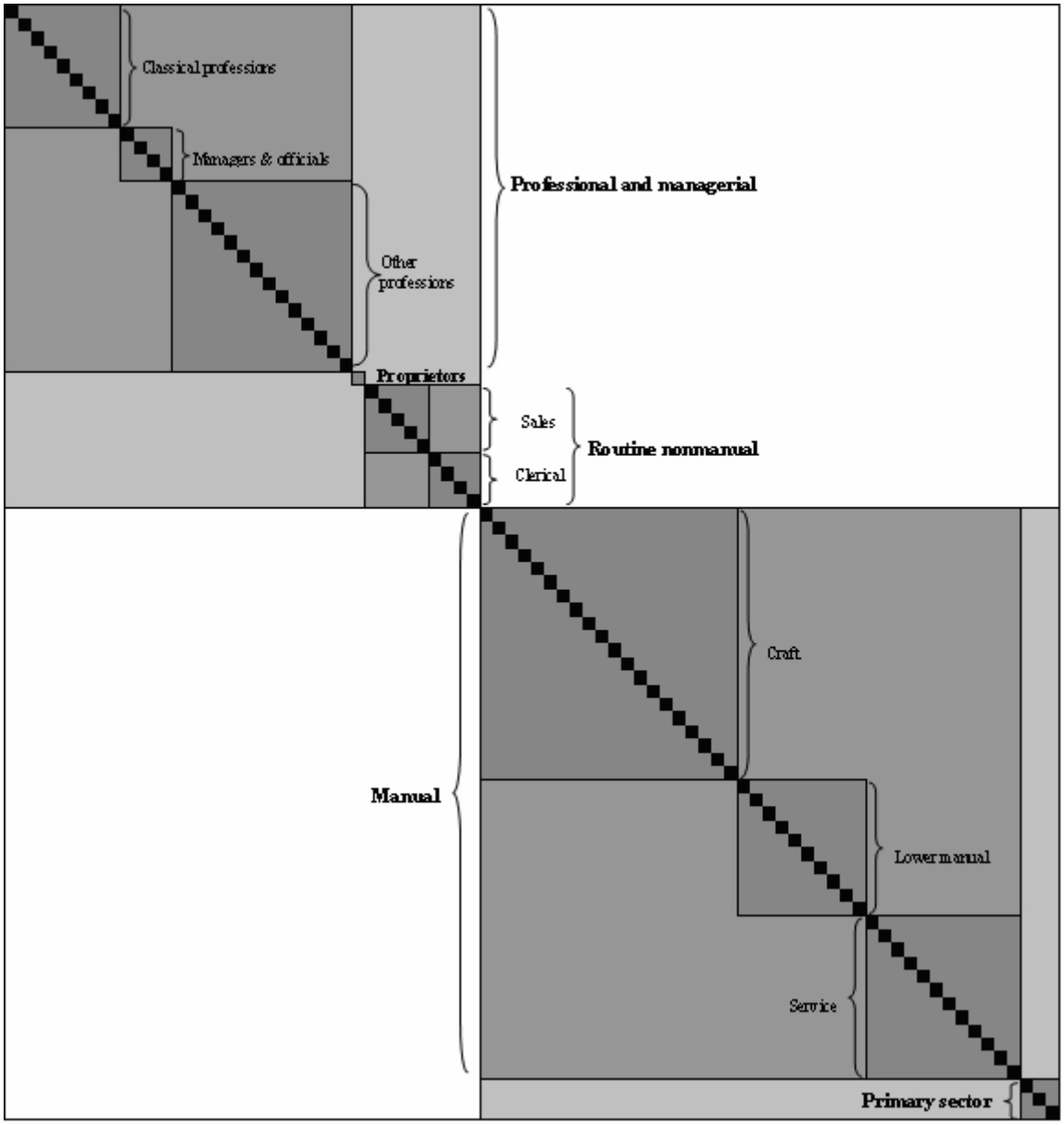


Figure 2. Overlapping inheritance terms in mobility model

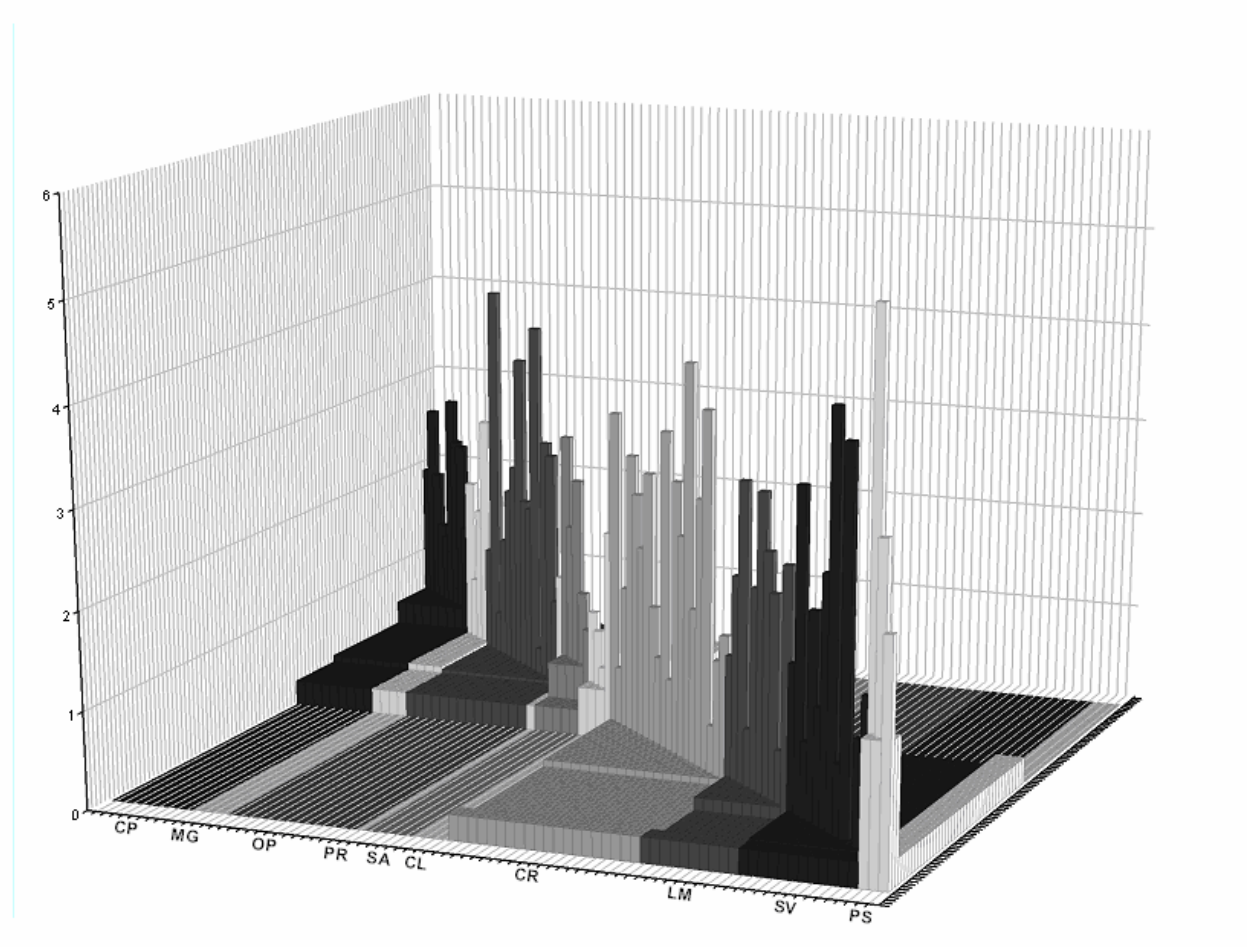


Figure 3: The contours of class reproduction for men

Note: Coefficients are drawn from Model A1 of Table 5 (after standardizing sample size to 10,000 cases in each country). CP=Classical professions; MG=Managers and officials; OP=Other professions; PR=Proprietors; SA=Sales; CL=Clerical; CR=Craft; LM=Lower manual; SV=Service; PS=Primary sector.

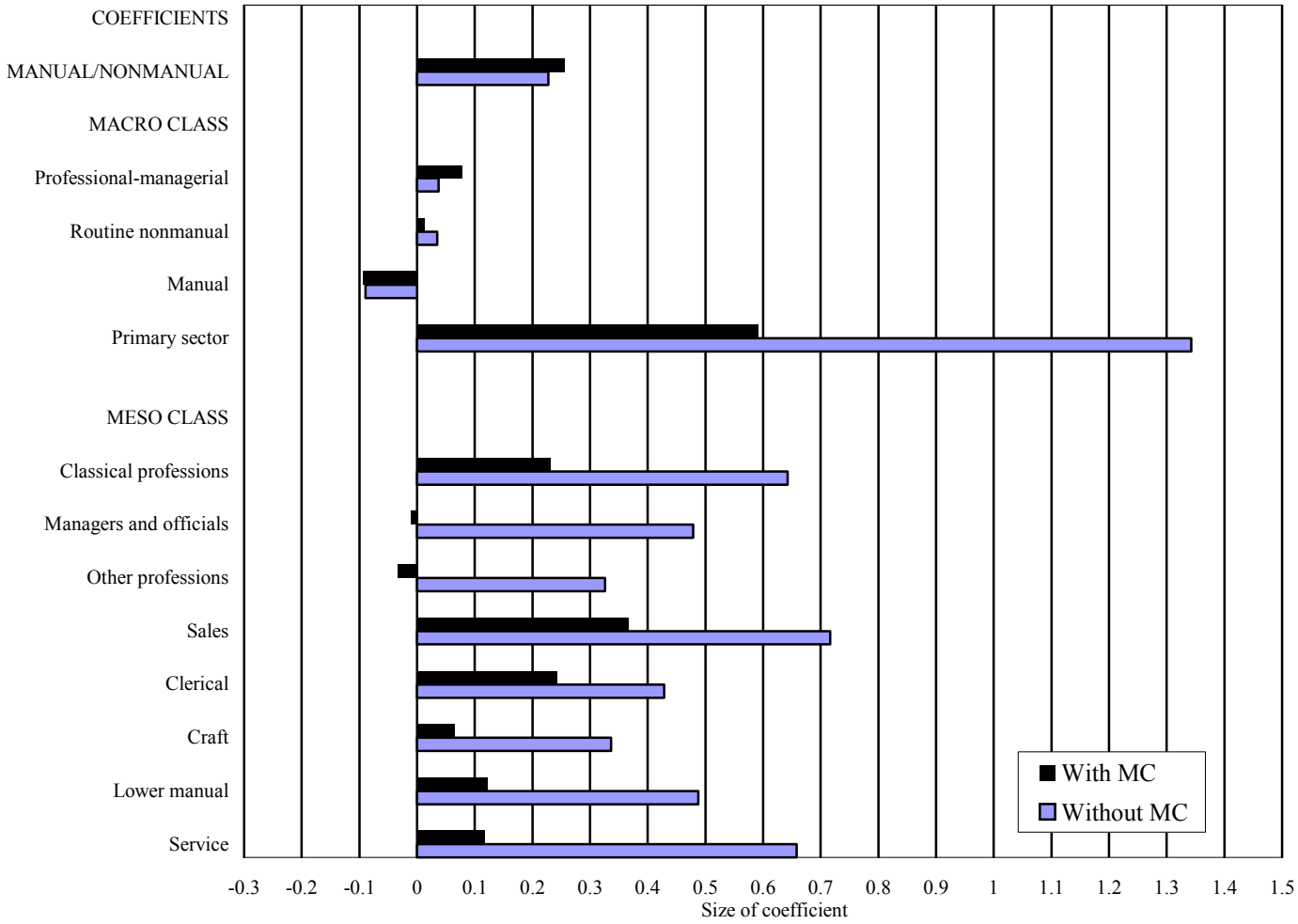


Figure 4. Do conventional mobility studies create the false appearance of big-class and meso-class immobility? A comparison of immobility coefficients with and without micro-class controls

NOTES: Coefficients are drawn from Model A1 of Table 5 (after standardizing sample size to 10,000 cases in each country). For convenience in presentation, the two primary sector coefficients are each divided by two.

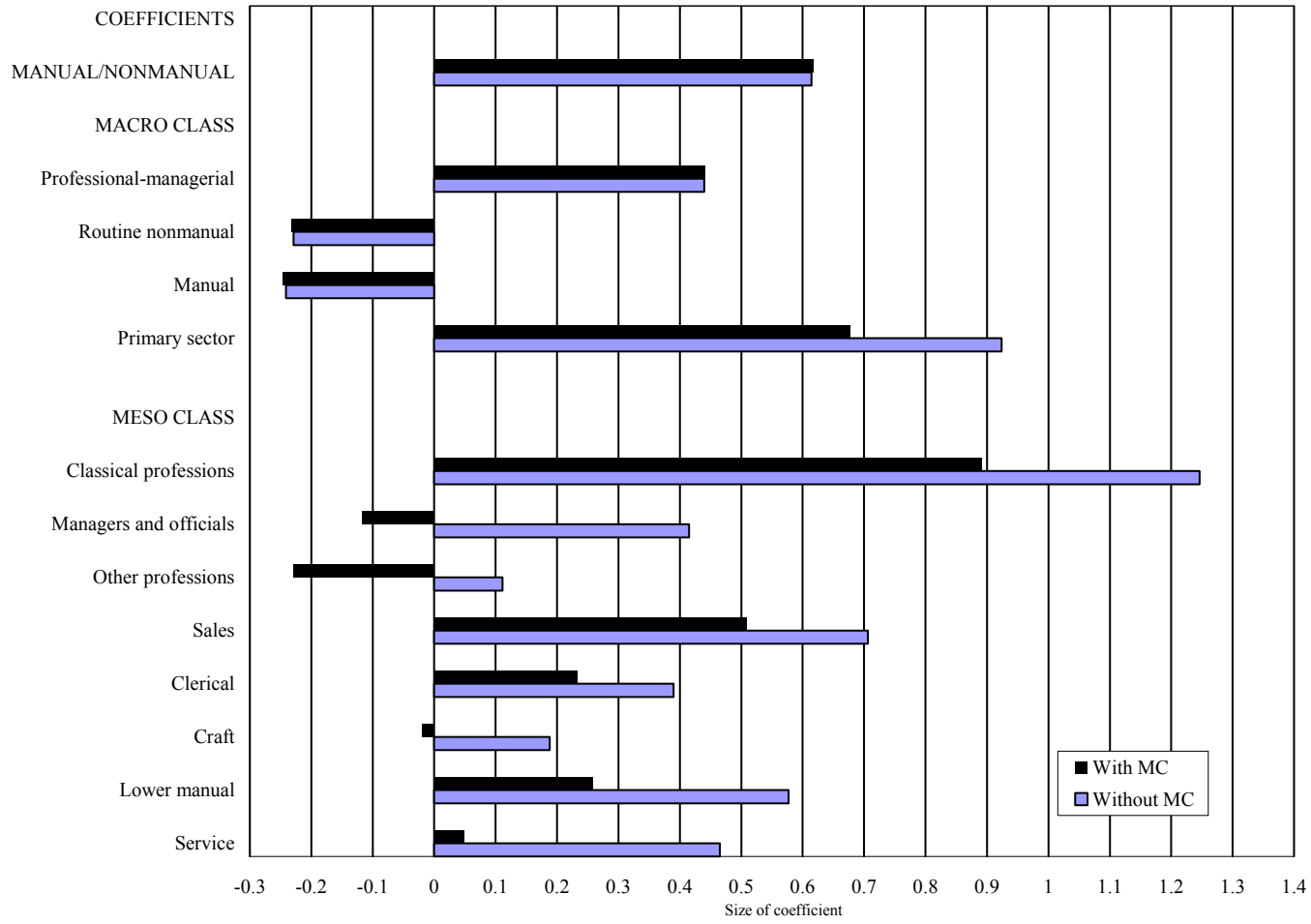


Figure 5. A comparison of immobility coefficients with and without micro-class controls for self-employed fathers and omitted status gradient

NOTES: Coefficients are from Models A2 and A3 in Table 5 after selecting on employed fathers (N=200,662) and standardizing the sample size to 10,000 cases in each country. For Model A2, L^2=19,581; df=24,101; Δ=22.1; BIC=-235,958. For Model A3, L^2=23,778; df=24,182; Δ=24.5; BIC=-232,620. For convenience in presentation, the two primary sector coefficients are each divided by two.

Table 1. Mechanisms of intergenerational reproduction

	Type of reproduction	
Type of resources	***Big-class***	***Micro-class***
Human capital	General or abstract skills (e.g., cognitive or verbal abilities)	Occupation-specific skills (e.g., acting skills, carpentry skills)
Cultural capital	Abstract culture and tastes (e.g., "culture of critical discourse")	Occupation-specific culture and tastes (e.g., aspirations to become a medical doctor)
Social networks	Classwide networks (typically developed through neighbor-hood or job-related interactions)	Occupation-specific networks (typically developed through on-the-job interactions)
Economic resources	Liquid resources (e.g., stocks, bonds, income)	Fixed resources (e.g., business, farm)

Table 2. Countries classified by type and amount of class structure

Big-class structure	***Micro-class structure***	
	High	*Low*
High	Germany (Vocational training & big-class trade unions)	Sweden (Big-class collective bargaining)
Low	U.S. (Craft unions & occupational associations)	Japan (Firm identification & generalized education)

Table 3. Micro-classes nested in manual-nonmanual classes, macro classes, and meso classes

NONMANUAL CLASS			*MANUAL CLASS*	
I. Professional-managerial	***II. Proprietors***	***III. Routine nonman.***	***IV. Manual***	***V. Primary***
A. Classical professions	1. Proprietors	***A. Sales***	***A. Craft***	1. Fisherman
1. Jurists		1. Real estate agents	1. Craftsmen , n.e.c.	2. Farmers
2. Health professionals		2. Agents, n.e.c.	2. Foremen	3. Farm laborers
3. Professors and instructors		3. Insurance agents	3. Electronics service and repair	
4. Natural scientists		4. Cashiers	4. Printers and related workers	
5. Statistical and social scientists		5. Sales workers	5. Locomotive operators	
6. Architects		***B. Clerical***	6. Electricians	
7. Accountants		1. Telephone operators	7. Tailors and related workers	
8. Authors and journalists		2. Bookkeepers	8. Vehicle mechanics	
9. Engineers		3. Office workers	9. Blacksmiths and machinists	
B. Managers and officials		4. Postal clerks	10. Jewelers	
1. Officials, govt. and non-profit orgs.			11. Other mechanics	
2. Other managers			12. Plumbers and pipe-fitters	
3. Commercial managers			13. Cabinetmakers	
4. Building managers and proprietors			14. Bakers	
C. Other professions			15. Welders	
1. Systems analysts and programmers			16. Painters	
2. Aircraft pilots and navigators			17. Butchers	
3. Personnel and labor relations workers			18. Stationary engine operators	
4. Elementary and secondary teachers			19. Bricklayers and carpenters	
5. Librarians			20. Heavy machine operators	
6. Creative artists			***B. Lower manual***	
7. Ship officers			1. Truck drivers	
8. Professional and technical, n.e.c.			2. Chemical processors	
9. Social and welfare workers			3. Miners and related workers	
10. Workers in religion			4. Longshoremen	
11. Nonmedical technicians			5. Food processing workers	
12. Health semiprofessionals			6. Textile workers	
13. Hospital attendants			7. Sawyers	
14. Nursery school teachers and aides			8. Metal processors	
			9. Operatives and kindred , n.e.c.	
			10. Forestry workers	
			C. Service workers	
			1. Protective service workers	
			2. Transport conductors	
			3. Guards and watchmen	
			4. Food service workers	
			5. Mass transportation operators	
			6. Service workers, n.e.c.	
			7. Hairdressers	
			8. Newsboys and deliverymen	
			9. Launderers	
			10. Housekeeping workers	
			11. Janitors and cleaners	
			12. Gardeners	

Table 4. Percent immobile by level of aggregation (for men)

	Country			
Level of analysis	***U.S.***	***Japan***	***Germany***	***Sweden***
A. Big class				
1. Manual-nonmanual	65	68	67	64
2. Macro class	39	41	51	49
3. Meso class [1]	21	30	31	26
B. Micro class [2]	10	23	14	11

[1] *We have defined an exhaustive meso-class scheme by treating "proprietors" and the "primary sector" as meso classes.*
[2] *We have defined an exhaustive micro-class scheme by treating "proprietors" as a micro class.*

Table 5. Fit statistics for men (N=251,852)

Model	L^2	*df*	*Δ*	*BIC*
A. Cross-national invariance				
1. Common social fluidity O*N+D*N+G+S+B+I+M	45,822	24,799	13.0	-262,620
2. Exclude socioeconomic effect O*N+D*N+S+B+I+M	50,627	24,800	14.2	-257,827
3. Standard big-class model (excise micro-class inher.) O*N+D*N+G+S+B+I	66,737	24,880	15.7	-242,713
B. Cross-national variability				
1. Complete variability O*N+D*N+G*N+S*N+B*N+I*N+M*N	43,501	24,523	12.1	-261,508
2. Full set of unequal shift effects O*N+D*N+G*N+S*N+B+BG*N+I+IG*N+M+MG*N	45,255	24,784	12.8	-263,001
3. Equality constraint on shift effects O*N+D*N+G*N+S+B+I+M+[SG+BG+IG+MG]*N	45,494	24,793	12.9	-262,873
4. Model B2 - SES effect O*N+D*N+S*N+B+BG*N+I+IG*N+M+MG*N	50,089	24,788	14.0	-258,216

Note: O=Origins, D=Destinations, N=Country, G=Socioeconomic status (SES), S=Manual-nonmanual inheritance; B=Macro-class inheritance, I=Meso-class inheritance, M=Micro-class inheritance, SG=Uniform manual-nonmanual inheritance, BG=Uniform macro-class inheritance, IG=Uniform meso-class inheritance, MG=Uniform micro-class inheritance

Table 6. Baseline coefficients of immobility for men

Coefficients	*Baseline model* [1]	*No SES gradient* [2]	*Age & period controls* [3]		
			Base	*Age Int.*	*Period Int.*
I. Status (SES) [4]	1.14		1.06	.11	.11
II. Big class					
A. Manual-nonmanual	.26	.58	.33	.01	-.11
B. Macro class				-.02	.20
1. Prof.-manag.	.08	.45	-.12		
2. Proprietors	1.19	1.24	2.04		
3. Routine nonman.	.01	-.21	-.16		
4. Manual	-.09	-.24	-.26		
5. Primary	1.18	1.44	.13		
C. Meso class				-.08	-.09
1. Classical prof.	.23	.89	.36		
2. Man. & off.	-.01	-.16	.29		
3. Other prof.	-.03	-.23	-.04		
4. Sales	.37	.39	.58		
5. Clerical	.24	.23	.24		
6. Craft	.06	.02	.12		
7. Lower manual	.12	.18	.24		
8. Service work	.12	.12	.18		
III. Micro class [5]				.13	.22
1. Classical prof.	1.44	1.54	1.00		
2. Man. & off.	1.53	1.55	.60		
3. Other prof.	1.92	2.06	1.62		
4. Sales	1.36	1.47	.84		
5. Clerical	.79	.83	.24		
6. Craft	2.07	2.08	1.74		
7. Lower manual	1.92	1.94	1.66		
8. Service work	1.72	1.81	1.29		
9. Primary	2.27	2.31	1.64		

[1] *Model A1, Table 5 (with N=10,000 in each country)*
[2] *Model A2, Table 5 (with N=10,000 in each country)*
[3] *Base coefficients pertain to young respondents in the early period. Interaction coefficients refer to the effect on the base coefficients of increasing the age of the respondent and of shifting to the later period. Sample size is not standardized for this model.*
[4] *Coefficient multiplied by 1000 for convenience in presentation.*
[5] *Average of micro-class coefficients within meso classes*

Table 7. Basic coefficients of immobility for women (N=189,786)

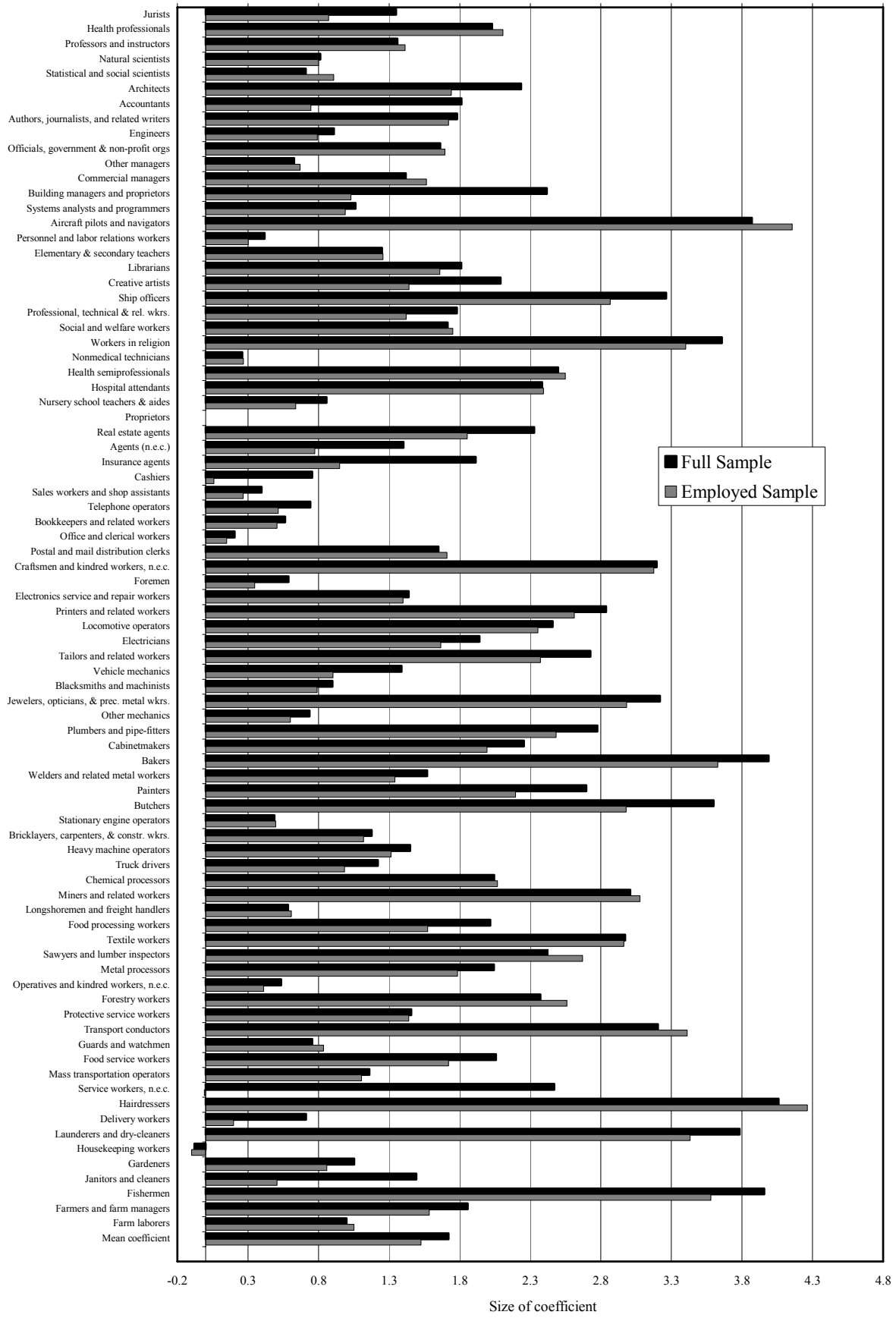
Coefficients	*Baseline model*	*No status gradient*
I. Status (SES)[1]	1.03	
II. Big class		
A. Manual-nonmanual	.28	.57
B. Macro class		
1. Professional-managerial	.29	.55
2. Proprietor	.82	.93
3. Routine non-manual	-.21	-.34
4. Manual	-.26	-.39
5. Primary	.88	1.07
C. Meso class		
1. Classical professions	.44	1.15
2. Managers & officials	.04	-.01
3. Other professions	.01	-.22
4. Sales	.17	.20
5. Clerical	.22	.23
6. Craft	.06	.01
7. Lower manual	.03	.06
8. Service workers	-.17	-.16
III. Micro class[2]		
1. Classical professions	1.15	1.20
2. Managers & officials	1.08	1.12
3. Other professions	.68	.92
4. Sales	.45	.55
5. Clerical	.12	.16
6. Craft	1.13	1.14
7. Lower manual	1.36	1.37
8. Service workers	.71	.78
9. Primary	1.78	1.81

[1] *Coefficient multiplied by 1000 for convenience in presentation.*
[2] *Average of micro-class coefficients within meso classes*

Table 8. Coefficients of cross-national variation in immobility for men

Coefficients	*Baseline model* [1]				*No status gradient* [2]			
	U.S. Base	***JP Shift***	***GE Shift***	***SW Shift***	***U.S. Base***	***JP Shift***	***GE Shift***	***SW Shift***
I. Status (SES)[3]	1.13	-.23	.49	.04 [ns]				
II. Big class								
A. Manual-nonmanual	.34	-.07 [ns]	-.11	-.13	.70	-.16	-.06 [ns]	-.18
B. Macro class		.10	.32	.24		.11	.34	.24
1. Prof.-manag.	-.14				.20			
2. Proprietor	.92				.93			
3. Routine non.	-.18				-.38			
4. Manual	-.30				-.43			
5. Primary	1.49				1.72			
C. Meso class		.08 [ns]	-.10	-.06		.08 [ns]	-.10	-.04
1. Classical prof.	.33				1.06			
2. Man. & off.	.26				.11			
3. Other prof.	-.07				-.27			
4. Sales	.55				.55			
5. Clerical	.19				.16			
6. Craft	.09				.03 [ns]			
7. Lower man.	.22				.25			
8. Service	.14				.13			
III. Micro class[4]		.40	.48	.10		.40	.50	.11
1. Classical prof.	1.10				1.16			
2. Man. & off.	.62				.66			
3. Other prof.	1.54				1.68			
4. Sales	.84				.95			
5. Clerical	.16				.20			
6. Craft	1.80				1.80			
7. Lower man.	1.73				1.75			
8. Service	1.24				1.33			
9. Primary	2.00				2.04			

[1] *Model B2, Table 5*
[2] *Model B4, Table 5*
[3] *Coefficient multiplied by 1000 for convenience in presentation.*
[4] *Base values are mean of micro-class coefficients within each meso class and within the primary macro class.*
[ns] *Not significant at the 0.05 level*



Appendix Figure A1. The structure of micro-class reproduction for men

NOTES: Coefficients based on Model A1 of Table 5 applied to full and employed samples (after standardizing sample to 10,000 cases in each country). For employed sample, L^2=18,780; df=24,100; Δ=21.03; BIC=-236,748. For convenience in presentation, the two coefficients for housekeeping workers are divided by a factor of 20.

Appendix Table A1. Surveys for intergenerational mobility analysis

Survey	*Period*	*Ages*	*Birth Cohorts*	*Occup. Scheme*[1]	*Sample Size*	
					Men	*Wom*
1. Occupational Changes in a Generation I (OCG I)	1962	30-64	1898-1932	1960 SOC	17,544	--
2. Occupational Changes in a Generation II (OCG II)	1973	30-64	1909-1943	1960-70 SOC	18,856	--
3. General Social Survey (GSS)	1972-2003	30-64	1908-1970	1970-80 SOC	9,685	7,712
4. Survey of Social Stratification & Mobility (SSM)	1955-1995	30-64	1891-1970	Japanese SCO	6,703	1,846
5. Japan General Social Survey (JGSS)	2000-2002	30-64	1936-1972	Japanese SCO	1,917	2,166
6. German Social Survey[2] (ALLBUS)	1980-2002	30-64	1916-1972	ISCO-68, ISCO-88	5,647	2,403
7. German Socioeconomic Panel (GSOEP)	1986, 1999, 2000	30-64	1922-1970	ISCO-68, ISCO-88	2,886	1,874
8. German Life History Study LV I-III	1981-1989	30-64	1921-1959	ISCO-68	1,234	563
9. ZUMA-Standarddemographie Survey	1976-1982	30-64	1912-1952	ISCO-68	2,929	1,090
10. 1990 Swedish Census (linked to 1960 & 1970 Censuses)	1990	30-47	1943-1960	NYK80	184,451	172,132

[1] SOC=Standard Occupational Classification; SCO=Standard Classification of Occupations; ISCO=International Standard Classification of Occupations; NYK=Nordisk yrkesklassificering.
[2] German data exclude respondents from East Germany (GDR). If respondents were not gainfully employed at the time of survey, last occupation was used.

Appendix Table A2. Micro-class frequencies for male respondents in U.S., Japan, Germany, and Sweden

		United States		Japan		Germany		Sweden	
Micro-class code and category		**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**
1101	Jurists	351	.008	14	.002	93	.007	981	.005
1102	Health professionals	569	.012	49	.006	135	.011	2481	.013
1103	Professors & instructors	403	.009	25	.003	60	.005	1112	.006
1104	Natural scientists	207	.004	11	.001	60	.005	1038	.006
1105	Statistical & social scientists	127	.003	1	.000	88	.007	2147	.012
1106	Architects	80	.002	73	.008	72	.006	1086	.006
1107	Accountants	540	.012	8	.001	58	.005	876	.005
1108	Authors, journalists, & related writers	177	.004	15	.002	44	.003	1010	.005
1109	Engineers	1727	.037	151	.017	534	.042	4575	.025
1201	Officials, government & non-profit org.	527	.011	39	.004	62	.005	2165	.012
1202	Other managers	5053	.110	737	.085	378	.030	5251	.028
1203	Commercial managers	515	.011	85	.010	275	.022	4305	.023
1204	Building managers & proprietors	74	.002	16	.002	102	.008	1539	.008
1301	Systems analysts & programmers	274	.006	63	.007	169	.013	3783	.021
1302	Aircraft pilots and navigators	81	.002	1	.000	4	.000	146	.001
1303	Personnel & labor relations workers	153	.003	0	.000	29	.002	1773	.010
1304	Elementary & secondary teachers	860	.019	220	.025	513	.040	6343	.034
1305	Librarians	24	.001	1	.000	14	.001	361	.002
1306	Creative artists	324	.007	25	.003	78	.006	1620	.009
1307	Ship officers	49	.001	21	.002	19	.001	467	.003
1308	Professional, technical & rel. wkrs.	652	.014	99	.011	120	.009	1530	.008
1309	Social & welfare workers	76	.002	15	.002	56	.004	1622	.009
1310	Workers in religion	327	.007	28	.003	38	.003	483	.003
1311	Nonmedical technicians	568	.012	19	.002	538	.042	18719	.101
1312	Health semiprofessionals	170	.004	37	.004	113	.009	1440	.008
1313	Hospital attendants	74	.002	0	.000	26	.002	1428	.008
1314	Nursery school teachers & aides	0	.000	1	.000	7	.001	519	.003
2001	Proprietors	1840	.040	462	.053	308	.024	3098	.017
3101	Real estate agents	231	.005	36	.004	9	.001	449	.002
3102	Agents (n.e.c.)	217	.005	21	.002	87	.007	1760	.010
3103	Insurance agents	424	.009	30	.003	108	.009	373	.002
3104	Cashiers	33	.001	5	.001	3	.000	21	.000
3105	Sales workers & shop assistants	2107	.046	407	.047	263	.021	7743	.042
3201	Telephone operators	3	.000	5	.001	6	.000	101	.001
3202	Bookkeepers & related workers	271	.006	189	.022	428	.034	1884	.010
3203	Office and clerical workers	1699	.037	1045	.121	1127	.089	4398	.024
3204	Postal & mail distribution clerks	494	.011	44	.005	107	.008	2895	.016
4101	Craftsmen & kindred workers, n.e.c.	263	.006	68	.008	93	.007	484	.003
4102	Foremen	1655	.036	333	.039	318	.025	0	.000
4103	Electronics service & repair workers	598	.013	11	.001	204	.016	3174	.017
4104	Printers & related workers	297	.006	54	.006	120	.009	1854	.010
4105	Locomotive operators	171	.004	23	.003	75	.006	451	.002
4106	Electricians	479	.010	80	.009	288	.023	4889	.027
4107	Tailors and related workers	134	.003	73	.008	74	.006	466	.003
4108	Vehicle mechanics	783	.017	23	.003	213	.017	2145	.012

4109	Blacksmiths & machinists	1167	.025	93	.011	757	.060	6794	.037
4110	Jewelers, opticians, & prec. metal wkrs.	64	.001	24	.003	96	.008	1094	.006
4111	Other mechanics	2086	.045	31	.004	192	.015	4863	.026
4112	Plumbers & pipe-fitters	432	.009	59	.007	187	.015	1817	.010
4113	Cabinetmakers	61	.001	57	.007	210	.017	2136	.012
4114	Bakers	43	.001	40	.005	79	.006	294	.002
4115	Welders & related metal workers	740	.016	111	.013	187	.015	4248	.023
4116	Painters	487	.011	56	.007	181	.014	2475	.013
4117	Butchers	159	.003	0	.000	72	.006	311	.002
4118	Stationary engine operators	384	.008	41	.005	78	.006	505	.003
4119	Bricklayers, carpenters, & constr. wkrs.	1444	.031	424	.049	619	.049	10101	.055
4120	Heavy machine operators	580	.013	58	.007	114	.009	2151	.012
4201	Truck drivers	1680	.036	37	.004	481	.038	8983	.049
4202	Chemical processors	431	.009	108	.012	90	.007	2686	.015
4203	Miners & related workers	235	.005	40	.005	128	.010	645	.003
4204	Longshoremen & freight handlers	565	.012	60	.007	135	.011	3200	.017
4205	Food processing workers	330	.007	92	.011	48	.004	730	.004
4206	Textile workers	131	.003	65	.008	38	.003	182	.001
4207	Sawyers & lumber inspectors	105	.002	52	.006	17	.001	1022	.006
4208	Metal processors	409	.009	85	.010	75	.006	1118	.006
4209	Operatives & kindred workers, n.e.c.	3168	.069	430	.050	244	.019	4388	.024
4210	Forestry workers	87	.002	23	.003	36	.003	1730	.009
4301	Protective service workers	589	.013	55	.006	240	.019	3004	.016
4302	Transport conductors	45	.001	8	.001	17	.001	575	.003
4303	Guards & watchmen	446	.010	59	.007	76	.006	1217	.007
4304	Food service workers	445	.010	90	.010	60	.005	1084	.006
4305	Mass transportation operators	325	.007	272	.031	21	.002	0	.000
4306	Service workers, n.e.c.	393	.009	35	.004	50	.004	616	.003
4307	Hairdressers	172	.004	56	.006	39	.003	169	.001
4308	Delivery workers	395	.009	39	.004	3	.000	200	.001
4309	Launderers & dry-cleaners	74	.002	21	.002	11	.001	109	.001
4310	Housekeeping workers	41	.001	2	.000	12	.001	219	.001
4311	Gardeners	620	.013	25	.003	129	.010	1161	.006
4312	Janitors & cleaners	235	.005	11	.001	111	.009	3681	.020
5101	Fishermen	49	.001	85	.010	0	.000	237	.001
5201	Farmers & farm managers	1750	.038	1213	.140	299	.024	4952	.027
5202	Farm laborers	37	.001	18	.002	48	.004	769	.004
Column Totals		**46085**	**100**	**8635**	**100**	**12696**	**100**	**184451**	**100**

Appendix Table A3. Sectoral variation in Japanese immobility[1]

	Base and shift effects		
Coefficients	*Base*	*Large firm*	*Public*
I. Status (SES) [2]	.75	.23[ns]	-.07[ns]
II. Big class			
A. Manual-nonmanual	.23	.07[ns]	.01[ns]
B. Macro class		.01[ns]	-.12[ns]
1. Prof.-manag.	-.09[ns]		
2. Proprietor	1.23		
3. Routine non.	-.11[ns]		
4. Manual	.14		
5. Primary	.73		
C. Meso class		.03[ns]	.06[ns]
1. Classical prof.	.64		
2. Man. & off.	-.11[ns]		
3. Other prof.	.46		
4. Sales	.32[ns]		
5. Clerical	.46		
6. Craft	-.10[ns]		
7. Lower manual	-.07[ns]		
8. Service workers	-.10[ns]		
III. Micro class [3]		-.55	-.78
1. Classical prof.	1.87		
2. Managers & off.	1.25		
3. Other prof.	2.18		
4. Sales	1.24		
5. Clerical	1.21		
6. Craft	2.82		
7. Lower manual	2.03		
8. Service workers	3.52		
9. Primary	2.09		

[1] L^2 =5,781 with 13,134 df; BIC=-113,490; Δ=22.6.
[2] Coefficient multiplied by 1000 for convenience in presentation.
[3] Base values are mean of micro-class coefficients within each meso class and within the primary macro class.