# The Case for a New Class Map[1]

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It is increasingly fashionable to claim that social classes are purely academic constructs that no longer provide much information about lifestyles, attitudes, and other individual-level outcomes. The few available tests of this claim rely on stylized measures of social class that either group detailed occupations into a small number of "big classes" or reduce them to scores on vertical scales of prestige, socioeconomic status, or cultural or economic capital. We show that these conventional approaches understate the total effects of the site of production by failing to capitalize on the institutionalized social categories that develop at the detailed occupational level.

Over the last 25 years, the goal of class analysis has shifted from developing accounts of collective action, revolutions, and other macrolevel outcomes (e.g., Thompson 1963; Braverman 1974; Burawoy 1979) to explaining variability in individual-level life chances, attitudes, and behaviors (see Holton and Turner 1989; cf. Sørensen 2000).[2] This revolutionary shift in the rationale for class analysis has not been accompanied by a corresponding shift in the class maps that are used to prosecute class

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[2] For convenience, we will often refer to these individual-level correlates as "outcomes," even though we appreciate that some of them are not effects of class membership.

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analysis. Indeed, contemporary debates about the structure of social classes (e.g., Wysong and Perrucci 1999) are eerily similar to debates that dominated when the macrolevel agenda still held sway, almost as if one can devise and justify class maps without considering their purpose. We redress this oversight by asking whether a new, highly detailed class scheme devised explicitly for the microlevel agenda performs better than conventional class maps.

The intellectual backdrop for our analyses is ongoing dissatisfaction with the explanatory power of the usual social class maps (esp. Kingston 2000). Most notably, postmodernist critics have argued that class analysis has failed to deliver on the new microlevel agenda, in large part because attitudes and behaviors arise from a "complex mosaic of taste subcultures" that are unrelated to class membership (Pakulski and Waters 1996, p. 157; see also Clark and Lipset 2001; Beck 2000; Inglehart 1997; Kingston 2000). These critics conclude that the concept of social class, while useful for explaining behavior in the early industrial period, is an intellectual dead end that misrepresents the "basic fissures that define the contours of social life" (Kingston 2000, pp. 210–12). The postmodern critique implies that social action is increasingly individualistic and that any remaining institutional constraints on action (e.g., religion, gender, race) are generated largely outside the site of production.[3]

This conclusion, popular though it is, ignores the possibility that social classes remain well formed and only appear to have weak effects because the class concept has been so poorly operationalized. The long-standing, untested, and seemingly problematic assumption of conventional class models is that the site of production is organized into a small number of big classes (e.g., "service class," "routine nonmanual class"). This "big-class assumption" allows class analysts to ignore or dismiss the smaller social groups (i.e., "occupations") that emerge around functional niches in the division of labor and that typically become deeply institutionalized in the labor market. We argue below that occupations have considerable explanatory power by virtue of this institutionalization. Indeed, whereas big classes affect individual-level outcomes primarily through a rational action mechanism (e.g., Goldthorpe 2000), occupations shape behavior through the additional sociological forces of self-selection, differential recruitment, socialization, and interactional closure, all of which become activated in the context of institutionalized categories. It follows that occupations are better suited than big classes for the new microlevel agenda of explaining individual-level behaviors and attitudes (see Grusky and Sørensen 1998, 2001; Grusky, Weeden, and Sørensen 2000; Grusky

[3] We use the term "site of production" to refer to the social organizational setting within which goods and services are produced.

and Weeden 2001, 2002; Weeden and Grusky 2005, in press; Grusky 2005; Weeden 2005).

We develop this argument in five parts. In the first section, we consider why contemporary sociologists should care about constructing class maps, thereby motivating our own efforts to build a new map for the microlevel tradition. We then develop the theory underlying our argument that institutionalized categories become internally homogeneous and thus allow for a more powerful account of individual-level outcomes. In the next two sections, we provide indirect tests of this argument: the first section explores the extent to which competing class maps (i.e., big class and disaggregate) capture the bivariate structure at the site of production, and the second section examines the more purely causal effects of class in the context of multivariate models. To foreshadow our results, we find that the disaggregate class model outperforms big-class models in both cases, even when modeling life chances and other outcomes that are conventionally regarded as the home ground of big-class analysis (see Goldthorpe and McKnight in press). We conclude by discussing alternative ways of rethinking conventional class models and by arguing that such alternatives to our approach may be only marginally useful for a microlevel research agenda.

## THE MICROLEVEL RATIONALE FOR A CLASS MAP

Anticlass rhetoric has so permeated the discipline that it is now necessary to argue what once was taken for granted: that sociologists of all stripes, not just self-identified class analysts, should be interested in developing a class model that lives up to the demands scholars place on it. We begin, then, by making the case for a new class scheme that is designed with the microlevel research tradition in mind. The main purpose of a refurbished class scheme, we argue, is to identify structural positions at the site of production that provide the strongest possible signal of "life conditions," where this refers to the panoply of circumstances that define the quality and character of our social lives, including the economic flows and resources that we control, our institutional affiliations and commitments, the types of lifestyles that we lead, and our sentiments and attitudes. We are thus looking for an information-rich class map that represents the "geography of social structure . . . by describing important differences between structural locations" (Sørensen 2000, pp. 1526–27; Giddens 1973, pp. 171–72; Goldthorpe 2000, p. 206). This class concept is not very demanding; after all, classes that are fine-tuned to the microlevel agenda do not need to embody antagonistic interests, act collectively on behalf of these interests, or bring about fundamental macrolevel

change. These more ambitious claims, while not developed here, may nonetheless be defensible for our new class map. In some of our prior work, for example, we have argued that occupations are the main vehicle through which rent is extracted, thus implying that interoccupational antagonisms might emerge in the competition over rent (Weeden 2002; see also Abbott 1988).

Here, however, we focus on the more delimited task of defining categories that capture the available structure at the site of production and hence are good information-conveying "containers."[4] We will assess such "class structuration" (Giddens 1973) in two ways: first by evaluating how a disaggregate model fares (relative to big-class maps) in capturing the bivariate association between structural categories and life conditions, and then by evaluating how it performs in a multivariate explanatory context. As we argue below, the first test is relevant to analyses in which social class is treated as a dependent variable, while the second is relevant to analyses in which it is treated as an independent variable. We next review these two forms of microlevel analysis and ask how an optimal class map might be devised for each.

## The Determinants of Class

The class standing of an individual is treated as a dependent variable in much of contemporary sociology. For example, class maps are used as dependent variables in analyses of class reproduction and mobility, class-based assortative mating, class-based friendship and network ties, and class or occupational segregation (by sex and race). These research traditions are best served by a class scheme that provides a strong signal of life conditions. That is, insofar as the objective of such research is to determine how and why individuals are allocated to different life conditions, the analyst should use a class scheme that successfully captures variability in life conditions.

This conclusion, obvious though it may seem, has not informed the construction or testing of contemporary class maps. The typical class analyst develops some preferred class map by (*a*) nominating a particular variable (e.g., authority, employment relations) as especially useful in understanding the structure of the site of production, and (*b*) then defining class categories that capture differences across workers on that variable.

[4] As will become evident, our new formulation redefines the class concept. It is, however, not so radical a redefinition as to break with the longstanding assumption (e.g., Marx [1869] 1963; Weber 1946) that class categories should characterize the available structure *at the site of production*. We do not seek to devise categories that represent structure that emerges outside the site of production (e.g., religions, racial groups, gender groups).

For example, Goldthorpe (2000) first argues that the "form of regulation of employment" (e.g., salaried, short-term contract) is analytically important, and he then demonstrates that the categories of the Erikson-Goldthorpe (EG) big-class scheme differ in their characteristic forms of regulation. Attempts to test class schemes, if any are made, typically involve showing that the proposed categories indeed succeed in capturing the privileged analytic variable (e.g., Evans 1992; Evans and Mills 1998; Rose and O'Reilly 1997, 1998).

This standard approach is a vestige of the old macrolevel agenda that does not transfer gracefully to the new microlevel agenda. To be sure, when the goal of class analysis is to understand how opposing interests might generate class antagonisms, it makes sense to build a class map around that one critical variable (e.g., property ownership, authority relations) that defines class interests, latent though it may be. If, by contrast, the goal is to understand differential life conditions, the standard approach is no longer defensible. After all, "life conditions" is an intrinsically synthetic concept, and it is unlikely that a single variable can exhaust it. It is curious that theorists who have abandoned the macrolevel agenda (if ever they held it) continue to motivate and test their class maps in terms of a criterion variable that has been nominated, seemingly by fiat, as especially important. While we cannot know for sure, we suspect that class analysts have carried over this conventional approach to the new microlevel agenda quite unthinkingly, as if old macrolevel objectives were still relevant.

At the same time, it is possible that conventional class models can serve as broad, synthetic indicators of life conditions, even though they were more narrowly devised to capture a single criterion variable. Although a conventional class map might be justified this way, few scholars do so (cf. Bourdieu 1984), perhaps because there is little in the way of research results that might sustain this justification. As we have noted, some scholars (e.g., Evans 1992) have tried to validate their class map against a few preferred criteria, but such tests do not provide the comprehensive assessment that an omnibus measure of life conditions demands. These tests are also problematic because they consider only big-class maps and, as a result, prematurely cut off debate on a logically prior question, namely whether *any* big-class model is up to the task of capturing the available structure at the site of production (e.g., Evans and Mills 1998; Evans 1992; Halaby and Weakliem 1993; Kingston 2000).

The only line of research that comes close to assessing the explanatory potential of a disaggregate approach is that of Bourdieu (esp. 1984) and

Lamont (e.g., 1994; also, Peterson and Simkus 1992).[5] This research, which does often draw on detailed occupational categories, is an important impetus for our own approach. At the same time, it falls well short of a comprehensive assessment of the explanatory potential of occupations, not just because the preferred class maps are "top-heavy" hybrids that disaggregate professional occupations and aggregate all others, but also because such maps have been "validated" against a quite narrow range of outcomes, typically only lifestyles and consumption practices. We extend this line of research by evaluating a fully disaggregate class scheme with respect to a far more comprehensive set of outcomes.

This evaluation entails assessing the strength of the bivariate relationship between the postulated class maps (e.g., big class, disaggregate) and various life conditions (e.g., life chances, lifestyles, cultures).[6] We appreciate that tastes will vary regarding which conditions should be privileged as constitutive of class: Weberian purists emphasize that life chances alone are relevant, whereas advocates of more imperialist definitions of class reject the usual distinction between class and status (i.e., "habitus") and opt for schemes that capture both (see Bourdieu 1984; Giddens 1973; Lamont 1994). We can remain agnostic on these debates because our results indicate that conventional big classes fall short for *all* aspects of life conditions. As we will show, no matter how widely or narrowly class is conceived, it is difficult to defend conventional big classes.[7]

## The Effects of Class

We have argued that research on the determinants of class membership should be based on class maps that capture as much of the variability in life conditions as possible. Should analyses of the *effects* of social class be subject to the same stricture? As the microlevel agenda diffused, such

[5] There is a relatively large body of research on how cultural practices are related to gradients of education, socioeconomic status (SES), or prestige (e.g., Bryson 1996, 1998).

[6] If classes were instead defined as *constellations* of conditions (e.g., life chances, lifestyles) that cluster together, the relevant test might be a latent class analysis assessing whether such constellations appear at the big-class or occupation level (see Birkelund, Goodman, and Rose 1996; also see Grusky and Weeden 2002, pp. 234–35). Here, we will only address whether class locations capture variability in each condition taken separately, but we will be taking on a more ambitious latent class analysis in subsequent research (e.g., Grusky and Weeden in press).

[7] We appreciate that some research questions are best resolved by analyzing particular aspects of life conditions (e.g., income) rather than some omnibus measure. In such cases, scholars should simply use the individual-level variable of interest without first pushing it through the fulcrum of class. The analytic niche for a class map rests with scholarship that requires an omnibus measure of life conditions (see Grusky 2005, pp. 6–7).

analyses became ubiquitous, so much so that, for virtually any individual-level variable, a well-developed research literature can now be found that treats that variable as class determined. These analyses of class effects typically take the form of a sociological horse race that pits social class against other core sociological variables (e.g., race, gender, religion) to assess which variable is the most important. The task of revealing "true" class effects therefore involves estimating a full multivariate model that eliminates any possible confounding of class with other causes.

This approach makes it especially important to use a class map that captures the available structure at the site of production, thereby protecting against any downward bias in estimated class effects. Given that many commentators have argued that class effects are now weak (e.g., Pakulski and Waters 1996; Kingston 2000), a special burden rests on class analysts to either concede the point or, alternatively, to demonstrate that conventional class maps fail to exhaust the structure at the site of production. We take on this task with illustrative multivariate models that show whether class effects can be strengthened by replacing the nominal categories of big-class maps with more deeply institutionalized microclass categories. Armed with these analyses, we can determine whether the apparent weakness of class effects arises merely because class has been poorly operationalized or because, as postmodernists would have it, class is now truly a weak force. As we see it, the main rationale for developing a new microlevel map is that much of sociology is oriented toward the microlevel task of teasing out the strength and pattern of class effects, a task that is compromised insofar as class maps do not maximize explanatory power.

We appreciate that social class is also one of the most frequently used control variables in sociological research. In such research, class acts as little more than a nuisance variable that must be "controlled" for the purpose of securing unbiased estimates of other, presumably more interesting variables (e.g., race, religion). Typically, issues of operationalization are treated cavalierly when a control for class is needed, as if the choice between various big-class maps is more relevant in theory than in practice. This is unfortunate. Indeed, insofar as conventional big-class models fail to capture the explanatory power available at the site of production, much sociological research may be subject to the omitted variable bias that arises when class effects are only partly purged. It follows that researchers who wish to control for class should also use a class map that is tailor-made for the microlevel research objective.

## Overview of Analytic Strategy

If the goal of a class map is to provide an omnibus signal of life conditions, then it is appropriate to evaluate our class maps across a wide range of individual-level outcomes. We carry out bivariate analyses that incorporate 55 variables from four topical domains: (*a*) life chances (e.g., income, education, working conditions), (*b*) lifestyles (e.g., consumption practices, institutional participation), (*c*) culture (e.g., political preferences, social attitudes), and (*d*) demographic composition (e.g., race, ethnicity). The first three domains represent areas that have historically been viewed as crucial "litmus tests" for class maps. As we noted above, some scholars (e.g., Weber 1946) regard life chances as the main life conditions of interest, whereas others (e.g., Bourdieu 1984; Thompson 1963) prefer more encompassing definitions of class that incorporate lifestyles and sentiments. We provide evidence pertaining to all three domains and allow readers to pick and choose those that correspond to their preferred definition of class. The fourth domain, demographic composition, is not directly relevant to typical definitions of class (cf. Bourdieu 1984), but we include it because commentators have long argued that class formation and structuration can be undermined by racial and ethnic cleavages (e.g., Bradley 1996; Bonacich 1972; Giddens 1973). Again, our objective is to provide the most comprehensive validation of class maps to date, while appreciating that some of our readers might prefer a narrower assessment.

We also carry out analyses that test standard gradational representations of inequality. Up to now, we have made much of the hegemony of big-class schemes, but other models of inequality obviously remain in play. In particular, gradational formulations have long been popular, whether in the "American" tradition of scaling occupations according to SES or prestige (e.g., Hauser and Warren 1997; Nakao and Treas 1994), or the "French" tradition of treating occupations as subtle signals of the economic and cultural capital controlled by their incumbents (esp. Bourdieu 1984). The main problem with both traditions is that they simply assume that occupations can safely be reduced to one or two continuous variables (e.g., prestige, cultural capital). As with big-class approaches, scaling obscures the far more complicated effects of occupational cultures or other forms of "horizontal" differentiation that arise when social closure is secured at the detailed occupational level. Put differently, conventional scales tell stories about *why* occupations matter but overlook the logically prior issues of *how much* occupations matter and whether they matter in ways other than the preferred stories. We take on these logically prior issues in our analyses.

In summary, all conventional approaches begin with a characterization of the site of production that aggregates occupations into big classes or

represents them with continuous scales, thus ignoring the possibility that such practices conceal much of the association between occupations and individual-level outcomes. Although there is considerable debate over how big classes should be defined (e.g., Evans and Mills 1998), how occupations should be scaled (e.g., Hauser and Warren 1997), or whether big-class schemes are superior to scales (e.g., Rytina 2000; Hout and Hauser 1992; Kalleberg and Griffin 1980), scholars invariably assume that at least one of these forms of data reduction is satisfactory. We will test this assumption and thereby ask whether a more fundamental recasting of class maps is necessary.

## WHERE IS STRUCTURATION FOUND?

If class is as central to sociology as the preceding section implies, then the discipline should have a more than passing interest in determining the level of aggregation at which class categories structure outcomes. This issue is best addressed by considering whether the proximate mechanisms that generate class homogeneity operate principally at the big-class or occupational level. In the present section, we outline the three main processes that generate within-group homogeneity (i.e., allocation, social conditioning, and institutionalization of conditions), with our objective being to specify the level at which each such process operates. As discussed below, some of the sociological processes that generate the class-outcome relationship operate at the big-class level, whereas others operate more directly and forcefully at the disaggregate level. It follows that real structure obtains at both levels. We argue, however, that selection, socialization, and other homogeneity-inducing mechanisms operate with special force at the occupation level, implying that conventional big-class models will conceal a substantial portion of the structure at the site of production (see table 1).

The first mechanism, allocation, refers to the selective processes that affect the types of individuals who are found in particular positions in the productive sphere. This mechanism operates on both the supply and demand sides. On the supply side, workers self-select into positions based not only on their perceptions about which occupations are remunerative and intrinsically rewarding (see, e.g., Logan 1996), but also on their beliefs about which occupations provide a good fit in terms of their preexisting beliefs, attitudes, lifestyle predilections, and demographic attributes. For example, individuals with liberal political values are more likely attracted to the profession of sociology, given its reputation as a haven for left-leaning politics; this self-selection in turn solidifies the dispositional reputation itself (Caplow 1954). Similarly, we might expect journalists to self-

TABLE 1
MECHANISMS GENERATING STRUCTURATION AT THE SITE OF PRODUCTION

| MECHANISM | LEVEL | |
|---|---|---|
| | Aggregate | Disaggregate |
| Allocation: | | |
| Supply | Weak | Strong |
| Demand | Weak | Strong |
| Social conditioning: | | |
| Training | Weak | Strong |
| Interactional closure | Weak | Strong |
| Interest formation | Strong | Strong |
| Learning generalization | Strong | Strong |
| Institutionalization of conditions | Weak | Strong |

select for inquisitiveness, social workers for empathy, lawyers for argumentativeness, religious workers for spirituality, and printers for political radicalism. Although these examples all focus on dispositional reputations, class positions also have demographic "reputations" (e.g., the female typing of nursing) and lifestyle "reputations" (e.g., the staidness of accountants) that serve as self-fulfilling prophecies by selecting workers who find those reputations appropriate, attractive, or at least acceptable in light of their own traits or lifestyles.

On the demand side, employers and other gatekeepers filter applicants on the basis of individual-level attributes, thus creating additional within-category homogeneity by matching the traits of new recruits with those of current employees. These gatekeepers are presumably well aware of the dispositional, demographic, and related reputations of occupations and are often motivated to recruit according to those reputations, whether because of discriminatory tastes or in the interests of workplace harmony. In some cases, such demand-side filtering is formalized via explicit selection devices (e.g., licensing boards, unions, certifying organizations) that establish whether the attributes, training, and experience of potential employees are consistent with expectations for the position being filled. In other cases, demand-side filtering is carried out informally through referral-based hiring practices, which typically tap social networks that are relatively homologous (e.g., Petersen, Saporta, and Seidel 2000; Fernandez and Weinberg 1997; Granovetter 1995). Regardless of its source, demand-side filtering generates within-category homogeneity with respect to a wide variety of traits, not only those related to potential productivity, but also to demographic attributes, political attitudes, social attitudes, and consumption practices.

The key question for our purposes is whether the allocative processes of self-selection and differential recruitment operate principally at the big-class or occupational level. Here it is relevant that occupations, more so than big classes, tend to be institutionalized in the labor market, embedded in the cognitive maps of workers and employers, and characterized by the cultural reputations that drive allocative processes. Indeed, in many occupations, licenses and credentials serve as explicit gatekeeping devices, restricting entry to certain qualified eligibles and promoting the social closure that generates distinctive cultures and reputations. The generalized reputations that attach to big classes tend to be comparatively weak. The classes of "nonskilled managers" (Wright 1997) or "routine nonmanuals" (Erikson and Goldthorpe 1992) are, for example, largely academic constructions that lack well-developed closure mechanisms and have accordingly amorphous reputations. The main gatekeeping device at the big-class level is the bachelor's degree, yet this form of closure maps onto just one big class (i.e., the "service class"), and only imprecisely at that. Although many occupations are poorly institutionalized and lack preexisting reputations or formalized selection devices (e.g., "assemblers," "systems analysts"), insofar as closure mechanisms can be found at all, it is mainly at the occupational level.

If the allocation mechanism evokes the imagery of social classes as vessels for individuals with common preexisting attributes, the "social conditioning" mechanism (Bourdieu 1984, p. 101) is instead explicitly causal, referring to the transformative effects of the objective conditions of work and the social practices characteristic of a class position. These conditions and practices shape the development of classwide and local political interests (Marx 1963; Dahrendorf 1959; Krause 1996), alter the attributes that workers value both on and off the job (Kohn [1980] 1994, pp. 436–37; Kohn and Schooler 1983), affect lifestyles and patterns of family interactions (Zablocki and Kanter 1976, p. 276; see also Menaghan 1991), and motivate workers to learn particular skills (Becker 1967). Four submechanisms, all of which fall under the social conditioning rubric, generate these diverse effects: training, interactional closure, interest formation, and learning generalization. We review each of these below.

The first two submechanisms, training and interactional closure, draw explicitly on the classical sociological forces of socialization and normative control. The training submechanism becomes relevant whenever employees complete lengthy class-specific education (i.e., generalized liberal arts curriculum) or occupation-specific training (e.g., apprenticeships, police and military academies, graduate and professional schools) that solidifies preexisting attitudes, instills explicit codes of behavior, or otherwise generates homogeneity among recruits (e.g., Caplow 1954). Although formal training is the most obvious mode of such socialization, informal

training also occurs as incumbents interact with like-minded colleagues and are exposed to the political beliefs, social attitudes, perceived interests, and consumption practices characteristic of a given structural location. This "interactional closure" at the site of production generates homogeneous communities (e.g., Park 1952, p. 196) because political and social attitudes crystallize out of social interactions (e.g., Berelson, Lazarsfeld, and McPhee 1954), and because groups impose sanctions against members who deviate from normative beliefs or behaviors (e.g., Wilensky and Ladinsky 1967).

Do training and interactional closure generate homogeneity of outcomes primarily at the big-class level or at the occupation level? It is relevant that these two submechanisms come into play in the context of institutionalized groupings characterized by formalized training regimens (e.g., apprenticeships, graduate training) and substantial intraclass interaction. By implication, they will be especially apparent at the disaggregate level where occupational groupings are well formed, and their boundaries, far from being arbitrary academic constructions, are explicitly defended by employers, unions, professional associations, and credentialing bodies. As we have stressed elsewhere (Grusky and Weeden 2001), not all occupations have well-developed training regimens and dense networks, but at the same time many do (e.g., Van Maanen and Barley 1984; Hughes 1958; Caplow 1954). By contrast, such organic communities have proved elusive at the big-class level (e.g., Brint 1984, 1994; Goldthorpe and Lockwood 1969), emerging in well-developed form only at particular historical moments (e.g., Thompson 1963).

If training and interactional closure are thus less developed at the big-class level, we do not mean to suggest that they are completely absent, even in the contemporary period. Most notably, postsecondary schools provide generalized training for members of a broadly defined "service class," a form of training that should generate classwide homogeneity on at least some outcomes (e.g., tolerance, liberalism). This training is not, however, widely regarded as preparatory for any particular big class, at least not to the extent that most vocational training (e.g., the JD) is preparatory to a particular occupation (i.e., lawyer). It follows that training-based closure is relatively poorly developed at the big-class level. Likewise, interactional closure is also weakly developed at the big-class level because it primarily takes the form of class-based residential segregation, not constraints on workplace interaction. That is, neighborhood residents often fall into the same big class, a form of segregation that creates the *potential* for interactional closure at the big-class level. This source of homogeneity is relatively weak given that interaction between neighbors is both less frequent and less extensive than interaction between coworkers. Thus, although residual forms of classwide socialization and normative control

persist, these processes operate more directly and powerfully at the level of institutionalized occupations.

The remaining two submechanisms, interest formation and learning generalization, become relevant insofar as class categories are homogeneous with respect to working conditions, opportunities, and the resulting "logic" of the class situation. The standard formulation here, as expressed by Bourdieu, is that "homogenous conditions of existence impose homogenous conditionings and produce homogenous systems of dispositions capable of generating similar practices" (1984, p. 104; see also Becker and Carper 1956). This homogeneity of practice is established either because (*a*) the underlying opportunities, constraints, and logic of the class situation generate a characteristic set of interests (Goldthorpe 2002); or (*b*) there is a "direct translation of the lessons of the job to outside-the-job realities" (Kohn 2001, p. 539). The distinction between these two submechanisms lies in the emphasis placed on instrumental calculation. In the interest-based account, class incumbents adopt beliefs or pursue courses of action that, given the logic of the class situation, allow them to best realize their objectives. The learning generalization account instead implies that class incumbents unconsciously appreciate and value salient features of their job or workplace. For example, workers involved in substantively complex tasks should learn to value complexity and intellectual prowess both on and off the job, thus creating a preference for intellectually demanding leisure activities.

Both accounts assume that members of a putative class experience a workplace environment that is similar in terms of the conditions that form interests or lead to learning generalization. The key issue, then, in determining whether aggregation undermines these mechanisms is the extent to which it introduces intraclass heterogeneity in the workplace conditions of interest (e.g., income, substantive complexity, autonomy). In this context, it is not necessarily troubling that big-class categories are poorly institutionalized, because sociologists typically construct them to be homogenous with respect to at least some working conditions. At the same time, the smaller categories that employers devise (i.e., occupations) will likewise be homogeneous insofar as their job-construction efforts are guided by a consensual "template" that specifies the job tasks, working conditions, and rewards of an occupation. Put differently, the homogeneity of big classes arises because sociologists attempt analytically to combine jobs or occupations into coherent groups, whereas the homogeneity of occupations arises because employers (and, to some extent, workers) fashion jobs that correspond with ideal-typical occupational templates.

This implies that homogeneous class categories may be constructed either by employers or sociologists. We cannot make a priori judgments about the effects of aggregation because it is unclear whether sociologists

have succeeded in defining big classes in ways that retain much of the homogeneity that matters for interest formation or learning generalization. Given this ambiguity, we have assumed in table 1 that these mechanisms generate roughly the same amount of homogeneity at the two levels, although it is conceivable that sociologists are in fact better than employers at constructing categories that capture variability in the dimensions governing interest formation or learning generalization.

The final mechanism listed in table 1, "institutionalization of conditions," refers explicitly to the processes by which work is typically structured and rewarded. This mechanism becomes relevant when explaining why the objective conditions of work (e.g., work hours, income) tend to be similar within big classes and occupations. As noted above, occupations tend to encompass similar work conditions, given that they are the institutionalized categories in terms of which employers fashion jobs (see, e.g., Bridges 1995). Moreover, occupational associations and unions attempt to homogenize further the work conditions of particular occupations, with their success revealed in the diffusion of occupation-specific licenses, credentials, certifications, and apprenticeship systems (e.g., Weeden 2002; Freidson 1994, 2001; Murphy 1988). Only rarely, and even less often successfully, do these organizations seek to effect classwide changes in the conditions of work (Abbott 1988). To be sure, sociologists who aggregate occupations into big classes are again sorting on work conditions, at least insofar as work conditions are correlated with the criteria by which the preferred big classes are explicitly defined. This sorting is likely, however, to be indirect with respect to the particular outcomes included in our life chances domain.

The main implication of this discussion is that most of the mechanisms that generate the class-outcome association operate more directly and decisively at the level of detailed occupations (see table 1). It follows that big-class theorists must fall back on a limited menu of mechanisms when describing how classes structure individual-level outcomes. For example, Goldthorpe (2000, 2002; also Goldthorpe and McKnight in press) explains this relationship almost entirely in terms of a rational action account (i.e., interest formation), whereby class incumbents pursue courses of action that are subjectively sensible given the particular bundle of constraints and opportunities characterizing their class situation. This rational action account may be the strongest card that a big-class theorist can play, but it is far weaker than the homogeneity-inducing mechanisms available to the theorist of institutionalized class categories. It follows that big-class maps encourage analysts to search for association between the site of production and individual outcomes where only a fraction of that association is likely to be found.

## SOCIAL CARTOGRAPHY

We begin our empirical analyses by examining whether big-class maps successfully capture variability in life conditions. These "cartographic" analyses involve characterizing the bivariate association between class membership and a wide range of variables in the life chances, lifestyles, culture, and demography domains. We proceed by first describing the data and then presenting our class maps, models, and results. The multivariate analyses, to which we turn in the subsequent section, rely on largely similar data and methods and thus will be presented more economically.

### Data

We assess the strength of the relationship between class maps and outcomes as comprehensively as possible by examining 55 individual-level variables drawn from our four topical domains. Within each domain, we chose variables that offered large sample sizes, consistent coverage across survey years, and similar item wording over time. After imposing these restrictions, we found that a few of the topics (e.g., abortion attitudes) were covered by an extremely large number of items. Rather than overweight the analyses with these items, we chose a representative sampling of them.[8]

The variables pertaining to life chances and demographic composition are principally drawn from the 1972–2002 March CPS (Bureau of Labor Statistics [BLS] 2004), while those in the remaining domains are drawn from the 1972–2002 GSS (Davis, Smith, and Marsden 2004). We combined multiple years of the surveys to obtain adequate sample sizes. In a companion piece (Weeden and Grusky 2005), we have disaggregated by sample year and examined trends in the strength of the class-outcome relationship, but these trends proved to be relatively weak and do not alter our main conclusions here. Appendix table A1 lists all variables and their source questions, response categories, and contributing surveys.

We define class and occupation schemes with 1970 Standard Occupation Classification (SOC) codes. Unfortunately, data from post-1991 GSS and post-1982 CPS files are only published in 1980 or 1990 SOC schemes, forcing us to reconcile classifications. We back-coded the more recent data into the 1970 scheme by (*a*) translating the 1990-basis data into the 1980 scheme, (*b*) multiplying each 1980-basis record by the number of 1970 SOC codes that contribute to the 1980 code (U.S. Bureau of the Census 1989), and (*c*) assigning sex-specific weights to each record in

[8] We have no reason to believe that our results would be any different had we selected different items.

the resulting expanded data set.[9] This weight equals the proportion of the 1980 code that is drawn from the constituent 1970 code, multiplied by the survey weight and, for CPS data, a deflation factor that retains the original sample size. The GSS and CPS analyses are both restricted to adult respondents ages 25–64 in the civilian labor force, and the CPS samples are further restricted to households in months one to four of the sampling rotation to ensure that a given household does not contribute more than one observation to the sample (see BLS 2004).

## Class Maps

We translated the 1970-basis SOC codes into various class maps, with our featured map being a new, highly disaggregate scheme of 126 occupations (see app. table A2). In deciding which detailed codes to combine and which to retain, we sought to identify institutionalized boundaries as revealed by the distribution of occupational associations, unions, and licensing arrangements, as well as the technical features of the work itself. We carried out this task by referring to Weeden's (2002) archive of occupation-level data on the forms of social closure (e.g., credentialing, certification, associations, licensing) that detailed occupations have pursued and realized. This archive, which is described in more detail in Weeden (2002), allows us to identify the institutionalized boundaries that generate intracategory homogeneity.

We were, however, forced to make various compromises in constructing this scheme, not only because we often lacked the cases needed to maintain distinctions that are institutionalized in the labor market, but also because we sought to construct a classification that is nested in conventional big-class schemes. We recognize, then, that some of our categories combine SOC occupations that differ in bases of recruitment and self-selection, work conditions, and constraints on interaction, while others define an occupation that is only "deeply institutionalized" insofar as it has appeared in thousands of administrative publications (e.g., "professionals, n.e.c."). Indeed, we often resorted to combining occupations (e.g., professionals, n.e.c.) that were similar only by virtue of their working conditions, a basis for aggregation that is admittedly no different than that routinely deployed, albeit on a far broader scale, by conventional class analysts. The resulting 126-category scheme, while clearly imperfect, is nonetheless a

[9] For a given 1980 occupation, suppose that 90% of incumbents would have been coded into occupation *X* in the 1970 scheme, while 10% would have been coded into occupation *Y*. Each person with this 1980 occupation contributes two records to the expanded data set: one record receives code *X* and a weight of 0.9, and the other receives code *Y* and a weight of 0.1.

substantial improvement over aggregate class models because it captures far more of the institutionalized social groupings in the division of labor. If this imperfect scheme performs relatively well, one might reasonably surmise that elaborated schemes that capture yet more of the institutionalized categories in the labor market would perform even better.

We evaluate our 126-category scheme against conventional big-class and gradational representations of the site of production. Obviously, there is less than complete consensus within the aggregate and gradational camps, making it difficult to carry out a definitive analysis without deploying several schemes. We represent the big-class tradition with two well-known schemes and the gradational tradition with four scales. Unfortunately, we cannot include Wright's (1997) neo-Marxian class scheme, preeminent though it is. The GSS and CPS do not allow us to implement this classification precisely enough to do it justice, while Wright's (e.g., 1997) U.S. survey contains less than 1,500 cases, too few to sustain an occupation-level analysis.

Instead, we apply the EG scheme, which has arguably become the de facto standard within the big-class tradition. Although this scheme has a detailed 11-class version, we use the more commonly applied seven-class version. This version has become standard because the more detailed variant rests on information on firm size and employer status, neither of which is routinely available in the GSS surveys or in many of the other surveys commonly used in inequality research (see Erikson and Goldthorpe 1992, pp. 35–47). The categories of the seven-class version are service workers, routine nonmanuals, petty bourgeoisie, skilled craft workers, unskilled manual workers, farmers, and agricultural workers. In translating the 1970 SOC codes into this scheme, we relied principally on the EG protocol for recoding 1960 SOC codes, but then checked our results against ISCO-based protocols developed by Ganzeboom, Luijkx, and Treiman (1989).[10]

For all its popularity, the EG scheme has not entirely supplanted alternatives based on aggregate census bureau categories. Consequently, we also consider a 12-class scheme in which the constituent categories are self-employed professionals, employed professionals, employed managers, self-employed managers, sales workers, clerical workers, craft workers, operatives, service workers, laborers, farmers, and farm laborers.[11] This "Featherman-Hauser" (FH) scheme, so labeled because Featherman and

[10] We thank Walter Müller, John Goldthorpe, Harry Ganzeboom, Ruud Luijkx, and Donald Treiman for sharing the conversion protocols.

[11] We opt against a 17-category version of the FH scheme because the industrial distinctions that it adds to the 12-class version (e.g., retail sales workers, wholesale sales workers) typically fall outside the purview of class analysis.

Hauser (1978) popularized it, is easily implemented by cross-classifying census major occupations and employment status.[12] The relationships between the FH, EG, and detailed schemes are specified in appendix table A2.

The lack of consensus within the gradational tradition also requires that we evaluate our occupation scheme against several formulations. The obvious suspects are SES and prestige scales, both of which dominated North American scholarship in the latter half of the 20th century. Although interest in these scales has waned, gradational approaches that score occupations by their level of cultural capital or "occupational education" (see Hauser and Warren 1997) are increasingly popular. The main convention here, which we follow, is to measure occupational education as the proportion of incumbents who have at least 13 years of schooling (e.g., Kalmijn 1994). We also implement Bourdieu's two-dimensional formulation by distinguishing between the total volume of cultural and economic capital and the relative amounts of each (Bourdieu 1984; see also DiMaggio and Mohr 1985). We measure the first dimension, total capital, as the sum of the $Z$-scores of occupational education and earnings (Hauser and Warren 1997), and the second dimension, capital composition, as the ratio of occupational education to earnings.[13]

We assigned scores on each of these five scales to the 126 occupations in our detailed classification scheme. We obtained 1980-basis prestige scores from Nakao and Treas (1994), and 1980-basis SES, cultural capital, total capital, and capital composition scores from Hauser and Warren (1997). We then back-coded these 1980-basis scores into the 1970 SOC (see above), assigned these scores and the 126-category occupation codes to all CPS respondents, and constructed a weighted average within each of the 126 occupations.[14] Although aggregating up to the level of 126 occupations suppresses some within-category heterogeneity in these scales, supplementary analyses (not shown) indicate that this lost heterogeneity

[12] To maintain consistency across class schemes, we assigned 14 (of 428) sparsely populated SOC occupations to FH categories that diverge from the major occupation group. These inconsistencies occur when technically similar occupations are coded into different SOC major groups. Milliners, for example, are coded as operatives in the SOC, while tailors are coded as craft workers. There are too few milliners to justify a separate occupation in our scheme, so we combine milliners with tailors and, to be consistent with EG, assign the resulting occupation to the FH "craft worker" class. We privileged EG because it is gaining ascendancy in the day-to-day practice of sociology, even in North America (see, e.g., Manza and Brooks 1999).

[13] It follows that "total capital" is a socioeconomic scale in which income and education are weighted equally.

[14] We used 1980-basis rather than 1970-basis SES and prestige scales because this allows us to center better on the time period covered by our surveys. Given the stability of these scales, this decision is likely inconsequential.

is trivially small. That is, when the disaggregate scales are regressed on the corresponding aggregate ones, the explained variance is quite high (SES: 94.6%, prestige: 93.2%, cultural capital: 96.3%, total capital: 93.5%, capital composition: 83.5%).

## Models and Methods

We carry out our analyses with 55 four-way tables formed by cross-classifying detailed occupation, employment status, gender, and outcome. We then decompose the total occupation-by-outcome association into a component that is explained by big classes (or scales) and a component that remains unexplained by big classes (or scales), thereby giving us a measure of the relative cost, in terms of explanatory power foregone, of aggregation (or scaling).

These simple decompositions are carried out with data that have been smoothed in two ways. First, we smooth away any residual three-way interactions between sex, occupation, and outcome, which allows for more powerful tests of the effects of aggregation. Although we would prefer to analyze tables for men and women separately, the three-way cross-classification of sex, occupation, and outcome is sparse for the GSS variables, thereby increasing the risk that the analysis will unfairly capitalize on noise. By smoothing across sex, we can retain the pooled sample size, halve the number of models to be presented, reduce "noise," and still allow for sex differences in the outcome and occupation distributions.

The second type of data smoothing is necessary because the EG and FH schemes, unlike our occupation-based scheme, distinguish between employed and self-employed members of some classes (i.e., professional and managerial). The detailed and big-class schemes are therefore nested only if we further disaggregate occupations by employment status. However, such extreme differentiation is not only inconsistent with our conceptual approach, but also makes the GSS tables unacceptably sparse. The solution to this problem differs by class scheme. In analyses using the FH scheme, we disaggregate professional and managerial occupations by employment status, but then constrain the three-way interaction between occupation, employment status, and outcome to be the same for all occupations within the professional class and for all occupations within the managerial class. This approach maintains consistency with the FH approach by allowing for interactions with employment status at the big-class level (but not the detailed occupational level).

The FH tables are smoothed, then, by fitting to each disaggregate table a model that (*a*) constrains the association between occupation and outcome to be identical for men and women, while allowing two-way interactions between sex and occupation and between sex and outcome; and

(*b*) constrains the association between detailed occupation and outcome to be identical across employment status for all occupations except those in the professional and managerial classes. The following model implements these restrictions:

$$m_{ijgp} = \alpha_i \phi_j \nu_g \mu_p \beta_{ig} \delta_{jg} \varepsilon_{ij} \gamma_{ip} \eta_{jp} \lambda_{gp} \theta_{igp}, \quad (1)$$

where $i$ indexes occupation, $j$ indexes outcome, $g$ indexes sex, and $p$ indexes employment status.[15] The employment status variable has three levels: self-employed professionals, self-employed managers, and all other occupations. The $\eta_{jp}$ term therefore allows (*a*) self-employed professionals to have different responses on the outcome than employed professionals, and (*b*) self-employed managers to have different responses than employed managers. These differences take the form, however, of classwide "shift effects" that pertain equally to all detailed occupations within the professional (or managerial) category. The expected values from this model become the data to which we fit all subsequent models (for a related approach, see Featherman and Hauser [1978, pp. 86, 131, 167, 173]).[16]

The logic of the EG scheme does not allow a similar treatment of employment status. Because Erikson and Goldthorpe (1992) assume that occupation is irrelevant within the petty bourgeoisie, occupations as diverse as child care attendant and ship's officer are, for self-employed respondents, aggregated together. It follows that incumbents of such occupations are assumed to be identical in their responses on the outcome variables. By contrast, our approach privileges occupation over employment status, with the result being that the two classification schemes are not nested. This problem can be resolved by carrying out two separate analyses. We first present results pertaining to arrays in which the petty bourgeoisie have been excluded, thereby making the EG scheme and the disaggregated scheme nested. We then present supplementary analyses of CPS outcomes (where sample sizes are sufficiently large) that assess the extent to which the petty bourgeoisie is a homogenous class.

The smoothing model for the EG tables is therefore applied to three-way arrays of sex, occupation, and outcome from which the petty bourgeoisie has been excised. As with the FH analysis, we purge the three-way association between these variables, thereby removing any sex

[15] We identify the parameters of this and all subsequent models by imposing standard constraints. For brevity's sake, we will note the identifying constraints only when they are unclear or affect the interpretation of the model.

[16] We have added a constant (0.1) to empty cells (e.g., Agresti 1990).

differences in the occupation-outcome association from the pool of total association to be explained. This yields the following model:

$$m_{ijg} = \alpha_i \phi_j \nu_g \beta_{ig} \delta_{jg} \varepsilon_{ij}, \tag{2}$$

where all symbols are defined as above. The fitted values from this model are again used for all subsequent EG analyses. It bears emphasizing that these data-smoothing procedures merely exclude residual forms of association that neither the big-class nor microclass approaches predict.

With the smoothed FH and EG data in hand, we fit models that decompose the total occupation-by-outcome association into (*a*) within-class and between-class components (to evaluate big-class formulations), and (*b*) vertical and horizontal components (to evaluate conventional scales). The first task is to quantify the total occupation-by-outcome association at the site of production that may be explained by either big classes or scales. In the FH tables, this is represented by the log-likelihood statistic of a model that fits the outcome-sex association ($\delta_{jg}$), the three-way association between occupation, sex, and employment status ($\theta_{igp}$), and all lower-order interaction terms, but does not fit the three-way interaction between occupation, employment status, and outcome:

$$m_{ijgp} = \alpha_i \phi_j \nu_g \mu_p \beta_{ig} \delta_{jg} \gamma_{ip} \lambda_{gp} \theta_{igp}. \tag{3}$$

The analogous model for the EG tables, which exclude self-employment status, merely fits the two-way associations between occupation and sex ($\beta_{ig}$) and between outcome and sex ($\delta_{jg}$):

$$m_{ijg} = \alpha_i \phi_j \nu_g \beta_{ig} \delta_{jg}. \tag{4}$$

The next models allow us to assess the strength of big-class effects on outcomes by permitting an interaction between big classes and the response categories of the outcome variable. These models are given as follows for the FH and EG tables, respectively:

$$m_{ijgp} = \alpha_i \phi_j \nu_g \mu_p \beta_{ig} \delta_{jg} \gamma_{ip} \lambda_{gp} \theta_{igp} \zeta_{jc}, \tag{5}$$

$$m_{ijg} = \alpha_i \phi_j \nu_g \beta_{ig} \delta_{jg} \zeta_{jc}, \tag{6}$$

where $c$ indexes big class, and the remaining symbols are defined as before. The mapping of detailed occupations (and employment status) into the class variable, $c$, is described in appendix table A2. In the FH tables, $p$ is nested within $c$ because $p$ identifies self-employed professionals and managers, two of the 12 FH classes. The unexplained association in the models of equations (5) and (6) is generated by the relationship between the outcome variable and the occupations constituting a big class. The

fit statistics from these models thus allow us to evaluate the assumption of within-class homogeneity.

Similarly, we evaluate the scaling traditions by assessing the extent to which conventional scales, such as SES or prestige scales, account for the total occupation-by-outcome association. We fit an association model in which the scale values for the response categories are estimated freely, while the scale values for occupations are fixed at the appropriate index score (e.g., SES, prestige, cultural capital):

$$m_{ijgp} = \alpha_i \phi_j \nu_g \mu_p \beta_{ig} \delta_{jg} \gamma_{ip} \lambda_{gp} \theta_{igp} \omega_j^{S_i}. \tag{7}$$

As indicated above, $S_i$ is the predefined scale value of the $i$th occupation, while $\omega_j$ is the estimated scale value of the $j$th response category. When $S_i$ refers, for example, to the SES scale, we can determine how much of the association between detailed occupation and each outcome is attributable to vertical differentiation by SES. However, because the occupational scales lack distinct values for self-employed and employed occupations within the professional and managerial categories, the residual association is generated by an employment status effect as well as a detailed occupation effect.

We evaluate Bourdieu's approach by scaling occupations in accord with two dimensions rather than one. That is, we fit effects for total capital and capital composition simultaneously, yielding the following model:

$$m_{ijgp} = \alpha_i \phi_j \nu_g \mu_p \beta_{ig} \delta_{jg} \gamma_{ip} \lambda_{gp} \theta_{igp} \omega_j^{T_i} \tau_j^{R_i}, \tag{8}$$

where $T_i$ and $R_i$ are the fixed occupational scores for the $i$th occupation, $\omega_j$ and $\tau_j$ are the estimated scale values for the $j$th response category, and all other symbols are defined as before. As before, we ask how much of the association is vertical and how much is horizontal, but in this case vertical association is represented with two scales, total capital and capital composition.

These tests are based on decompositions of likelihood-ratio test statistics, with all the advantages and disadvantages that such decompositions entail. In part, the test statistics pertaining to the within-class association will be large because they involve so many degrees of freedom, and the critical issue will be whether classical significance tests and BIC imply that this wanton expenditure of degrees of freedom is warranted. Because the number of workers appearing in each detailed occupation is (typically) small, it will be difficult to secure much improvement in fit by expending a within-class degree of freedom, and classical significance tests will constitute an especially stringent assessment of the returns to disaggregation.

Although BIC, classical significance tests, and likelihood-ratio decompositions all provide useful assessments of the returns to disaggregation, it will be instructive to supplement them with direct comparisons of the

parameter estimates themselves. To this end, we reparameterize a standard log-multiplicative association model (e.g., Goodman 1979) to distinguish between (*a*) the strength of the class-outcome association *between* big classes, and (*b*) the strength of the occupation-outcome association *within* big classes. This produces the following model:

$$m_{ijg} = \alpha_i \phi_j \nu_g \beta_{ig} \delta_{jg} e^{(\rho_i \chi_j + \kappa_c \chi_j)}, \tag{9}$$

where $\kappa_c$ are scale values for classes (constrained to sum to zero), $\rho_i$ are scale values for detailed occupations (constrained to sum to zero within each class), $\chi_j$ are scale values for response categories, and all other symbols are defined as before.[17] The occupational scale values estimated by this model can be used to define two summary indices, $A_B$ and $A_W$, that characterize the amount of association between and within big classes:

$$A_B = \exp\left\{[1/(C-1)] \times \sum_{c=1}^{C} \kappa_c^2\right\}^{1/2},$$

and

$$A_W = \exp\left\{[1/(I-C)] \times \sum_{i=1}^{I} \rho_i^2\right\}^{1/2}, \tag{10}$$

where $C$ refers to the total number of big classes and $I$ to the total number of occupations.[18] As indicated in equation (10), $A_B$ measures the deviation of the big-class association parameters around the overall mean, while $A_W$ measures the deviation of occupation scale values around the big-class means. We also define a ratio index, $A_R$, which compares the strength of association between and within big classes:

$$A_R = \ln(A_B)/\ln(A_W). \tag{11}$$

These indices can be directly applied to the EG tables. For the FH tables, two sets of professional and managerial scale values must be estimated, one for self-employed respondents and another for employed

[17] The specification of eq. (9) does not include global parameters for within-class and between-class association. Although such parameters could have been incorporated into the model, we have instead defined two summary indices that pertain to the global amount of association.

[18] As we have noted, eq. (10) is saturated only for binary outcomes. Consequently, we also fit a multidimensional association model (with $J-1$ sets of occupation scale values) to each array with more than two response categories, and then calculated the corresponding $J-1$ values of $A_B$ and $A_W$. The results indicate that, if anything, the multidimensional models are even less supportive of big-class formulations. Because these models yield substantially more parameters and are sensitive to sparse cell counts, we present the decompositions from the unidimensional model.

respondents. In this case, $A_B$ is calculated as shown in equation (10), but $A_W$ is calculated as the geometric mean of $A_{WEM}$ and $A_{WSE}$, where $A_{WEM}$ equals the value of $A_W$ after excluding the two self-employed classes, and $A_{WSE}$ equals the value of $A_W$ after excluding the two employed classes. The values of $A_{WSE}$ and $A_{WEM}$ are identical for binary outcomes (for which model 9 is saturated). They differ for outcomes with more than two response categories, but disparities between them are trivial and nonsystematic, and our conclusions are not affected by resorting to the mean.

## Results

The results from our decomposition exercise are presented for all 55 outcomes in appendix B, tables B1–B3. We summarize these results in table 2 by presenting, for each domain, the average percentage of the total association that remains after big classes (columns 1–2) or vertical scales (columns 3–6) are fit. This table indicates that the conventional practice of aggregating or scaling occupations conceals much of the structure at the site of production. Depending on the domain, aggregate class maps leave 36%–75% of the total association in the tables unexplained, whereas gradational representations of class fare even worse, leaving 37%–85% of the total association unexplained. When averages are calculated across all domains (see bottom row), the unexplained association ranges from 50%–68%, meaning that none of the conventional approaches accounts for more than half of the structure at the site of production, and some account for as little as a third of that structure.

These results reveal that conventional models of class and status vary in their explanatory power, but probably not enough to justify all the debate about their relative merits. The FH scheme accounts for more of the total association at the site of production than does the EG scheme, but it also expends more degrees of freedom and is devised specifically for the idiosyncrasies of the U.S. classification schemes. Although some of the class-based association is suppressed by excluding the petty bourgeoisie from the EG tables, our supplementary analyses of the CPS outcomes (see app. table B2) suggest that these losses are likely offset, if not overshadowed, by the substantial occupation-level structuration within the petty bourgeoisie.[19] Among gradational approaches, the SES and cultural capital scales capture roughly equivalent proportions of the total association, and both perform better than prestige scales (see Hauser and Warren 1997). The two-dimensional scale inspired by Bourdieu accounts

[19] The model of independence, when applied to the outcome-by-occupation array for the petty bourgeoisie, is rejected under all conventional measures of fit (see app. table B1).

TABLE 2
AVERAGE PERCENTAGE OF OCCUPATION-BY-OUTCOME ASSOCIATION REMAINING AFTER CLASSES OR VERTICAL SCALES ARE FIT

| Domain | EG | FH | SES | Prestige | Cultural Capital | Bourdieu |
|---|---|---|---|---|---|---|
| Life chances | 48.2% | 36.3% | 42.9% | 48.5% | 49.1% | 37.4% |
| Lifestyles: | | | | | | |
| Consumption practices | 62.3 | 54.6 | 67.5 | 69.6 | 67.1 | 65.1 |
| Institutional participation | 74.8 | 61.8 | 83.8 | 85.0 | 82.5 | 79.0 |
| Class-based sentiments: | | | | | | |
| Political attitudes and behaviors | 65.6 | 54.4 | 73.0 | 78.1 | 72.8 | 69.9 |
| Social attitudes and dispositions | 52.8 | 47.4 | 55.7 | 65.4 | 53.6 | 54.1 |
| Demographic composition | 50.1 | 40.8 | 56.7 | 61.7 | 59.5 | 54.4 |
| All domains | 58.5 | 50.1 | 62.4 | 67.9 | 62.2 | 59.6 |

for a slightly greater percentage of the association than the one-dimensional scales. At the same time, the differences between scales are quite modest, implying that "French" alternatives to SES have to be marketed on virtues other than increased explanatory power. More important, variation among the various aggregate and gradational approaches pales in comparison to the costs of aggregating or scaling in the first place, suggesting that the long-standing competition between advocates of particular big-class or gradational models is misplaced. We should instead ask whether *any* form of aggregation or scaling is warranted.

The results of table 2 are average, and, as such, they mask variability in the performance of aggregate and gradational approaches across particular outcomes. We explore this variability in figures 1, 2, and 3 by graphing, for each outcome, the association left unexplained by the two big-class schemes and the SES scale.[20] All three figures show considerable cross-outcome variability, although the costs of aggregating or scaling tend to be substantial regardless of outcome. There are nonetheless some outliers; for example, conventional big classes capture much of the variability in years of schooling, with only 23%–32% of the total association remaining unexplained by big-class models (see educ, figs. 1 and 2).[21] Moreover, big classes also capture much of the variation in attitudes that are strongly affected by schooling, such as the social tolerance items pertaining

[20] We privilege an SES scale because it is so frequently used, but our conclusions are much the same with other scales.

[21] We would undoubtedly find much greater within-class heterogeneity if education were measured by type of degree achieved (e.g., law, nursing) rather than years of schooling acquired (see Arum and Hout 1997).

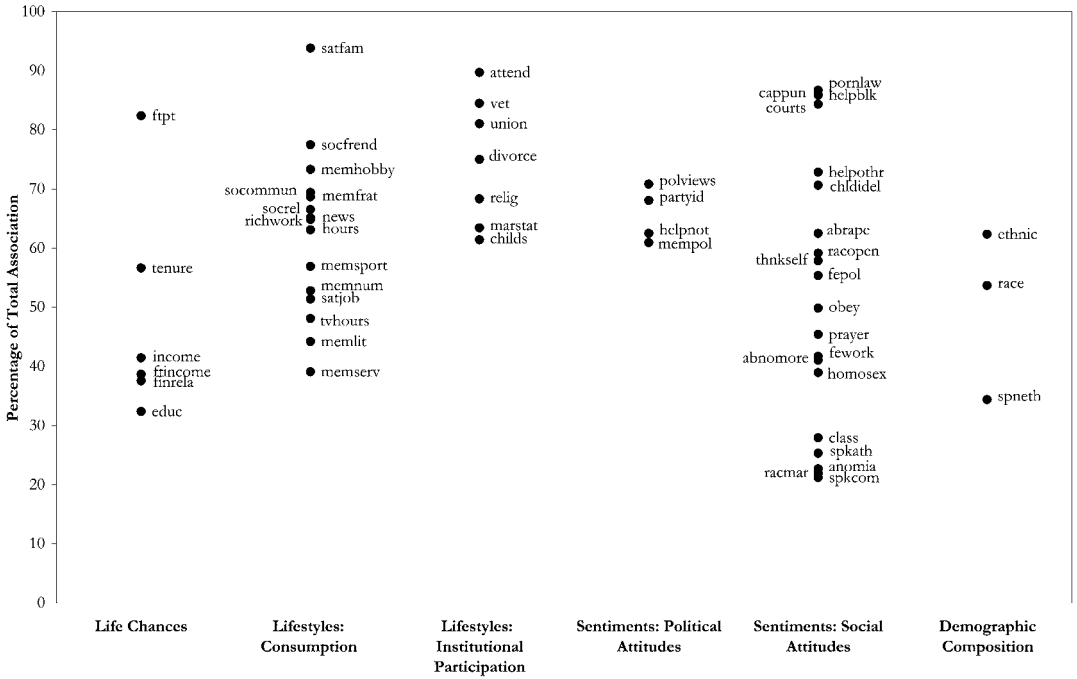


FIG. 1.—Association remaining after EG classes are fit to occupation-by-occupation arrays

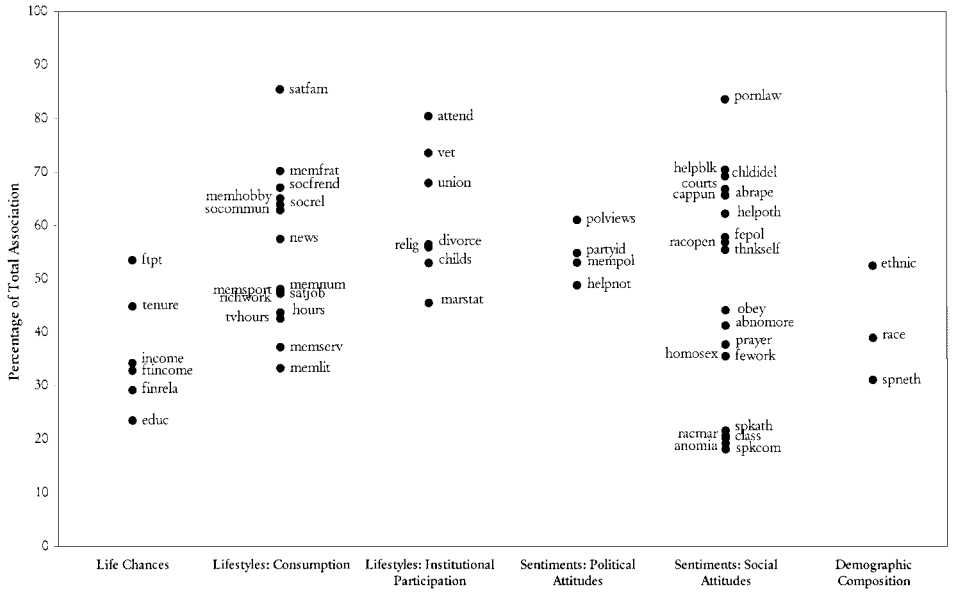


FIG. 2.—Association remaining after FH classes are fit to occupation-by-occupation arrays

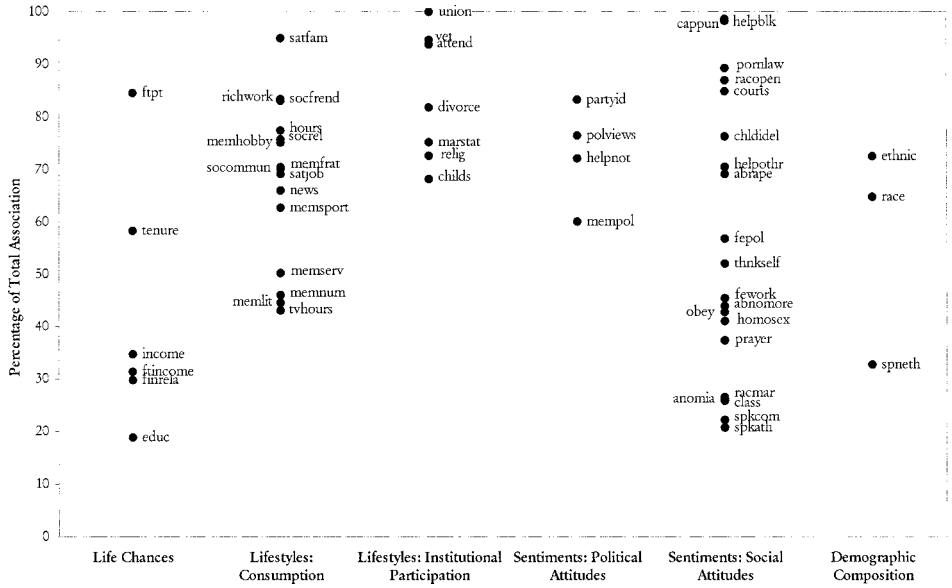


FIG. 3.—Association remaining after SES is fit to occupation-by-occupation arrays

to racial intermarriage and to deviant or minority behaviors. These results suggest that some attitudes crystallize in college and are not greatly modified within the occupational communities to which college graduates subsequently disperse.[22]

In the life chances domain, some of the items are organized in big-class terms (i.e., educ), whereas others clearly are not. For example, the likelihood of working full time (as opposed to part time) differs substantially within big classes (see ftpt), presumably because employers, employees, and unions rely on occupation-specific, not classwide, "templates" as they establish working conditions. The comparison of bank tellers and postal clerks, both routine nonmanuals, provides a useful illustration of this conclusion. In recent years, bank tellers have increasingly become part-time employees as banks react to intensified competition with a "low-road" reorganization of the labor force (i.e., reduced benefits, female employment), whereas postal clerks have been protected from such reorganization because of strong unions and a quasi-public ethos. Because working conditions are governed, at least in part, by forces that play out at the occupational (rather than big-class) level, there is considerable interoccupational heterogeneity in such conditions. Likewise, other outcomes within the life chances domain (e.g., income, tenure) also show substantial within-class heterogeneity, suggesting that even the strictest of Weberian scholars should consider defining class in less aggregate terms.

The culture domain (i.e., "sentiments and dispositions") also exhibits much local association, with items pertaining to pornography (pornlaw), abortion (abrape), affirmative action (helpblk), crime and punishment (courts, cappun), and family orientation (chldidel) all registering at the 60% level or higher. The shared college experience evidently operates on a select few attitudes, leaving many others to be principally a function of differential recruitment, self-selection, socialization, and other occupation-specific forces. In the lifestyles domain, big classes fail even more spectacularly, sometimes leaving as much as 80%–90% of the association at the site of production unexplained (e.g., church attendance). The lesson, then, is that conventional class schemes conceal much of the variability in life conditions. Although big-class schemes do adequately signal years of schooling and a select set of attitudes that are evidently determined by schooling (e.g., tolerance), they fail to provide the omnibus measure of life conditions that the microlevel agenda demands.

The critic of these results may properly point out that our decompositions capitalize on sampling variability. We have estimated the conse-

[22] The "class identification" item (class) is also an outlier. This result is hardly surprising given that the item elicits subjective identification with aggregate rather than disaggregate classes (see Emmison and Western 1990).

quences of such "overfitting" (see, e.g., Hauser and Logan 1992) by drawing five random samples of CPS respondents, each of which reflects the average sample size of the GSS tables (approximately 15,000), and then calculating the residual within-class association for all samples. The latter statistics may be compared to those obtained for the full CPS sample.[23] Across all CPS outcomes, the residual association calculated from the GSS-sized samples is, on average, less than 2% greater than that calculated from the full CPS samples. We conclude that a relatively small proportion of the occupational heterogeneity within big classes is due to parameterized noise.[24]

The case for microclasses is also supported by significance tests. By this standard, disaggregate models are favored for 49 to 51 of the 55 outcome variables, depending on the significance level and class scheme (see app. B).[25] Again, there are only minor differences in test results across our various class schemes and scales, with the FH scheme fitting slightly better than the EG scheme and SES scale. The FH class model (see eq. [5]) is rejected at the .05 level for all but three variables and at the .01 level for all but six (satfam, socfrend, memhobby, mempolit, fework, helpothr), whereas the EG class model is rejected at the .05 level for all but two variables and at the .01 level for all but four (memhobby, mempolit, chldidel, helpothr). The SES scale is likewise rejected at the .01 level for all but three outcomes (memhobby, mempolit, helpothr).

If conventional tests of significance favor our disaggregate approach, the BIC criterion (e.g., Raftery 1995) is more ambiguous. Ironically, BIC universally prefers the less parsimonious occupation models for outcomes drawn from the relatively large CPS sample, but, conversely, it prefers the more parsimonious class models for outcomes drawn from the relatively small GSS sample. It seems unlikely that all CPS outcomes happen to be structured at the occupational level while all GSS outcomes happen to be structured at the class level. Moreover, if BIC is rejecting the CPS class models because CPS items are truly structured at the occupational

[23] We aggregate response categories to reflect the level of detail we would have used had we been limited to GSS-sized samples. For example, the full CPS sample could support an analysis of five marital statuses, but we would have combined the "widowed," "separated," and "divorced" categories had only 15,000 cases been available.

[24] It is relevant here that the correlation between sample size and residual association (in the GSS tables) is positive. If small-sample outcomes were inflating the averages in table 2, we would expect to find negative correlations.

[25] The *df* used in the model contrasts are adjusted to reflect the smoothing procedure. When contrasting the models of eqs. (3) and (5), the appropriate *df* is given by $(I - 1)(J - 1) - (C - 1)(J - 1)$, where $I$ is the number of occupations, $J$ is the number of response categories, and $C$ is the number of aggregate classes (see app. B for fit statistics for all outcomes). We have not sought to make further adjustments to the *df* that may be required in sparse arrays.

level, it should deliver the same verdict for the deflated (i.e., $N = 15{,}000$) CPS tables. Instead, the BIC values universally switch sign when applied to these deflated tables, indicating that the disaggregate approach is no longer preferred.[26] This reversal of fortune implies that the BIC statistic differs across the GSS and CPS items simply because the CPS offers larger samples.

It is worth noting that BIC was developed for the case in which conventional significance tests encouraged researchers to adopt a complicated model even when the added parameters conveyed little additional information (see, e.g., Grusky and Hauser 1984; Raftery 1995). We face the opposite situation: the more parsimonious models account for an unacceptably low share of the association, but BIC nonetheless encourages us, at least for GSS outcomes, to accept these "counterintuitive" models. This conundrum motivated Raftery (1995) to comment that BIC often prefers the "sociologically unacceptable" but parsimonious model relative to the overparameterized alternative (pp. 152–53). The standard recommendation in this circumstance is to search for an intermediate model that reveals the sociologically relevant association, but does so with fewer parameters (e.g., Raftery 1995, p. 153). In the present context, the association left unexplained by big classes may arise from residual vertical heterogeneity (e.g., SES) within big classes, thus implying that big-class and gradational effects should be fit simultaneously. The resulting hybrid model combines the specifications of equations (5) and (7):

$$m_{ijgp} = \alpha_i \phi_j \nu_g \mu_p \beta_{ig} \delta_{jp} \gamma_{ip} \lambda_{gp} \theta_{igp} \omega_j^{S_i} \zeta_{cj}, \tag{12}$$

where all symbols are defined as above. We applied this model using the FH scheme and the SES scale.

The fit statistics from this model indicate that very little of the residual association within big classes is due to socioeconomic differences among the constituent occupations (see fig. 4). For the life chances and tolerance items, SES captures a respectable percentage of the residual association, which is unsurprising given the dominant weight of education in this scale (Hauser and Warren 1997). However, our hybrid model accounts, on average, for only 14% of the residual within-class association, and it fails conventional significance tests for 48 of the 55 outcomes (at $\alpha = .05$). Again, BIC provides a more ambiguous reading, almost universally preferring the parsimonious hybrid models for the GSS variables, while pre-

[26] The corollary of this is that if we could analyze CPS-sized samples for the GSS outcomes, BIC would presumably prefer the occupation models, thereby coming in line with conventional $L^2$ tests.

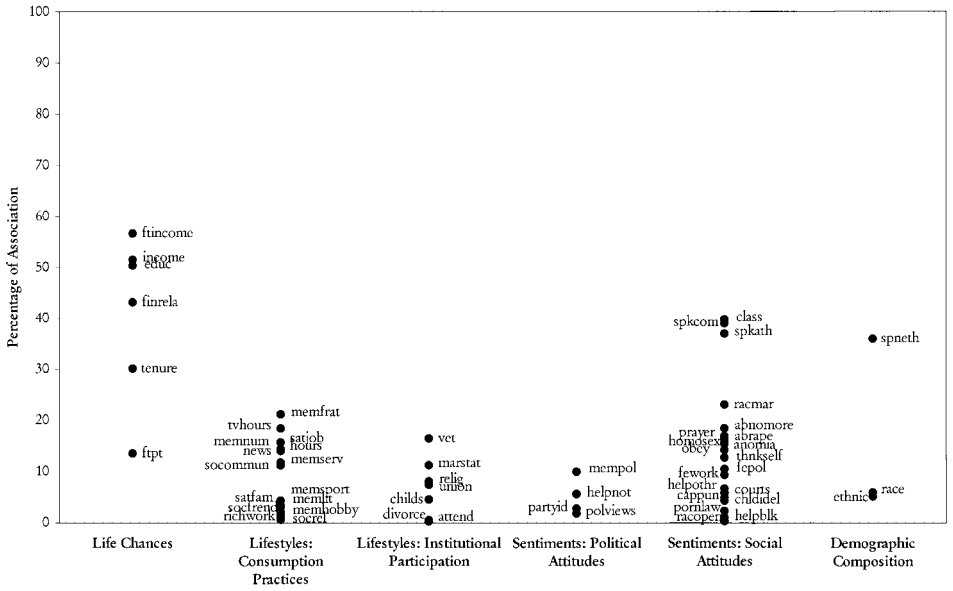


FIG. 4.—Percentage of within-class (FH) association attributable to vertical differentiation (SES)

ferring the occupation models for the CPS variables.[27] These results indicate that researchers must look elsewhere to find the elusive model that simultaneously fits the data, captures an acceptable proportion of the total association at the site of production, and yet meets BIC's high standards for parsimony. We return to this point in our concluding comments.

We conclude this section by calculating parametric indices of the strength of association at the big-class and occupational levels (see eqs. [10] and [11]). These indices are provided for all 55 outcomes in appendix B and are summarized in table 3. For the most part, values of $A_R$ in table 3 hover around unity, indicating that there is as much association within big classes as between them. The only exceptions to the latter claim are within the life chances and demographic domains. In the life chances domain, the value of $A_R$ registers as high as 1.33, implying that there is 33% more heterogeneity between big classes than within them. At the same time, the absolute amount of within-class heterogeneity in this domain remains very high, in fact higher than in any other domain. Because big-class formulations suppress much heterogeneity in the life chances domain, such formulations are problematic even when a pure Weberian definition of classes is preferred (see Goldthorpe and McKnight in press, p. 2).

In summary, there is little empirical justification for aggregating occupations, decades of class-analytic practice to the contrary. If the amount of between-class association is regarded as large enough to justify big-class analysis, then the residual within-class association must also be regarded as large enough to warrant occupational analysis. This is because there is just as much occupational variability around the big-class means as big-class variability around the grand mean. To be sure, the values of $A_R$ are again deflated by overfitting, but not to the extent that our main conclusion can be questioned.[28] Although our critics often suggest that there are diminishing returns to moving beyond the usual big-class formulations, the data make it clear that analysts will secure just as much additional information by expending a within-class degree of freedom as a between-class degree of freedom. These results imply that scholars who end their analysis at the big-class level do so without empirical justification.

[27] The only exception is Spanish ethnicity (spneth), a CPS outcome for which BIC prefers the hybrid model. In this case, there is little residual association to be explained at the occupation level, and BIC is on the mark.

[28] If there is any doubt on this point, it is worth comparing the values of $A_R$ in the CPS samples to those in the GSS samples, which are more susceptible to overfitting. The size of this index is similar in the two samples (see app. table B1), suggesting that overfitting does not have an unduly large effect.

TABLE 3
INDICES OF ASSOCIATION BETWEEN AND WITHIN BIG CLASSES, BY DOMAIN

| DOMAIN | EG | | | FH | | |
|---|---|---|---|---|---|---|
| | $A_B$ | $A_W$ | $A_R$ | $A_B$ | $A_W$ | $A_R$ |
| Life chances | 4.296 | 2.856 | 1.300 | 4.118 | 2.711 | 1.332 |
| Lifestyles: | | | | | | |
| Consumption practices | 1.676 | 1.745 | 0.875 | 1.719 | 1.691 | 0.985 |
| Institutional participation | 1.841 | 1.834 | 0.931 | 1.754 | 1.738 | 0.916 |
| Class-based sentiments: | | | | | | |
| Political attitudes and behaviors | 1.584 | 1.676 | 0.949 | 1.636 | 1.615 | 1.111 |
| Social attitudes and dispositions | 1.619 | 1.538 | 1.023 | 1.658 | 1.500 | 1.137 |
| Demographic composition | 2.056 | 1.423 | 2.012 | 1.829 | 1.407 | 1.742 |
| All domains | 1.869 | 1.745 | 1.026 | 1.871 | 1.688 | 1.106 |

NOTE.—Index values for all outcomes are given in app. B. EG values exclude the petty bourgeoisie.

## CAUSAL MODELS OF CLASS EFFECTS

The preceding analyses speak to the usefulness of conventional class maps in their role as dependent variables representing variability in life conditions. In our introductory comments, we emphasized that sociologists also frequently use class maps as independent variables, either because of an intrinsic interest in the causal effects of class or because such effects may be confounded with other effects in which the analyst is especially interested. When class maps are used as independent variables, the goal should be to define class categories that capture the causal effects of the site of production, meaning that a proper evaluation of a class map rests on its performance in the context of the appropriate multivariate model.

The preceding bivariate results could be misleading in this regard. After all, the residual association within big classes could be generated solely by self-selection and differential recruitment into detailed occupations, implying that it would disappear in multivariate analyses that control for correlates of class that drive such selection. Although we have argued that causal processes other than selection (i.e., training, closure, interest formation, learning generalization) generate some of the class-outcome association, we have not yet provided evidence for this argument. We turn now to multivariate analyses that show whether such causal processes come into play most powerfully for class schemes that encompass institutionalized categories.

Ideally, we would like to test comprehensively whether conventional class maps fall short as control variables, where "falling short" involves either (*a*) underestimating the net effects of class, or (*b*) failing to fully eliminate the omitted variable bias that arises among other variables that are correlated with class. However, because a class control is applied in

such a wide range of literatures, a comprehensive test would require redoing a daunting amount of quantitative social science. We instead offer illustrative analyses of the sources of political beliefs and of leisure time and overwork. These analyses will provide suggestive evidence on the usefulness of a disaggregate class map for multivariate modeling, serve as a template for future research on the net effects of social class, and also address debates within sociology that are important in their own right.

## The Sources of Political Beliefs

We begin with an analysis of political beliefs. The relationship between social class and political beliefs has long occupied center stage in stratification research, not only in early Marxian scholarship on class and interest formation, but also in subsequent post-Marxian investigations of the "democratic" class struggle. In the contemporary literature, the empirical relationship between class and political behavior remains much analyzed, principally for the evidence it brings to bear on the "death of class" debates (e.g., Manza and Brooks 1999; Evans 1999; Clark and Lipset 2001; Hechter 2004). This literature thus provides a fitting context for determining whether conventional class effects are weak merely because class has been poorly operationalized or because, as postmodernists allege, the site of production is no longer the main stage on which political beliefs develop.

We suspect that the former interpretation is on the mark. When class models are recast in terms of institutionalized categories, we expect stronger effects to emerge not only because political beliefs are often forged in the secondary socialization that specialized training provides (e.g., professional schools), but also because they are maintained and reproduced within a "habitus" that can develop in institutionalized and socially closed categories (e.g., Bourdieu 1984). For example, professional sociologists come into constant contact with colleagues who are committed to liberal political beliefs, thus reducing exposure to alternative views and raising the costs of straying. Although occupation-specific political cultures are probably most prominent in the professions, they may also emerge in the crafts (e.g., the political radicalism of printers) and in other relatively closed occupations.

We proceed by applying the state-of-the-art causal model developed by

Manza and Brooks (1999). This model can be specified as an ordered logit:

$$\Pr(y_i|\mathbf{X}_i) = \begin{cases} F(\alpha_1 - \mathbf{X}_i'\beta) & j = 1 \\ F(\alpha_1 - \mathbf{X}_i'\beta) - F(\alpha_{j-1} - \mathbf{X}_i'\beta) & 1 < j \leqslant J - 1 \\ 1 - F(\alpha_1 - \mathbf{X}_i'\beta) & j = J, \end{cases} \quad (13)$$

where $F$ designates the cumulative logistic distribution, and the number of response categories, $J$, equals five. The response variable, $y_i$, thus ranges from one (very liberal) to five (very conservative), while $\alpha_j$ refers to the $J - 1$ estimated cut points for this variable. The vector $\mathbf{X}_i$ includes age, education, year, sex, race, religion, and the site of production. In the full model, the site of production is represented by detailed occupation effects and by main effects of self-employment for the professional and managerial FH classes. The implicit claim, by contrast, of conventional class analysts is that the site of production can be adequately represented by trimmed models that only allow for FH class effects, SES effects, or a combination of FH class and SES effects.[29] We also fit models that omit demographic variables from $\mathbf{X}_i$ and thereby allow us to evaluate their strength relative to that of the big-class and detailed occupation variables.

All models are fit to the 1972–2002 GSS data ($N = 23{,}260$) for respondents of ages 18 to 64. The inclusion of the younger group of respondents, which is conventional in the class politics literature (e.g., Manza and Brooks 1999), generates a slightly larger sample than in the bivariate analyses. Although we have omitted respondents who are not in the labor force, supplementary analyses indicate that doing so does not change our conclusions in any important way (see Manza and Brooks 1999).

As table 4 shows, the fit statistics for our models indicate that political beliefs vary substantially by occupation, even after fitting effects for other social cleavages. The site of production places second only to religion in net association explained, surpassing such sociological standbys as education, race, sex, and region (table 4). Of the production-based association, FH classes account for 16.7%, while vertical heterogeneity within classes accounts for a mere 2.3%. Nominally, this result implies that scholars who represent social class with the standard 12-category FH scheme will ignore over three-quarters of the story, although overfitting again leads to a slightly inflated estimate. Classicists will note that the likelihood-ratio contrasts favor the detailed occupation model ($L^2 = 742.3$ with 115 *df*; table 4), whereas Bayesians will note that BIC prefers the more parsi-

[29] We continue to use SES scores aggregated to the 126-occupation level, thus allowing us to decompose the total association generated at the site of production.

TABLE 4
FIT STATISTICS AND MODEL CONTRASTS FROM ORDERED LOGISTIC REGRESSION OF POLITICAL IDEOLOGY ON DEMOGRAPHIC AND OCCUPATION COVARIATES

| Model or Model Contrast | Fit Statistic | *df* | BIC | $L_h^2/L_o^2$ |
|---|---|---|---|---|
| Models: | | | | |
| 1) DEM + ES + OCC | −89,207.6 | 23,120 | −51,645 | |
| 2) DEM + ES + OCC − educ | −89,210.2 | 23,121 | −51,650 | |
| 3) DEM + ES + OCC − South | −89,251.6 | 23,121 | −51,567 | |
| 4) DEM + ES + OCC − race | −89,428.5 | 23,122 | −51,223 | |
| 5) DEM + ES + OCC − female | −89,279.4 | 23,121 | −51,511 | |
| 6) DEM + ES + OCC − religion | −90,052.4 | 23,126 | −50,015 | |
| 7) DEM | −89,666.2 | 23,247 | −51,992 | |
| 8) DEM + FH | −89,589.5 | 23,236 | −52,036 | |
| 9) DEM + FH + SES | −89,578.8 | 23,235 | −52,047 | |
| Model contrasts: | | | | |
| Contribution of social cleavage variables: | | | | |
| Education: model 2 vs. model 1 | 5.2 | 1 | | |
| Region: model 3 vs. model 1 | 88.0 | 1 | | |
| Race: model 4 vs. model 1 | 441.8 | 1 | | |
| Sex: model 5 vs. model 1 | 143.6 | 1 | | |
| Religion: model 6 vs. model 1 | 1,689.5 | 6 | | |
| Site of production: model 7 vs. model 1 | 917.3 | 127 | | |
| Cost of aggregating occupations: | | | | |
| Total heterogeneity: model 7 vs. model 1 | 917.3 | 127 | | 100.0 |
| FH-based heterogeneity: model 8 vs. model 7 | 153.4 | 11 | | 16.7 |
| Within-FH vertical heterogeneity: model 9 vs. model 8 | 21.5 | 1 | | 2.3 |
| Within-FH horizontal heterogeneity: model 1 vs. model 9 | 742.3 | 115 | | 80.9 |

NOTE.—$N = 23{,}260$. The fit statistic is the log likelihood (models) or $L^2$ contrast (model contrasts). DEM includes year, age, education, southern region, black, other race, female, and religion (liberal Protestant, moderate Protestant, conservative Protestant, Catholic, Jewish, other, none). OCC is the 126-category occupation scheme, SES is a socioeconomic scale, FH is the 12-category FH class scheme, and ES is a three-category collapse of FH that distinguishes between self-employed professionals, self-employed managers, and all others.

monious class specification, as has been the case for all of our analyses that use the smaller GSS samples.

It is useful in this context to examine the parameter estimates. In figure 5, we have graphed the partially normalized coefficients for selected demographic variables as well as detailed occupations (grouped by FH class), thus allowing readers to compare the size of coefficients. We find that the within-class occupation coefficients are just as dispersed as the coefficients

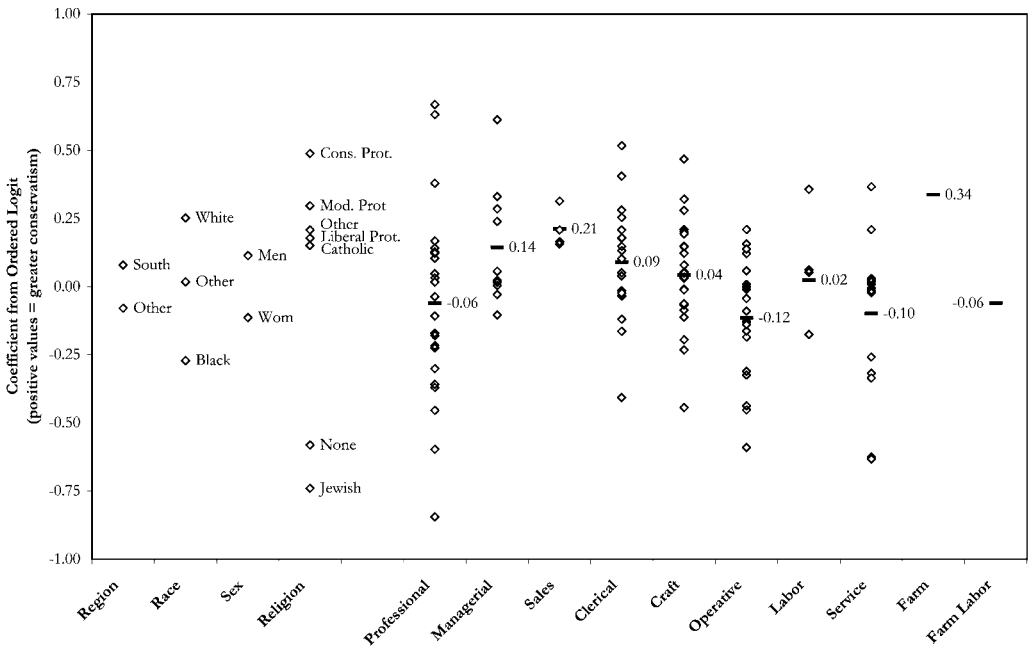


FIG. 5.—Estimated effects of demographic variables and occupation (by FH class) on political conservatism. Data are from the 1972–2002 GSS ($N = 23{,}260$). Estimated coefficients, normalized to sum to zero, are from model 1 in table 4, which also fits education, survey year, and employment status. Values shown are class-specific means.

for other major covariates of political beliefs (e.g., race, gender, region). Moreover, this heterogeneity emerges in all of the big classes, not just the professions. By implication, scholars who deem it necessary to include measures of race, gender, or region in their models would seem obliged to include measures of detailed occupation as well. While big-class effects are significant (table 4), figure 5 makes it clear that they fail to account for much of the structure at the site of production, leaving conventional class analysts open to the postmodernist critique that their star variable is rather weak.

## The Sources of Overwork

We turn now to our analysis of working hours. This topic has attracted much scholarly attention, presumably because work commitments affect leisure time, serve as a natural starting point in understanding the shifting balance between work and family obligations, and set limits on earnings and economic security (Jacobs and Gerson 2001, p. 40). In recent scholarship, long-term trends in working hours are widely debated, with many analysts reporting a substantial increase in working hours and a consequent decline of leisure (Schor 1991; cf. Jacobs and Gerson 2001; Robinson and Godbey 1997). According to Hochschild (1997), work commitments are also increasingly encroaching on the needs of families, as employees come to appreciate the workplace as a refuge from the demands of family life.

This line of research rests decisively on quantitative models of the individual and institutional sources of "overwork." In conventional models of overwork, scholars often fit a big-class "professions effect," but more detailed occupational effects have not, to our knowledge, been estimated. The latter effects are likely to arise through two mechanisms. First, workers who enter "greedy" occupations (Coser 1974) encounter and interact with like-minded employees who, in a gruesome display of workaholic codependency, encourage each other to work yet longer hours (e.g., Freidson 1994; Epstein et al. 1999). In the terminology of table 1, this is a form of interactional closure whereby workplace practices, such as norms about working hours, diffuse widely and are internalized by occupation members. Second, work practices are embedded in an institutional context that, for at least some occupations, place real limits on individual discretion over work hours. The medical residency, for example, requires physicians to log (and become accustomed to) long hours, while the typical practice of measuring productivity by billable hours encourages lawyers to do the same. By contrast, the accounting profession has a built-in cyclical workload, meaning that most accountants will work long hours only during tax season. These examples, all of which speak to the insti-

tutionalization of conditions (see table 1), suggest that work hours are likely to vary substantially by occupation rather than big class.

We estimate a logistic regression model that predicts whether respondents usually work 49 hours or longer in a given week. This model, which is applied to data from the 1998–2002 outgoing rotation group (ORG) files of the CPS ($N = 306{,}420$), takes the following form:[30]

$$\ln\left[\frac{\Pr(Y_i = 1)}{1 - \Pr(Y_i = 1)}\right] = \alpha + \beta_x \mathbf{X}_i, \tag{14}$$

where $Y_i$ is a dichotomous variable coded unity if the respondent usually works 49 or more hours a week at his or her main job and zero otherwise. The vector $\mathbf{X}_i$ contains the covariates that conventionally appear in models of overwork: years of education, race (white, African-American, Asian American, Native American, and Hispanic), sex, age in years, the square of age, presence of a spouse in the home, presence of a child in the home (no child, youngest child 0–2 years old, youngest child 3–5 years old, youngest child 6–13 years old, youngest child 14–17 years old), and interaction terms between sex and the family status variables.[31] As in the preceding analysis, $\mathbf{X}_i$ also contains measures of FH class, SES, detailed occupation, and employment status. We can again assess the relative contributions of demographic variables, big classes, and detailed occupations by estimating models containing various permutations of the elements of $\mathbf{X}_i$.

The fit statistics from these logistic regression models (see table 5) reveal two noteworthy results. First, the site of production again has a substantial effect on the odds of overwork, even after controlling for the demographic and family attributes that presumably affect recruitment or self-selection into class locations. Second, the decomposition of the site-of-production effect into big-class, vertical, and horizontal components reveals that aggregation entails a substantial cost, although big classes perform better in this analysis than in the preceding one. As table 5 shows, the FH class

[30] We use the ORG files (instead of the March files; see BLS [2004]) because they include a measure of "usual hours" at the main job. For 7.5% of the cases, we assume that hours worked last week can proxy for usual hours, thereby reducing the percentage of cases with missing data to 0.6. The sample is restricted to the adult civilian labor force in households in month four of their CPS rotation.

[31] In some economic analyses of overwork, family income is included to signal reservation wages, and hourly wages are included to measure the benefits of working additional hours. We exclude these variables because they are partly endogenous: family income will rise with hours worked, and hours worked are used to calculate hourly wages for salaried workers. Thus, the occupation effects in our models may be capturing, in part, omitted income and wage effects. If including these regressors weakens occupation effects, the interpretation would be unclear.

TABLE 5

FIT STATISTICS AND MODEL CONTRASTS FROM LOGISTIC REGRESSION OF OVERWORK ON DEMOGRAPHIC AND OCCUPATION COVARIATES

| Model or Model Contrast | Fit Statistic | *df* | BIC | $L_h^2/L_o^2$ |
|---|---|---|---|---|
| Models: | | | | |
| 1) DEM* + ES + OCC | −584,677 | 306,273 | −2,870,721 | |
| 2) DEM* + ES + OCC − educ | −587,799 | 306,274 | −2,864,489 | |
| 3) DEM* + ES + OCC − race/ethnicity | −585,305 | 306,277 | −2,869,518 | |
| 4) DEM* + ES + OCC − sex | −601,703 | 306,282 | −2,836,787 | |
| 5) DEM* + ES + OCC − age − age$^2$ | −585,488 | 306,275 | −2,869,125 | |
| 6) DEM* + ES + OCC − family status | −587,300 | 306,285 | −2,865,634 | |
| 7) DEM* | −632,751 | 306,400 | −2,776,249 | |
| 8) DEM* + FH | −604,612 | 306,389 | −2,832,381 | |
| 9) DEM* + FH + SES | −602,712 | 306,388 | −2,836,167 | |
| Model contrasts: | | | | |
| Contribution of demographic variables: | | | | |
| Education: model 2 vs. model 1 | 6,246 | 1 | | |
| Race/ethnicity: model 3 vs. model 1 | 1,256 | 4 | | |
| Sex (by family status): model 4 vs. model 1 | 34,053 | 9 | | |
| Age: model 5 vs. model 1 | 1,623 | 2 | | |
| Family status (by sex): model 6 vs. model 1 | 5,246 | 12 | | |
| Site of production: model 7 vs. model 1 | 96,148 | 127 | | |
| Cost of aggregating occupations: | | | | |
| Total heterogeneity: model 7 vs. model 1 | 96,148 | 127 | | 100.0 |
| FH-based heterogeneity: model 8 vs. model 7 | 56,277 | 11 | | 58.5 |
| Within-FH vertical heterogeneity: model 9 vs. model 8 | 3,800 | 1 | | 4.0 |
| Within-FH horizontal heterogeneity: model 1 vs. model 9 | 36,071 | 115 | | 37.5 |

NOTE.—$N$ = 306,420. The fit statistic is the log likelihood (models) or likelihood ratio test statistic (model contrasts). The dependent variable is coded unity if the respondent usually works at least 49 hours per week and zero otherwise. DEM* includes years of education, race (non-Hispanic [NH] white, NH African-American, NH Asian American, NH Native American, and Hispanic), sex, age and age squared, spouse present, age of youngest child (no child, 0–2, 3–5, 6–13, 14–17), and the interaction of the family status variables with sex. OCC, SES, FH, and ES are defined as in table 4.

scheme accounts for 58.5% of the total association at the site of production, while the remaining 41.5% is attributable to within-class heterogeneity, of which a mere 4.0% is credited to SES. The within-class effects account for a smaller share of the association than in the prior analysis, but BIC nonetheless now prefers the model that fits detailed occupation effects.[32]

The case for disaggregate analysis is strengthened by examining the coefficients themselves. In figure 6, we have graphed the additive coefficients for selected covariates of overwork, thus facilitating a comparison of effects across variables. We find that intraclass differences in working practices dwarf differences between categories of the demographic variables. Again, such occupational effects emerge not only in the professions, but also within the managerial, clerical, craft, operative, and service classes. For example, restaurant managers are four times more likely than government managers and officials to work long hours, even after controlling for employment status. This disparity is likely driven less by restaurant managers' preference for long hours than by differences in work conditions. That is, restaurant managers are often required to be available during the full range of hours when customers want service, whereas government officials are rarely so obligated. The big class of craft workers is also heterogeneous; for example, automobile mechanics are three times more likely to work long hours than printers, a disparity no doubt attributable to the success of printers in gaining union contracts that place explicit restrictions on the amount of overtime and that reduce the need for overtime by protecting superfluous positions in the face of declining demand. These results suggest, then, that conventional big-class models fail in the analysis of overwork because they do not operate at the level at which workplace practices, such as hours worked, are institutionalized.

## DISCUSSION

The class analytic tradition has come under attack from postmodernists, anti-Marxists, and other commentators who argue that social class is an antiquated concept of little use in understanding modern or postmodern inequality (e.g., Pakulski and Waters 1996; Kingston 2000; Clark and Lipset 1991, 2001; Pahl 1989). In large part, the retreat from class analysis should be blamed on class analysts themselves, because they continue to resort to old class categories that are no longer deeply institutionalized in the labor market, if ever they were. The main empirical cost of using

[32] If we instead specify the dependent variable as the logit of full-time work status or as a continuous measure of work hours, conventional significance tests and BIC still prefer the detailed occupation model.

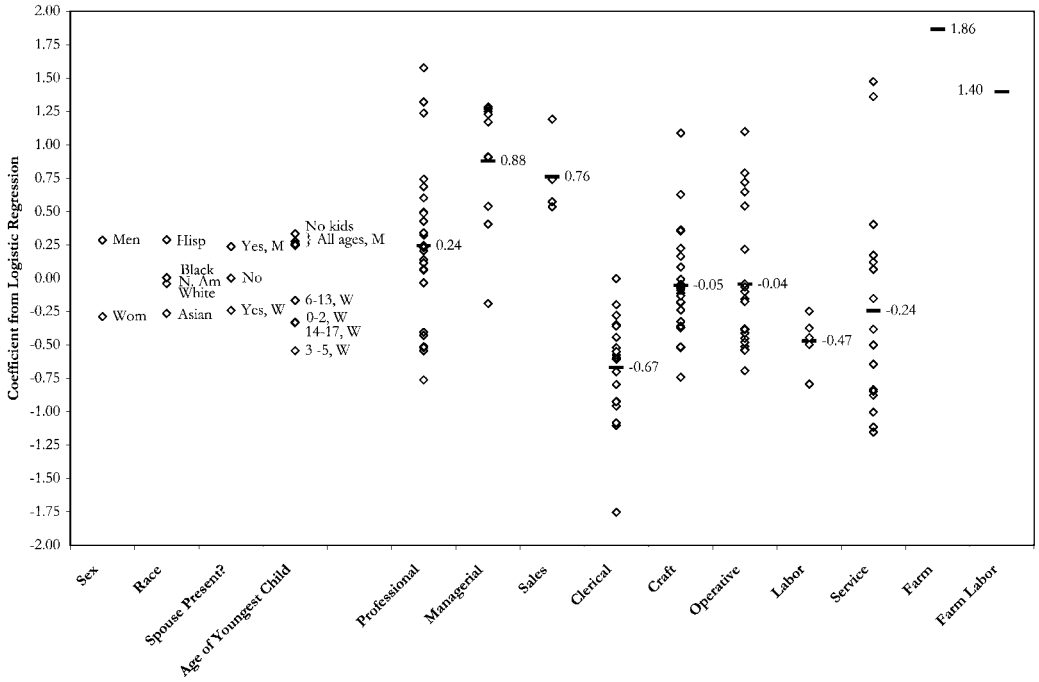


FIG. 6.—Estimated effects of demographic variables and occupation (by FH class) on log odds of working 49 hours or more per week. Data are from the 1999–2002 ORG files of the CPS ($N = 306{,}420$). Estimated coefficients, normalized to sum to zero, are from model 1 in table 5. The coefficient of sex pertains to childless adults. Values shown are class-specific means.

such categories is that they are poorly correlated with the life conditions that they are supposed to represent and the individual-level behaviors that they are supposed to explain. This empirical weakness of big classes (e.g., Kingston 2000) has unfortunately led to strong and overstated claims about the declining importance of the site of production itself (esp. Hall 2001). That is, postmodernists and other critics of class analysis have ignored the possibility that the site of production is well organized at the local level and that conventional class analysts, by virtue of their obsession with big-class formulations, have simply failed to capture this local structure.

Why has so much local structure developed in advanced industrial societies?[33] Up to this point, we have merely argued that institutionalized groupings are generated mainly at the local level, and that these local groupings should be exploited when constructing class categories. We have not, however, discussed *why* structure tends to emerge and become institutionalized at the local level. As we see it, the usual Smithian ([1776] 1991) account is relevant, because it points to the gross inefficiencies that would obtain if firms in large-scale societies relied on big-class generalists to staff positions. We doubt, for example, that a Silicon Valley computer firm could survive by hiring "service class" generalists who were at once responsible for computer programming, accounting, lawyering, marketing, and all the other tasks that the EG service class now encompasses. To be sure, standard stories about postoccupationalization (e.g., Casey 1995) suggest that there are limits to the returns to specialization, but even the most radical postoccupationalists would recognize that the division of labor implied by big-class categories is far too gross to be efficient in the modern context.

Although Smith (1991) argues at length about the efficiency of the division of labor, he does not speak to why a particular division of labor comes to be institutionalized in the form of occupations. The division of labor could well take on a purely idiosyncratic form in which each firm devises from scratch its own system of job categories and then relies on in-house training in staffing them. However, rather than resorting to such in-house solutions, most firms fall back on the prepackaged solutions that the occupational division of labor represents, presumably because (*a*) it would be costly to reinvent the division of labor, (*b*) these prepackaged solutions allow firms to outsource occupation-specific training to vocational and professional schools and hence capitalize on the returns to scale within the training production function, and (*c*) such solutions protect firms from the risk involved in providing lengthy firm-specific training to employees who could subsequently exit the firm. From the perspective

[33] We thank Miller McPherson for sparking our interest in this question.

of workers, this solution also has its advantages, most obviously that of providing them with marketable general human capital as well as the organizational means (e.g., professional associations) for capturing rent through social closure (e.g., Sørensen 2000; Weeden 2002). Granted, a range of institutional solutions to these organizational problems is available, with some societies (e.g., Japan) opting for well-developed internal labor markets that allow them to reduce, if only to some extent, their reliance on occupational training. Although some variability in the extent of occupationalization is clearly possible, all modern labor markets draw heavily on prepackaged occupational solutions (see Brinton in press).

It does not follow that the division of labor realized in contemporary labor markets is by any means optimal. The combined effects of inertia and partisan interoccupational struggle result in suboptimal solutions that persist by virtue of path dependency (e.g., Abbott 1988). The current division of labor among, for example, opticians, optometrists, and ophthalmologists reflects the strategic decisions that each occupation has made in competing for particular tasks, the power that they can bring to bear on organizations (e.g., licensing boards) that legitimate and support particular divisions of labor, and a myriad of other historically contingent circumstances. If an efficiency account cannot predict the particular division of labor that obtains, it does at least tell us that a far more specialized division of labor than that implied by conventional big-class schemes will emerge. In this sense, the blunt instrument of efficiency only selects out grossly suboptimal solutions, such as those embodied in conventional big-class schemes.

Why, then, have generations of class analysts aggregated deeply institutionalized local categories into big classes? It is not merely that Marx formulated his class model at a time when the scale of production was far smaller and hence the division of labor was less developed. More important, the main objective of Marxian class analysis has long been to make inferences about the fundamental interests of workers (and hence the likelihood of collective action), and such interests were presumed to be similar among all workers regardless of their occupation. As noted in the introduction, these models of macrolevel class action are now less fashionable, and class analysts have accordingly become less interested in identifying fundamental interests and more interested in explaining "surface-level" behaviors and attitudes (Holton and Turner 1989). This recasting of class analysis, which has occurred gradually and without much fanfare, has so far rested on the assumption that the aggregate class models devised for old macrolevel analysis can also serve well the new microlevel agenda. We have argued, to the contrary, that aggregate class models fall short for this new agenda because they are largely nominal and hence must rest on weak rational choice mechanisms for their ex-

planatory power. If class analysts are serious about developing class-based accounts of individual-level outcomes, they would be well advised to formulate new class categories that meet the demands of microlevel analysis.

Our results for U.S. data are consistent with this line of argument. We find, for example, that conventional aggregate models mask approximately half of the total association at the site of production, while gradational models perform even worse. As table 2 shows, the various aggregate and gradational approaches differ only modestly in the amount of structure they capture, meaning that the crucial decision is not *which* aggregate class map or vertical scale to adopt, but the logically prior one of *whether* to aggregate or scale occupations at all. This conclusion holds for the wide range of criterion variables in terms of which big classes have historically been defined or justified. Indeed, our results even threaten neo-Weberian versions of big-class analysis, given that conventional big classes aggregate occupations that differ substantially in their life chances (see table 3).

We have also examined the viability of big-class formulations in the context of multivariate explanatory models. In our analysis of political beliefs, we found that detailed occupations account for over 80% of the association at the site of production, even when socioeconomic scales are allowed to absorb residual vertical heterogeneity within big classes. Although big classes perform somewhat better in our multivariate models of overwork, they still conceal about 40% of the variability in this dependent variable. If social classes are indeed the "crack troops in sociologists' war on unexplained variance" (DiMaggio 2001, p. 542), such sizable losses in explanatory power should give pause.

The skeptic might well argue that our microclass models must necessarily perform well because they expend so many degrees of freedom. This is not a defensible position. For almost all outcomes, the test statistics for our microclass models are reduced by an amount that is far in excess of what would be expected given the degrees of freedom expended, and our parametric measures further indicate that there is as much association within big classes as between them. The latter result implies that, insofar as the amount of between-class association is regarded as large enough to justify big-class analysis, then so too the residual within-class association must be regarded as large enough to justify occupational analysis. In short, there is no warrant for ending analysis at the big-class level, because just as much structure is revealed by continuing on and analyzing within-class variability.

Why are microclass categories so powerful? Unlike big classes, microclasses are institutionalized through various closure-generating mechanisms (e.g., associations), and this social clothing worn by functionally

similar jobs gives them much explanatory power (even though they cannot capture simple hierarchical effects to the extent that big-class categories can). There are four mechanisms, in particular, through which institutionalized categories come to be filled with workers who are similar to one another (see table 1). First, many occupations have preexisting stereotypes (about the skills, proclivities, and personalities of incumbents) that attract workers who find those stereotypes appealing and repel those who do not, thereby converting the stereotypes into self-fulfilling prophecies (i.e., self-selection). Second, such recruits are often subjected to explicit training in the form of vocational programs, apprenticeships, or graduate or professional school, all of which generate occupation-specific homogeneity in behaviors and worldviews (i.e., training). Third, social interaction occurs disproportionately within occupational boundaries even after the formal training period is completed, thus preserving and reinforcing occupation-specific lifestyles and worldviews (i.e., interactional closure). Fourth, because employers from diverse firms and industries construct jobs in accord with the same occupational templates, there is much within-occupation consistency in working conditions (i.e., institutionalization of conditions). These four processes combine to convert technical categories into socially meaningful ones and to generate closed groupings at the occupation level.

In some cases, such closure-generating processes also operate at the big-class level, but typically in weakened form. For example, postsecondary schools provide generalized socialization for members of a broadly defined EG "service class," generating some cultural homogeneity at the big-class level through training and ongoing interactional closure. Consistent with this interpretation, we found evidence of considerable big-class homogeneity in those outcomes (e.g., attitudes toward racial intermarriage) that reflect the liberalizing and tolerance-inducing effects of postsecondary schooling (see figures 1 and 2). Although there is, then, some opportunity for generalized socialization at the big-class level, scholars more often argue that a rational action mechanism generates big-class effects. To be sure, a rational action mechanism also operates for institutionalized groupings, but it is supplemented by a package of additional sociological forces (i.e., self-selection, training, interactional closure, institutionalization of conditions) that generate additional explanatory power.

The preceding discussion makes the case that scholars have overinvested in the search for aggregate classes and underinvested in the study of more deeply institutionalized groupings at the disaggregate level. The critic might well counter, however, that the study of local organization is perfectly suitable for scholars of occupations and professions, but is hardly the heady stuff appropriate for class analysis proper (see Goldthorpe 2002; Kingston 2000). This reaction, while understandable, fails to appreciate

the classlike behavior that emerges at the local level. We have argued elsewhere (e.g., Grusky and Weeden 2001, 2002) that occupations act collectively on behalf of their members, extract rent and exploit nonmembers, and otherwise behave precisely as class theorists have long thought aggregate classes should. Although class analysts are free to claim that such processes are of interest only when revealed at aggregate levels, this reaction closes off an important route for revitalizing class analysis and protecting it from those who exploit the characteristic weakness of big classes to advance (misleadingly) broader claims about the irrelevance of the site of production. If class analysts can move beyond their obsession with big groupings and own up to the explanatory power of smaller classlike groupings, the microlevel business of class analysis can be addressed in much more persuasive ways.

We appreciate that our analyses are merely a first step in building a new microlevel class analysis that capitalizes on these homogeneity-inducing mechanisms. For most items, we now know that conventional aggregate schemes fail to capture much of the structure at the site of production, but we have not established that our own disaggregate scheme dominates other possible class schemes that are either more or less disaggregate. We are referring, for example, to (*a*) hybrid schemes that fit big classes in some regions of the division of labor and detailed occupations in others, (*b*) occupational scaling schemes that convert occupations into abstract variables, and (*c*) suboccupational scaling schemes that convert jobs into abstract variables. The first two alternatives presume that our microclass scheme is too disaggregate and that a simpler specification should be sought, whereas the third alternative presumes that our scheme is too aggregate and that more fine-grained schemes should be pursued. We argue below that some of these alternatives do not have much empirical support, while others are plausible and should be explored further.

We begin by asking whether institutionalized occupational categories are as widespread as our microclass model assumes. For reasons of parsimony, it might make sense to search for a middle-ground model that disaggregates those big classes in which closure has flourished at the detailed occupational level, but retains big classes whenever such occupationalization has been suppressed. In a follow-up paper (Weeden and Grusky in press), we have estimated a hybrid model that allows for occupationalization in the professional, craft, and service sectors but retains big classes elsewhere in the division of labor, thereby taking seriously the long-standing claim that occupationalization has proceeded unevenly (e.g., Wilensky 1966). We find that this hybrid model fits poorly because there is substantial microclass variability in all big classes, even those in which occupationalization presumably has been suppressed. Evidently, occupationalization has diffused well beyond the boundaries of the professional

and craft classes, thus undermining the rationale for a model that selectively allows for big classes in some regions but not others (see Weeden and Grusky [in press] for details).

Can a more parsimonious specification be achieved by modeling this intraclass heterogeneity as a function of occupation-level variables (e.g., authority, prestige, SES)? The resulting "scaling model" has only rarely been applied in the context of big-class mappings, presumably because they contain too few categories to adjudicate between the many competing scales of interest. Scaling is, however, tractable in a microclass context in which many more degrees of freedom are available (see Hout 1984, 1988; Hout and Jackson 1986). The question that then arises is whether such a scaling exercise is likely to pay off in this data-rich context.

The answer to this question depends on the purpose of the research. For analysts who wish merely to apply a "control" for social class, it would be superfluous, for example, to scale occupations. After all, if a scaled version of the class mapping cannot fully capture the structure at the site of production, then the analyst who nonetheless uses the scale is needlessly risking omitted variable bias. In this research context, the main objective should be to ensure that the coefficients of interest are unbiased, which requires class effects to be represented in their entirety.

The role for scaling is also circumscribed in analyses that assess the overall strength of the class effect rather than its particular pattern across the categories of the class variable. We care about the overall strength of class effects when we ask, for example, how deeply the "class principle" has been institutionalized in different time periods, countries, or social groupings (e.g., races, ethnic groups). The scholar addressing such descriptive questions is obligated to apply a class map that fully captures the association at the site of production and is therefore sensitive to all forms of change or variability in the global class effect. Given this obligation, the secondary step of scaling the underlying class categories is not only superfluous, but also counterproductive if it conceals some of this structure. We might add that all of the scales considered here (e.g., SES, prestige, cultural capital) are counterproductive in this sense.

A scaling exercise is more useful, however, when class analysts entertain hypotheses about the *pattern* of class effects, not just their overall strength. It is often hypothesized, for example, that incumbents of higher social classes are more likely to read newspapers, participate in "high culture," vote for conservative candidates, or join churches and other voluntary associations. These types of hypotheses can be addressed by scaling classes in terms of SES (or some other gradational index) and assessing whether the socioeconomic effect is in the predicted direction. Even in this context, the analyst will want to begin with a model that fits the full complement of occupation effects, with the question then being whether the variability

revealed in this full model follows a socioeconomic gradient. As we have emphasized, it is useful to formalize this test by explicitly scaling the class categories (rather than merely inspecting the unconstrained pattern of class differences), a constraint that becomes viable only when there are enough class categories to test it reliably. We hope, then, that our new class map will reinvigorate the scaling tradition by making it possible to distinguish successfully between competing hypotheses about the underlying pattern of class effects.

It follows that class analysis should rest on two forms of class maps, a microclass base that is used for purging class effects or measuring their overall strength, and various scalings of that base that are used to test hypotheses about the underlying pattern of the occupational parameters. If we part ways with advocates of scaling, it is only because they presume that a categorical map has *no* role in class analysis and can be replaced for all research purposes with a parsimonious scaling. As we have argued, a scale could legitimately serve all research purposes only if it captured all available structure at the site of production, a daunting requirement in light of our own negative results on the explanatory power of SES, prestige, and other scales (see fig. 4). Although it is worth searching for new variables that perform better, it is unrealistic to expect that a complete account will be developed in the near term.

We have so far addressed criticisms of our microclass approach that involve simplifying it, either by restoring big classes in selected regions of the class structure or by converting occupations into underlying "dimensions" that explain interclass variability. We next consider the critique that our model is *overly* aggregate because it ignores suboccupational forms of organization (e.g., Kohn 2001; Halaby and Weakliem 1993). Under this formulation, occupations are dismissed as largely arbitrary constructions that mask real differences in job-level work conditions, and jobs instead become the base units of analysis. Given the intractably large number of jobs, some form of simplification is typically necessary. However, instead of aggregating up to socially constructed occupational boundaries, job-level analysts prefer to identify the technical conditions of work that distinguish jobs (e.g., autonomy, authority, complexity) and presumably affect behavior and attitudes (Shu et al. 1996; Kohn and Schooler 1983; Mortimer and Lorence 1979).

This approach has clearly yielded important results. At the same time, because jobs that share the same working conditions are not typically organized into meaningful groups, the resulting class model cannot capture the social effects of selection, shared training, and interactional closure. We have argued at length that the explanatory losses involved in foregoing these social effects may be substantial. In ignoring institutionalized categories, the advocates of job-level scaling presume, as do many

class analysts, that sociologists should be oriented toward discerning those deeper analytic forces that are concealed from ordinary view. This anti-institutional bias can and should be subjected to empirical test. If our skepticism is on the mark, the returns to disaggregating big classes into occupations should be substantial, whereas the returns to disaggregation beyond the occupational level should quickly diminish. This paper confirms the first hypothesis, but the second has yet to be tested.

The typical analyst of jobs might also argue that the usual job-level measures of working conditions can help explain interoccupation variability in attitudes, political behavior, and other individual-level outcomes. In this case, our critic is not necessarily suggesting that class analysts should disaggregate beyond the occupational level, just that differences across occupations in outcomes might be explained in terms of job-level variables. We have acknowledged in table 1 that some interoccupational variability in outcomes is generated by job-level variables that affect interest formation and learning generalization. However, because these are merely two of many mechanisms that generate interoccupational heterogeneity, we doubt that job-level variables will offer a complete account.

This claim is best illustrated by example. If we were asked to account for the humanist, antimaterialist, and left-leaning habitus of sociologists, we would emphasize (*a*) the left-leaning reputation of sociology and the consequent self-selection of left-leaning recruits, (*b*) the inculcation of a liberal worldview through lengthy professional training and socialization, and (*c*) the reinforcing effects of interaction with like-minded colleagues. We would be hard-pressed, by contrast, to explain this complex of attitudes and behaviors in terms of the working conditions under which sociologists labor, given that such conditions (e.g., high autonomy, low authority, high complexity) are much the same as those of other academics.[34] This homogeneity in working conditions is problematic for conventional class analysis because many professors, such as economists, are strikingly more conservative than sociologists in their politics and lifestyles. It would be difficult to account for the relative conservatism of economists without recognizing that they are self-selected for conservatism, that their graduate training in neoclassical approaches reinforces this preexisting affinity for conservatism, and that their ongoing inter-

[34] We have argued in this study that occupations are breeding grounds of difference, but we have not tried to explain the content of these differences. Why, for example, did economics rather than sociology develop a conservative worldview? If pressed, we would emphasize that the two disciplines have different orientations to the centers of economic and political power. That is, sociologists work principally in academia and are isolated from centers of power (in business and politics), whereas economists are deeply entrenched in the business and political worlds and hence are less likely to develop the oppositional resistance of those, like sociologists, who are powerless.

action with fellow economists discourages alternative views. In this case, abstract working conditions (e.g., high autonomy, low authority, high complexity) provide little explanatory power, and intra-academy differences in attitudes and lifestyles must instead be explained through the proximate mechanisms of self-selection, training, and interactional closure.

We are left with the conclusion that a microclass mapping should be employed for most of the sociological research that requires a class indicator. Although our critics (e.g., Portes 2000; Goldthorpe 2002; Therborn 2002) regard this as a radical prescription, it bears emphasizing that our class scheme incorporates all the big-class structure found in conventional maps, merely supplementing it with additional microclass structure. In fact, big-class purists will appreciate that total class effects can easily be decomposed into components generated within and between big classes, thus distinguishing big-class effects from "residual" microclass effects (see figs. 5 and 6). Using this two-level parameterization, one might ask whether class effects are weakening over time at the big-class or microclass level (Weeden and Grusky 2005), whether political behavior is governed principally at the big-class or microclass level (e.g., Weeden 2005), whether a big-class representation of mobility processes conceals rigidities generated by microclass closure (e.g., occupation-specific credentialing or training), or whether the burgeoning literature on health disparities understates the extent of class-based inequalities by focusing exclusively on big-class or gradational differences. We hope, then, that our approach can be judged on the wide range of research questions that it opens up rather than the relatively few questions that, at this early point, it resolves.

## APPENDIX A

## Details and Descriptions

TABLE A1
VARIABLE MNEMONICS, SOURCES, DESCRIPTION, AND RESPONSE CATEGORIES, BY DOMAIN

| Mnemonic | Source | Description and Response Categories (in Parentheses) |
|---|---|---|
| Life chances: | | |
| educ ..... | CPS | Highest grade completed (less than high school, high school, some college, college, some graduate school) |
| ftpt ..... | CPS | Full-time/part-time status (usually works full time, usually works part time) |

TABLE A1 (*Continued*)

| Mnemonic | Source | Description and Response Categories (in Parentheses) |
|---|---|---|
| ftincome | CPS | Income 1: Wage, self-employment, and farm income of currently working respondents who usually work 35+ hours per week (year-specific quintiles) |
| income | CPS | Income 2: Wage, self-employment, and farm income of currently working respondents (year-specific quintiles) |
| finrela | GSS | Subjective position: Income compared with American families in general (below average, average, above average) |
| tenure | CPS | Wealth: Ownership of living quarters (rents, owns) |
| Lifestyles: | | |
| Consumption practices: | | |
| news | GSS | Intellectual pursuits 1: "How often do you read the newspaper?" (less than once a week or never, once a week, a few times per week, daily) |
| tvhours | GSS | Intellectual pursuits 2: "On the average day, about how many hours do you personally watch television?" (five or more, 3–4, 1–2, 0) |
| memlit | GSS | Intellectual pursuits 3: "Are you a member of literary, art, discussion, or study groups?" (no, yes) |
| satfam | GSS | Family orientation 1: "How much satisfaction do you get from your family life?" (little or none, quite a bit, a great deal, or a very great deal) |
| socrel | GSS | Family orientation 2: "How often do you spend a social evening with relatives?" (at least once a week, once to "several" times a month, fewer) |
| socommun | GSS | Friendship orientation 1: "How often do you spend a social evening with someone who lives in your neighborhood?" (at least once a week, once to "several" times a month, once or twice a year, never) |
| socfrend | GSS | Friendship orientation 2: "How often do you spend a social evening with friends who live outside the neighborhood?" (at least once a week, once to "several" times a month, fewer) |
| memserv | GSS | Service 1: "Are you a member of service clubs?" (no, yes) |
| memfrat | GSS | Service 2: "Are you a member of [nonscholastic] fraternal groups?" (no, yes) |
| memsport | GSS | Sports and hobbies 1: "Are you a member of sports groups?" (no, yes) |
| memhobby | GSS | Sports and hobbies 2: "Are you a member of hobby or garden clubs?" (no, yes) |

TABLE A1 (*Continued*)

| Mnemonic | Source | Description and Response Categories (in Parentheses) |
|---|---|---|
| memnum | GSS | Communitarianism: No. of group or club memberships (0, 1, 2, 3 or more) |
| satjob | GSS | Work orientation 1: "On the whole, how satisfied are you with the work you do? (very, moderately, dissatisfied) |
| richwork | GSS | Work orientation 2: "If you were to get enough money to live as comfortably as you would like for the rest of your life, would you continue working or stop working?" (stop, continue) Employed respondents only. |
| hours | CPS | Work orientation 3: Hours worked last week. (1–34, 35–40, 41–60, 61 or more) Working respondents only. |
| Institutional participation: | | |
| marstat | CPS | Marriage 1: Current marital status (never married, separated, divorced, widowed, married) |
| divorce | GSS | Marriage 2: "Have you ever been divorced or legally separated?" (yes, no) Ever-married respondents only. |
| child | GSS | Children: "How many children have you ever had?" (4+, 3, 2, 1, 0) |
| relig | GSS | Religion 1: "What is your religious preference?" (Protestant, Catholic, Jewish, none, other) |
| attend | GSS | Religion 2: "How often do you attend religious services?" (never, 1–3 per year, 1–3 per month, 1+ per week) |
| union | CPS | Union membership: "On this job, are you [is household member] a member of a labor union or of an employee association similar to a union?" (yes, no) Wage and salary workers in 1983–2002. |
| vet | CPS | Veteran status. (yes, no) Men only. |
| Class-based sentiments: | | |
| Political attitudes and behaviors: | | |
| partyid | GSS | Party identification: "Do you usually think of yourself as a . . ." (strong Democrat, Democrat, independent, Republican, strong Republican). |
| polviews | GSS | Political ideology 1: "Where would you place yourself on a scale?" (extremely conservative, slightly conservative, moderate, slightly liberal, extremely liberal) |

TABLE A1 (*Continued*)

| Mnemonic | Source | Description and Response Categories (in Parentheses) |
|---|---|---|
| helpnot ..... | GSS | Political ideology 2: "Assess the federal government's intervention into our country's problems." (government doing too much, government should do more, both) |
| mempolit ..... | GSS | Collective action: "Are you a member of political clubs?" (no, yes) |
| Social attitudes and dispositions: | | |
| spkath ..... | GSS | Tolerance 1: "Should [an atheist] be allowed to make a speech in your community?" (no, yes) |
| spkcom ..... | GSS | Tolerance 2: "Should [an admitted Communist] be allowed to make a speech in your community?" (no, yes) |
| homosex ..... | GSS | Tolerance 3: "Are sexual relations between two adults of the same sex wrong?" (always, sometimes, not at all) |
| pornlaw ..... | GSS | Tolerance 4: "Which of these statements comes closest to your feelings about pornography laws?" (should be laws against the distribution whatever the age, should be laws against the distribution to persons under 18, should be no laws forbidding distribution) |
| cappun ..... | GSS | Crime 1: "Do you favor or oppose the death penalty for persons convicted of murder?" (favor, oppose) |
| courts ..... | GSS | Crime 2: "Do you think the courts in this area deal too harshly or not harshly enough with criminals?" (too harshly, not harshly enough, about right) |
| prayer ..... | GSS | Church and state separation: "The court has ruled that governments may not require the reading of the Bible in public schools." (disapprove, approve) |
| racmar ..... | GSS | Racial attitudes 1: "Do you think there should be laws against marriages between blacks and whites?" (yes, no) Nonblacks only. |
| racopen ..... | GSS | Racial attitudes 2: "Which law would you vote for?": (a) a homeowner can decide to whom to sell his house, (b) a homeowner cannot refuse to sell his house to a black. (law a, law b) Nonblacks only. |
| helpblk ..... | GSS | Racial attitudes 3: "Do you think the government is responsible for redressing past discrimination?" (government should not give special treatment to blacks, government is obligated to help blacks, both) |

TABLE A1 (*Continued*)

| Mnemonic | Source | Description and Response Categories (in Parentheses) |
|---|---|---|
| fework | GSS | Gender attitudes 1: "Do you approve or disapprove of a married woman earning money in business or industry if she has a husband capable of supporting her?" (disapprove, approve) |
| fepol | GSS | Gender attitudes 2: "Most men are better suited emotionally for politics than are most women." (agree, disagree) |
| abnomore | GSS | Abortion attitudes 1: "[Should abortion be legal if a woman] is married and does not want any more children?" (no, yes) |
| abrape | GSS | Abortion attitudes 2: "[Should abortion be legal if a woman] became pregnant as a result of rape?" (no, yes) |
| anomia | GSS | Anomia: "It's hardly fair to bring a child into this world with the way things look for the future." (agree, disagree) |
| chldidel | GSS | Family attitudes: "What do you think is the ideal number of children for a family to have?" (as many as they want, 4+, 3, 2 or fewer) |
| obey | GSS | Values for children 1: "If you had to choose, which thing would you pick as the most important for a child to learn to prepare him or her for life? (1) To obey." (most important, 2nd or 3rd, 4th or 5th) |
| thnkself | GSS | Values for children 2: "To think for himself or herself." (most important, 2nd or 3rd, 4th or 5th) |
| helpothr | GSS | Values for children 3: "To help others." (most important, 2nd or 3rd, 4th or 5th) |
| class | GSS | Subjective identification: "What is your social class?" (lower or working, middle, upper) |
| Demographic composition: | | |
| race | CPS | Race (black, white, other) |
| ethnic | GSS | Ethnicity: Country or part of the world from which respondent's ancestors came (Eastern Europe, Southern Europe, Northern Europe, other) |
| spneth | CPS | Spanish ethnicity (Mexican/Chicano[a], Puerto Rican, Cuban, other Spanish, not Spanish) |

NOTE.—Data are from 1972–2002 surveys, although not all questions were asked in all years (see Davis, Smith, and Marsden 2004; BLS 2004).

TABLE A2
EG AND FH CLASS CODES BY OCCUPATION AND EMPLOYMENT STATUS

| OCCUPATION | EG CLASS | | FH CLASS | |
|---|---|---|---|---|
| | Employed | Self-Employed | Employed | Self-Employed |
| 101 architects | 1 | 1 | 2 | 1 |
| 102 engineers | 1 | 1 | 2 | 1 |
| 103 natural scientists | 1 | 1 | 2 | 1 |
| 104 engineering and science technicians | 1 | 1 | 2 | 1 |
| 105 physicians and dentists | 1 | 1 | 2 | 1 |
| 106 other health professionals | 1 | 1 | 2 | 1 |
| 107 nurses and dental hygienists | 1 | 1 | 2 | 1 |
| 108 therapists | 1 | 1 | 2 | 1 |
| 109 health technicians | 1 | 1 | 2 | 1 |
| 110 social scientists | 1 | 1 | 2 | 1 |
| 111 religious workers | 1 | 1 | 2 | 1 |
| 112 social workers | 1 | 1 | 2 | 1 |
| 113 professors and instructors | 1 | 1 | 2 | 1 |
| 114 primary, secondary teachers | 1 | 1 | 2 | 1 |
| 115 jurists | 1 | 1 | 2 | 1 |
| 116 librarians and curators | 1 | 1 | 2 | 1 |
| 117 creative artists | 1 | 1 | 2 | 1 |
| 118 authors and journalists | 1 | 1 | 2 | 1 |
| 119 designers and decorators | 1 | 1 | 2 | 1 |
| 120 accountants | 1 | 1 | 2 | 1 |
| 121 computer specialists | 1 | 1 | 2 | 1 |
| 122 personnel workers | 1 | 1 | 2 | 1 |
| 123 public relations professionals | 1 | 1 | 2 | 1 |
| 124 applied research workers | 1 | 1 | 2 | 1 |
| 125 professionals, n.e.c. | 1 | 1 | 2 | 1 |
| 201 government officials | 1 | 1 | 3 | 4 |
| 202 financial managers | 1 | 1 | 3 | 4 |
| 203 buyers | 1 | 3 | 3 | 4 |
| 204 sales managers | 1 | 3 | 3 | 4 |
| 205 office managers, n.e.c. | 1 | 3 | 3 | 4 |
| 206 building managers | 1 | 3 | 3 | 4 |
| 207 restaurant managers | 1 | 3 | 3 | 4 |
| 208 health administrators | 1 | 3 | 3 | 4 |
| 209 school administrators | 1 | 1 | 3 | 4 |
| 210 managers, n.e.c. | 1 | 3 | 3 | 4 |
| 301 insurance agents | 1 | 3 | 5 | 5 |
| 302 real estate agents | 1 | 3 | 5 | 5 |
| 303 agents, n.e.c. | 1 | 3 | 5 | 5 |
| 304 salespersons | 2 | 3 | 5 | 5 |
| 401 clerical supervisors | 1 | 3 | 6 | 6 |
| 402 estimators and investigators | 2 | 3 | 6 | 6 |
| 403 insurance adjusters | 1 | 1 | 6 | 6 |

TABLE A2 (*Continued*)

| Occupation | EG Class | | FH Class | |
|---|---|---|---|---|
| | Employed | Self-Employed | Employed | Self-Employed |
| 404 cashiers | 2 | 3 | 6 | 6 |
| 405 bank tellers | 2 | 3 | 6 | 6 |
| 406 counter clerks, except food | 2 | 3 | 6 | 6 |
| 407 secretaries | 2 | 3 | 6 | 6 |
| 408 accounting clerks | 2 | 3 | 6 | 6 |
| 409 office machine operators | 2 | 3 | 6 | 6 |
| 410 tabulation clerks | 2 | 3 | 6 | 6 |
| 411 postal clerks | 2 | 2 | 6 | 6 |
| 412 mail carriers | 6 | 6 | 6 | 6 |
| 413 mail distribution clerks | 6 | 3 | 6 | 6 |
| 414 telephone operators | 2 | 3 | 6 | 6 |
| 415 expediters | 2 | 3 | 6 | 6 |
| 416 stock clerks and storekeepers | 6 | 3 | 6 | 6 |
| 417 warehouse clerks | 2 | 3 | 6 | 6 |
| 418 teacher aides | 2 | 3 | 6 | 6 |
| 419 clerks, n.e.c. | 2 | 3 | 6 | 6 |
| 501 supervisors of manual labor | 5 | 3 | 7 | 7 |
| 502 inspectors | 5 | 3 | 7 | 7 |
| 503 metal processors | 5 | 3 | 7 | 7 |
| 504 machinists | 5 | 3 | 7 | 7 |
| 505 structural metal workers | 5 | 3 | 7 | 7 |
| 506 stationary engine operators | 5 | 3 | 7 | 7 |
| 507 heavy machinery operators | 5 | 3 | 7 | 7 |
| 508 power and phone line workers | 5 | 3 | 7 | 7 |
| 509 railroad conductors and engineers | 5 | 5 | 7 | 7 |
| 510 printers | 5 | 3 | 7 | 7 |
| 511 tailors | 5 | 3 | 7 | 7 |
| 512 bakers | 5 | 3 | 7 | 7 |
| 513 heating and cooling mechanics | 5 | 3 | 7 | 7 |
| 514 aircraft mechanics | 5 | 3 | 7 | 7 |
| 515 automobile mechanics | 5 | 3 | 7 | 7 |
| 516 small electronics mechanics | 5 | 3 | 7 | 7 |
| 517 heavy equipment mechanics | 5 | 3 | 7 | 7 |
| 518 mechanics, n.e.c. | 5 | 3 | 7 | 7 |
| 519 electricians | 5 | 3 | 7 | 7 |
| 520 brickmasons | 5 | 3 | 7 | 7 |
| 521 carpenters | 5 | 3 | 7 | 7 |
| 522 painters | 5 | 3 | 7 | 7 |
| 523 plumbers | 5 | 3 | 7 | 7 |
| 524 construction crafts, n.e.c. | 5 | 3 | 7 | 7 |
| 525 craft workers, n.e.c. | 5 | 3 | 7 | 7 |
| 601 graders and sorters | 6 | 3 | 8 | 8 |
| 602 launderers | 6 | 3 | 8 | 8 |
| 603 sewers | 6 | 3 | 8 | 8 |
| 604 textile operatives | 6 | 3 | 8 | 8 |
| 605 precision machine operatives | 6 | 3 | 8 | 8 |

TABLE A2 (*Continued*)

| Occupation | EG Class | | FH Class | |
|---|---|---|---|---|
| | Employed | Self-Employed | Employed | Self-Employed |
| 606 finishing machine operatives | 5 | 3 | 8 | 8 |
| 607 assemblers | 6 | 3 | 8 | 8 |
| 608 welders | 5 | 3 | 8 | 8 |
| 609 meat cutters | 6 | 3 | 8 | 8 |
| 610 packagers | 6 | 3 | 8 | 8 |
| 611 machine operatives, n.e.c. | 6 | 3 | 8 | 8 |
| 612 miners | 6 | 3 | 8 | 8 |
| 613 lumbermen and sawyers | 6 | 3 | 8 | 8 |
| 614 forklift operatives | 6 | 3 | 8 | 8 |
| 615 home delivery workers | 6 | 3 | 8 | 8 |
| 616 mass transit drivers | 6 | 3 | 8 | 8 |
| 617 taxicab drivers and chauffeurs | 6 | 3 | 8 | 8 |
| 618 truck drivers | 6 | 3 | 8 | 8 |
| 619 garage workers | 6 | 3 | 8 | 8 |
| 620 operatives, n.e.c. | 6 | 3 | 8 | 8 |
| 701 freight handlers | 6 | 3 | 10 | 10 |
| 702 retail stock handlers | 6 | 3 | 10 | 10 |
| 703 construction laborers | 6 | 3 | 10 | 10 |
| 704 gardeners | 6 | 3 | 10 | 10 |
| 705 laborers, n.e.c. | 6 | 3 | 10 | 10 |
| 801 cleaners | 6 | 3 | 9 | 9 |
| 802 bartenders | 2 | 3 | 9 | 9 |
| 803 waitstaff | 2 | 3 | 9 | 9 |
| 804 cooks | 2 | 3 | 9 | 9 |
| 805 kitchen helpers | 6 | 3 | 9 | 9 |
| 806 practical nurses | 2 | 3 | 9 | 9 |
| 807 health aides | 2 | 3 | 9 | 9 |
| 808 child care workers | 2 | 3 | 9 | 9 |
| 809 hair stylists | 2 | 3 | 9 | 9 |
| 810 attendents, n.e.c. | 6 | 3 | 9 | 9 |
| 811 law enforcement officers | 1 | 3 | 9 | 9 |
| 812 guards | 2 | 3 | 9 | 9 |
| 813 firefighters | 5 | 5 | 9 | 9 |
| 814 housekeepers, ex. private | 2 | 3 | 9 | 9 |
| 815 food counter workers | 2 | 3 | 9 | 9 |
| 816 private household workers | 6 | 3 | 9 | 9 |
| 901 farmers | 4 | 4 | 11 | 11 |
| 902 farm laborers | 7 | 4 | 12 | 12 |

NOTE.—The EG classes are as follows: 1 = service class, 2 = routine nonmanual workers, 3 = petty bourgeoisie, 4 = farmers, 5 = skilled workers and foremen, 6 = nonskilled workers, 7 = employed farm laborers. The FH classes are as follows: 1 = self-employed professionals, 2 = employed professionals, 3 = employed managers, 4 = self-employed managers, 5 = sales workers, 6 = clerical workers, 7 = craft workers, 8 = operatives, 9 = service workers, 10 = laborers, 11 = farmers, 12 = farm laborers.

## APPENDIX B

## Fit Statistics and Measures of Association

TABLE B1
FIT STATISTICS AND MEASURES OF ASSOCIATION FROM EG MODELS APPLIED TO 55 OUTCOME TABLES

| | | Decomposition of Total Association | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total Association (eq. [4]) | | Within-EG Association (eq. [6]) | | | | Total Association in PB | | Between- and Within-Class Structuration | | | | | |
| Domain and Variable | $N$, no PB | $L^2$ | $df$ | $L^2$ | $df$ | % w/in EG | N, PB | $L^2$ | $df$ | $A_B$ | $A_W$ | $A_R$ | $A_B^*$ no PB | $A_B^*$ w/PB | $A_W$ in PB |
| Life chances: | | | | | | | | | | | | | | | |
| educ | 813,911 | 498,625.81 | 500 | 161,322.42 | 480 | 32.35 | 53,054 | 7,404.70 | 360 | 21.059 | 6.216 | 1.668 | 14.827 | 11.328 | 3.533 |
| ftpt | 741,400 | 43,709.27 | 125 | 36,012.50 | 120 | 82.39 | 48,368 | 2,011.87 | 90 | 1.852 | 2.406 | 0.702 | 1.709 | 1.752 | 2.039 |
| ftincome | 655,823 | 204,070.30 | 500 | 78,957.16 | 480 | 38.69 | 39,442 | 4,120.15 | 360 | 6.960 | 3.730 | 1.474 | 6.398 | 5.092 | 3.993 |
| income | 813,910 | 259,324.33 | 500 | 107,378.53 | 480 | 41.41 | 53,055 | 5,172.96 | 360 | 6.373 | 3.863 | 1.370 | 5.982 | 4.749 | 3.401 |
| finrela | 20,432 | 3,161.65 | 250 | 1,186.39 | 240 | 37.52 | n/a | n/a | n/a | 1.949 | 1.749 | 1.194 | 1.931 | 1.893 | n/a |
| tenure | 735,685 | 24,294.91 | 125 | 13,761.00 | 120 | 56.64 | 48,038 | 1,320.88 | 90 | 1.865 | 1.440 | 1.710 | 1.878 | 1.835 | 1.836 |
| Lifestyles: | | | | | | | | | | | | | | | |
| Consumption practices: | | | | | | | | | | | | | | | |
| news | 13,827 | 830.94 | 375 | 540.71 | 360 | 65.07 | n/a | n/a | n/a | 1.688 | 1.486 | 1.322 | 1.660 | 1.587 | n/a |
| tvhours | 13,317 | 1,188.40 | 375 | 571.11 | 360 | 48.06 | n/a | n/a | n/a | 1.686 | 1.568 | 1.162 | 1.564 | 1.514 | n/a |
| memlit | 8,961 | 626.96 | 125 | 277.18 | 120 | 44.21 | n/a | n/a | n/a | 2.114 | 2.431 | 0.843 | 2.059 | 2.012 | n/a |
| satfam | 11,110 | 470.17 | 375 | 441.00 | 360 | 93.80 | n/a | n/a | n/a | 1.170 | 1.446 | 0.426 | 1.223 | 1.216 | n/a |
| socrel | 12,796 | 653.05 | 375 | 434.50 | 360 | 66.53 | n/a | n/a | n/a | 1.279 | 1.359 | 0.803 | 1.272 | 1.249 | n/a |
| socommun | 12,775 | 675.96 | 375 | 469.32 | 360 | 69.43 | n/a | n/a | n/a | 1.331 | 1.501 | 0.703 | 1.307 | 1.279 | n/a |
| socfrend | 12,794 | 574.23 | 375 | 445.00 | 360 | 77.50 | n/a | n/a | n/a | 1.597 | 1.400 | 1.390 | 1.608 | 1.564 | n/a |
| memserv | 8,963 | 435.75 | 125 | 170.32 | 120 | 39.09 | n/a | n/a | n/a | 3.690 | 2.397 | 1.494 | 3.824 | 3.670 | n/a |
| memfrat | 8,968 | 312.82 | 125 | 214.71 | 120 | 68.64 | n/a | n/a | n/a | 1.451 | 2.399 | 0.426 | 1.402 | 1.387 | n/a |
| memsport | 8,976 | 311.22 | 125 | 177.04 | 120 | 56.88 | n/a | n/a | n/a | 1.334 | 1.711 | 0.537 | 1.333 | 1.314 | n/a |
| memhobby | 8,960 | 201.69 | 125 | 147.80 | 120 | 73.28 | n/a | n/a | n/a | 1.633 | 2.362 | 0.570 | 1.705 | 1.684 | n/a |
| memnum | 9,049 | 1,459.93 | 375 | 770.50 | 360 | 52.78 | n/a | n/a | n/a | 2.170 | 1.735 | 1.406 | 2.136 | 1.991 | n/a |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| satjob | 20,324 | 961.90 | 250 | 494.36 | 240 | 51.39 | n/a | n/a | n/a | 1.415 | 1.394 | 1.047 | 1.429 | 1.440 | n/a |
| richwork | 13,157 | 400.10 | 125 | 259.47 | 120 | 64.85 | n/a | n/a | n/a | 1.668 | 1.648 | 1.025 | 1.660 | 1.589 | n/a |
| hours | 741,401 | 85,443.70 | 375 | 53,833.26 | 360 | 63.06 | 48,373 | 5,552.57 | 270 | 2.020 | 1.949 | 1.054 | 1.911 | 1.892 | 2.204 |
| Institutional participation: | | | | | | | | | | | | | | | |
| marstat | 813,911 | 25,120.34 | 500 | 15,931.96 | 480 | 63.42 | 53,062 | 1,447.15 | 360 | 1.479 | 1.347 | 1.315 | 1.885 | 1.675 | 1.529 |
| divorce | 13,418 | 306.06 | 125 | 229.44 | 120 | 74.97 | n/a | n/a | n/a | 1.395 | 1.640 | 0.673 | 1.433 | 1.425 | n/a |
| childs | 21,236 | 1,406.09 | 500 | 863.63 | 480 | 61.42 | n/a | n/a | n/a | 1.683 | 1.497 | 1.291 | 1.671 | 1.594 | n/a |
| relig | 21,243 | 1,278.44 | 500 | 873.32 | 480 | 68.31 | n/a | n/a | n/a | 3.266 | 2.468 | 1.310 | 4.896 | 5.077 | n/a |
| attend | 21,077 | 1,082.06 | 375 | 970.42 | 360 | 89.68 | n/a | n/a | n/a | 1.274 | 2.008 | 0.348 | 1.302 | 1.283 | n/a |
| union | 294,895 | 35,433.73 | 125 | 28,707.09 | 120 | 81.02 | n/a | n/a | n/a | 3.144 | 2.714 | 1.147 | n/a | n/a | n/a |
| vet | 489,698 | 11,579.82 | 125 | 9,777.99 | 120 | 84.44 | 35,157 | 477.71 | 90 | 1.579 | 1.567 | 1.017 | 1.613 | 1.567 | 2.526 |
| Class-based sentiments: | | | | | | | | | | | | | | | |
| Political attitudes and behaviors: | | | | | | | | | | | | | | | |
| partyid | 20,879 | 1,233.01 | 500 | 839.47 | 480 | 68.08 | n/a | n/a | n/a | 1.580 | 1.560 | 1.029 | 1.586 | 1.597 | n/a |
| polviews | 18,268 | 1,063.09 | 500 | 752.60 | 480 | 70.79 | n/a | n/a | n/a | 1.306 | 1.336 | 0.923 | 1.231 | 1.213 | n/a |
| helpnot | 10,363 | 579.11 | 250 | 361.61 | 240 | 62.44 | n/a | n/a | n/a | 1.579 | 1.439 | 1.255 | 1.571 | 1.556 | n/a |
| mempolit | 8,969 | 238.34 | 125 | 145.28 | 120 | 60.95 | n/a | n/a | n/a | 1.931 | 2.630 | 0.680 | 1.822 | 1.755 | n/a |
| Social attitudes and dispositions: | | | | | | | | | | | | | | | |
| spkath | 14,062 | 930.95 | 125 | 235.61 | 120 | 25.31 | n/a | n/a | n/a | 2.181 | 1.559 | 1.756 | 2.101 | 1.985 | n/a |
| spkcom | 13,913 | 1,200.55 | 125 | 254.34 | 120 | 21.19 | n/a | n/a | n/a | 2.230 | 1.527 | 1.894 | 2.138 | 2.019 | n/a |
| homosex | 12,705 | 1,222.29 | 250 | 475.88 | 240 | 38.93 | n/a | n/a | n/a | 1.752 | 1.477 | 1.439 | 1.713 | 1.654 | n/a |
| pornlaw | 13,245 | 441.76 | 250 | 382.84 | 240 | 86.66 | n/a | n/a | n/a | 1.244 | 1.403 | 0.646 | 1.194 | 1.170 | n/a |
| cappun | 18,071 | 477.97 | 125 | 410.42 | 120 | 85.87 | n/a | n/a | n/a | 1.269 | 1.548 | 0.515 | 1.252 | 1.232 | n/a |
| courts | 18,734 | 498.54 | 250 | 420.59 | 240 | 84.36 | n/a | n/a | n/a | 1.167 | 1.353 | 0.510 | 1.137 | 1.124 | n/a |
| prayer | 11,108 | 572.59 | 125 | 259.79 | 120 | 45.37 | n/a | n/a | n/a | 1.393 | 1.504 | 0.813 | 1.364 | 1.331 | n/a |
| racmar | 12,644 | 1,125.13 | 125 | 246.20 | 120 | 21.88 | n/a | n/a | n/a | 2.559 | 1.999 | 1.357 | 2.234 | 2.088 | n/a |
| racopen | 9,985 | 302.50 | 125 | 178.72 | 120 | 59.08 | n/a | n/a | n/a | 1.762 | 1.449 | 1.529 | 1.716 | 1.631 | n/a |
| helpblk | 10,790 | 429.21 | 250 | 368.58 | 240 | 85.87 | n/a | n/a | n/a | 1.415 | 1.443 | 0.947 | 1.405 | 1.366 | n/a |
| fework | 11,861 | 432.43 | 125 | 180.18 | 120 | 41.67 | n/a | n/a | n/a | 1.669 | 1.797 | 0.874 | 1.591 | 1.561 | n/a |
| fepol | 11,551 | 351.86 | 125 | 194.71 | 120 | 55.34 | n/a | n/a | n/a | 1.516 | 1.458 | 1.103 | 1.502 | 1.455 | n/a |
| abnomore | 15,647 | 662.40 | 125 | 271.71 | 120 | 41.02 | n/a | n/a | n/a | 1.432 | 1.420 | 1.025 | 1.403 | 1.384 | n/a |
| abrape | 15,643 | 392.22 | 125 | 244.97 | 120 | 62.46 | n/a | n/a | n/a | 1.863 | 1.775 | 1.084 | 1.801 | 1.728 | n/a |
| anomia | 9,280 | 886.78 | 125 | 201.13 | 120 | 22.68 | n/a | n/a | n/a | 1.765 | 1.467 | 1.482 | 1.757 | 1.687 | n/a |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| chldidel ..... | 13,800 | 598.56 | 375 | 422.72 | 360 | 70.62 | n/a | n/a | n/a | 1.580 | 1.587 | 0.991 | 1.510 | 1.455 | n/a |
| obey ..... | 8,335 | 726.60 | 250 | 361.89 | 240 | 49.81 | n/a | n/a | n/a | 1.574 | 1.586 | 0.983 | 1.498 | 1.450 | n/a |
| thnkself ..... | 8,336 | 597.57 | 250 | 345.78 | 240 | 57.86 | n/a | n/a | n/a | 1.359 | 1.496 | 0.761 | 1.339 | 1.315 | n/a |
| helpothr ..... | 8,341 | 386.73 | 250 | 281.71 | 240 | 72.84 | n/a | n/a | n/a | 1.248 | 1.381 | 0.688 | 1.240 | 1.222 | n/a |
| class ..... | 20,559 | 3,951.38 | 250 | 1,102.16 | 240 | 27.89 | n/a | n/a | n/a | 2.189 | 1.688 | 1.496 | 2.051 | 1.972 | n/a |
| Demographic composition: | | | | | | | | | | | | | | | |
| race ..... | 813,911 | 41,327.88 | 250 | 22,186.58 | 240 | 53.68 | 53,054 | 1,992.54 | 180 | 2.061 | 1.408 | 2.113 | 2.077 | 1.979 | 2.758 |
| ethnic ..... | 16,400 | 1,131.53 | 375 | 705.55 | 360 | 62.35 | n/a | n/a | n/a | 1.758 | 1.439 | 1.550 | 1.789 | 1.702 | n/a |
| spneth ..... | 795,104 | 27,355.21 | 500 | 9,397.39 | 480 | 34.35 | 51,631 | 942.25 | 360 | 2.400 | 1.422 | 2.489 | 2.430 | 2.288 | 1.759 |

NOTE.—PB = petty bourgeoisie. CPS samples are weighted by the year-specific person weight, GSS samples by the black oversample weight. Sample sizes also reflect the addition of 0.1 to zero cells. See app. table A1 for variable definitions and the text for explanation of the models, $A_B$, $A_W$, and $A_R$. Values of $A_B^*$ are not purged of occupational composition effects.

TABLE B2

FIT STATISTICS AND MEASURES OF ASSOCIATION FROM FH MODELS APPLIED TO 55 OUTCOME TABLES

| | | Decomposition of Total Association | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total Association (eq. [3]) | | Within-FH Association (eq. [5]) | | | Hybrid (FH + SES; eq. [12]) | | | Between- and Within-Class Structuration | | |
| Domain and Variable | $N$ | $L^2$ | $df$ | $L^2$ | $df$ | % residual | $L^2$ | $df$ | % in FH exp. by SES | $A_B$ | $A_W$ | $A_R$ |
| Life chances: | | | | | | | | | | | | |
| educ | 866,958 | 506,828.09 | 500 | 118,844.09 | 456 | 23.45 | 58,958.13 | 452 | 50.39 | 23.970 | 5.331 | 1.898 |
| ftpt | 789,767 | 47,310.89 | 125 | 25,314.31 | 114 | 53.51 | 21,889.18 | 113 | 13.53 | 1.870 | 2.363 | 0.728 |
| ftincome | 695,253 | 218,303.02 | 500 | 71,507.29 | 456 | 32.76 | 30,984.90 | 452 | 56.67 | 5.449 | 3.658 | 1.307 |
| income | 866,956 | 275,833.69 | 500 | 94,330.53 | 456 | 34.20 | 45,750.12 | 452 | 51.50 | 5.059 | 3.644 | 1.254 |
| finrela | 22,608 | 3,375.39 | 250 | 983.10 | 228 | 29.13 | 558.77 | 226 | 43.16 | 2.367 | 1.667 | 1.687 |
| tenture | 783,721 | 25,293.64 | 125 | 11,338.04 | 114 | 44.83 | 7,922.81 | 113 | 30.12 | 1.667 | 1.419 | 1.460 |
| Lifestyles: | | | | | | | | | | | | |
| Consumption practices: | | | | | | | | | | | | |
| news | 15,333 | 899.79 | 375 | 517.17 | 342 | 57.48 | 444.58 | 339 | 14.04 | 1.684 | 1.448 | 1.407 |
| tvhours | 14,782 | 1,249.65 | 375 | 531.66 | 342 | 42.54 | 433.81 | 339 | 18.40 | 1.905 | 1.565 | 1.439 |
| memlit | 9,927 | 657.18 | 125 | 218.30 | 114 | 33.22 | 211.46 | 113 | 3.13 | 2.751 | 2.375 | 1.170 |
| satfam | 12,305 | 473.61 | 375 | 404.63 | 342 | 85.44 | 390.72 | 339 | 3.44 | 1.175 | 1.373 | 0.509 |
| socrel | 14,191 | 652.20 | 375 | 416.89 | 342 | 63.92 | 414.33 | 339 | 0.61 | 1.259 | 1.334 | 0.799 |
| socommun | 14,168 | 720.64 | 375 | 453.22 | 342 | 62.89 | 402.35 | 339 | 11.23 | 1.370 | 1.487 | 0.794 |
| socfrend | 14,189 | 578.25 | 375 | 388.07 | 342 | 67.11 | 382.54 | 339 | 1.43 | 1.489 | 1.340 | 1.359 |
| memserv | 9,931 | 519.22 | 125 | 193.01 | 114 | 37.17 | 170.31 | 113 | 11.76 | 3.295 | 2.270 | 1.455 |
| memfrat | 9,934 | 334.31 | 125 | 234.74 | 114 | 70.21 | 185.05 | 113 | 21.17 | 1.680 | 2.386 | 0.596 |
| memsport | 9,944 | 321.85 | 125 | 152.82 | 114 | 47.48 | 146.15 | 113 | 4.36 | 1.385 | 1.571 | 0.720 |
| memhobby | 9,926 | 199.44 | 125 | 129.80 | 114 | 65.08 | 127.07 | 113 | 2.10 | 1.644 | 2.173 | 0.640 |
| memnum | 10,032 | 1,540.26 | 375 | 740.36 | 342 | 48.07 | 624.26 | 339 | 15.68 | 2.053 | 1.723 | 1.322 |
| satjob | 22,494 | 1,106.55 | 250 | 524.41 | 228 | 47.39 | 503.58 | 226 | 3.97 | 1.571 | 1.392 | 1.367 |
| richwork | 14,599 | 443.45 | 125 | 209.37 | 114 | 47.21 | 206.76 | 113 | 1.25 | 1.612 | 1.573 | 1.055 |
| hours | 789,768 | 96,378.91 | 375 | 42,095.03 | 342 | 43.68 | 36,029.79 | 339 | 14.41 | 1.936 | 1.936 | 1.000 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Institutional participation: | | | | | | | | | | | | |
| marstat | 866,958 | 27,295.53 | 500 | 12,408.02 | 456 | 45.46 | 11,018.48 | 452 | 11.20 | 1.411 | 1.320 | 1.241 |
| divorce | 15,038 | 323.54 | 125 | 182.67 | 114 | 56.46 | 182.23 | 113 | 0.24 | 1.380 | 1.571 | 0.712 |
| childs | 23,503 | 1,484.46 | 500 | 786.15 | 456 | 52.96 | 750.69 | 452 | 4.51 | 1.569 | 1.457 | 1.195 |
| relig | 23,512 | 1,356.67 | 500 | 758.63 | 456 | 55.92 | 697.56 | 452 | 8.05 | 3.299 | 2.364 | 1.387 |
| attend | 23,319 | 1,125.50 | 375 | 905.28 | 342 | 80.43 | 900.90 | 339 | 0.48 | 1.255 | 1.953 | 0.340 |
| union | 294,895 | 35,433.73 | 125 | 24,082.71 | 114 | 67.97 | 22,302.68 | 113 | 7.39 | 2.820 | 2.243 | 1.283 |
| vet | 489,698 | 11,318.54 | 125 | 8,327.15 | 114 | 73.57 | 6,957.86 | 113 | 16.44 | 1.433 | 1.531 | 0.845 |
| Class-based sentiments: | | | | | | | | | | | | |
| Political attitudes and behaviors: | | | | | | | | | | | | |
| partyid | 23,106 | 1,329.29 | 500 | 729.11 | 456 | 54.85 | 708.62 | 452 | 2.81 | 1.709 | 1.511 | 1.300 |
| polviews | 20,243 | 1,118.73 | 500 | 682.92 | 456 | 61.04 | 670.30 | 452 | 1.85 | 1.350 | 1.298 | 1.150 |
| helpnot | 11,466 | 616.96 | 250 | 300.92 | 228 | 48.78 | 283.93 | 226 | 5.65 | 1.545 | 1.382 | 1.344 |
| mempolit | 9,938 | 254.49 | 125 | 135.01 | 114 | 53.05 | 121.55 | 113 | 9.97 | 2.011 | 2.509 | 0.760 |
| Social attitudes and dispositions: | | | | | | | | | | | | |
| spkath | 15,569 | 948.07 | 125 | 204.18 | 114 | 21.54 | 128.59 | 113 | 37.02 | 2.146 | 1.490 | 1.914 |
| spkcom | 15,414 | 1,237.56 | 125 | 223.75 | 114 | 18.08 | 136.39 | 113 | 39.05 | 2.370 | 1.476 | 2.215 |
| homosex | 14,094 | 1,228.74 | 250 | 435.97 | 228 | 35.48 | 367.87 | 226 | 15.62 | 1.768 | 1.465 | 1.493 |
| pornlaw | 14,652 | 452.16 | 250 | 378.12 | 228 | 83.63 | 369.39 | 226 | 2.31 | 1.201 | 1.379 | 0.569 |
| cappun | 20,034 | 489.78 | 125 | 321.58 | 114 | 65.66 | 305.89 | 113 | 4.88 | 1.309 | 1.476 | 0.691 |
| courts | 20,738 | 530.89 | 250 | 354.84 | 228 | 66.84 | 334.17 | 226 | 5.83 | 1.231 | 1.326 | 0.736 |
| prayer | 12,297 | 581.05 | 125 | 218.95 | 114 | 37.68 | 181.80 | 113 | 16.97 | 1.485 | 1.477 | 1.015 |
| racmar | 14,098 | 1,120.83 | 125 | 230.36 | 114 | 20.55 | 177.17 | 113 | 23.09 | 2.621 | 1.829 | 1.596 |
| racopen | 11,070 | 333.47 | 125 | 189.69 | 114 | 56.88 | 189.11 | 113 | 0.30 | 1.537 | 1.460 | 1.136 |
| helpblk | 11,932 | 443.37 | 250 | 312.47 | 228 | 70.48 | 309.17 | 226 | 1.06 | 1.344 | 1.368 | 0.944 |
| fework | 13,151 | 426.88 | 125 | 151.38 | 114 | 35.46 | 137.24 | 113 | 9.34 | 1.777 | 1.588 | 1.243 |
| fepol | 12,808 | 358.62 | 125 | 207.38 | 114 | 57.83 | 185.65 | 113 | 10.48 | 1.434 | 1.461 | 0.952 |
| abnomore | 17,319 | 693.84 | 125 | 285.86 | 114 | 41.20 | 233.18 | 113 | 18.43 | 1.546 | 1.422 | 1.236 |
| abrape | 17,307 | 395.74 | 125 | 260.28 | 114 | 65.77 | 217.86 | 113 | 16.30 | 1.694 | 1.744 | 0.947 |
| anomia | 10,331 | 916.88 | 125 | 176.13 | 114 | 19.21 | 149.02 | 113 | 15.39 | 1.977 | 1.416 | 0.959 |
| chldidel | 15,252 | 610.49 | 375 | 422.92 | 342 | 69.28 | 404.71 | 339 | 4.30 | 1.487 | 1.716 | 0.734 |
| obey | 9,204 | 733.02 | 250 | 323.35 | 228 | 44.11 | 277.43 | 226 | 14.20 | 1.663 | 1.538 | 1.181 |
| thnkself | 9,204 | 615.55 | 250 | 341.34 | 228 | 55.45 | 297.95 | 226 | 12.71 | 1.461 | 1.476 | 0.974 |
| helpothr | 9,211 | 401.57 | 250 | 249.90 | 228 | 62.23 | 233.27 | 226 | 6.65 | 1.289 | 1.347 | 0.852 |
| class | 22,751 | 4,292.12 | 250 | 864.12 | 228 | 20.13 | 520.34 | 226 | 39.78 | 2.877 | 1.656 | 2.094 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Demographic composition: | | | | | | | | | | | | |
| race | 866,957 | 43,420.71 | 250 | 16,906.27 | 228 | 38.94 | 15,903.99 | 226 | 5.93 | 1.877 | 1.394 | 1.895 |
| ethnic | 18,164 | 1,171.59 | 375 | 615.00 | 342 | 52.49 | 583.25 | 339 | 5.16 | 1.587 | 1.430 | 1.291 |
| spneth | 846,717 | 27,360.58 | 500 | 8,494.72 | 456 | 31.05 | 5,435.31 | 452 | 36.02 | 2.054 | 1.396 | 2.159 |

NOTE.—CPS samples are weighted by the year-specific person weight and GSS samples by the black oversample weight. Sample sizes also reflect the addition of 0.1 to zero cells. See app. table A1 for variable definitions and the text for explanation of the models, $A_B$, $A_W$, and $A_R$.

TABLE B3

FIT STATISTICS FROM GRADATIONAL MODELS APPLIED TO 55 OUTCOME TABLES

| | SES (eq. [7]) | | | PRESTIGE (eq. [7]) | | | CULTURAL CAPITAL (eq. [7]) | | | BOURDIEU (eq. [8]) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DOMAIN AND VARIABLE | $L^2$ | *df* | % residual | $L^2$ | *df* | % residual | $L^2$ | *df* | % residual | $L^2$ | *df* | % residual |
| Life chances: | | | | | | | | | | | | |
| educ | 95,502.45 | 496 | 18.84 | 157,310.91 | 496 | 31.04 | 61,615.13 | 496 | 12.16 | 98,779.98 | 491 | 19.49 |
| ftpt | 40,008.09 | 124 | 84.56 | 37,703.63 | 124 | 79.69 | 42,526.27 | 124 | 89.89 | 35,097.95 | 123 | 74.19 |
| ftincome | 68,437.24 | 496 | 31.35 | 89,034.73 | 496 | 40.78 | 92,634.09 | 496 | 42.43 | 55,046.12 | 491 | 25.22 |
| income | 95,708.48 | 496 | 34.70 | 114,402.17 | 496 | 41.48 | 125,880.96 | 496 | 45.64 | 76,964.98 | 491 | 27.90 |
| finrela | 1,004.38 | 248 | 29.76 | 1,387.23 | 248 | 41.10 | 1,255.31 | 248 | 37.19 | 837.06 | 246 | 24.80 |
| tenure | 14,750.91 | 24 | 58.32 | 14,427.51 | 124 | 57.04 | 16,997.28 | 124 | 67.20 | 13,308.69 | 123 | 52.62 |
| Lifestyles: | | | | | | | | | | | | |
| Consumption practices: | | | | | | | | | | | | |
| news | 593.95 | 372 | 66.01 | 630.55 | 372 | 70.08 | 555.17 | 372 | 61.70 | 526.65 | 369 | 58.53 |
| tvhours | 537.96 | 372 | 43.05 | 606.59 | 372 | 48.54 | 551.17 | 372 | 44.11 | 527.79 | 369 | 42.24 |
| memlit | 292.68 | 124 | 44.53 | 327.42 | 124 | 49.82 | 248.62 | 124 | 37.83 | 275.84 | 123 | 41.97 |
| satfam | 449.87 | 372 | 94.99 | 439.28 | 372 | 92.75 | 452.15 | 372 | 95.47 | 449.71 | 369 | 94.95 |
| socrel | 494.12 | 372 | 75.76 | 535.13 | 372 | 82.05 | 485.00 | 372 | 74.36 | 477.05 | 369 | 73.14 |
| socommun | 505.44 | 372 | 70.14 | 526.76 | 372 | 73.10 | 510.82 | 372 | 70.88 | 483.00 | 369 | 67.02 |
| socfrend | 480.55 | 372 | 83.10 | 495.49 | 372 | 85.69 | 476.15 | 372 | 82.34 | 472.80 | 369 | 81.76 |
| memserv | 260.79 | 124 | 50.23 | 293.52 | 124 | 56.53 | 264.89 | 124 | 51.02 | 249.49 | 123 | 48.05 |
| memfrat | 235.52 | 124 | 70.45 | 233.37 | 124 | 69.80 | 241.14 | 124 | 72.13 | 227.07 | 123 | 67.92 |
| memsport | 201.91 | 124 | 62.73 | 227.73 | 124 | 70.76 | 209.37 | 124 | 65.05 | 187.17 | 123 | 58.16 |
| memhobby | 149.87 | 124 | 75.14 | 150.94 | 124 | 75.68 | 148.35 | 124 | 74.38 | 137.61 | 123 | 69.00 |
| memnum | 708.75 | 372 | 46.02 | 709.76 | 372 | 46.08 | 683.38 | 372 | 44.37 | 722.36 | 369 | 46.90 |
| satjob | 765.04 | 248 | 69.14 | 679.25 | 248 | 61.38 | 785.80 | 248 | 71.01 | 747.40 | 246 | 67.54 |
| richwork | 369.85 | 124 | 83.40 | 371.41 | 124 | 83.75 | 357.13 | 124 | 80.53 | 379.87 | 123 | 85.66 |
| hours | 74,643.25 | 372 | 77.45 | 75,598.80 | 372 | 78.44 | 78,370.77 | 372 | 81.32 | 70,666.88 | 369 | 73.32 |
| Institutional participation: | | | | | | | | | | | | |
| marstat | 20,531.34 | 496 | 75.22 | 20,029.78 | 496 | 73.38 | 20,637.86 | 496 | 75.61 | 19,440.84 | 491 | 71.22 |
| divorce | 264.70 | 124 | 81.82 | 255.31 | 124 | 78.91 | 251.32 | 124 | 77.68 | 262.49 | 123 | 81.13 |
| childs | 1,012.05 | 496 | 68.18 | 1,127.44 | 496 | 75.95 | 966.40 | 496 | 65.10 | 985.81 | 491 | 66.41 |
| relig | 985.37 | 496 | 72.63 | 1,095.36 | 496 | 80.74 | 976.92 | 496 | 72.01 | 981.25 | 491 | 72.33 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| attend | 1,055.57 | 372 | 93.79 | 1,013.47 | 372 | 90.05 | 1,017.21 | 372 | 90.38 | 985.44 | 369 | 87.56 |
| union | 35,432.96 | 124 | 99.99 | 35,383.97 | 124 | 99.86 | 35,309.85 | 124 | 99.65 | 31,807.74 | 123 | 89.77 |
| vet | 10,713.22 | 124 | 94.65 | 10,839.86 | 124 | 95.77 | 10,966.70 | 124 | 96.89 | 9,550.39 | 123 | 84.38 |
| Class-based sentiments: | | | | | | | | | | | | |
| Political attitudes and behaviors: | | | | | | | | | | | | |
| partyid | 1,107.29 | 496 | 83.30 | 1,146.77 | 496 | 86.27 | 1,118.55 | 496 | 84.15 | 1,014.87 | 491 | 76.35 |
| polviews | 855.90 | 496 | 76.51 | 921.01 | 496 | 82.33 | 833.94 | 496 | 74.54 | 842.48 | 491 | 75.31 |
| helpnot | 444.95 | 248 | 72.12 | 478.88 | 248 | 77.62 | 461.26 | 248 | 74.77 | 410.67 | 246 | 66.57 |
| mempolit | 152.84 | 124 | 60.05 | 168.10 | 124 | 66.05 | 147.09 | 124 | 57.80 | 156.58 | 123 | 61.53 |
| Social attitudes and dispositions: | | | | | | | | | | | | |
| spkath | 196.44 | 124 | 20.72 | 345.87 | 124 | 36.48 | 164.71 | 124 | 17.37 | 176.11 | 123 | 18.58 |
| spkcom | 274.21 | 124 | 22.16 | 461.45 | 124 | 37.29 | 184.93 | 124 | 14.94 | 215.02 | 123 | 17.37 |
| homosex | 504.17 | 248 | 41.03 | 688.65 | 248 | 56.05 | 451.07 | 248 | 36.71 | 505.23 | 246 | 41.12 |
| pornlaw | 403.83 | 248 | 89.31 | 423.54 | 248 | 93.67 | 411.37 | 248 | 90.98 | 399.85 | 246 | 88.43 |
| cappun | 481.40 | 124 | 98.29 | 486.16 | 124 | 99.26 | 468.54 | 124 | 95.66 | 483.45 | 123 | 98.71 |
| courts | 450.72 | 248 | 84.90 | 458.95 | 248 | 86.45 | 441.06 | 248 | 83.08 | 460.11 | 246 | 86.67 |
| prayer | 216.99 | 124 | 37.34 | 314.05 | 124 | 54.05 | 191.92 | 124 | 33.03 | 233.36 | 123 | 40.16 |
| racmar | 296.95 | 124 | 26.49 | 444.46 | 124 | 39.65 | 217.02 | 124 | 19.36 | 267.71 | 123 | 23.88 |
| racopen | 290.10 | 124 | 86.99 | 304.34 | 124 | 91.26 | 278.17 | 124 | 83.41 | 288.20 | 123 | 86.42 |
| helpblk | 437.43 | 248 | 98.66 | 438.63 | 248 | 98.93 | 434.40 | 248 | 97.98 | 436.78 | 246 | 98.51 |
| fework | 193.91 | 124 | 45.42 | 248.49 | 124 | 58.21 | 181.12 | 124 | 42.43 | 173.52 | 123 | 40.65 |
| fepol | 203.78 | 124 | 56.82 | 248.87 | 124 | 69.40 | 210.25 | 124 | 58.63 | 206.70 | 123 | 57.64 |
| abnomore | 304.59 | 124 | 43.90 | 414.02 | 124 | 59.67 | 294.65 | 124 | 42.47 | 284.99 | 123 | 41.07 |
| abrape | 273.68 | 124 | 69.16 | 306.45 | 124 | 77.44 | 287.21 | 124 | 72.58 | 262.63 | 123 | 66.37 |
| anomia | 240.26 | 124 | 26.20 | 327.57 | 124 | 35.73 | 195.09 | 124 | 21.28 | 186.38 | 123 | 20.33 |
| chldidel | 465.87 | 372 | 76.31 | 486.14 | 372 | 79.63 | 478.70 | 372 | 78.41 | 455.28 | 369 | 74.58 |
| obey | 313.37 | 248 | 42.75 | 405.98 | 248 | 55.39 | 291.72 | 248 | 39.80 | 296.29 | 246 | 40.42 |
| thnkself | 320.33 | 248 | 52.04 | 375.21 | 248 | 60.96 | 311.82 | 248 | 50.66 | 306.19 | 246 | 49.74 |
| helpothr | 283.29 | 248 | 70.55 | 316.43 | 248 | 78.80 | 279.45 | 248 | 69.59 | 279.12 | 246 | 69.51 |
| class | 1,107.61 | 248 | 25.81 | 1,696.93 | 248 | 39.54 | 1,052.53 | 248 | 24.52 | 970.19 | 246 | 22.60 |
| Demographic composition: | | | | | | | | | | | | |
| race | 28,132.02 | 248 | 64.79 | 29,540.75 | 248 | 68.03 | 29,414.89 | 248 | 67.74 | 26,641.69 | 246 | 61.36 |
| ethnic | 846.69 | 372 | 72.52 | 904.66 | 372 | 77.22 | 873.27 | 372 | 74.54 | 821.46 | 369 | 70.11 |
| spneth | 8,944.23 | 496 | 32.69 | 10,889.99 | 496 | 39.80 | 9,912.00 | 496 | 36.23 | 8,671.66 | 491 | 31.69 |

NOTE.—Sample sizes and the fit statistics of the baseline model, eq. (3), are given in app. table B2.

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