BRINGING THE FIRMS BACK IN: STRATIFICATION, SEGMENTATION, AND THE ORGANIZATION OF WORK*

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This essay examines the shift toward "structural" explanations in recent studies of inequality. After reviewing this body of research and some of its shortcomings, we examine its theoretical underpinnings, comparing "structuralist" perspectives on work organization derived from institutional economics and neo-Marxism to more orthodox accounts based on neoclassical and "industrialism" theories. This discussion suggests areas where the different perspectives overlap and diverge. We conclude that work arrangements within the firm and their trend are the focus of most "structural" perspectives on positional stratification; thus, empirical studies grounded at the organizational level are more likely to inform current debates about the "structure of work" than is the growing body of research about structural effects on individual attainment or covariation among industrial/occupational characteristics. Toward that end, an agenda for future research is outlined, focusing on three aspects of work organization: (a) the units which comprise the structure of work and the dimensions underlying economic segmentation; (b) the effects of sectoral differentiation on technical and administrative arrangements within firms; and (c) temporal changes in how enterprises organize production. We provide some illustrations of the kinds of empirical data and research hypotheses required to link research on segmentation and stratification more closely to studies of organizations.

INTRODUCTION

Since Blau and Duncan's exemplary study of *The American Occupational Structure* (1967), stratification research has focused almost exclusively on the determinants of individual socioeconomic achievement. While researchers might acknowledge that attainment occurs within specific structures (e.g., Duncan, 1968:680–2), critics have charged that this body of work ignores the dependence of attainment processes on the structure of positional inequality—that is, the "empty places" in the economy and the relations among them (e.g., Sørenson, 1975; Burawoy, 1977). Indeed, many investigators have maintained that structure is both more important than and logically prior to individual attainment (e.g., Wright and Perrone, 1977; Beck et al., 1978; Snyder et al., 1978; Kalleberg and Griffin, 1980). In recent years, empirical research from explicitly structuralist perspectives has sought to redress the imbalance. Much of this research purports to show that individual achievement is a function of structural factors such as class (Wright and Perrone, 1977; Wright, 1978; Kalleberg and Griffin, 1978; 1980), authority (Kluegel, 1978; Robinson and Kelley, 1979; Wolf and Fligstein, 1979), organizational size (Stolzenberg, 1978), or labor market sector (Stolzenberg, 1975; Bibb and Form, 1977; Beck et al., 1978; Hodson, 1978). We refer to this emerging body of literature as the "new structuralism" in stratification research.

Unfortunately, the "new structuralists" have yet to offer a coherent and consistent representation of the structurally contingent nature of attainment processes (Pfeffer and Ross, 1979; Zucker and Rosenstein, 1980; Granovetter, forthcoming). In our view, this reflects two

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basic limitations which characterize this research. First, an explicit conceptualization of the structure which underlies and organizes attainment is rarely offered. Instead, we find numerous descriptive interpretations loosely consistent with countless variations upon notions of dual economy, internal labor markets, segmented labor markets, and Marxian class theory, incorporating insights from historiography, institutional economics, organizational theories, and more orthodox approaches to social inequality. Second, most analysts would acknowledge that the relationship between structure and attainment is intimately tied to the *organization of work*—that is, the interplay between technical and administrative imperatives on the one hand, and relations among people, positions, and objects within the workplace on the other. Yet competing perspectives on work organization have not been examined directly in their empirical studies.

We will examine some of these limitations in detail and propose a heuristic scheme for representing how various levels and units of work organization figure in the new structuralism. This discussion inspires a research agenda focusing on *firms* as a missing link in contemporary structural stratification research. We suggest that work is structured at five levels of social organization: societal, institutional, organizational, role, and individual. Correspondingly, social inequality may be examined at five hierarchically connected units of analysis: economy, industry or sector, firm, job, and individual. Within this context, we propose that firms link the "macro" and "micro" dimensions of work organization and inequality. Within firms, labor is priced and allocated, techniques of production are arranged and implemented, and power is organized and executed. Social and economic mobility are achieved within and between economic organizations. Societal and institutional forces impact jobs and workers through the organizational constraints faced by firms; conversely, actions taken by work establishments affect their macro environments. Indeed, the central role of firms in bridging structure and process at various levels of social and economic organization has been emphasized by theorists aligned with such disparate schools of thought as structural functionalism and Marxism (cf. Parsons and Smelser, 1956; Edwards, 1975). Yet the organization of work within (and between) firms has been almost universally ignored in current stratification research. Studies aimed at specifying and testing various perspectives on how work roles are organized (and change over time) have been few and far between, relative to efforts aimed at enhancing our ability to predict individual socioeconomic success. Accordingly, we begin by critically reviewing the substance and method of some representative structural stratification studies.

ADDUCING "STRUCTURE" FROM ITS EFFECTS ON ATTAINMENT: YOU CAN'T GET THERE FROM HERE

The new structuralists have increasingly recognized the need to understand the "structure of work" and how it changes over time *before* studying its effect on individual achievement (e.g., Wright and Perrone, 1977; Beck et al., 1978; Kalleberg and Griffin, 1980). However, the tendency of analysts to confound two questions, "How is work organized?" and "Who gets ahead?" may help explain certain anomalies and ambiguities which plague most recent empirical efforts.

1. Are occupations and industries relevant units of analysis? Occupations and industries appear almost universally in structural stratification research, either as the loci of worker mobility, or in the guise of structural variables influencing earnings, job satisfaction, and the like. Yet the significance of occupational and industrial designations for work organization and individual achievement depends, in turn, on how one thinks work is structured in the first place.[1]

[1] This criticism is thus equally applicable to studies which factor analyze industrial and/or occupational characteristics in order to derive sectoral typologies. We suggest below that such operationalizations and measurements of "structure" are less informative than studies which reflect more meaningful distinctions in work organization at the *firm* and *job* levels.

According to most labor market theorists (e.g., Piore, 1975), occupations are relevant for labor market processes only in certain types of craft and administrative employment in which movement occurs predominantly *between* firms and where work performance is regulated by professional norms disseminated through occupational associations, unions, ideologies, and related institutions (Caplow, 1954). Even if occupations *are* relevant units, schemes for classifying them do not necessarily reflect the distinctions among work roles which those who apply such typologies intend to capture. Braverman (1974) and Conk (1978), for example, have convincingly demonstrated that early classification schemes lacked an adequate conception of the technical division of labor among occupations, coming to depend heavily on the very same sociocultural divisions which occupations were presumed to index. Furthermore, while some analysts have defended occupations on the grounds that detailed categories are homogeneous with respect to most salient dimensions of work (e.g., Temme, 1975; Snyder et al., 1978), some evidence suggests that occupations may display far more internal heterogeneity along crucial dimensions than many investigators have acknowledged (e.g., Blaug, 1970; Bridges and Berk, 1974: 213; also see Spenner 1977:70). Others, such as Gordon (1972), claim that the degree of heterogeneity within occupations is itself a part of the historical puzzle to be unravelled by empirical research, rather than a convenient assumption to be imposed by fiat (see Baron, forthcoming). Finally, most theories which buttress the new structuralist research emphasize *jobs* (rather than occupations). Taken together, these arguments militate against analyses of changes in occupational distribution and aggregate occupational characteristics as a means of characterizing changes in the structure of work.

Similarly, industries may be differentially heterogeneous with respect to certain aspects of work. As in the case of occupations, industry boundaries capture meaningful distinctions in work organization only in certain instances. For example, government analysts studying boilermaking in Wisconsin and California for the United States Employment Service in the early 1960s could not even agree whether boilermaking constituted an industry (much less what its defining criteria were) due to the constellation of technological changes, diverse union activities, and administrative arrangements among enterprises engaged in manufacturing and installing boilers (internal memoranda, California Occupational Analysis Field Center, United States Employment Service). Indeed, even when industrial distinctions *are* clear, government experts often find it difficult to determine whether a specific establishment belongs to a particular industry (U. S. Bureau of the Census, 1975: 1.11).[2] Nevertheless, many analysts have assumed industries to be relatively homogeneous with regard to technological and administrative arrangements (e.g., Bluestone, 1970; Spilerman, 1977; Kalleberg et al., 1980; Kaufman et al., 1980; Tolbert et al., 1980). However, numerous organizational studies indicate substantial heterogeneity on these same dimensions within firms and even within departmental units of a single establishment (e.g., Child and Mansfield, 1972; Grimes and Klein, 1973; Billings et al., 1977; Comstock and Scott, 1977), suggesting that the assumption of industrial homogeneity—while no doubt convenient for those analyzing industry-level data—is differentially sensible for certain segments of the industrial structure.

Blaug and his colleagues (1967:18–9) neatly summarized several of these points over a decade ago, criticizing researchers for overlooking

> the crudity of definition of [occupational categories] and the variety of interpretations placed on them by different firms in different industries, and the fact that technology itself permits a variety of educational inputs to the same occupation. The unexamined assumption in most of the literature on manpower

[2] Even at the most disaggregated level, industries differ markedly in the extent to which their principal product is produced within the industry and in the degree of product specialization which characterizes firms in the industry (see, for example, the "coverage" and "specialization" ratios provided for four-digit S.I.C. categories in United States Bureau of the Census, 1975: Table 3).

> planning is the stability of occupational classifications, if not across, then certainly within, the various sectors of the economy. . . .
>
> It may be doubted, however, whether the census concept of occupations is sufficiently well-defined to be useable as a research variable. At any rate, it should not be assumed, to say the least, that an analysis of the job content of a particular occupation in one industry would constitute an adequate basis for generalization about all similarly titled occupations in other industries. Indeed, the same argument may well be applied to individual firms within a given industry . . . [since] we know that firms within an industry vary widely in the technical processes they have adopted to produce an identical output.

2. How do independent variables represent structures and processes? Not only may the relevant units of work organization depend on one's conception of "structure"; the specification and measurement of how attainments are determined may also depend on structural context. To be sure, some investigators have been mindful of the circularities that arise when characteristics of the work force are included in deriving sectoral typologies which are used, in turn, to explain individual attainment (cf. Hodson and Kaufman, forthcoming; Horan et al., forthcoming). Much less attention, however, has been devoted to specifying precisely how the parameters of the attainment process are dependent on structural influences. Researchers typically disaggregate models of socioeconomic achievement along some structural dimensions (e.g., Wright and Perrone, 1977; Stolzenberg, 1978; Beck et al., 1978), ignoring the possibility that very different factors (not just different regression slopes) may shape allocation and attainment in various structural contexts, or that the interpretation of some parameter may depend on the structure itself. As Granovetter (forthcoming) notes, such processes as income determination reflect at least three types of influences: (a) workers' attributes and choices; (b) employers' decisions and characteristics of jobs; and (c) the process which matches (a) and (b). Structural variables introduced in analyses of individual achievement typically fall under the rubric of (b) above. Yet, as Granovetter argues, the relative *importance* of individual vis-à-vis role attributes, in determining rewards, *itself* depends on how jobs and workers are matched [i.e. (c)], a process which presumably also taps the influence of "structure." For example, Granovetter and others (e.g., Stinchcombe, 1959) argue that features of *roles* are expected to determine the allocation of prestige, income, and other rewards in bureaucratic (core?) enterprises; contrariwise, in the small, decentralized firms characteristic of the so-called periphery, the mechanisms postulated by human capital theorists which link outcomes to *individual* choices and talents are more plausible.

Even if one could legitimately specify the same regression equation for each structural segment, hypothesizing that slopes differ as a function of some contextual factor, the same variable may still represent distinct social and economic processes within each context. Researchers include education, job tenure, and other personal characteristics, for example, in models disaggregated by some structural typology, typically referring to these as "human capital" variables (e.g., Bibb and Form, 1977; Beck et al., 1978; Pfeffer and Ross, 1979; Aldrich and Weiss, 1980).[3] This illustrates precisely the ambiguous notion of "structure" motivating such empirical efforts and may help explain certain anomalous results which have plagued the new structuralism. Many dualists (including some radical segmentation theorists) acknowledge that the secondary labor market and competitive sector approximate the concept of "the market" in neoclassical models of how investments in human capital shape individual career patterns (Doeringer and Piore, 1971; Gordon, 1972; Edwards, 1979). Meanwhile, managerial discretion, bureaucratic imperatives, and objective role requirements embodied in detailed job descriptions purportedly flourish in center firms, suggesting that there education should serve as a credentialling device or means of cultural control—in light of the ongoing political struggles among competing coalitions

[3] Mark Granovetter reminded us of the theoretical implications of this syntactical convention.

within such enterprises (Collins, 1979). Thus, the effect of education may *mean* something very different in each sector.

Some researchers have attempted to examine such differences, for example by distinguishing between the effects of years of schooling and the attainment of credentials (Beck et al., 1978; cf. Jencks et al., 1979: chap. 6). However, such efforts still assume that the same specification applies within each sector. More importantly, they do not entirely account for the fact that sectoral differences in the distribution and effects of schooling are neither as substantial nor as systematic as predicted. Data reported by Hodson (1978:452), for example, reveal few striking differences between the monopoly and competitive sectors in the distribution of educational attainment. Bibb and Form (1977:988) found that blue-collar workers in the core had less education than those in periphery industries. Furthermore, Pfeffer and Ross (1979) found little evidence of sectoral differences in the *effect* of education on income and status attainment, regardless of whether segments were delineated in terms of industrial concentration or predominant organizational control strategy ("market" versus "normative" regulation). Some data analyzed by Beck et al. (1978:713) also do not seem to support dualists' claims concerning the influence of schooling and credentials on achievement across sectors.[4] Finally, Kalleberg et al. (1980) found drastically different patterns of association between education and each of four dimensions of industrial segmentation. They also found virtually no evidence that aspects of industrial structure condition the effects of education on income.

In short, we have highlighted the ambiguous definitions and representations of structure in models of individual attainment and have pointed to some anomalous empirical results which reflect those shortcomings.

3. Could these anomalies reflect the new structuralism's inattentiveness to organizational arrangements? The inconsistent findings regarding schooling and segmentation may reflect the cleavage between "good" and "bad" jobs *within* core firms, a split that only modestly differentiates workers in terms of their educational attainment. If primary jobs are largely protected from market competition, and secondary jobs are for the most part homogeneous, then the relationship between education and income within such firms will reflect simply the difference in average education and income between these two classes of labor. In contrast, incremental returns to schooling or vocational training may be attainable through apprenticeship, licensing, credentialling, or career lattices within certain bureaucratic, professionalized, and small craft firms in periphery industries. Consequently, the surprisingly strong relationship, there, between education and income may reflect a more finely graded association between job requisites and rewards.[5]

These speculations illustrate the fact that empirical associations between structure and attainment can be explained only by attending to organizational arrangements within firms. Yet industrial sectors have been defined in a manner which has severed their links to "organizations and organizational properties . . . [even though] it is in organizations that wage and occupational decisions are made, for the most part, and in which mobility and stratification occur" (Pfeffer and Ross, 1979:18). These organizational bases of stratification are largely obscured at the industrial level. Pfeffer's (1977) informative study of wage attainment among students from business schools indicated that the relationship between social origins and destinations is stronger (1)

[4] For example, Hauser's (1980) reanalysis of their data indicates that sectoral interactions with respect to the education coefficients are by no means systematic (see his Table 2); indeed, if nonearners are excluded from the analysis, the sectoral interactions vanish altogether (but cf. Beck et al., 1980).

[5] Researchers have also often overlooked the possibility that reliance on formal credentials, internal labor markets, and the like may constitute *alternative* mechanisms of organizational control available to center firms, rather than companion arrangements. Gordon and Thal-Larsen (1969:274), for example, present some interesting data regarding the tradeoff between educational credentials and internal job ladders as means for recruiting (and controlling?) managers within firms.

in staff than in line positions, (2) in small than in large firms, and (3) in nonmanufacturing than in manufacturing enterprises. Indeed, Pfeffer found these three dimensions of organizations which mediate attainment outcomes to be only weakly intercorrelated. According to these results, to the extent that center firms are administratively intense, they should rely on ascriptive background characteristics—rather than education or meritocratic criteria—in promoting within-staff positions. However, ascription is hypothesized to figure less prominently in large firms and manufacturing establishments, presumably in which bureaucratic and standardized operating procedures enhance the utility of educational credentials in allocating and rewarding employees. The fact that income returns to education in the core do not dwarf those observed in the periphery may thus reflect the manner in which distinct dimensions of organizations have been overlooked in empirical examinations of industrial segmentation.[6]

Once we appreciate the fact that the meaning of a variable (such as education) may depend on its "structural context," and that its effects may be masked in analyses which are inattentive to *organizational* processes, we can perhaps make sense of other anomalous findings in the structural stratification research literature. For example, while dualist and segmentation theorists have underscored sectoral differences in the distribution of job tenure and its consequences for income determination, the empirical results have generally failed to support these hypotheses. Pfeffer and Ross (1979) discovered no sectoral differences in the effect of men's tenure with current employers on their income or status attainment. Indeed—while certain "core" industries (e.g., metal, petroleum, and railroad transportation) are characterized by high median levels of employee tenure with the firm—workers in agriculture, leather products, and certain public utilities, as well as females in the paper-products industry, are among those with the longest tenure with their employers (United States Department of Labor, 1975:Table E), despite the fact that such forms of employment are frequently banished to the "periphery" sector (see Zucker and Rosenstein, 1980:Appendix A). As in the case of education, the significance of job tenure for attainment outcomes has been confounded in empirical studies which fail to link job tenure to its specific occupational and organizational bases. Kalleberg et al. (1980) demonstrate the importance of attending to such links. For example, they find that tenure with a firm *is* strongly related to establishment size and industrial concentration but *not* to the economic scale (profitability) of an industry, arguing that the former variables capture the prevalence of internal labor market arrangements within *firms*. Tenure was also negatively related to the proportion of an industry's goods purchased by the state. The authors explain this result by observing that industries selling goods to the state tend to employ higher proportions of professionals and craftspersons, who are more likely to view the occupation, rather than the employer, as a source of career advancement. Thus, they are also likely to change firms more frequently.

Organizationally informed analyses may help clarify yet another anomaly in the empirical literature relating segmentation to individual careers—namely, why unemployment would be higher in core vs. periphery industries (e.g., Beck et al., 1978). Focusing on the basis of control exercised over various classes of workers, and its relations to *types* of unemployment, Schervish (1980) demonstrates that in the primary sectors *jobs* are unstable, while, in the secondary sector, *workers* exhibit employment instability. Schervish's Marxian orientation, emphasizing the basis of control exercised over various class segments, implicitly reflects an or-

[6] Like Stolzenberg (1978) and others, Gordon and Thal-Larsen (1969) found an overall relationship between size of establishment and reliance on education and other formal requirements in recruiting and promoting employees. However, they suggest that the relationship is actually somewhat spurious, obscuring the specific organizational bases of the observed association. They argue that large firms also tend to be more unionized and to be branches or corporate headquarters (rather than single unit establishments), both of which serve to enhance their reliance on formal credentials.

ganizational focus, underscoring, again, the importance of firm-level processes in mediating societal and industrial forces.

In sum, by ignoring the organizational bases of stratification processes, "structural attainment research" has perhaps overstated or obfuscated sectoral differences in the distribution and consequences of such factors as education, job tenure or internal labor markets, and unemployment (also see Gordon and Thal-Larsen, 1969:325–31; Cassell et al., 1975; Director and Doctors, 1976; Steinberg, 1975; Leigh, 1976a; 1976b; 1978; Spilerman, 1977:583–4; Edwards, 1979:169). In our view, more frequent or elaborate attempts to disaggregate models of socioeconomic achievement, or to factor analyze industry-level data, are unlikely to improve our understanding of how work roles are structured and shape individual biographies. Rather, we suggest that debates about the structure of work can best be advanced by clarifying the areas of conflict and complementarity among competing perspectives on work organization, specifically regarding the role of firms in mediating the links between social structure and processes at macro and micro levels. Below we examine how various accounts of work and inequality differ in emphasizing specific levels of social organization, units of analysis, and relations among them. Having placed these perspectives within such a heuristic framework, we assess where they overlap and diverge, motivating a research agenda which provides more content and coherence to the emerging body of structural theory and research on work organization and inequality.

STRATIFICATION AND WORK: LEVELS OF SOCIAL ORGANIZATION AND UNITS OF ANALYSIS

Research on work and inequality spans levels of organization from individual behavior (e.g., mobility) to the dynamics of entire social systems (e.g., class relations and technological change). As a heuristic, Table 1 arranges five levels of social organization from macro to micro: societal, institutional, organizational, role, and individual. It also presents corresponding units of analysis in studies of work: economy, sector, firm, job, and worker. The table is *not* a conceptualization of work structure, but the centrality of firms within it does suggest that the micro and macro forces affecting work are played out within the organizational arena of the firm. Further, it provides a means for imposing some semblance of order on the myriad empirical findings and conceptual ambiguities one encounters in the new structuralist research.

Table 1. Levels of Social Organization and Units of Analysis in Accounts of Work Organization

Level of Social Organization	Unit of Analysis
Societal	Economy
Institutional	Sector (market, industry)
Organizational	Firm
Role	Job
Individual	Worker

Orthodox attainment studies, according to our scheme, focus on individual workers as units of empirical analysis, but their theoretical concerns embrace both individual and societal levels of organization. At the macro level, the modernizing influence of technical differentiation is seen as undermining ascriptive sources of inequality that persist from an earlier era (e.g., Blau and Duncan, 1967:429). Consequently, an important concern of research at the individual level is the degree to which nonmeritocratic sources of intergenerational status persistence are attenuated by the technical demands of a "postindustrial" society (e.g., Featherman and Hauser, 1978:308–11).

As we noted in the previous section, empirical research by the new structuralists generally examines whether supraindividual units of analysis influence (or dominate) the process of individual achievement. The empirical design in such studies is straightforward (essentially an analysis of covariance), and the relations between units of analysis quite obvious: processes defined over individual units are contingent upon classification according to some more macro unit. But the correspondence between units of analysis and *levels of social organization* is by no means self-evident in this research. For

example, Marxian class categories denote ownership (and control) at the societal level. But explanations of class differences in attainment processes typically refer to firm-level (organizational) decisions implemented by capitalists and managers regarding the distribution of power and opportunity, in turn affecting job (role) conditions and the relations among jobs and workers. In short, Marxian variants of the new structuralism (e.g., Wright and Perrone, 1977; Wright, 1978; Kalleberg and Griffin, 1978; 1980; Robinson and Kelley, 1979; Aldrich and Weiss, 1980) pose class mechanisms at the societal level which influence individual attainment (worker units) through imperatives acting upon institutions (industries and sectors), organizations (firms), and roles (jobs).[7] But the organization of work within firms and the attributes and relationships among jobs are often bypassed in empirical applications of Marxian concepts to stratification concerns.[8]

Robinson and Kelley (1979:38), for example, sought to assess the veracity of Marx's and Dahrendorf's accounts of the "more conflict oriented aspects of stratification stemming from the hierarchical organization of work" in the United States and Great Britain. It is curious that the debate among these two perspectives—which centers around the relationship between technical and organizational imperatives in the workplace—should be reduced to regression models with dummy variables indicating how many subordinates one has and whether or not one has a supervisor or employer. According to Dahrendorf (1959), an emergent hierarchy of *technical skill* within the working class ostensibly makes obsolete Marx's rendition—which hinges on the gradual substitution of capital for labor and the concomitant deskilling, homogenization, and unification of the proletariat. In short, the two theorists disagree about both the overall trend in work organization *and* the relationship between technical, administrative, and political imperatives in the workplace. Had Robinson and Kelley focused on how technology and social relations of production within the firm combine to shape worker attitudes and attainments—and how the role of each has changed over time—perhaps they might have achieved a closer correspondence between their empirical results on the one hand and the levels of organization and units of theoretical concern on the other.

The correspondence between units of analysis and levels of social organization is even more ambiguous in empirical research motivated by non-Marxian "dualist" and "segmentation" perspectives. Institutional economists have variously differentiated jobs, firms, labor markets, and industries into segments or sectors. Averitt's (1968) widely cited work, for example, distinguishes between center and periphery *firms* based on their organizational resources and their resulting ability to manipulate institutional environments. While many center firms are located in certain key *industries* (p. 66), "it is economic size, not industrial location, that defines firms in the center economy." Bluestone (1970), Piore (1975), Edwards (1979), and others differentiate *labor markets* into primary and secondary segments. According to these schemes,

[7] Thus, like adherents of the "industrialism thesis," many Marxists derive and analyze micro level processes from transformations presumed to operate at macro levels. Of course, a complete Marxian account would encompass the dialectical relations between individual and societal level relations. However, the feedback effects of individual workers on the seemingly deterministic control imperative have only recently been considered in neo-Marxian accounts of work organization (e.g., Aronowitz, 1978; Burawoy, 1980).

[8] To be sure, Marxists recognize that the "logics" of capital accumulation and class struggle (at the macro level) permeate institutions, organizations, and roles in affecting the life chances of individual workers. Industrial structure is seen as increasingly bifurcated between monopolistic and competitive sectors, reflecting the concentration and centralization of capital, the political power exercised by industrial elites through interlocking corporate directorates, and State intervention on their behalf (Baran and Sweezy, 1966; O'Connor, 1973). Struggles within and among unions at the industrial and firm level are seen as fragmenting the working class (Aronowitz, 1973), as are efforts by owners and managers to deskill and homogenize work at the enterprise and job level (e.g., Braverman, 1974; Marglin, 1974; Stone, 1974). But empirical efforts to link Marxian theory to stratification outcomes rarely model the effects of such intervening forces.

the pricing and allocation of labor and the linkages among jobs both within and between firms differ markedly across labor market segments. Empirically, jobs in primary markets are most often situated in center firms and key industries, while jobs in secondary markets occur disproportionately in periphery firms and competitive (O'Connor, 1973) or unconcentrated (Bluestone, 1970) industries.

In short, theories of dualism and segmentation suggest quite a number of conceptual and empirical links between sectors, firms, jobs, and the labor markets through which individual workers obtain employment, but schemes for differentiating jobs, firms, and industries are by no means interchangeable. Unfortunately, the new structuralists have, for the most part, been inattentive to *differences* among perspectives in the levels and/or units emphasized, and the mechanisms posited to link them. Instead, as we have suggested, the dualism and segmentation literatures have served to rationalize various ad hoc schemes for assigning workers to sectors, most often simply on the basis of crude industrial classifications. Far from revealing how work arrangements are structured at various levels of social organization—a principal concern of these institutional approaches—such research efforts at best provide a "reduced form" representation of the structure of work and its effects on individual attainment. Below, we examine more closely the causal imagery of the dominant perspectives on work organization, relying on our heuristic scheme to determine the areas of consensus and disagreement among them.

CLARIFYING THE ISSUES: CONFLICT AND COMPLEMENTARITY AMONG PERSPECTIVES

Though often overlooked, a coherent statement of how work is arranged at different levels of organization can be found (at least implicitly) in conventional studies of achievement. The thesis of "industrialism," which underlies most status attainment research, does not ignore "structure," but differs radically from the stance of its structuralist critics. Consider how Blau and Duncan (1967:429) conclude:

> The basic assumption underlying these [empirical] conjectures is that a fundamental trend toward expanding universalism characterizes industrial society. Objective criteria of evaluation that are universally accepted increasingly pervade all spheres of life and displace particularistic standards of diverse ingroups, intuitive judgments, and humanistic values not susceptible to empirical verification. The growing emphasis on rationality and efficiency inherent in this spread of universalism finds expression in rapid technological progress and increasing division of labor and differentiation generally, as standards of efficiency are applied to the performance of tasks and the allocation of manpower for them. The strong interdependence among men and groups engendered by the extensive division of labor becomes the source of their organic solidarity, to use Durkheim's term, inasmuch as social differentiation weakens the particularistic ingroup values that unite men in common bonds of mechanical solidarity.

It is clear from this passage that the industrialism thesis infers micro level phenomena from macro level processes. As we suggested above, at the *societal* level social differentiation generates change, including transformations of work. Indeed, the application of technical rationality eventually makes work—specifically, occupational roles—the most salient characteristic defining individuals' positions in the social structure (Blau and Duncan, 1967:6; Treiman, 1977:chap. 1). Technical proficiency and individual performances increasingly become the bases for allocating persons to those roles.

According to this thesis, *organizations* are simply microcosms of society (Blau and Scott, 1962). As societal differentiation progresses inexorably, organizations approach the Weberian ideal-typical bureaucracy in which calculable rationality is applied to the organization of work (Parsons and Smelser, 1956:113; Treiman, 1977:9–11). Blau et al. (1976:39–40), for example, succinctly suggest how industrialism operates at the level of the firm:

> As education expands further and growing proportions of the labor force acquire technical and professional competence, the adaptation of computer technologies to pro-

duction and office work will undoubtedly take these higher skills into account. While it is possible to automate many operations without raising the skills workers use, a highly trained labor force makes this increase unnecessary. Hence, one can expect the growing automation of factories to raise the level of skill and responsibility of workers.

Correspondingly, this perspective views the *institutional* structure of industrial sectors as a reflection of how the technical division of labor has advanced historically from agriculture to manufacturing to information-based services as the center of economic and social organization (Clark, 1951; Kerr et al., 1964; Lenski, 1966; Bell, 1973).

The dominant perspective on work organization among economists—neoclassical micro theory—has its own version of the technological imperative. Neoclassical theories of the firm also assign primacy to rationalization and technological progress, but are more clearly grounded at the organizational level of analysis. The firm's production function expresses a technical relationship: the amount of output produced by different combinations of factor inputs. Given the prices of output and factor inputs, profit-maximizing enterprises employ each factor until the marginal contribution to firm revenue no longer exceeds the marginal cost of using the factor. The mix of factors, including different types of capital and labor, is solely a function of their relative productivities and prices. The supply of job relevant individual abilities, preferences, and human capital endowments combines with the derived demand for labor generated by firms' productive efforts, thereby linking individuals, roles, and organizations (Addison and Siebert, 1979). At the institutional level, the market structure of an industry is derived either from technical relationships at the organizational level (e.g., declining long-run average costs) or from exogenously imposed conditions such as governmental franchises (Hirschliefer, 1976:275). Similarly, the societal level impinges on the theory in the guise of aggregate "general equilibrium," constrained by external arrangements effected by government, geography, international trade, and the like.[9]

In attempting to redress the individualistic flavor of industrialist and neoclassical approaches to inequality and work organization, the new structuralist research has often drawn on insights from Marxian, institutional, and/or organizational frameworks. However, too little attention has been focused on how (or whether) the latter cohere into a unified alternative conceptualization of the structural bases of stratification. Accordingly, we think it prudent to compare how these perspectives embrace each level of social organization.

We have already noted how Averitt (1968) defines the dual economy by distinguishing between center and periphery firms. The linkage with institutional and societal levels is established by what might be called "dualist historiography" (Berle and Means, 1932; Chandler, 1962; 1977; Shepherd, 1975; Caves, 1980). It is claimed that firms implemented mass and process technologies and initiated new strategies of coordination and control as an adaptive response to changing markets. But not all firms experienced the combination of market, technical, and administrative preconditions which made it possible to adopt the new form of corporate structure—that is, decentralized, vertically integrated, multidivisional, diversified, etc. (Chandler, 1962). The requisite conditions occurred most often in certain key industries (Averitt, 1968), resulting in a new institutional order of industrial *sectors*. Galbraith (1967; 1973) and others have linked these developments to the *societal* level by emphasizing the emergence of the planning function within large corporations and the state, which, in turn, shapes the national (and international) economy and polity.

[9] While the application of technical rationality is central to *both* neoclassical and industrialism approaches, the former perspective is less "structural," predicated upon the rational maximization behavior of individual economic agents. Institutional and societal phenomena are simply aggregations of that behavior. In contrast, social differentiation "drives" the industrialism thesis at the societal level, as the irreversible progress of the division of labor is played out at more micro levels of organization.

Neo-Marxian and dualist accounts stress some of the same processes and mechanisms, but the perspectives vary in assigning priority to different levels of social organization (Gordon, 1972:85–96). As we have indicated, neo-Marxists typically start with class relations and capital accumulation at the societal level and derive implications for micro levels of social organization. However, dualists begin at intermediate levels—role, organization, sector—from which societal and individual level consequences can be derived. Theories of *internal labor markets* link the organizational, role, and individual levels in dualists' accounts of work. Job ladders define promotion, skill, and supervision hierarchies within the firm, and the need for minimal labor turnover determines which individual attributes become the criteria for selection into entry level jobs (Thurow, 1975). Small periphery establishments without internal labor markets supposedly have job structures which differ markedly from those found in center firms—few well-defined promotion lattices, fewer levels of supervision, and relatively low skill requirements. Individual attributes such as "trainability" and long-term commitment to the firm should be less important criteria for selection into jobs in the secondary labor market (Freedman, 1969; 1976; Doeringer and Piore, 1971; Gordon, 1972; Harrison, 1972).

While both neo-Marxian and dualist explanations are often posed in opposition to those of neoclassical economics or attainment research (Gordon, 1972), it is not always clear how (or if) the different views directly conflict. For example, the processes represented by "deskilling" and the "control imperative" might be viewed simply as elaborations of the calculus of marginal substitution whereby capital replaces labor (or vice versa). Such a neoclassically inspired perspective would explicitly recognize the costs of administrative uncertainty introduced whenever labor is employed as a factor in production. Similarly, neoclassical economists have long recognized the consequences of skill specificity for training, labor turnover, and advancement, which are not inconsistent with the notion of internal labor market structures (Oi, 1962; Becker, 1964; Rosen, 1974:438; Wachter, 1974).

Perhaps the most conspicuous and significant disagreements among these diverse perspectives concern the causes of the historical development of work. While both the industrialism thesis and neoclassical theory regard contemporary economic organization as an outcome of increasingly rationalized and efficient productive arrangements, neo-Marxists argue that the logic of capitalism embodies a social control imperative within that technical division of labor. Task differentiation and the substitution of capital for labor are not simply matters of engineering and economics, confined to the realm of production functions and the calculus of marginal costs and revenues. Rather, division of labor and automation of production are implemented in a manner which also maximizes the control of capitalists and managers over the production process. The control imperative brings about the separation of work conceptualization from execution, a homogenization of labor which artificially differentiates work in a manner only loosely related to skill differentials (Braverman, 1974), the implementation of internal labor markets to placate and regulate workers in monopoly industries (Stone, 1974), and creation of a reserve army of the unemployed to help "discipline those inside the factory gates" by posing a threat to their job security (Gordon, 1977:94).[10]

Neo-Marxian accounts thus typically regard work arrangements as outcomes of the logic of capital in which social control is inextricably linked to accumulation and profit extraction. While couched within a

[10] There seems to be an inconsistency between radical and internal labor market perspectives on this matter. Doeringer and Piore (1971) and others maintain that firm-specific skills are a crucial feature of jobs in internal labor markets, and that nonentry level jobs are insulated from wage competition (Thurow, 1975). In that situation the "reserve army" poses little threat, since its members are not substitutes for the specifically trained workers protected by internal job ladders. Thus, workers as well as employers in center firms may develop an interest in maintaining organizational arrangements which in effect export the threat of the reserve army to the periphery.

broader historical view, Marxian theory also suggests specific expectations regarding *contemporary* work organization. Note, for instance, that the logic of job fragmentation and hierarchy fetishism implies the existence of more highly differentiated and authoritarian work structures within certain firms than could reasonably be ascribed to considerations of technical efficiency. Thus, disagreements among perspectives largely reflect different views of the decision-making process *within firms*, especially with regard to the adoption and management of innovations in the workplace. For example, some argue that internal labor markets are established for reasons of technical efficiency (Doeringer and Piore, 1971), while others emphasize their functions as mechanisms of social control (Stone, 1974). Approaching employment relations in terms of the features and costs of "transactions" within the organization, Williamson (1975:72–81) derives an explanation of the same structural arrangement which entails *both* its efficiency and control aspects. Hence, even if the structuralists were to subject the internal workings of organizations to detailed empirical scrutiny, it is not clear that their findings would indicate which of several structural perspectives is most viable. As David Gordon (1972:129–30) notes, it is difficult to discover employer motivations regarding the design of work; one must rely on indirect inferences. In addition to historical case studies he suggests that

> one might try to infer from comparative studies some evidence about the direction of employer choices. Given firms which employ the same technologies in different social settings, one might try to adduce something about the consequences for job design of alternative social objectives.

Further, Gordon underscores the irony that most analyses which have sought to contrast Marxist, dualist, and more orthodox accounts have relied primarily on macro level data, even though these perspectives can most readily and meaningfully be contrasted by analyzing firms and their internal workings. Much of the new structuralism has been inattentive to the different models of administrative decision making which underlie competing perspectives. Investigators have sought to address debates about the distribution and consequences of authority, power, or social control within firms without considering the ways in which hierarchies are arranged or implemented at the organizational and suborganizational level (Wright and Perrone, 1977; Kluegel, 1978; Stolzenberg, 1978; Robinson and Kelley, 1979; Wolf and Fligstein, 1979). For example, without knowing explicitly how managers define, price, and evaluate different types of labor (including management itself) and the respective productivity of each type, it is impossible to discriminate satisfactorily between accounts of deskilling which stress utility maximization of a dominant managerial coalition on the one hand (e.g., Galbraith, 1967; Chandler, 1977) and those which emphasize capital's inherent logic of exploitation and hegemonic control (e.g., Braverman, 1974; Edwards, 1979). For this reason, it is specious to infer support for a particular account of work organization simply from evidence which is not inconsistent with competing viewpoints (cf. for example, Snyder et al., 1978; Baron, forthcoming).

These disputes are not without consequences for ongoing debates among students of structural aspects of inequality. Specifically, analyses of the structure of work and how it changes over time embody some assumptions (most often implicit ones) about *who* decides how work will be organized and what *criteria* are employed in making those choices. Thus, differences among structuralist perspectives often reduce to disagreements about what motivates those who decide on behalf of the firm.

BRINGING THE FIRMS BACK IN: ORGANIZATIONS AND THE STRUCTURE OF WORK

If firms are indeed "where the action is," then social scientists interested in the structure of social inequality should find the vast literature on complex organizations illuminating. Surprisingly, with just a few exceptions, the literature on organizational structure, technology, and social control has been largely ignored in both new structuralist empirical research

and dualist theory. To be sure, organizational sociology provides an implicit or explicit rationale for the topics examined in a number of structural analyses. However, as we noted, many such studies are linked to organizational theory merely by virtue of including authority variables within individual attainment models, even though the organizational context within which authority is exercised is ignored. Indeed, almost all structural stratification research addressing "organizational" concerns focuses on the consequences of a person's location within the firm for his or her attainment (e.g., Talbert and Bose, 1977; Halaby, 1979; Rosenbaum, 1979), but not on the relationship between an individual's tasks and position on the one hand, and those of supervisors, subordinates, and co-workers on the other. In short, there is little attention to how work is actually arranged within enterprises.[11] Interfirm differences in work organization either are expressed in terms of some single dimension, such as size, or are dismissed altogether (as in studies of "industry effects").

Yet even a superficial overview of the organizational literature sensitizes one to the difficulties encountered in accurately characterizing organizational structures and processes. Concepts and measures of technology have been intensely debated (Bright, 1958; Amber and Amber, 1962; Woodward, 1965; Perrow, 1967; Hickson et al., 1969; Lynch, 1974), to say nothing of its relationship to the internal structure of the organization (Aldrich, 1972; Child, 1972; Van de Ven and Delbecq, 1974; Blau et al., 1976). Even such a seemingly straightforward concept as organizational size—which figures prominently both in theories of dualism (Averitt, 1968) and empirical applications (Bibb and Form, 1977; Stolzenberg, 1978; Aldrich and Weiss, 1980; Kalleberg et al., 1980; Kaufman et al., 1980)—has generated about as much debate (still unresolved) in the organizations literature as has "class" in the stratification literature (see Kimberly, 1976, for an overview). Furthermore, as noted earlier, the claim of structural and technological homogeneity within organizations or industries—assumed in most sociological and economic accounts of work—is inconsistent with recent research.

Despite problems of conceptualization and measurement, there are also several provocative organizational analyses of the relationship of technology and size to alternative strategies of power and dominance within the firm (Burns and Stalker, 1961; Indik, 1964; Blauner, 1964; Pondy, 1969; Child, 1973; Freeman, 1973; Ouchi, 1977), often focusing on issues strikingly similar to those raised in studies of segmentation and labor stratification. Most importantly, "profit maximization" as an administrative imperative has been criticized from a variety of theoretical standpoints. Typically, institutional economists formulate the challenge in terms of a dichotomy between models of "profit maximization" and "utility maximization" or "managerial discretion" (Williamson, 1963; 1975; Galbraith, 1967; Pondy, 1969). Radical economists (e.g., Gordon, 1972; 1976; Marglin, 1974; Edwards, 1975; 1979) juxtapose "qualitative" and "quantitative" efficiency; like dual labor market theorists, they (Gordon, 1972:129–30) suggest

> that there is a frontier of job design possibilities, given a specific technology, which promise[s] equally efficient production in output per worker terms. Employers then choose a point of production organization along the frontier which satisfies some other objectives. One can easily hypothesize, especially from the radical perspective, that employers choose along the job design frontier in order to maximize the stratification of labor and to minimize class consciousness within the potentially most dissatisfied strata.

However, based on organizational theory, one can also easily hypothesize that employers choose to pursue some

[11] A noteworthy exception is the research by Melvin Kohn, Carmi Schooler, and their associates (e.g., Kohn and Schooler, 1973; 1978; Miller et al., 1979) which examines the relationships between "structural imperatives of the job" and workers' psychological functioning. However, these structural imperatives (e.g., "ownership," "organizational locus," and "occupational self-direction") span several levels of social organization. Furthermore, this research has focused primarily on the causes and consequences of individual psychological "attainments" (e.g., intellectual flexibility), treating the imperatives of work as exogenous.

other objectives in addition to (or instead of) profits. As the institutional (and some neoclassical) economists argue, managerial discretion may be applied to administrative decision making in order to maximize a utility function which includes managers' (or owners') preferences for growth, maximum sales, perquisites, stability, or even for the proliferation of management itself (see Nicholson, 1978:269–77 for an example of how neoclassical orthodoxy treats alternatives to the hypothesis of profit maximization). Alternatively, managers may "satisfice" (Simon, 1957)—that is, adopt some strategy (optimal or otherwise) which fulfills their aspirations, based on limited information. Or employer choices may perhaps affect outcomes only through a complex process of intraorganizational negotiation among potentially competing coalitions (Cyert and March, 1963; Leibenstein, 1979).

In short, since the distribution and dispensation of *power* within firms are central foci of competing theories of work organization and stratification, researchers interested in the structures which frame socioeconomic achievement can ill afford to continue treating firms as "black boxes" in their empirical analyses (Pfeffer, 1977; Stolzenberg, 1978; Pfeffer and Ross, 1979). Extant theory and data pertaining to the organization of work certainly preclude any definitive analyses of the relative merits of reigning structuralist perspectives. Nonetheless, a great deal could be gleaned by examining the relative veracity of competing accounts through empirical studies addressing: (1) the dimensions which differentiate work settings; (2) the relationship between organizational characteristics and linkages among jobs; and (3) how (and *why*) the structure of work roles within a firm changes over time. For example, do technical and administrative arrangements within firms reflect a cleavage between monopolistic and competitive industrial sectors? Do relations among jobs within large center firms reflect more detailed and clearly defined layers of promotion, skill, and dominance than in periphery enterprises? Do changes in work organization over time indicate the operation of an incipient control imperative—manifested in deskilling and/or homogenization of labor—which is not reducible to the marginal calculus of neoclassical micro theory?

These concerns conspicuously highlight the importance of *organizations* as the crucial entities within which work is structured and underscore the relevance of the literature on complex organizations and administration for debates about the causes, trends, and consequences of positional inequality. It may be that characteristics of individuals are easier to conceptualize and measure than are attributes of the "empty places" within the stratification system (cf. Burawoy, 1977), perhaps explaining both the emerging consensus among researchers about the need for analyses of "structure" and their lack of agreement on how to undertake them. In the following section we outline a course for future structural studies; to demonstrate the feasibility of our suggestions, we restrict our discussion of hypotheses and models to those capable of being examined with *extant data*, using examples from our own ongoing research as illustrations (Bielby and Baron, 1979; 1980).

A RESEARCH AGENDA FOR THE "NEW STRUCTURALISM"

The Contours of Dualism: Units Comprising the Structure of Work

This essay has suggested that researchers employing dichotomies (or polychotomies) of sectors, markets, occupations, industries, and the like have often devoted too little attention to *what* is being dichotomized—that is, at which levels of organization and from which units work is structured. Since the fondness of stratification researchers for achievement studies employing sectoral typologies seems to be increasing inexorably, we suggest that detailed empirical studies of how (or whether) dualism or segmentation is constituted are an essential precondition for making sense of the new structuralism. As argued above, occupations and industries are quite heterogeneous, and are of limited relevance to many of the structuralists' concerns.

Therefore, we suspect that job- and firm-level analyses can more meaningfully portray the structure of work than can the growing literature analyzing occupational or industrial data (e.g., Rosenberg, 1975; Freedman, 1976; Lowell, 1978; Oster, 1979; Kaufman et al., 1980; Tolbert et al., 1980; Wallace and Kalleberg, forthcoming).[12]

An illustration: The dualist and segmentation literatures (e.g., Averitt, 1968; Bluestone, 1970; Gordon, 1972; Edwards, 1975) suggest that the attributes of firms listed in Table 2 are among those which should differentiate economic sectors.[13] Preliminary support for the dualism hypothesis would be provided if such characteristics successfully discriminate among industries and if the latter cluster into clearly bounded sectoral groupings. Since firm-based dualism is conceptually distinct from industrial differentiation, and, given the remarkably weak consensus among several industry-based schemes for classifying sectors, we would not expect to find overwhelming evidence of dualism at the *institutional* level of analysis. Furthermore, while many of these bivariate hypotheses are plausible, we have argued in this essay that sectoral differences in work organization have been overstated.[14] For example, while dualist and segmentation approaches regard the center/periphery distinction as approximately dividing the labor force in terms of skill (see Table 2), we expect such overall differences in skill *level* to be small. Research by Blauner (1964), Bright (1958), and others indicates that the transition to highly capitalized and/or automated technologies—such as those which purportedly characterize the core—do not necessarily engender any monotonic rise in skill levels, although they do appear to increase the *variation* in workers' skills.[15]

Thus, our aim in formulating and testing these hypotheses would be neither to "prove" nor to "refute" structuralist theories of work and inequality, but rather to provide a more detailed specification of where the organization of work does and does not correspond to their predictions. Moreover, while such theories typically base their sectoral distinctions on different patterns of work arrangements, most industrial data used to derive sectoral typologies (e.g., mean assets, business receipts, state purchases) are proba-

[12] To study the structure of "empty places" or work roles, we need to develop methods for acquiring and analyzing data on positions rather than on individuals. Our own work in progress utilizes data describing jobs and work establishments in California collected by its Occupational Analysis Field Center for the United States Employment Service. Since the late 1950s, the Employment Service has conducted field visits of establishments in over 100 industries, obtaining complete enumerations of all jobs within firms; the administrative and technical structure of each establishment; the sex composition, educational and skill requirements, and psychological concomitants of jobs, as well as their placement within networks of promotion, supervision, transfer, and vocational preparation. "Narrative reports" furnish a wealth of qualitative information about establishments' formal and informal personnel practices; collective bargaining arrangements; corporate age, history, and structure; production processes and departmental organization; firms' relations to automation, product markets, parent companies; and related matters. A number of enterprises were also revisited some five to ten years later, providing follow-up data with which to analyze temporal changes in work organization. The empirical illustrations which punctuate this research agenda are based largely on our continuing analyses of these data. (For a full description of this data source and how key variables are operationalized, see United States Department of Labor, 1972; Bielby and Baron, 1979).

[13] With the possible exception of "production continuity," the attributes listed in Table 2 should be familiar to students of stratification and segmentation. See Blauner (1964), Meissner (1969), and Caves (1980) for representative overviews of this concept and its consequences for work organization.

[14] It should be apparent that we expect a number of these attributes to vary substantially *within* firms, even though they are frequently used as criteria for characterizing (or even defining) economic sectors. Accordingly, we expect empirical analyses of hypotheses such as those listed in Table 2 to demonstrate two things: (1) that differences among sectors in the *level* of certain attributes are modest; and (2) that industries, firms, departments, and jobs each display substantial heterogeneity not captured by current sectoral schemes.

[15] Kalleberg and his colleagues (1980) regressed occupational skill (SVP) on a series of individual demographic and work experience variables and four dimensions of economic segmentation. Net of the person-level factors, they found that while economic scale of an industry and relative state consumption of its product had positive effects on SVP, concentration had no effect, and establishment size exercised a substantial *negative* influence (also see Baron and Bielby, 1980).

Table 2. Hypothesized Distributions of Firm Attributes by Sector

Firm Attribute	Sector	
	Core	Periphery
1. Scale of operations	Large	Small
2. Vertical integration	High	Low (or absent)
3. Division of multiestablishment organization	Yes	No
4. Skill level	High	Low
5. Skill dispersion	Dispersed	Homogenous
6. Internal labor markets	Yes	No
7. Task complexity	Complex	Simple
8. Social control (mode of supervision)	Bureaucratic	Simple hierarchy
9. Collective bargaining contract	Yes	No
10. Production continuity	High	Low
11. Capital intensity	High	Low
12. Sex composition	Predominantly male	Predominantly female

bly less representative of how work is actually organized within firms than are variables such as those listed in Table 2. To test this assertion, one could compare a multidimensional configuration of industries based on such job and firm attributes against one based on the industry-level variables typically used to determine sectors.[16] If these configurations differ, then schemes in which distinctions among firms are subsumed completely at the industrial level are likely to obscure important sectoral divisions at the organizational level.

Having thus investigated "industrial dualism," segmentation among organizations could be further explored by examining the distribution of firms on the attributes listed above. For example, analyses of the covariation among firm attributes should differentiate firms in a manner consistent with the twelve bivariate hypotheses listed in Table 2. Organizationally based dualism would be evident if firms clustered into center and periphery sectors in the resultant multidimensional space. If, as Averitt argues, dualism is generated by differences among firms and the institutional structure is not strictly demarcated by industries, then a specific pattern should emerge from the analysis of industrial differentiation proposed above. First, firm attributes should discriminate moderately among industries; second, *firms* should exhibit stronger tendencies toward sectoral clustering than do industries. Furthermore, industries with ambiguous sectoral locations should be precisely those about which there is most disagreement in the various a priori schemes for assigning industries to sectors (see Zucker and Rosenstein, 1980).

Finally, a parallel analysis would discriminate firms on the basis of *job* attributes that are presumed to vary between center and periphery. For example, task specificity and complexity, promotion opportunities, bureaucratic control, and male composition have all been advanced as characteristics of "primary" jobs in center firms. Dualism at the organizational level would be supported if such job attributes differentiate firms into core and periphery locations.[17] The relative importance of each job attribute in discriminating firms would assist in evaluating various perspectives on work organization and economic dualism which, as we have seen, accord differential emphasis to specific aspects of jobs.

Institutional economists (Averitt, 1968; Doeringer and Piore, 1971; Williamson, 1975) have argued that "markets" and "hierarchies" are two different "rational" responses to the problem of organizing production; large firms have greater incentive to internalize the market through organizational rules and procedures, while similar arrangements are of

[16] Such configurations could be obtained using a number of descriptive multivariate statistical techniques, such as discriminant and cluster analysis; for some detailed illustrations, see Bielby and Baron (1979).

[17] Since the correspondence between core/periphery sectors and primary/secondary labor markets is far from perfect, one might find a "deviant" cluster of firms containing *both* primary and secondary production. jobs.

limited utility within small firms. If so, then this should be clearly reflected in the pattern of such results on the extent of dualism or segmentation, the crucial level(s) of analysis at which it prevails, and the dimensions of sectoral structure. Failure to detect cleavages at the industry and firm level of analysis would certainly discredit segmentation accounts. Of course, evidence of dualism or segmentation is not necessarily inconsistent with a neoclassical economic model incorporating imperfect competition and the costs of information and firm-specific training. But, unless sectoral differentiation corresponds to industry differences in capital concentration and composition, it is unclear how other patterns of "clustering" could be accounted for within a neoclassical framework.

The Impact of Dualism: Sectoral Location and the Firm's Internal Job Structure

In a recent review of directions in stratification studies, Udy (1980:157) notes how early researchers' focus on occupations and status "did not require [them] to penetrate organizations, observe the tasks and constraints of the immediate job, [or] the degree of authority and control it conveys. . . ." Despite their avowed concerns with these very phenomena, the new structuralists have done little to redress these glaring omissions. Naturally, we would not expect the analyses outlined in the previous section to reveal a crystal-clear portrait of the dual (or segmented) economy; indeed, a good deal of prior research cautions against such an expectation (Freedman, 1976; Kaufman et al., 1980; Wallace and Kalleberg, forthcoming). However, anticipating at least *some* evidence of economic segmentation, the most obvious question to be examined in turn is: what are the empirical consequences of sectoral differentiation for work arrangements within firms?

As noted above, a major dispute among rival theories of economic organization concerns "the complicated relationships among *technology, jobs, and people*" and changes in those relations over time (Gordon, 1972:89, his emphasis). In the remainder of this subsection, we suggest some illustrative analyses of those relationships and how they differ across sectors. Then we consider how historical changes in such relations can be studied.

An illustration: We focus on relationships between sectoral location and three critical dimensions of the internal job structure of firms—their internal *task differentiation* or division of labor, their *internal labor markets* or promotion ladders, and their *control mechanisms* or supervision hierarchies.

Table 3 presents the hypothesized net relationships between each of twelve firm attributes and these three dimensions of the firm's nonadministrative job structure.[18] Some of these hypotheses have been drawn directly from dualist and organizational perspectives, while others reflect our interpretations of how those accounts view technology and social control in relation to work arrangements. As our discussion throughout should indicate, we think certain of these hypotheses (e.g., the correspondence between sectoral location and the structure of internal labor markets) are either incorrect or drastically overstated. Nonetheless, we regard Table 3 as a "fair" characterization of what dualist, segmentation, and organizational perspectives imply about the determinants of task differentiation, promotion hierarchies, and control mechanisms. Notice that a majority of relationships are hypothesized to differ between center and periphery firms. A fairly stringent test of a generalized dualism hypothesis would be provided by evaluating these differences in firms with unambiguous sectoral locations. Space limitations obviously preclude reviewing and substantiating each of the 69 hypothesized relationships in Table 3, so an overview of the more important ones must suffice.

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[18] We focus on nonadministrative (i.e., production) jobs for two reasons. Most importantly, organizational research has repeatedly demonstrated that technological and administrative forces exercise their influence most conspicuously at and around the workflow (e.g., Hickson et al., 1969; Grimes and Klein, 1973; Van de Ven and Delbecq, 1974). Additionally, these illustrations were selected from our own research, which utilizes data pertaining primarily to industry-specific (i.e., production-oriented) jobs (see Bielby and Baron, 1979).

Table 3. Hypothesized Relationships between Firm Attributes and the Structure of Nonadministrative Jobs within Firms

	Dimension of Internal Structure					
	Task Differentiation		Internal Labor Market		Levels of Supervision	
Firm Attribute	Center	Periphery	Center	Periphery	Center	Periphery
1. Task Complexity	++	++[a]	++	0	++	+
2. Skill Level	++	0	+	0	−	0
3. Skill Dispersion	++	0	+	0	+	+
4. Skill Specificity	++	+[a]	++	0	+	0
5. Scale	++	+	++	0	++	+
6. Sex Composition (% female)	−	−−	−−	−−	−	−−
7. Craft Union	++	+	++	+	+	0
8. Industrial Union	−	−−	++	+	?	?
9. Production Continuity	++[b]	+[b]	?	0	inverted U	inverted U
10. Capital Intensity	++	+	+	0	+[c]	+[c]
11. Age of Establishment	0	0	+	0	0	0
12. Sector Main Effect	+	−	+	−	+	−

Net Relationships: Strong positive (negative) relationship: ++ (−−)
Moderate positive (negative) relationship: + (−)
No relationship: 0
No hypothesis: ?

Notes:
[a] Much less variation is expected in the periphery; therefore the standardized effect should be much weaker in periphery firms.
[b] Perhaps inverted U.
[c] Increasing at a decreasing rate.

Also, the table does not present hypotheses relating outcome variables to interactions among firm attributes, even though they might be defensible on theoretical grounds.[19]

Task differentiation—the subdivision of work into a number of component jobs—may be a consequence of technical or control imperatives. The *technical* division of labor simply reflects the efficiency of task specialization, but differentiation as a strategy of domination should control the work force through fragmentation in bureaucratically organized firms, while "simple hierarchy" is more easily exercised over a homogeneous work force (Child, 1973; Edwards, 1975; 1979). The hypothesized positive relationships between differentiation and complexity, skill, scale, and technology variables among center firms reflect the operation of the technical imperative, which is reinforced by a tendency for technical and bureaucratic control strategies to accompany specialization. In the periphery, however, simple hierarchy (in which power is still personal rather than systematized within roles) should be the more prevalent mode of dominance, and the strategic effort to homogenize work should attenuate the effects of the technical variables (Edwards, 1979).

Efforts to deskill and homogenize work often produce (or take advantage of) an increasingly larger proportion of female workers, and such efforts should be most typical of periphery firms (Davies and Reich, 1972; Braverman, 1974). It is in the interest of craft unions to maintain skill hierarchies and detailed job descriptions, while industrial unions are more likely to mobilize an undifferentiated work force (Aronowitz, 1973). Therefore, the strategy of craft unions should be congruent with the prevailing technical and control imperatives in center firms, while the opposite should be true of industrial unions. On the other hand, core/periphery typologies

[19] For example, among center firms the ability of unions to implement internal labor markets may be contingent upon such factors as skill specificity, capital intensity, and age of the establishment (Doeringer and Piore, 1971). Moreover, technical constraints such as scale and production continuity may attenuate or accelerate the efficacy of control strategies (and vice versa). While such hypotheses have not escaped our attention, elaborating them here would complicate matters unnecessarily.

often construct sectors by combining industries in which craft *and* industrial unions predominate. For example, construction and mining are both regarded as core industries, while printing and garment manufacture are often assigned to the periphery. Indeed, firms within certain industries (e.g., metal trades) are often organized by either or both types of unions. Thus, it is quite possible that these hypotheses pertaining to the impact of unions would not be supported in analyses utilizing industrial classifications of economic sectors.

Internal labor markets are ideally suited to the bureaucratic mode of social control: they institutionalize and reduce conflict between management and labor; instill long-term commitment to the firm and reduce labor turnover among employees; and reinforce workers' interests in existing administrative arrangements. Therefore, according to dualist theory, internal labor markets should be virtually absent in periphery establishments, and particularly prevalent in large-scale, unionized, center firms where tasks are complex and skills are sophisticated, diverse, and firm-specific.

The number of levels of supervision among nonadministrative jobs is an indirect measure of bureaucratic social control (Child, 1973). Firms organized according to simple hierarchy have fewer levels of supervision between top management and the workflow. In contrast, bureaucratically organized firms have decentralized decision-making apparatuses which are likely to be reflected in multilevel supervision hierarchies (Stinchcombe, 1959).[20] Technical considerations such as the scale and complexity of operations are also likely to effect a proliferation of supervisory levels (Perrow, 1967; Blau and Schoenherr, 1971), although in periphery firms simple hierarchy is likely to attenuate trends toward vertical differentiation. For both sectors, we hypothesize the well-documented curvilinear relationship between production continuity and the expansion of supervisory levels (e.g., Blau and Schoenherr, 1971; Blau et al., 1976).

A crucial aspect of firm structure is left unexamined by such interfirm comparisons—namely, how jobs are connected relationally within an establishment. For example, the contours of supervision and promotion hierarchies among the production jobs within a firm—and their relation to such attributes as skill level, closeness of supervision, demographic composition, and on-the-job training—might be examined by applying any of a variety of sociometric techniques (e.g., Hubert and Baker, 1978) to data describing positional networks within a firm (cf. Moch, 1979). Dualist and segmentation accounts would suggest that center firms, in which internal ladders and bureaucratic control supposedly predominate, are likely to recruit production-level supervisors from within the establishment and to tie hierarchies of promotion and supervision to gradients of skill and firm-specific experience. Periphery enterprises, on the other hand, purportedly lack internal ladders of authority and career advancement, and are more likely to utilize simple hierarchy as a mode of dominance. Thus, networks of power and promotion should less faithfully reflect gradients of skill and training in the periphery.

A note on differences in work organization within sectors: Such a focus on the sociometry of jobs would certainly inform debates about sectoral variation in work organization. Moreover, it would also reveal how analyses of industrial segmentation obscure important differences in job arrangements from firm to firm. To illustrate this claim, we have constructed matrices which show the promotion and supervision links among production jobs for two chemical establishments contained in our sample of California firms (Figures 1a and 1b). In addition, the figures list the general educational development (GED) and specific vocational preparation (SVP) required for each job, and indicate whether the job is characterized by situations in which adaptability to vari-

[20] Edwards (1979) distinguishes "technical control" as an intermediate evolutionary form in the transition from simple hierarchy to bureaucratic control. This suggests a continuum of organizational control (rather than discrete categories) ranging from centralized and personalized to decentralized and systematized (also see Blauner, 1964).

	Job Title	P1 1	P1 2	P1 3	P1 4	P1 5	P1 6	P2 1	P2 2	P2 3	P2 4	P2 5	P2 6	P2 7	P2 8	P2 9	P2 10	P2 11	M1 1	GED	SVP	ARC	RPC	DCH	PSO	STS	PHY	SDE	M
P1-1	Foreman	-	S	S	S	S	S													4	7	1	0	1	0		L	
P1-2	Chief Operator	P	-				S													4	7	0	0	0	1		L	
P1-3	Operator I		P	-																4	7	0	0	0	1		L	
P1-4	Operator II			P	-		S													3	5	0	0	0	1		L	
P1-5	Operator III				P	-														2	2	0	0	0	1		M	
P1-6	Laborer					P	-													1	2	0	1	0	0		H	
P2-1	Foreman							-	S	S	S	S	S	S	S	S	S	S		4	7	1	0	1	0		L	
P2-2	Splitting Operator							P	-											4	7	0	0	0	1		L	
P2-3	Distillation Operator								P	-										3	6	0	0	0	1		L	
P2-4	Waste Water Operator									P	-									3	6	0	0	0	1		M	
P2-5	Pumper										P	-								3	4	0	1	0	1		L	
P2-6	Deionizer Operator											P	-							3	4	0	1	0	1		L	
P2-7	Twitchell Operator												P	-						3	4	0	1	0	1		M	
P2-8	Crystallization Operator													P	-					3	4	0	1	0	1		L	
P2-9	Methylization Operator														P	-				3	4	0	1	0	1		M	
P2-10	Fractionation Operator															P	-			3	4	0	1	0	1		L	
P2-11	Laborer																P	-		1	2	0	1	0	0		H	
*M-1	Plant Superintendent	S						S											-	5	8	1	0	1	0		L	

Figure 1a. Promotion and Supervision Links among Production Jobs in Chemical Plant "A" (see text for explanation).

	Job Title	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	M1	GED	SVP	ARC	RPC	DCH	PSO	STS	PHY	SDE	M
P1	Shift Supervisor	-	S	S	S	S	S	S	S	S	S	S	S	S	S	S		4	7	1	1	1	0	L			
P2	Leadman	P	-		S											S		2	3	0	0	0	0	H			
P3	Chemical Operator	P		-		S												3	5	0	0	0	1	L			
P4	Solution Operator				-								S			S		3	5	0	0	0	1	M			
P5	Chemical Operator Helper			P	P	-												2	2	0	1	0	0	M			
P6	Flaker Operator					P	-											2	2	0	1	0	1	L			
P7	Dust Plant Operator							-	S						S	S		3	5	0	0	0	1	L			
P8	Dust Plant Cnarger							P	-									2	2	0	1	0	0	H			
P9	Grinding Operator									-	S							2	2	0	1	0	1	M			
P10	Grinding Operator Helper									P	-							1	2	0	1	0	0	M			
P11	Bagger Operator						P					-						2	2	0	1	0	0	H			
P12	Container Filler Operator												-					2	2	0	1	0	0	M			
*P13	Lift Truck Operator						P							-				1	2	0	1	0	0	M			
P14	Dust Packager													P	-			2	3	0	0	0	1	L			
P15	Laborer		P						P		P	P	P		P	-		1	1	0	1	0	0	H			
*M1	Plant Superintendent	S															-	5	8	1	0	1	0	L			

Figure 1b. Promotion and Supervision Links among Production Jobs in Chemical Plant "B" (see text for explanation).

ety and change are important (VARCH), in which tasks are repetitive or continuous (REPCON), in which responsibility for the direction, control, or planning of an activity is required (DCP), and in which the precise attainment of set limits, tolerances, or standards is necessary (STS). The physical demands (low, medium, or high) of the job are also listed.[21] It should be underscored that these data pertain to typical "job-worker situations" which prevail within the establishment. They thus combine official policies of the enterprise with the analyst's observations of

[21] VARCH, REPCON, DCP, and STS are dummy variables with "1" indicating the presence of each temperament. For more information about data collection methods, definition of concepts, and measurement of these variables, see United States Department of Labor (1972). Production jobs which were not specific to this industry—and thus were not analyzed in detail by the Employment Service—are indicated in Figures 1a and 1b by an asterisk. Ratings for those jobs have been taken from published and unpublished data prepared for the third edition of the *Dictionary of Occupational Titles*.

what actually has transpired vis-à-vis specific jobs (and their incumbents) in a firm.

Figure 1a pertains to firm "A," a chemical plant involved in processing and purifying fatty acids. The parent corporation, now multinational, was founded in 1840, but this plant was established after World War II. The firm has 161 employees (of which 105 are involved in production), is unionized, and operates four shifts at two production sites located five miles apart. Fatty acids produced in one department ("P2" in Figure 1a) are the chief constituent of organic chemicals produced by the other ("P1"). All workers enter as laborers, and advance by a union bidding arrangement based on seniority rights.

The letter "P" in the matrix indicates that the job listed in that row can *promote* to the job listed in the relevant column. An "S" indicates that the row job *supervises* the column job. Figure 1a corresponds rather nicely to simplified conceptions of dual economy which characterize the chemical industry as belonging to the core, manifesting internal ladders of promotion based on skill and seniority. Like the chemical plant studied by Blauner (1964), firm "A" is organized departmentally, with rigid promotion ladders within each of its two production units (i.e., P1–1 through P1–6 vs P2–1 through P2–11). With the exception of laborers in the first productive unit, each job within a department is supervised by the foreman, indicating one level of administration per department. Foremen, in turn, report to the production superintendent (M1). These hierarchies faithfully reflect differentials among jobs with respect to educational and technical requirements (GED and SVP). In each department, only the foreman job is characterized by "variety and change" or "direction, control, and planning"; jobs toward the bottom of the promotion and supervision ladders are "repetitive and continuous." Adherence to predetermined tolerances or standards is important for all jobs except those at the bottom and the top of each department's hierarchy. Ladders of promotion and authority also correspond rather closely to the physical demands of work, with those at the bottom performing the most strenuous tasks.

Figure 1b presents comparable data for chemical firm "B." This establishment is in exactly the same four digit S. I. C. classification as firm "A," and of almost identical size (173 employees, of which 83 are engaged in production). Its administrative and operating procedures also seem to be virtually identical to those of firm "A": establishment "B" operates four shifts, is also part of a larger corporation, and is divided administratively into five departments (versus six for firm "A").

However, the authority hierarchy and the structure of opportunity implied by the promotion network are conspicuously different from those shown in Figure 1a. (Since the promotion ladder in firm "B" is especially difficult to decipher from Figure 1b—that is, one cannot permute the rows to obtain a systematic pattern of promotion—we have also expressed it graphically in Figure 1c.) Note that laborers (P15), for example, can be promoted directly to leadmen; indeed, union agreements stipulate that *only* laborers can be promoted to leadmen. (Laborers are also promoted into *five* other positions. Prevailing union practices allow laborers to bid for any position; however, the detailed job analyses indicate that laborers actually *do* move up as indicated in Figure 1c.) Leadmen, in turn, can move into supervisory positions, while dust plant operator (which requires greater educational and vocational training) is a "dead-end" job. Leadmen also supervise solution operators, even though the latter job again requires more educational and vocational preparation. A lift truck operator can promote to flaker operator, even though the latter job requires less training time (SVP).

In short, promotion and supervision hierarchies are considerably less orderly in this establishment. Entry level incumbents can in principle bypass certain "dead-end" jobs between the bottom and top of the departmental hierarchy. Moreover, gradients of skill and experience bear less relation to the structure of opportunity and authority. (There is also much less correspondence between levels of promotion and supervision on the one hand, and temperaments and physical

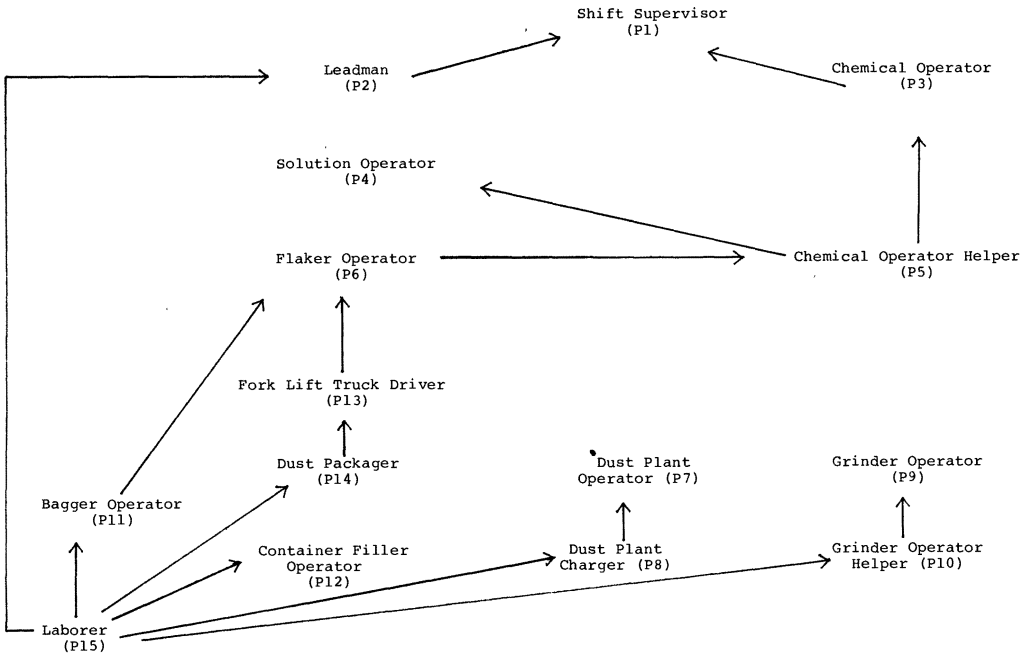

Figure 1c. Promotion Ladder within Chemical Firm "B" (adapted from Figure 1b; arrow[s] indicate job to which promoted).

demands of jobs on the other, at least compared to establishment "A.") Both chemical firms are represented by the same union, are located in the same state and detailed industry category, and, indeed, were analyzed by the same individual at the same point in time. Thus, any persuasive explanation of why these two establishments organize work roles so differently must move beyond simple, mechanistic notions of "dualism" or "segmentation," focusing on the concrete organizational and suborganizational determinants of promotion and supervision.[22] Of course, this is not to suggest that industrial distinctions are irrelevant, or that hypotheses inspired by dualist or segmentation approaches would not be helpful in distinguishing these establishments from those in some other industry.[23] However, as Burawoy (1979:245–6) notes,

> the distinction between competitive and monopoly sectors can explain only so much of the variation in the labor process. Differences within each sector are probably as great if not greater than differences between sectors.

[22] One conspicuous difference between the establishments involves the physical separation of departmental units in firm "A" but not in "B." This factor might explain, for example, the existence of two nonproduction jobs—shipping clerk and truck driver—within the organic chemicals department of firm "A." Presumably, these jobs involve transferring fatty acids from the other production site. However, another anomaly is apparently unrelated to this difference between establishments. While firm "A" employs its stock clerk in the maintenance department, the same nonproduction job is situated within the production unit of firm "B." The psychological and economic significance of work-unit location and structure has been documented in the chemical industry (Blauner, 1964; Gallie, 1978) and in economic organizations generally (e.g., Grimes and Klein, 1973; Van de Ven and Delbecq, 1974; Comstock and Scott, 1977). Thus, such differences in work organization among firms—which cannot be explained by simplistic theories of segmentation—are likely to have important effects on worker experiences.

[23] Indeed, network data of this type would be quite useful in examining such hypotheses. Normalized measures of "fit" between hierarchies of supervision, promotion, skill, training, and other job attributes can be computed for each firm (see, for example, Hubert, 1978). Such measures may then be employed as firm-level characteristics with which to test whether internal job structures do in fact differ across sectors.

The Trend in Dualism: Temporal Changes in Enterprise Work Organization

We suggested earlier in this essay that historical transformations in work organization—while central to disputes among students of inequality—have been largely ignored by researchers. The few empirical studies undertaken (e.g., Horowitz and Herrnstadt, 1966; Scoville, 1969; Dubnoff, 1978; Spenner, 1979) have done little to advance the debate, since differences among perspectives primarily concern how changes in work arrangements are instigated and implemented *within the firm*. Furthermore, most analyses have failed to consider rival explanations for the patterns of change documented.

An illustration: One could compare various structuralist perspectives against a neoclassically inspired alternative by studying temporal changes in numerous firm-level phenomena—for example: in the number of distinct jobs within the enterprise; the number of employees (by sex, race, etc.); degree of administrative intensity; or the overall level and degree of homogeneity of skill among jobs. For expository purposes, we select one of these—changes in the firm's "skill mix"—and outline analyses for manufacturing establishments.

According to neoclassical theory, changes in the quantity and quality of labor utilized should reflect the calculus of marginal substitution whereby factor inputs are employed until their marginal productivity and cost are equal. Assume, for the moment, that the firm is in perfectly competitive commodity and labor markets and that it experiences constant returns to scale; furthermore, we allow all factor inputs to be variable over the interval under study. Under these conditions, the mix of labor and capital (and of various types of labor) employed, far from reflecting any control imperative or the like, should be

> determined by purely technical properties of the production function relating the quantities of these inputs used and their respective marginal physical products. If we knew the exact form of the production function, we could predict the behavior of the factoral shares (Nicholson, 1978:419).

Thus, if perfect competition prevails, one could examine temporal changes in industrial capital expenditure and the prevailing wages paid to different classes of workers (grouped according to skill) on the one hand, and the value added by capital and labor on the other hand, in order to determine if this simplified base-line model "makes sense." In other words, one would follow neoclassical precedent by first assuming that firm decisions are derivatives of industrial conditions over which the perfectly competitive enterprise has no control.

Briefly stated, to the extent that this naive neoclassical model is accurate, changes in absolute and relative employment among various skill families should correspond to patterns of change in productivity and factor prices for the industry within which the firm produces.[24] Clearly, this model will fail to explain firm-specific changes in skill composition in many instances. This failure may only reflect the dubiety of assuming perfect competition or constant returns to scale. Thus, one would next conduct "deviant case" analyses to determine whether departures from this simplistic neoclassical scenario can be subsumed under more complex and realistic assumptions concurrent with neoclassical orthodoxy. For example, the types of data usually employed in studies of industrial segmentation index the structure of input and output markets, allowing an assessment of whether firm "deviance" is simply attributable to location within an industry which departs from perfect competition. Conditions of industrial instability—tapped by such variables as work stoppages—may also account for patterns of skill utilization not predicted by the base-line model, either because the specification of the production function is inappropriate for such industries, or because of the effect of uncertainty on administrative decision making. If, as radical theorists suggest, owners and managers

[24] Since the enterprise is assumed to be in perfect competition, published industry-level data (e.g., in the *Census of Manufactures*) documenting costs and productivities of classes of labor and other factor inputs should characterize the economic and technical constraints which guide the firm's decisions regarding productive arrangements.

typically respond to such uncertainty by fragmenting, deskilling, or homogenizing their work force, then firms should institute such changes in their skill mix even when "market forces" imply drastically different "rational" responses.

In sum, we envision a dispersion of firms around predicted changes in skill distributions based on a simple version of the neoclassical model. Indeed, segmentation theorists often grant the decisiveness of market forces within the periphery, and, thus, these naive predictions should depict patterns of change most accurately for firms located there. If critics of neoclassical orthodoxy are correct, the most drastic outliers should consist of center firms so insulated from market mechanisms that even the most generous variants of neoclassical theory cannot account for their behavior.

SUMMARY AND CONCLUSIONS

This essay has examined the recent shift toward more structural explanations in studies of inequality. After providing a brief overview of this body of research and some of its shortcomings, we examined its theoretical underpinnings, comparing structuralist perspectives on work organization derived from institutional economics and neo-Marxism to more orthodox accounts based on neoclassical and industrialism theories. This discussion, coupled with an examination of the levels and units of analysis adopted by various approaches, suggested areas where the different perspectives overlap and diverge. We concluded that social scientists interested in the structure of social inequality would benefit immeasurably by "bringing the firms back in"—that is, by incorporating organizational structure and process into empirical analyses of economic segmentation and work. Work arrangements within firms (and their trend) are the focus of most structural perspectives on positional stratification; thus, empirical studies grounded at the organizational level are more likely to inform current debates about the structure of work than is the growing body of research about structural effects on individual attainment or covariation among occupational and industrial characteristics.

Structuralists typically dismiss status attainment research by arguing that models of the socioeconomic career are misspecified unless they embrace the structures which organize attainment (e.g., Sørenson, 1975; Bowles and Gintis, 1976; Burawoy, 1977; Wright and Perrone, 1977; Beck et al., 1978; Stolzenberg, 1978). However, "structures," too, are not immune from misspecification. Unlike research on the person-level determinants of achievement, the new structuralism is not leading toward a cohesive set of findings, perhaps because structures have been either assumed or inferred from their consequences for individuals, rather than subjected to detailed empirical scrutiny. In an effort to correct that deficiency, we outlined an agenda for future research, focusing on three aspects of work organization: (a) the units which comprise the structure of work and the dimensions underlying economic segmentation; (b) the effects of sectoral differentiation on technical and administrative arrangements within the firm; and (c) temporal changes in how enterprises organize production. While data sources at the job or firm level are admittedly scarce, they do exist; each of the analyses outlined here is part of our own ongoing program of empirical research utilizing data collected by the United States Employment Service (Bielby and Baron, 1979; 1980).

We fully expect that more complete data on jobs, firms, and industries will be assembled by social scientists as they become increasingly fond of structural perspectives on social stratification. However, we think careful consideration of this new orientation—its underpinnings, strengths, weaknesses, and implications—is timely, before the emerging consensus about the importance of "structure" assumes the status of dogma and engenders a conditioned response among researchers to construct categorical variables.

Underlying our discussion is the conviction that the first step among structural stratification researchers must be to specify a theory of the relevant structure(s), and provide empirical re-

ferents which allow the veracity of that theory to be tested. To the extent that the various perspectives employed in structural research are scientifically useful, they must possess empirical content; as a consequence, the choice among them requires analyses which subject predictions of competing accounts to the possibility of meaningful empirical falsification. In our view, this aim is best accomplished neither by simply imposing (or justifying) a particular structure by fiat, nor by inferring it post hoc from its effects on the micro elements over which it is assumed to be logically and temporally prior. Rather, one must examine its constituent elements and the ways in which they are organized. Yet much of the recent structuralist achievement research either adopts a specific perspective (e.g., Marxism) to rationalize a model of attainment, or else assigns priority to the attainment model and justifies the importation of one or more substantive frameworks (e.g., dual economy theory, organizational sociology). In our view, issues of individual socioeconomic attainment should not detract attention from more fundamental questions regarding the characteristics of those structures which (presumably) shape achievement. By relating studies of segmentation and stratification more directly to the organization of work within firms, we hope to strengthen the correspondence between theory and method among those studying either the "empty places" in our economy or the people who occupy them.

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