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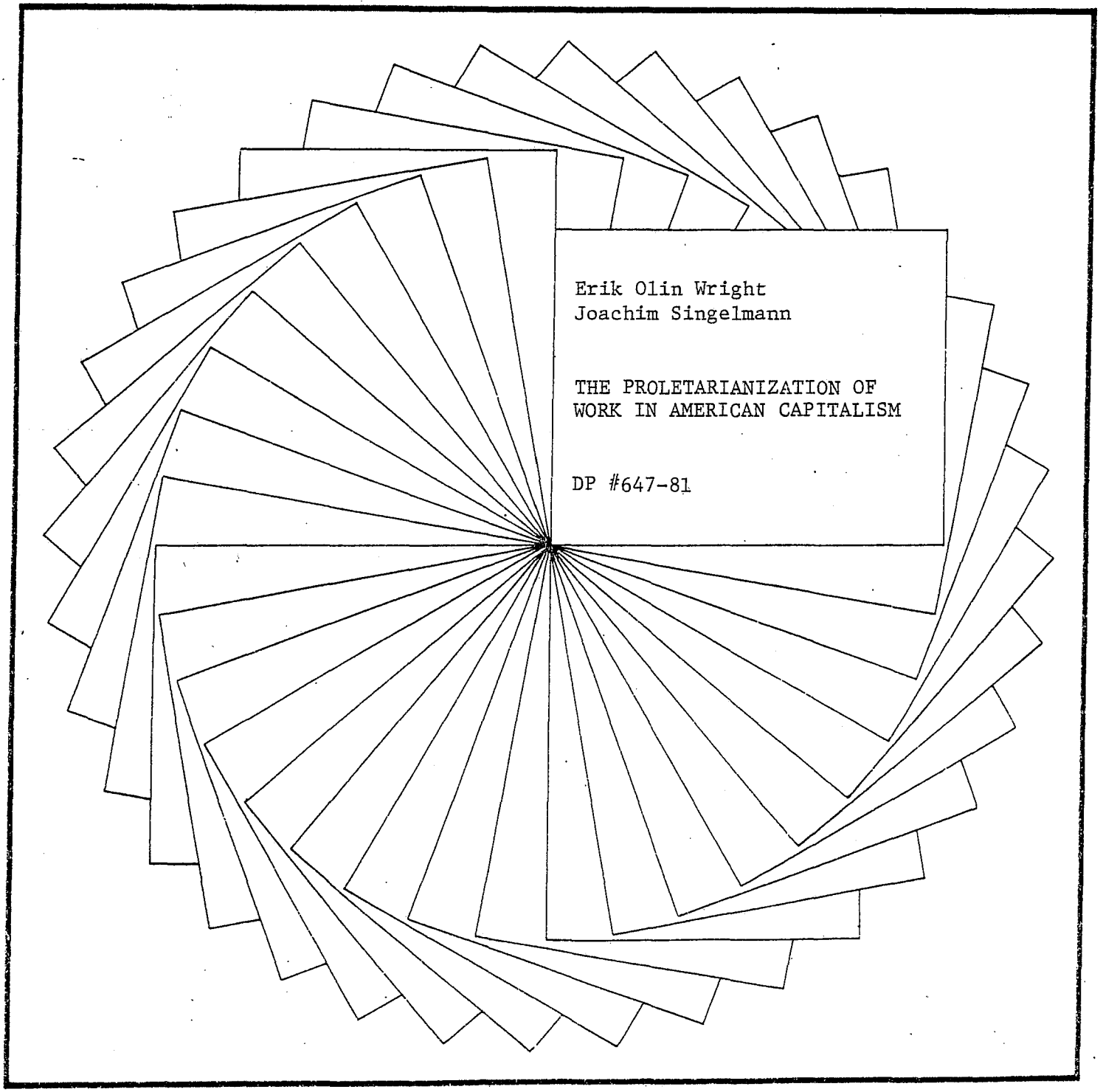

The Proletarianization of Work in American Capitalism*

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ABSTRACT

This paper attempts to address empirically the debate between two opposed images of the transformation of work in contemporary capitalism. The first, commonly associated with "postindustrial theory", sees work as becoming more humanized, more autonomous, less routinized; the second image, associated with Marxist theories of proletarianization, sees work as becoming more routinized, degraded, with less autonomy and responsibility. The debate between these two perspectives has largely been waged at the theoretical level, with at best anecdotal evidence in support of one side or the other. This study uses national data to make a preliminary assessment of the adequacy of each perspective. The central analytical strategy is to decompose total changes in the degree of proletarianization into two components: an industry-shift effect, which measures the changes in proletarianization due to changes in the overall sectoral distribution of the labor force across industries, and a class-composition-shift effect, which measures the changes in proletarianization due to changes within given sectors. Contrary to the expectations of postindustrial theory, it is demonstrated that there is a strong and consistent proletarianization process within sectors. This proletarianization process is hidden from view because of the strength of a counteracting process in the industry-shift effect (i.e., the relatively more rapid expansion of those sectors which were relatively less proletarianized in the first place). The paper concludes

with a discussion of the likely transformation of the class structure in the remaining part of the century. The prediction is made that this counteracting tendency will weaken and thus a clearer process of aggregate proletarianization should appear in the next decades.

The Proletarianization of Work in American Capitalism

Two radically opposed images have dominated discussions of the transformations of the labor process in advanced capitalism.[1] The first image, typified by the work of "postindustrial" theorists such as Fuchs (1968), Bell (1973), Gartner and Reisman (1974), Richta et al. (1969) and others, sees the labor process becoming increasingly less proletarianized, requiring higher and higher proportions of workers with technical expertise, demanding less mindless routine and more responsibility and knowledge. For some of these theorists, the central process underwriting this tendency is the shift from an economy centered on industrial production to one based on services. Thus, Fuchs (1968) contrasts industrialization with the service society by arguing that:

> Industrialization has alienated the worker from his work, that the individual has no contact with the final fruit of his labor and that the transfer from a craft society to one of mass production has resulted in the loss of personal identification with work . . . [whereas] the direct confrontation between consumer and worker that occurs frequently in services creates the possibility of a more completely human and satisfactory work experience.

Other theorists have placed greater stress on the emancipatory effects of the technical-scientific revolution within material production itself. This position has perhaps most eloquently been elaborated by Radovan Richta and his associates. Automation, Richta argues,

> relieves [the worker] of his role as a mere cog in the machine system and offers him the position of inspirer, creator, master of the technological system, able to stand apart from the immediate manufacturing process . . .
>
> We may assume that the advance of the scientific and technological revolution will first engulf the operative type of work involving manual machine-minding and later the less sophisticated regulatory and control activities--in a word, the traditional simple industrial work, insofar as man does

> not need it and it is enforced by external necessity, or will cut it down to a degree not exceeding people's need for movement. Then, when man stops doing the things that things can do for him, he is offered the prospect of creative activity as the normal occupation through which he can exercise all his powers--activity imbued with scientific elements, discovery, invention, pioneering and cultivating human powers [Richta et al. 1969: 112-114].

Although Richta and his associates argue that such tendencies cannot reach full realization within the constraints of capitalist social relations, they nevertheless feel that changes in this direction are already characteristic of the transformations of work within capitalism itself.[2] The result is a trajectory of change that undermines the material basis of alienation within production by giving workers progressively greater control over their conditions of work and greater freedom within work.

The second image of transformations of the labor process is almost the negative of the first: work is becoming more proletarianized, technical expertise is being confined to a smaller and smaller proportion of the labor force, routinization of activity is becoming more and more pervasive, spreading to technical and even professional occupations, and responsibilities within work are becoming less meaningful. This stance is particularly characteristic of Marxist discussions of the labor process. The argument usually runs something like this: because the capitalist labor process is a process of exploitation and domination and not simply a technical process of production, capital is always faced with the problem of getting workers to work (or, in more technical terms, of transforming labor power into labor). In the arsenal of

strategies of social control available to the capitalist class, one of the key weapons is the degradation of work, that is, the removal of skill and discretion from the direct producers. The result is a general tendency for the proletarianized character of the labor process to be intensified over time.

This argument has been most clearly laid out in Braverman's Labor and Monopoly Capital (1974). Since its publication there has been an interesting and fruitful debate over various aspects of Braverman's account, particularly over his tendency to minimize the effectiveness of workers' resistance to degradation and to ignore various kinds of countertendencies to the general process of degradation.[3] In spite of these disagreements over the nuances of Braverman's analysis, however, there is a general consensus among Marxists about the systematic character of the tendencies toward intensified proletarianization in advanced capitalism. Far from undermining the material basis of alienation within production, the trajectory of changes in the labor process has, if anything, deepened alienation.

Clearly, the stakes in this debate are considerable at the theoretical, ideological, and political levels. Theoretically, the two images of the transformations of work reflect fundamentally different conceptions of the dynamics of social change. The first account sees change as emanating from an incremental process of technological change and adaptation; the second sees change as the result of struggle between antagonistic classes.

At the ideological level, much of the technocratic legitimation of advanced capitalism revolves around visions of technological liberation

and postindustrial humanization. The specific application of this ideology to the case of work is part of a larger ideological system in which technology is seen as the solution to social problems and conflict is seen as irrational and counterproductive.

Finally, at the political level, the specific modalities of Marxist conceptions of socialist transformation within advanced capitalist society depend in important ways on the analysis of transformations in class relations, and the pivotal axis of such transformation is the problem of proletarianization. While it would be oversimplistic to claim that a socialist transformation requires ever-increasing levels of proletarianization, it is certainly the case that the forms of organization of socialist movements and socialist struggles, and the nature of the class alliances that would be necessary for a socialist transformation, depend to a large extent on the proletarianization process. If the postindustrial theorists are correct and advanced capitalism is witnessing a reverse of the historic process of proletarianization, then a fundamental rethinking of socialist strategies is necessary.

While there has been much energy put into this debate, there has been remarkably little systematic empirical investigation of the problem. Most of the debate has been waged through a combination of anecdotal evidence and formal census statistics. Anecdotal evidence is obviously inadequate, since within either perspective there is room for counter-examples. Census evidence, as Braverman (1974: 424-449) demonstrates

so well in his discussion of the category "semi-skilled," is also almost useless since the contents of the census categories may themselves change radically over time. Thus any shift in the population from one census occupational category to another may be more than compensated for by changes in the real attributes of the categories themselves. Unless we know explicitly what real changes are occurring within the census occupational categories, knowing that a greater proportion of the population is employed as "clerks" or "technicians" tells us nothing about the problem of proletarianization.

This paper attempts to present some provisional quantitative data directly on the problem of proletarianization in contemporary American society. Our central conclusion is that the data support some of the main descriptive claims of both Marxist and postindustrial theories, but that overall they are more consistent with the explanatory logic of Marxist theory. In particular, the data indicate that observed changes in proletarianization should be understood as the outcome of two processes: a tendency for positions to be proletarianized within industrial sectors, and a countertendency for employment to shift from industries that are relatively highly proletarianized to industries that are relatively less proletarianized. Until recently, these two processes have resulted in an increase of both proletarianized and nonproletarianized positions among employees in the labor force (at the expense of self-employed positions). However, and this is the critical punchline of the analysis, there are good reasons

to believe that the countertendencies are weakening. It is thus reasonable to predict that in the decade 1980-1990 we may observe a relative decrease in unproletarianized employee positions and an increase in proletarianized positions, i.e., a net proletarianization process.

Those are our basic conclusions. Before we can examine the empirical material that supports them, it is necessary to define more rigorously the central concepts and questions that will guide the analysis. In particular, it is necessary to translate the categories used by the postindustrial theorists into the same conceptual space used by Marxist proletarianization theorists. Such a common theoretical terrain is essential if the two positions are to be operationalized in a way that makes it possible to assess their relative merits. On the basis of this common conceptual schema we will then formulate the propositions of the two theories in terms of a set of empirical expectations about transformations in the class structure. This will be followed by a discussion of the problems in operationalizing the concepts necessary to test these divergent expectations, and a presentation of the empirical results of the investigation.

1. THE CONCEPTUAL SCHEME

Within Marxist theory, proletarianization is essentially a process of transformation of the underlying class relations of capitalist societies. The problem of conceptualizing proletarianization, therefore, is closely bound up with the problem of conceptualizing the overall class structure

of capitalist societies. If that class structure is viewed as a simple, polarized structure consisting of wage-laborers and capitalists, then proletarianization is seen as a fairly simple process by which the self-employed become wage-laborers. On the other hand, if the class structure is understood as a complex, articulated structure of relations in which workers and capitalists are defined not by polarization within a one-dimensional class relationship but by a structure of polarizations along a series of dimensions of class relations, then proletarianization itself becomes a much more complicated matter.

Since this more complex understanding of class relations has been elaborated in detail elsewhere (Wright 1976; 1978a, Chapter 2; 1979a, Chapters 1 and 2; 1980a,b), we will only schematically present it here.[4] The specific strategy of decoding the class structure which we will adopt is based on a distinction between two kinds of locations within a class structure: basic class locations, and what can be termed contradictory locations within class relations. To understand this distinction, we must first briefly discuss a second kind of distinction: between a mode of production and a social formation.

A mode of production is defined by a coherent structure of production relations and forces of production (broadly: technology and other capacities for the transformation of nature). Concrete societies are always characterized by combinations in various ways of different modes of production.[5] Even in the United States, the paragon of capitalist societies, the capitalist mode of production coexists with various kinds of noncapitalist production relations, in particular simple commodity production (i.e.,

production for the market within which no wage labor is exploited--the direct producers own and control their immediate means of production).[6] The analysis of such concrete combinations of modes of production defines the social formation.

Now, basic class locations are classes defined within pure modes of production. In the pure capitalist mode of production there are only two classes: the bourgeoisie, which controls the flow of resources into and out of production, controls the means of production within production and controls the labor of others within the labor process, and the working class, which is excluded from control on each of these dimensions.[7] These two classes exist in a relation of perfect polarization.

In concrete capitalist social formations, however, the model of a pure capitalist mode of production is no longer adequate as the basis for a map of the class structure. In the first place, as mentioned above, the capitalist mode of production coexists with various kinds of noncapitalist modes or forms of production. Thus, in American capitalism we must also include the petty bourgeoisie as a distinctive location in the class structure (i.e., self-employed producers who own their means of production and employ no labor of others). Secondly, and in contemporary capitalism more significantly, there is no longer a perfect polarization along all of the dimensions of social relations of production that define the basic classes of the capitalist mode of production. This implies that certain positions within the class structure may partake of the relational characteristics of more than one other class. In a sense

such positions can be considered simultaneously in two classes. Such positions will be designated contradictory locations within class relations.

Figure 1 represents the interconnections between the basic class locations of a capitalist social formation and contradictory locations. (The spatial metaphor in this figure may be somewhat misleading, since it suggests that contradictory locations are "between" basic classes rather than located simultaneously in two classes. Throughout this discussion it is important not to turn this relational concept into a gradational one by interpreting the figure too literally.) In many ways the most important of the contradictory locations illustrated in this figure are managers and supervisors, the contradictory location "between" the bourgeoisie and the proletariat. Managers occupy class locations within which they simultaneously dominate workers and are dominated by capital. Within the relations of domination/subordination that define the capitalist mode of production they therefore occupy both poles of the relationship. Managerial positions are thus simultaneously bourgeois and proletarian.

Two other contradictory locations are specified in Figure 1. Both of these are contradictory locations that combine two different structures of production relations--capitalist production and simple commodity production. Small employers occupy a contradictory location between the petty bourgeoisie and the bourgeoisie. Like the petty bourgeoisie they are direct producers who own their own means of production; like the bourgeoisie they employ labor power and thus exploit the labor of workers. Semi-autonomous employees, on the other hand, occupy a contradictory

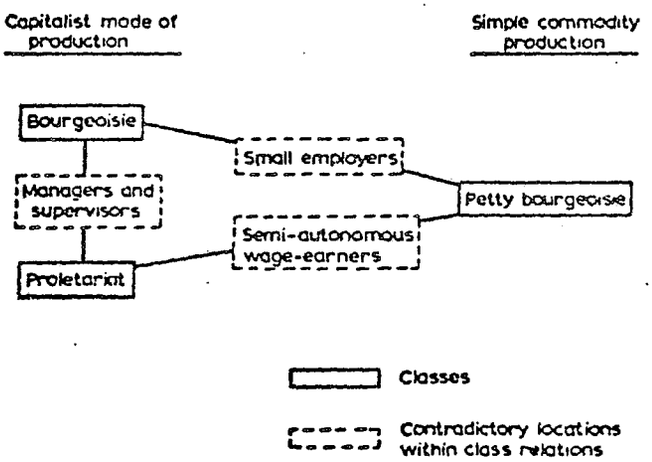

Figure 1: The basic class relations of capitalist society.

location between the petty bourgeoisie and the working class. Like workers they are wage laborers, dominated by capital (or by state bureaucratic apparatuses), but like the petty bourgeoisie they have substantial degrees of real control over their immediate conditions of work, over what they produce and how they produce it. A good example is an engineer or a scientist who, within limits imposed by superiors, has considerable control over the immediate labor process but is excluded from any control over the apparatus of production.

Several brief comments on this scheme are necessary to avoid confusion. First, this is a typology of class structure, not class formation. That is, it is a strategy for decoding the "empty places" (Przeworski, 1977) in the class structure, not for specifying the organized, collective class actors in a particular society. To be sure, the premise of the analysis of the structure of positions is that this will facilitate an understanding of the process of class formation; but the typology itself must not be confused with such an analysis.

Secondly, as specified in Figure 1, this typology only decodes the class structure of the economically active labor force. A variety of locations in the social structure outside of the labor force are thus ignored: students, children, retired people, housewives, permanently unemployed, etc. This is not to say that such locations have no class content, but simply that they are not directly organized within the structure of the social relations of production. Thus the decoding

of the class nature of such positions requires additional theoretical arguments. For purposes of the analysis of transformations of the class structure we will limit ourselves to the simpler cases, those positions directly mapped by production relations.[8]

Finally, this strategy for decoding the class structure of contemporary capitalism must be seen as provisional. There are numerous areas of ambiguity, such as the specification of what is meant by "control over the immediate labor process" in the definition of the semi-autonomous location, and it could well happen in the attempt to eliminate such ambiguities that the basic schema may itself be radically transformed. Nevertheless, this approach seems to us to be the most developed and useful map of class structure currently available, and thus we will use it in this empirical investigation of proletarianization.

2. CONTRASTING EXPECTATIONS OF POSTINDUSTRIAL AND MARXIST THEORY

Within the framework presented in Figure 1, "proletarianization" designates the complex process by which non-working-class locations are destroyed or transformed and working-class locations created. The debate between postindustrial and Marxist conceptions of transformations of the labor process can then be seen as a set of competing claims about the relative expansion and contraction of contradictory locations between the working class and other classes. In general terms, postindustrial theorists argue that such contradictory locations tend to expand in advanced industrial societies while the working class tends to contract. Marxist theorists,

on the other hand, tend to argue that the semi-autonomous employee class location will systematically contract, the managerial location will expand as production becomes more centralized and workers' skills become appropriated by management, and the working-class location will expand greatly as work becomes degraded. These expectations are presented in Table 1.

The hypotheses in Table 1 center on overall outcomes for the expansion and contraction of class locations. The debate between Marxist and postindustrial theory, however, is as much a debate over the process which produces these outcomes as it is over the outcomes themselves. To adjudicate fully between the contending perspectives it would be necessary to study directly this process. The data for such an analysis simply do not exist. Short of that, however, it is possible to disaggregate the expectations in Table 1 in a way which more closely reflects the differing accounts of the underlying dynamics at work. We will briefly describe this strategy of data analysis and then formulate a more refined set of hypotheses which will more rigorously differentiate between the two theoretical arguments.

Strategy of Analysis

The strategy for disaggregating the overall expectations of the theories under consideration involves decomposing aggregate changes in the class structure into three analytically distinct components: 1. a component due to changes in the distribution of the population across economic sectors (referred to as the "industry-shift" component); 2. a

Table 1

Overall Expectations of Marxist and Postindustrial Theories

Locations within the Class Structure	Marxist Theory	Postindustrial Theory
Working class	Increase	Decrease
Semi-autonomous employees	Decrease	Increase
Managers	Increase	Increase

component due to changes in the class distribution of the population within economic sectors (referred to as the "class-shift" component); 3. a component due to simultaneous changes in the distribution of the population across and within sectors (referred to as an "interaction-shift" component).

The technical details of this strategy are explained in Appendix A. In less technical terms, perhaps the easiest way of explaining the strategy is to run through a hypothetical example. Let us suppose that net of overall labor force population changes, there were one and a half million more workers in 1970 than in 1960 in the United States. (That is, after subtracting the number of additional workers that would have occurred simply from population increase in the labor force, there were still 1.5 million more workers.) Our task is to decompose this total net increase of the working class into the three components. This is done by playing a kind of counterfactual game. The first step is to ask the following question: How many workers would there have been in 1970 (net of overall population change) <u>if</u> the class structure <u>within</u> economic sectors had remained unchanged, but the distribution of people <u>across</u> sectors had changed in the way it actually did? Using these assumptions, we then add up the expected number of people in each class in each sector in 1970 and this gives us the expected number of workers, managers, petty bourgeois, etc., in 1970 as if the only thing that had changed was the distribution of people across sectors. This would constitute the industry-shift component for each class. In our example,

if the sectors with the lowest concentrations of workers in 1960 happened to be the sectors which grew the fastest between 1960 and 1970 (e.g., education), then there could actually have been a negative industry shift for workers. Let us say that this negative shift was -300,000 workers. This would mean that net of overall population changes, there were 300,000 fewer workers in 1970 than in 1960, owing to changes in the industrial structure, holding the within-sector class distributions constant.

The second step of the decomposition is to turn the counterfactual game on its head and ask: How many workers would there have been in 1970 compared to 1960 if the employment distribution across sectors had not changed but the class distributions within sectors had changed? This constitutes the class composition shift for each class. In our example, if a process of proletarianization occurred within sectors, then the class composition shift could be quite large and positive for workers even though those sectors with relatively fewer workers expanded the most. Let us say that this positive class-composition-shift effect was 1,700,000. This would mean that net of overall changes in the population, there were 1.7 million more workers in 1970 than in 1960 due to changes in the class structure within sectors, holding the distribution of the population across sectors constant.

The interaction-shift effect is mathematically a residual term. In our example it would be +100,000, since the total of the three components has to add up to the total net change in workers (1.5 million).

Conceptually, the interaction effect represents changes in the class structure owing to simultaneous movements from one class location within one sector to another class location in another sector. For example, in the industrial revolution, one of the pivotal forces changing the class structure was the simultaneous destruction of petty bourgeois positions in agriculture and the creation of working-class positions in manufacturing. This would appear as a large, positive, working-class interaction effect. Since we have no theoretical expectations about these interaction terms, and since they are quite small in the data we will be examining compared to the main effects, we will not give them any systematic discussion, although we will report the results in our tables.

This decomposition procedure is performed for each class location. The end result is a table in which the industry shift, class composition shift, interaction shift and total net shift are presented for each class. This kind of table will be at the heart of the results we will report. Let us now discuss briefly the expectations implicit in Marxist and postindustrial theory for each of the cells in this table.[9]

Detailed Expectations

Table 2 presents the specific expectations of the two theories for the industry shifts and class shifts for each of the class categories we have been discussing. In general only the direction of the expectation is given, but in a few cases the theories seem to suggest an order of magnitude as well.

Table 2

Hypothesized Changes in the Class Structure Within Marxist and Postindustrial Theories

Class Location	Marxist Theory			Postindustrial Theory		
	Industry-Shift Effects	Class-Composition-Shift Effects	Total Shifts	Industry-Shift Effects	Class-Composition Shift Effects	Total Shifts
Managers/supervisors	positive	positive	positive	positive	positive	positive
Semi-autonomous employees	positive	large negative	negative	positive	positive	positive
Workers	negative	large positive	positive	negative	negative	large negative

Note: No expectations for interaction effects are indicated since neither perspective discusses such effects for advanced capitalism.

1. Small employers and petty bourgeois. Both Marxist and post-industrial theory would expect an overall decline in both categories of self-employment, and both theories would predict that there would be negative industry shifts as well as class shifts. That is, they would expect that self-employed class locations would decline both because of the continuing shift of the economy away from those sectors of production like agriculture within which the petty bourgeoisie is most concentrated (the negative industry shift) and because of a continuing destruction of self-employed locations within most sectors of the economy (the negative class shift). Marxists are more likely to emphasize the class-shift dynamics, focusing on the ways in which multinational corporations are systematically entering agricultural production, fast food restaurants, retail trade and so on, whereas postindustrial theorists are more likely to emphasize the industry-shift processes, but the two theoretical perspectives would not differ in the expected directions of changes in any of cells of the table for these two classes.

2. Managerial contradictory class location. The two theoretical perspectives will also generally agree on the detailed expectations for managers, although for somewhat different reasons. Both will expect a positive industry shift for managers, but their rationales are likely to be somewhat different. Marxists will stress the growth of the state as a source of employment and the tendency for state organizations to be more heavily bureaucratized than private capitalist organizations.

Postindustrial theorists are more likely to emphasize the growth of services in general and the greater need for personal supervision in service delivery systems than in manufacturing because of the less routinized character of the activity.

Similarly in the class shifts for managers, the explanations for the expected positive shift will differ. Marxists would see the growth of managerial locations within given industries as the result of two main processes: First, the increasing concentration and centralization of capital which results in the greater need for large administrative apparatuses,[10] and second the continuing appropriation of skill and control from the direct producers, which requires an expansion of the agents of social control within production. The dynamics of the accumulation process and class struggle would thus provide the basic explanations for the expansion of managerial locations. Postindustrial theorists, on the other hand, are much more likely to emphasize the imperatives of technological development. Because production in all sectors, including services, is based on increasingly sophisticated technologies and communications/informations systems, an increasing proportion of the labor force has to be involved in the control and decision-making activities of these technical systems, and this will tend to increase the proportion of people involved in formal roles of supervision. Technocratic rationality rather than class conflict would constitute the basic explanations for increasing concentrations of managers within different sectors of production.

3. Semi-autonomous employee class locations. For the semi-autonomous employee and working-class locations we come to cases in which the detailed expectations of Marxist and postindustrial theories differ significantly. Although both perspectives would expect positive industry-shifts for semi-autonomous employees, for reasons parallel to the expectations for managers, they would have opposite expectations for the class shifts. Based on arguments of the degradation of labor, Marxists would expect a systematic and large decline in semi-autonomous employee locations within given labor processes. Although it might be the case that the technical qualifications for various jobs increase, the actual control over the conditions of work and the activity within work will tend--it is argued--to be eroded as part of the general strategy of social control by capital (and by managers). Postindustrial theorists, on the other hand, would expect systematic tendencies for semi-autonomous locations to increase within most sectors of the economy. As in the case of the positive class shift for managers, the rationale behind this expectation rests largely on technological arguments. Sophisticated technologies require less routinization, offer more possibilities for autonomy and creativity within work, and thus there should be a relative expansion of nonproletarianized jobs within the labor process.

As a result of these specific expectations for the decomposed industry and class shifts, postindustrialists would predict large positive total shifts for the semi-autonomous employee locations, whereas Marxists would tend to predict negative shifts.

4. Working class. The expectations for the working class are the inverse of the expectations for the semi-autonomous employee category. Postindustrial theorists expect systematic deproletarianization to occur, both because of shifts of the population out of the most proletarianized sectors of the economy (heavy industry especially) and because of technological changes within all sectors. Marxists, on the other hand, expect the process of degradation of labor to more than counteract whatever tendencies might exist for the less proletarianized sectors to grow more rapidly than the more proletarianized ones. A net expansion of the working class is thus expected.

These hypotheses, it must be emphasized, do not directly tap the differing theoretical arguments of the underlying processes at work. By themselves they cannot provide an adequate basis for adjudicating between accounts of the labor process based on a logic of class struggle and accounts rooted in arguments of technological determinism. But they will provide suggestive support for one or the other view, since in the case of certain specific cells of the table, the two contending theoretical perspectives would generate opposing empirical expectations.

3. VARIABLES AND DATA

The two central variables in this research are economic sectors and class structure. All of the statistical analyses in this study are based on a 37-sector division of the economic structure. This is a fairly refined disaggregation of the total economic structure, and

certainly goes far beyond any simple classification of sectors as primary, secondary, and tertiary. These 37 sectors have then been reaggregated into seven more general categories: extractive, transformative, distributive services, business services, professional services, state-dominated social services, and personal services.[11] These 37 sectors are listed in Table 3. (All of the calculations used to decompose changes in the class structure are based on the 37-sector disaggregation, so the specific manner in which these have been reaggregated in Table 3 will not affect the results.)

The class structure variable is particularly problematic to measure adequately, given available data sources. Census data simply will not do by themselves, since the census is gathered in occupational rather than class terms, and no simple collapsing of occupational titles can generate an adequate operationalization of Marxist class categories.[12] Unfortunately, relatively few social surveys have asked the necessary kinds of questions to operationalize classes in a rigorous manner. The data which we have used in this study are derived from a social survey which does permit some fairly rough estimates of class structure, but the questions are not really adequate for a precise operationalization.

Table 4 presents the operational criteria which we have used to define each class. Since the problems with these operationalizations have been discussed in some detail elsewhere (Wright 1980b: 183-185), we will not dwell on them here. There are two main points to note: the criterion for being a manager is extremely broad, and undoubtedly includes

Table 3

Percentage Distribution of the U.S. Labor Force by Industry Sectors and Intermediate Industry Groups, 1940-1970

Sectors and Industries	1940	1950	1960	1970
I. EXTRACTIVE	21.3	14.4	8.1	4.5
1) Agriculture	19.2	12.7	7.0	3.7
2) Mining	2.1	1.7	1.1	0.8
II. TRANSFORMATIVE	29.8	33.9	35.9	33.1
3) Construction	4.7	6.2	6.2	5.8
4) Food	2.7	2.7	3.1	2.0
5) Textile	2.6	2.2	3.3	3.0
6) Metal	2.9	3.6	3.9	3.3
7) Machinery	2.4	3.7	7.5	8.3
8) Chemical	1.5	1.7	1.8	1.6
9) Miscellaneous manufacturing	11.8	12.3	8.7	7.7
10) Utilities	1.2	1.4	1.4	1.4
III. DISTRIBUTIVE SERVICES	20.3	22.4	21.9	22.3
11) Transportation	4.9	5.3	4.4	3.9
12) Communication	0.9	1.2	1.3	1.5
13) Wholesale	2.7	3.5	3.6	4.1
14) Retail	11.8	12.3	12.5	12.8
IV. BUSINESS SERVICES	4.7	4.4	6.1	8.0
15) Banking	1.1	1.1	1.6	2.6
16) Insurance	1.2	1.4	1.7	1.8
17) Real estate	1.1	1.0	1.0	1.0
18) Engineering		0.2	0.3	0.4
19) Accounting		0.2	0.3	0.4
20) Miscellaneous business services	1.3[a]	0.6	1.2	1.8
V. PROFESSIONAL SERVICES	N.A.	1.5	1.9	2.7
21) Legal services	N.A.	0.4	0.5	0.5
22) Medical services	N.A.	1.1	1.4	2.2
VI. STATE-SUPPORTED SOCIAL SERVICES	9.9	11.3	14.9	19.8
23) Hospitals	2.3[b]	1.8	2.7	3.7
24) Education	3.5	3.8	5.4	8.6
25) Welfare	0.9	0.7	1.0	1.2
26) Nonprofit	0.9	0.3	0.4	0.4
27) Postal services	0.7	0.8	0.9	1.0
28) Government	2.6	3.7	4.3	4.6
29) Miscellaneous social services	--	0.1	0.2	0.3
VII. PERSONAL SERVICES	14.0	12.7	11.3	10.0
30) Domestic services	5.3	3.2	3.1	1.7
31) Hotels	1.3	1.0	1.0	1.0
32) Eating and drinking	2.5	3.0	2.9	3.3
33) Repair	1.5	1.7	1.4	1.3
34) Laundry	1.0	1.2	1.0	0.8
35) Barber and beauty shop	--	--	0.8	0.9
36) Entertainment	0.9	1.0	0.8	0.8
37) Miscellaneous personal services	1.6	1.2	0.4	0.3
TOTAL LABOR FORCE	100	100	100	100

Source: Modified from Browning and Singelmann, 1975.

Note: Percentages may not add to 100% because of rounding.

[a]Includes legal, engineering and accounting services.

[b]Includes medical services.

Table 4

Operational Criteria for Class Locations

	Self-Employed	Have Employees	Have Subordinates[2]	Job Characterized by "Lot" of Freedom and Decisions
Employers[1]	yes	yes		
Petty bourgeoisie	yes	no		
Managers/supervisors	no	no	yes	
Workers	no	no	no	no
Semi-autonomous employees	no	no	no	yes

[1]Since 80% of all employers in the sample employed fewer than 10 workers, it was not possible to study a proper capitalist class location. Throughout most of the analysis which follows, therefore, I will treat all employers as occupying a contradictory location between the petty bourgeoisie and the capitalist class.

[2]All teachers were classified as nonsupervisors regardless of their response to this criterion, since many teachers appear to have interpreted the question about supervision in the survey as referring to students.

[3]Jobs which the respondent claims are characterized "lot" by both of the following descriptions:

(a) "a job that allows a lot of freedom as to how you do your work"

(b) "a job that allows you to make a lot of decisions on your own"

many nominal supervisors who probably should be classified as workers or semi-autonomous employees; and (2) the criterion for being a semi-autonomous employee relies heavily on relatively subjective assessments by respondents of job characteristics. The net effect of these measurement problems is that our estimates of the size of both the managerial and semi-autonomous employee contradictory class locations are probably somewhat inflated. Thus our estimates of the working class should probably be considered minimum estimates.

It is of course possible that these problems of adequately operationalizing class could undermine the meaningfulness of the results which we will report. Our feeling, however, is that the results are sufficiently striking and so consistent with our general theoretical expectations that they cannot be simply dismissed as artifacts of these difficulties. If anything, one might expect such weak measures of class to scramble the results rather than to strengthen them. In any event, these are the best data available, and thus for the moment this operationalization will have to suffice.

Two quite different data sources were used in this research: the Survey of Working Conditions (SWC) carried out by the Survey Research Center at the University of Michigan in 1969, and the United States censuses of 1960 and 1970. The SWC contained the questions presented in Table 4 and provided the basis for operationalization of the class structure. But the SWC data were available for only one point in time while the questions we were attempting to answer all concerned structural

change over time. The census, of course, contains a great deal of information gathered at two points of time, but lacks the necessary questions to operationalize class. The problem, then, was to devise a strategy for combining these two sets of data so that we could make reasonable estimates of the class structure in 1960 and 1970. This estimation procedure is described in detail in Appendix B, and more briefly below.

Estimating the class structure in 1960 and 1970. On the basis of the SWC data we were able to construct a three-way table of class-by-occupation-by-economic sector. This means that we had estimates of the class distribution within occupations for each of the 37 economic sectors. For the 1960 and 1970 censuses we then constructed two-way tables of occupation-by-economic sector. The procedure was then to use the SWC table as the basis for apportioning the people within the cells of the census occupation-by-sector tables into classes. Thus, for example, if 70% of all craftsmen in the construction industry were workers in the SWC table, we allocated 70% of the individuals in the corresponding cells of the 1960 and 1970 census tables into the working class. In effect we are reallocating people within each of the 37 sectors from occupational categories into class categories on the basis of the empirical class distributions within occupations in the SWC data. This procedure enabled us to construct an imputed class distribution within each economic sector for 1960 and 1970, and by aggregating these distributions, an overall imputed class distribution for the entire labor force for the two years.

This procedure involves an assumption which, according to the theory advanced in this paper, is probably incorrect, namely that the class distributions within occupations (within economic sectors) remained unchanged during the decade, and thus such a distribution in 1969 could be used to estimate the class structure from census data for 1960. If it is the case that proletarianization occurred within specific occupations, then this assumption would be wrong. The result would be that we would have underestimated the working class for 1960, since the distribution used for the estimates came from the end of the decade (i.e., after a relative proletarianization of the 1960 occupational categories had occurred). This means that our estimates will tend to minimize the possible expansion of the working class over the decade. Since this bias works against the basic thrust of the theoretical arguments we have advanced we feel that the data can still serve as a provisional basis for testing our hypotheses. (See Appendix C for a discussion of possible biases.)

Because of these problems in estimating the class structure, we felt that it was not feasible to carry the analysis back in time to the 1950 census. Whatever distortions occurred in imputing the class structure to 1960 would have been greatly exaggerated for earlier periods. As a result, the empirical analysis of structural transformations in this research will be limited to a single decade, 1960-1970.

RESULTS

Before discussing the results of the detailed decomposition of changes in the class structure it will be instructive to look at the overall changes.

These are presented in Table 5. Probably the most striking feature of this table is the relatively small magnitude of the changes. While some change did occur--both categories of the self-employed declined, managerial locations expanded the most followed by working-class locations, while semi-autonomous class locations expanded only slightly--the essential shape of the class structure did not change greatly over the decade. If the analysis were to stop here, one would probably conclude that there was not much of interest to explain and the results could hardly bear the burden of entering the fray of a significant theoretical debate. When we examine the decomposition of these changes, however, quite a different story can be told.

Table 6 presents the basic decomposition of changes in the class structure into the industry-shift component, the class composition-shift component and the interaction component. Table 7 presents these same results as percentages of the number of people in each class in 1960.

Before discussing these results a word is needed on how to read the tables. The sum of the entries in any column of Table 6 equals zero. Since each of the entries is net of total population change, the sum of such shifts must be zero. The sum of the first three entries in any row equals the fourth entry in the row since the first three entries represent a decomposition of the fourth entry (total net change). Specific entries should be interpreted in the following way: the employer industry shift of -331,290 means that net of any changes due to overall population change, there were this many fewer employers in 1970 than in 1960 because of changes in the overall industrial structure; the working class class-composition shift of +1,696,402 means that net of population change,

Table 5

Changes in the American Class Structure, 1960-1970

	1960	1970	1960	1970
Small employers	4,111,014	3,087,226	6.6%	4.4%
Petty bourgeoisie	3,753,212	2,859,979	6.1%	3.7%
Managers	20,293,995	27,291,760	32.7	35.6
Semi-autonomous employees	6,794,122	8,475,457	10.95	11.05
Workers	27,081,959	34,954,862	43.65	45.6
Total	62,034,302	76,669,284	100%	100%

Note: See Table 4 for operationalizations of class.

Table 6

Decomposition of Changes in the American Class Structure, 1960-1970

	Industry Shift	Class Composition Shift	Interaction Shift	Total Net Change
Small employers	-331,290[a]	-1,659,392	-2,966	-1,993,648
Petty bourgeoisie	-498,285	-1,140,344	-140,053	-1,778,682
Managers	+722,088	+1,404,512	+83,455	+2,210,055
Semi-autonomous	+383,823	-301,178	-4,163	+78,482
Workers	-276,336	+1,696,402	+63,727	+1,483,793

[a]All entries are changes in the number of people in a given category net of overall population changes in the labor force. Thus each column sums to zero.

Table 7

Decomposition of Changes in the American Class Structure
as Percentages of 1960 Class Populations

	Industry Shift	Class Composition Shift	Interaction Shift	Total Net Change
Small employers	-8.1%[a]	-40.4%	-.07%	-48.5%
Petty bourgeoisie	-13.3	-30.4	-3.7	-47.4
Managers	+3.6	+6.9	+0.4	+10.9
Semi-autonomous	+5.6	-4.4	-.06	+1.3
Workers	-1.0	+6.3	+0.2	+5.5

[a]All entries are net shifts as a percentage of the 1960 population figures for the class.

there were this many more workers in 1970 due to changes in the class structures within industries.

In Table 7 the entries in Table 6 have been divided by the 1960 populations of the relevant class categories. The entry of -8.1% for the employer industry shift thus indicates that net of population changes, the employer category declined by 8.1% between 1960 and 1970 due to changes in the industrial structure. The results in Table 7 are thus made relative to the size of the classes involved.

Now let us examine the results themselves. The results for both categories of self-employed (small employers and petty bourgeoisie) are very much as both Marxist and postindustrial theories would expect. Small employers and the petty bourgeoisie were decimated in the 1960s, both because of changes in the industrial structure which undermined those sectors within which these classes were most concentrated, and because of the continuing process of the destruction of small businesses within most sectors of the economy.[13] In a limited way one might want to argue that the fact that the class shifts are considerably larger than the industry shifts for these two classes is suggested more by Marxist theory than by postindustrial theory. In terms of the destruction of small businesses Marxists are more likely to emphasize the effects of strategies of capital accumulation within sectors than overall shifts in the industrial structure.[14] However, since the theoretical predictions in these terms are relatively weak, it seems more appropriate at this point to see the results as consistent with both perspectives.

The results for the managerial class location are also basically in line with both theoretical expectations: the managerial location expanded greatly, owing to changes in the industrial structure and to the expansion of managerial positions within sectors. The magnitude of the class composition shift, however, is somewhat more consistent with the postindustrial framework. While Marxists would generally expect an increase in managerial positions within given industries, the arguments about concentration and centralization of capital and social control would not suggest such a large increase in managerial positions attributable to the class composition shift. These results, therefore, may indicate that at least part of the expansion of such positions is bound up with the technological changes emphasized by postindustrial theorists. However, as in the arguments about relative magnitudes of different shifts for the self-employed, the theoretical expectations about the relative size of these shifts are relatively underdeveloped, and thus it is probably safest to see these results as largely supportive of both theoretical stances.

By far the most interesting results in Tables 6 and 7 occur for the semi-autonomous employee and working class locations. For these classes the data are clearly more consistent with the arguments of Marxist theory than those of postindustrial theory. In the case of semi-autonomous employees, the industry shift and class shifts are almost of equal magnitudes but in opposite directions: the change in the overall industrial structure in the 1960s produced an expansion of this class location by just under 385,000 positions (an increase of 5.6%) whereas the change

in the class structure within industries generated a contraction of just over 300,000 (4.4%). The net result was a modest increase of semi-autonomous employees of about 80,000 positions between 1960 and 1970. For the working class, on the other hand, the industry shift produced a decline of just over 275,000 positions (1.0%) while the class composition shift produced an expansion of nearly 1.7 million (6.3%). Overall, as a result, the working class expanded by just under 1.5 million positions during the decade.

These results are directly contrary to the expectations of post-industrial theory. The process of proletarianization within given sectors was large and consistent. This resulted in a substantial expansion of the working class in the decade, and it largely neutralized the effects of changes in the industrial structure for the expansion of the semi-autonomous employee category. Although there was a net expansion of semi-autonomous locations, as predicted by postindustrial theory and contrary to the expectations of most Marxist accounts, nevertheless the decomposition of this net shift is more consistent with the pattern expected within Marxist theory.

All of the above results are based on a decomposition of changes in the overall class structure of the United States. It could be objected that this is not the most appropriate decomposition for a comparison of the core expectations of postindustrial and Marxist theories of the labor process, since those theories are largely focused on changes in wage-earner positions rather than all positions in the class structure. This objection would suggest that the decline of self-employed positions (small employers and

petty bourgeois) should be treated as a kind of exogenous source of labor supply similar to the entry of housewives into the wage-labor force. In this line of reasoning, the statistical decomposition of industry shifts and class-composition shifts should be restricted to the three categories of wage-earners: managers, semi-autonomous employees and workers. The results of this alternative strategy are presented in Table 8.

The pattern of net shifts is significantly different in this table, as would be expected: only managers showed a positive net expansion during the decade; there was a relative decline of both workers and semi-autonomous employees. The basic pattern for the decomposition of shifts, however, remains essentially the same: on the one hand, there was a large negative industry shift for workers and positive industry shifts for managers and semi-autonomous employees; on the other, there was a large negative class composition shift for semi-autonomous employees but a positive shift for workers and managers. Thus, even if the statistical analysis is restricted to wage-earners only, the basic structure of the findings is still more consistent with the general expectations of Marxist theory.

CONCLUSIONS

The data presented in Table 6 do not directly provide a definitive basis for adjudicating the theoretical debate between Marxist and post-industrial theories. On the one hand, the data do not explicitly tap the process of transformation as such but only its effects, whereas the heart of the theoretical debate centers on contending views of the dynamics

Table 8

Decomposition of Changes in Categories of Wage-earners Only, 1960-1970

	Industry Shift	Class Composition Shift	Interaction Shift	Total Net Change
Managers	+431,925[a] (2.1%)[b]	+334,901 (1.7%)	+29,983 (.1%)	+796,809 (3.9%)
Semi-autonomous employees	+326,656 (4.8%)	-635,715 (-9.4%)	-85,592 (1.3%)	-394,651 (-5.8%)
Workers	-758,581 (-2.8%)	+300,814 (+1.1%)	+55,609 (.2%)	-402,158 (-1.5%)

[a]All entries are changes in the number of people in a given category net of overall changes in the population of the wage-labor force (not the total labor force). Thus each column sums to zero.

[b]Entries in parentheses are the shifts expressed as a percentage of the 1960 population in the particular category.

of social change. On the other hand, like any robust paradigm, post-industrial theory is sufficiently flexible that it can provide post hoc interpretations of the data in Table 6 consistent with its overall theoretical framework. The decline of semi-autonomous employees due to the class composition shift could be explained, for example, as the result of a new unity of autonomy and responsibility in advanced technologies in which managerial locations replace nonmanagerial semi-autonomous locations. Rather than constituting a process of the degradation of semi-autonomous class locations, such locations are being integrated into the authority structure of postindustrial society. At most, therefore, the results reported in this paper provide only suggestive support for the Marxist stance in the debate.

Nevertheless, those suggestions are striking: Within given economic sectors, there was a systematic tendency for those positions with relatively little control over their labor processes to expand during the 1960s and for those positions with high levels of autonomy to decline. This does not imply, of course, that there were no examples of technological change in specific labor processes which may have enlarged the scope of autonomy and self-direction within work. But such changes appear to have been the exception rather than the rule during the decade. Contrary to the arguments of most postindustrial theorists, therefore, a continuing process of proletarianization does characterize advanced capitalism.

The data reported in this study span only a single decade. Both Marxist and postindustrial theories, however, base their arguments on a

much broader time frame. It is entirely possible that the specific patterns observed in our results are consequences of peculiarities of the 1960s. It is important, therefore, to attempt at least some speculative judgements about the likely trajectory of these transformations into the future.

In terms of the strategy of analysis presented in Table 6, the attempt at forecasting future developments amounts to generating a set of expectations about the changes in the relative magnitudes of the class and industry shifts for each of the cells in the table. In order to do this in a reasonable way, it is necessary to perform one further disaggregation of the data on structural changes. Table 9 disaggregates the class composition and industry shifts for each of the class categories into the specific contributions from each of the seven broad economic sectors. Thus, for example, the table indicates that out of a total positive industry shift of 383,824 for the semi-autonomous employees, 95,753 can be attributed to the growth of distributive services, 644,596 to the growth of state-dominated services, -226,126 to the decline of transformative production, and so on. This table can help us assess the likely impact of future changes in the industrial structure on the class and industry shifts we have been discussing.

The most striking entry in Table 9 is the tremendous importance of the growth in the state for the expansion of the semi-autonomous class location in the 1960s. While the state also contributed to the expansion of working-class and managerial positions, it had a much larger

Table 9

Disaggregation of Industry Shifts and Class Composition Shifts into Contributions by General Economic Sectors

CLASS CATEGORY	Extractive[a]	Transformative	Distribution Services	Producer Services	Professional Services	State Services	Personal Services	TOTAL[E]
Employers								
Industry shift[b]	-508,705 (-12.4%)[d]	-49,666 (-1.2)	93,145 (2.3)	33,285 (0.8)	89,202 (2.2)	2,187 (0.1)	9,294 (0.2)	-331,287
Class shift[c]	-170,172 (-4.1)	-329,463 (-8.0)	-755,599 (-18.4)	-70,380 (-1.7)	-84,842 (-2.1)	-1,107 (0)	-247,826 (-6.0)	-1,659,393
Petty bourgeoisie								
Industry shift	-1,004,671 (-26.8)	-12,649 (-0.3)	8,735 (0.2)	230,179 (6.1)	134,785 (3.6)	57,487 (1.5)	82,346 (2.2)	-498,288
Class shift	-256,770 (-6.8)	-180,814 (-4.8)	-112,076 (-3.0)	-156,795 (-4.2)	-164,289 (-4.4)	-49,765 (-1.3)	-220,088 (-5.9)	-1,140,344
Managers								
Industry shift	-457,407 (-2.2)	-716,217 (-3.5)	243,527 (1.2)	761,090 (3.8)	190,309 (0.9)	973,720 (4.8)	-273,435 (-1.3)	722,093
Class shift	277,524 (+1.4)	359,695 (1.8)	204,484 (1.0)	31,855 (0.2)	189,145 (0.9)	254,471 (1.2)	81,877 (0.4)	1,404,514
Semi-autonomous								
Industry shift	-70,684 (-1.0)	-226,126 (-3.3)	95,753 (1.4)	124,986 (1.8)	40,457 (0.6)	644,596 (9.5)	-225,164 (-3.3)	383,824
Class shift	-8,649 (-0.1)	-179,108 (-2.6)	71,530 (1.1)	458 (0.0)	-7,189 (-0.1)	-182,423 (-2.7)	4,203 (0.1)	-301,177
Workers								
Industry shift	-664,730 (-2.5)	-1,293,877 (-4.8)	273,025 (1.0)	758,480 (2.8)	135,375 (0.5)	1,249,649 (4.6)	-735,266 (-2.7)	-276,334
Class shift	158,068 (+0.6)	379,695 (1.2)	586,201 (2.2)	194,859 (0.7)	67,947 (0.2)	-21,177 (-.1)	+381,585 (1.4)	1,696,404

[a] See Table 3 for classification of industrial sectors into these seven general headings.

[b] Entries represent the contributions of specific sectors to the total industry-shift for each class.

[c] Entries represent the contributions of specific sectors to the total class-shift for each class.

[d] The figures in parentheses represent the change as a percentage of the 1960 population for each class category. The entry of -12.4% for the employer industry shift in the extractive sector thus indicates that in the employer class category a net decline of 12.4% was attributable to the contribution of the extractive sector to the total industry shift for employers.

[e] The entries in the "total" column correspond to the entries in Table 6 (slight differences are due to rounding).

relative impact on the semi-autonomous employee locations. As a proportion of the 1960 population in each class location, the expansion of state-dominated services generated a 9.5% increase in semi-autonomous employee locations but only a 4.8% and 4.6% increase in manager and working-class locations, respectively. On the other hand, the decline of the transformative sector has had the greatest relative negative impact on the working class: the number of workers declined by 4.8% as a result of the decline of transformative industries, whereas manager and semi-autonomous employee positions declined by only 3.5% and 3.3% respectively.[15]

The question then becomes: what are the likely future trends for the growth of the state and the decline of transformative industries? Until the early 1970s there was a general tendency for the state sector to expand and the transformative sector to decline. Since the mid-1970s, however, there has been a slight decline in the relative employment of the state sector, and at least a levelling off in the decline of the transformative sector. In 1947, approximately 9.6% of the civilian labor force was employed directly by government (federal, state and local combined).[16] This figure increased steadily until 1975 when it reached a peak of 17.3%. In the following four years this figure declined every year, reaching 16.4% in 1979 (the most recent date for which annual figures are available).[17] In the transformative sector, on the other hand, the peak employment was reached in 1953, with 34.5% of the employed civilian labor force being employees in

transformative industries. With some fluctuations up and down, this figure declined until 1975 when it reached 26.7%. In the four years after that the figure has risen slightly each year, reaching 27.3% in 1979.

Are these recent trends likely to persist into the future? Given the fiscal crisis of the state, the general retrenchment of state programs, the tax revolt and the call for restraints on state employment by virtually all major political figures in the United States, it seems likely that the stagnation and decline in state employment observed in the period after 1975 will continue into the 1980s and probably beyond. And it certainly seems quite implausible that we will witness a renewal of the expansion of state employment characteristic of the 1950s and 1960s at any time in the foreseeable future.

The fate of the transformative sector is less clear. The movement of industrial production beyond the borders of the United States may in fact accelerate in the years to come and thus initiate a further decline of this sector. However, the political discussions concerning the "re-industrialization" of America suggest that state policies may be introduced to counter this tendency for industry to move abroad. If this were to occur it would signal a stabilization of the transformative sector, and perhaps even a modest expansion.

If these expectations are borne out, it will mean that the negative industry shift for workers should be reduced in the 1980s, perhaps even becoming positive if a genuine reindustrialization process should occur. The positive industry shift for semi-autonomous employees, on the other

hand, should be drastically reduced as the expansion of the state is halted. Indeed, if state employment were to continue actually to decline proportionately, we might even witness a negative industry shift for semi-autonomous employees.

There is less that can be confidently said about likely class composition shifts. To the extent that capital faces a general stagnation and crisis of accumulation, it might be expected that there would be attempts at rationalizing the managerial structure and increasing the pressures for proletarianization within the labor process. This could lead to a thinning out of managerial ranks and an increase in the degradation of semi-autonomous employee locations. Under pressures of fiscal constraint in the state, we might also expect to see such tendencies in state-dominated social services as well, resulting in a rationalization of state administration and a slowing down in the proportional growth of managers within the state sector.

There are very little data available which bear on these expectations, but some very rough indications can be derived from data gathered by Richard Sobel.[18] Sobel examined a series of social surveys, conducted in the 1970s, within which questions about being a supervisor were included. While there are only four data points in his analysis--1970, 1973, 1976, and 1977--they indicate a steady decline in the proportion of the labor force occupying supervisory positions: from 36.1% in 1970, to 34.1% in 1973, 31.4% in 1976 and 31.1% in 1977. Because of differences in sampling designs and the precise form of the questions asked, these

data cannot be taken as a strong demonstration of the decline of managerial locations in the 1970s, but they may at least indicate that the powerful class composition shift for managers which underwrote their relative expansion in the 1960s has been significantly reduced.

Taken together, these expectations suggest that the rest of the century is likely to be characterized by a continuing and perhaps intensifying process of proletarianization. The specific balance between tendencies and countertendencies mapped out in Table 6 should therefore not be seen as immutable, but rather as an historically specific consequence of the character of American capitalism in the 1960s. As conditions of accumulation change, the balance between these opposing tendencies is likely to change as well. Any serious discussion of transformations of the labor process, proletarianization, class structure, and similar problems must attempt to unravel the complexity of these opposing trajectories of change. On the basis of the most informed speculation we can make with the available data, it seems likely that in the next several decades the net result of these trajectories will be an expansion of the working class, a systematic decline of semi-autonomous employee positions and a stagnation (and perhaps gradual decline) of managerial positions. If this turns out to be the case, it will directly contradict the central thrust of postindustrial theory.

NOTES

[1]We will use the term "labor process" to designate the totality of technical and social aspects of the activity of work.

[2]It should be noted that Richta and his associates, like most of the more sophisticated theorists sharing this general position, explicitly discuss the countertendencies to this process of technological emancipation. However, they unambiguously insist that the emancipatory side of the process is the dominant one in the present era.

[3]For general Marxist discussions of Braverman's thesis, some of which are fairly critical of the simple, unilinear story he tells, see Burawoy (1978, 1979), Friedman (1978), Edwards (1979).

[4]All Marxists may agree that classes are, in the first instance, defined within the social relations of production, but there is no consensus at all about how to define the social relations of production in capitalist society or about the logic by which those relations actually determine the class structure. It is important to remember, therefore, that what follows is not the Marxist theory of class structure, but one contending Marxist account within an ongoing debate. For a detailed discussion of the alternative Marxist treatments of class and class structure, see Wright (1980a). For views which differ from the one advanced in this paper, see Carchedi (1977), Crompton and Gubbay (1978), Poulantzas (1975).

[5]For an analysis of the meaning of combinations of modes of production in social formations, see Wright (1979b).

[6]Strictly speaking, simple commodity production is not a mode of production but a form of production. The concept of mode of production is usually restricted to those forms of social organization of production which are capable of becoming the organizing principle of an entire society (i.e., becoming the dominant mode of production in a social formation). Simple commodity production has never been a dominant structure of production, and there are good theoretical reasons to suspect that it could not become a dominant mode of production. Thus, in most Marxist discussions, it is not referred to as a "mode" of production.

[7]The term "control" is being used as a convenient expression for the social relations of domination/subordination. Control is not an attribute of a position but rather a way of characterizing the relationship between positions.

[8]For discussions of how such positions not directly in the labor force can be analyzed in class terms, see Wright (1979a, pp. 53-54; 1978b; 1980a).

[9]Neither Marxist nor postindustrial theorists formalize their conceptions of transformations of the class structure precisely in terms of the schema of class relations presented in Table 1 or in terms of the decomposition strategy presented above. The following discussion relies on drawing out the hypotheses which are implicit in the overall arguments of each of these theoretical traditions.

[10]In the most recent period of American capitalist development, it would be expected that the expansion of the productive facilities of

multinational corporations in the third world will further intensify the concentration of managerial locations within the American class structure. In effect, the global accumulation process in the 1960s and 1970s has disproportionately increased proletarian class locations outside of the boundaries of the United States, and it would thus be expected that managerial-administrative locations within the United States would tend to expand disproportionately, producing a positive class shift.

[11]This classification of economic sectors is a slight modification of the typology developed by Browning and Singelmann (1978). A number of comments on the typology are necessary. First, the rubric "business services" was referred to as "producer services" in earlier publications. We have changed the label in order to emphasize the specific role of these services in servicing capitalist business organizations, rather than "production" abstracted from its capitalist context. Second, we have formed a separate sector for "professional services" since the status of these activities as the most important, traditional "free professions" gives them a distinctive character for a class analysis. A good case could be made for including legal services in the business service category, since the legal profession is so closely tied to property law, but for the present purposes we will combine them with the medical profession in the "professional services" category. Finally, given the dependence of medicine in general on state activity, medical services could have been placed under state-supported social services.

We decided for the present to restrict this state-supported social service sector to those activities which are mainly organized directly by the state. Thus we included hospital services and excluded medical services (which remain largely private). A broader notion of the state sector which includes all activities closely tied to the state and state policy would certainly be worth exploring, but since we are unable to include such things as the armament and aircraft industries in such a sector with the present data, we decided that a narrower definition of the state sector would be better for this project.

[12]For a detailed discussion of the relationship between occupational categories and class categories both theoretically and empirically, see Wright (1980b: 177-188).

[13]If we perform an additional disaggregation of the data and examine the contribution of each of the economic sectors to the overall industry shift, we see that virtually all of the negative shift for these two classes can be attributed to the decline of the extractive sector. The negative shift from this sector alone is -508,705 for small employers, and -1,004,671 for the petty bourgeoisie. See Table 9.

[14]It is interesting in this context to see in precisely which sectors the negative class composition shift for these classes was greatest. For small employers by far the largest negative class was located within distributive services (-755,599) while for the pure petty bourgeoisie it was in the extractive sector (-256,770). Both of these sectors are sectors in which considerable inroads of large-scale corporate

capital occurred during the 1960s (retail chains and department stores within distributive services, and agribusiness within the extractive sector). See Table 9.

[15]The basic structure of this statistical decomposition remains unaltered when we restrict the analysis to wage-earner categories (as in Table 8): The expansion of the state generated an 8.4% increase in semi-autonomous employees compared to only 3.9% and 3.8% for managers and workers respectively, whereas the decline in the transformative sector led to a 6.6% decrease in the working class compared to only 4.7% and 5.1% decreases for managers and semi-autonomous employees.

[16]The figures reported here are derived from data reported by the U.S. Bureau of Labor Statistics, Employment and Earnings Monthly, October 1980, Tables B-1 and A-1. The categories used in this source do not correspond precisely to those used in the rest of this paper in several respects. First of all, the data for the transformative sector do not include utilities (which we did include in that sector) but do include mining (which we placed in the extractive sector). The data reported here are what the U.S. Bureau of Labor Statistics refers to as "good-producing" industries. Secondly, the category "government" in the Bureau of Labor Statistics data is restricted to employees directly working for some governmental agency, whereas our "state-dominated services" sector included all services within which the government played a predominant role. Thirdly, the only annual time series by economic sector we could find was for employees only (thus excluding

self-employed people in each sector). For the state sector this obviously does not greatly affect the results, but it probably does have some effect on the trends for the transformative sector since, presumably, there would have been more self-employed within that sector in the late 1940s than at present. The percentages reported are thus the number of employees in a sector divided by the total employed civilian labor force (i.e., employees and self-employed, but excluding unemployed). While these percentages do not correspond precisely to the rest of this paper, the discrepancies should not seriously distort the broad tendencies being discussed in the present context.

[17]Between 1947 and 1975 the percentage of the civilian labor force employed by the government increased in every year except 1953, when it declined from 11.0 in 1952 to 10.9%, and in 1955, when it declined from 11.21% to 11.1%. The four consecutive years of decline from 1975-1979 are thus unprecedented in the post-war period.

[18]Personal communication. For a discussion of data sources and measurement problems, see Sobel (forthcoming).

TECHNICAL APPENDICES

A. The Decomposition of Change in the Class Structure

The basic method used to decompose the changes in the class structure of U.S. employment is a modified shift-share technique (see Huff, 1967, and Perloff et al., 1960, for other uses of this approach). In their study The Emergence of a Service Society, Browning and Singelmann (1975) adopted this approach with the technique developed by Palmer and Miller (1949) and Gnanasekaran (1966) to examine the relationship between the industry structure and the occupational structure. Following their procedure it is possible to decompose changes in the class structure into these components: (1) an industry-shift effect; (2) a class-composition-shift effect; and (3) an interaction effect. For our purposes the industry effect refers to changes in the class structure that result from a changing industry structure. Since the petty bourgeois, for example, are strongly concentrated in agriculture, a decline of this industry is unfavorable to the growth of the petty bourgeoisie, ceteris paribus. The class composition effect refers to changes in the class structure that result from a changing class composition within each industry, independent of changes in the relative size of these industries. Finally, some changes in the class structure can be attributed neither to changes in the industry structure nor to a changing class composition within industries, but rather they result from an interaction of these two forces or, accordingly, the interaction effect. This procedure is

comparable to Kitagawa's (1955) approach of decomposing changes in rates into different components.

An application of this method is carried out in Appendix Table 1. Columns 1 and 2 are the actual numbers in each class category in 1960 and 1970, respectively. The figures in col. 3 would have been observed in 1970 had each class category grown at the same rate as total employment during the 1960s. In col. 4, we assumed that there were no changes in the class composition within industries between 1960 and 1970, and therefore permitted only the industry structure to change as it did. Thus the actual 1970 employment in each industry was distributed according to its specific 1960 class composition. The summation of each class category across the 37 industries results in the figures that are given in col. 4. Cols. 5 and 6 refer to the actual change and the expected change, respectively, in each class category.

The key column in this table is that of the net shifts (col. 7) which indicate the growth of each class category independent of the growth of total employment. A positive figure indicates a relative expansion of this class category, whereas a negative figure indicates a relative decline; the net shifts thus are comparable to the percentage figures in Table 1.

Col. 8 gives the growth of workers in each class category, if there had been only industry shifts but no shifts in the class composition within industries, with the growth rate of total employment controlled. We call this the "industry-shift effect." Col. 9 refers to the number of workers each class category would have gained (or lost) had there

APPENDIX TABLE 1

Industry Shift Effect and Changes in the Class Structure of the U.S. Labor Force, 1960-70

Class	Employment				Change			Change due to		In %	
	1960	1970	Expected 1970	Weighted 1970[a]	Actual	Expected	Net	Industry-Shift Effect	Class-Composition and Interaction-Shift Effect	Industry-Shift Effect	Class Composition and Interaction-Shift Effect
	(1)	(2)	(3)	(4)	(5)= (2)-(1)	(6)= (3)-(1)	(7)= (5)-(6)	(8) (4)-(3)	(9)= (2)-(4)	(10)= (8)÷(7)	(11)= (9)÷(7)
Employers	4,111,014	3,087,226	5,080,874	4,749,584	-1,023,788	969,860	-1,993,648	-331,290	-1,662,358	16.6	83.4
Petty bourgeoisie	3,753,212	2,859,979	4,638,661	4,140,376	- 893,233	885,449	-1,778,682	-498,285	-1,280,397	28.0	72.0
Managers	20,293,995	27,291,760	25,081,705	25,803,793	6,997,765	4,787,710	2,210,055	722,088	1,487,967	32.7	67.3
Semi-autonomous	6,794,122	8,475,457	8,396,975	8,780,798	1,681,335	1,602,853	78,482	383,823	- 305,341	489.0	-389.0
Workers	27,081,959	34,954,862	33,471,069	33,194,733	7,872,903	6,389,110	1,483,793	-276,336	1,760,129	- 18.6	118.6
TOTAL	62,034,302	76,669,284	76,669,284	76,669,284	14,634,982	14,634,982	-0-	-0-	-0-		

Source: 1960 and 1970 census data.

[a]Weighted by 1960 class composition within industries.

been no change in the industry structure but only changes in the class composition of industries and an interaction between the two. In order to separate the interaction effect from the class-composition-shift effect, the standardization was reversed, and this is carried out in Appendix Table 2. In that table, col. 4 results from the assumption that there was no change in the industry structure between 1960 and 1970, and that only the class composition within industries changed as it did. This procedure now allocates the interaction effect to the industry-shift effect and thus yields the change in each class category, controlled for the growth of total employment, that would have occurred had there been only changes in the class composition within industries but no shifts in the industry structure (and its interaction). This change is referred to as the "class-composition-shift effect" and it is given in Appendix Table 2, col. 8. By subtracting this class-composition-shift effect from the combined composition-shift and interaction effect (Appendix Table 1, col. 9), the interaction effect is derived. The results of both tables in the Appendix are summarized in Table 6.

B. The Method Used to Impute Class Structures Using Census Data

Since there exists no single data set that would permit an empirical investigation of the relationship between class structure and industry structure, we had to link two separate data sources and, in that process, make some rather sweeping assumptions. The two data sources employed in the analysis are (1) the 1969 Survey of Working Conditions, SWC

APPENDIX TABLE 2.

Class-Composition-Shift Effect and Changes in the Class Structure of the U.S. Labor Force, 1960-70

Class	Employment				Change			Change due to		In %	
	1960	1970	Expected 1970	Weighted 1970[a]	Actual	Expected	Net	Class-Composition-Shift Effect	Industry-Shift and Interaction-Shift Effect	Class-Composition-Shift Effect	Industry-Shift and Interaction-Shift Effect
	(1)	(2)	(3)	(4)	(5)= (2)-(1)	(6)= (5)-(6)	(7)= (5)-(6)	(8) (4)-(3)	(9)= (2)-(4)	(10)= (8):(7)	(11)= (9):(7)
Employers	4,111,614	3,087,226	5,080,874	3,421,482	-1,023,788	969,860	-1,993,648	-1,659,392	-344,256	83.2	16.8
Petty bourgeoisie	3,753,212	2,859,979	4,638,661	3,498,317	- 893,233	885,449	-1,778,682	-1,140,344	-638,338	64.1	35.9
Managers	20,293,995	27,291,760	25,081,705	26,486,217	6,997,765	4,787,710	2,210,055	1,404,512	805,543	63.6	36.4
Semi-autonomous	6,794,122	8,475,457	8,396,975	8,095,797	1,681,335	1,602,853	78,482	- 301,178	379,660	-383.8	483.8
Workers	27,081,959	34,954,862	33,471,069	35,167,471	7,872,903	6,389,110	1,483,793	1,696,402	-212,609	114.3	-14.3
TOTAL	62,034,302	76,669,284	76,669,284	76,669,284	14,634,982	14,634,982	-0-	-0-	-0-		

Source: 1960 and 1970 census data.

[a]Weighted by 1960 composition within industries.

(conducted by the Institute for Social Research, University of Michigan), and (2) the 1960 and 1970 population censuses. The SWC could not be used by itself because it was taken at one point in time only and thus does not yield any information about changes in the class structure or the industry structure. The Population Census (PC) reveals changes in the industry structure but it does not contain any questions about social class (as defined in this paper). To link the two data sets, we therefore created identical cross-classifications of 37 industry categories and 11 occupational categories with the SWC and the two PC's. The industry and occupational categories represent the total civilian employment in the Survey and in the censuses (for an elaboration of these categories, see Browning and Singelmann, 1978). Using the SWC, we then specified the class distribution for each industry-specific occupation. Furthermore, two main assumptions had to be made. First, it was assumed that there is no difference between the SWC and the PC in terms of the class composition of each industry-specific occupation. And second, we assumed that the class composition of industry-specific occupations did not change between 1960 and 1970. Obviously, the second assumption is rather questionable, but it was necessitated by the nature of the available data (see part C of the Appendix for a comment on the biases in the findings that result from these assumptions). Once these assumptions are made, the class composition of each industry-specific occupation as derived from the SWC can then be imputed for each industry-specific occupation in the two censuses. Finally, by

aggregating individuals of the same class in each industry, we eliminated the occupational categories. The result is the class composition of each industry. Before adding these results across industries to obtain the class structures for 1960 and 1970, we made one further refinement. Since the sum of the small employer and the petty bourgeois class locations has to equal the sum of the census category "self-employed," it was possible to partly eliminate the distortion that results from the assumption about a fixed class composition within industry-specific occupations. By using the census information about the distribution of employment among self-employed and employed as parameters, we correctly estimate the combined class locations of small employers and the petty bourgeoisie, on the one hand, and the combined class locations of managers, semi-autonomous employees, and workers, on the other hand. Specifically, we divided the employment in each industry between the self-employed and the employed, as given by the census in 1960 and 1970. The self-employed then were allocated to the small employer and petty bourgeois class locations in the same proportions as the imputed proportions for these two class locations to one another. The same procedure was followed for the employed which were allocated to the class locations of managers, semi-autonomous employees, and workers. These adjusted class distributions for each industry were then added to obtain the overall class structures for 1960 and 1970. Comparing the 1960 and 1970 data, we can identify changes in the class composition <u>within</u> industries and changes in the overall class structure that resulted from a different industry structure.

C. Possible Biases in the Estimation Procedure

The strategy adopted for estimating changes in the class structure between 1960 and 1970, and then decomposing those changes into three different components, involved a number of assumptions which undoubtedly introduce various distortions. The following distortions seem particularly important:

1. Overestimation of the semi-autonomous employee category in 1970. The questions available for measuring the semi-autonomous employee class location in the SWC were limited to subjective questions concerning "freedom on the job" and "decision-making." While it is probably the case that most people in genuinely semi-autonomous locations would respond "a lot" on the subjective questions, it is likely that many people who lacked real autonomy might also respond on the high end of the subjective autonomy questions. This would be expected since it is likely that people answer the question in terms of the expectations of autonomy relative to some abstract, absolute norm of autonomy. The result would be that we probably overestimated the 1970 level of autonomous locations.

2. Overestimation of the managerial category in 1970. Since each person who states that he or she is, even nominally, a supervisor, is being placed in the supervisor/manager class location, we have undoubtedly included certain individuals who are mere conduits for information and lack any real "authority" in the sense of having the capacity to invoke sanctions on subordinates.

3. It is more difficult to say whether we have under- or overestimated the size of semi-autonomous and managerial locations in 1960. If the Braverman thesis is correct and there has occurred a systematic degradation of work within industry-specific occupations, then our assumption that occupation-specific class distributions within industries have remained unchanged would imply that our estimated numbers of the managerial and semi-autonomous class locations in 1960 are underestimates. However, since we have reason to believe that, in fact, we overestimated the size of these class locations in 1970, the actual estimate for 1960 may be closer to the true distributions than for 1970.

4. Underestimation of the working class in 1970. Since we used the 1960 and 1970 census information on self-employed/employed members of the labor force to adjust the combined size of the managerial, semi-autonomous, and worker class locations, an overestimation of the managerial and semi-autonomous locations (see #1 and #2 above) in 1970 implies that we underestimated the size of the working class in 1970.

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