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Class Structure and Economic Inequality

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By Edward N. Wolff and Ajit Zacharias

ABSTRACT

Existing empirical schemas of class structure do not specify the capitalist class in an adequate manner. We propose a schema in which the specification of capitalist households is based on wealth thresholds. Individuals in noncapitalist households are assigned class locations based on their position in the labor process. The schema is designed to address the question of the relationship between class structure and overall economic inequality. Our analysis of the U.S. data shows that class divisions among households, especially the large gaps between capitalist households and everyone else, contribute substantially to overall inequality.

Keywords: Class Analysis, Living Standards, Inequality

JEL Classifications: B51, D31, P16, Y80

1. INTRODUCTION

Conflict between major social classes over the distribution of national income was a central concern of classical economists. Karl Marx further developed the understanding of class structure by linking it explicitly to the historically specific forms of property relations and organization of the labor process (Milios 2000; Zweig 2005). However, with the emergence and subsequent ascendancy of marginalist theory, classes disappeared from the field of economics, to be replaced by “agents” possessing, somewhat mysteriously acquired, preferences and endowments. Recent debates over the so-called “microfoundations” of Marxian economics have touched upon questions of class—particularly over whether class can be construed as an aggregation of individuals or individuals matter only as bearers of irreducible class relations (Philip 2005; Goldstein 2006). While these discussions might perhaps have an intrinsic merit, it is arguable that they do not add much in way of aiding the descriptive task of specifying the class structure of modern capitalist economies or in the study of how class structure shapes various inequalities, for example, in income or educational outcomes, among individuals. The descriptive power of class analysis and the relationships between class structure and forms of economic and social inequality, were, however, key concerns of the classical economists and Marx. These concerns are no less relevant today and attention to them can contribute to maintaining the practical usefulness of class analysis.

Questions of class structure and the relationship between class and inequality have been taken up for systematic study within the discipline of sociology, where the Marxist and Weberian modes of class analysis have dominated the intellectual landscape (Sørensen 2000; Therborn 2002). Key contributions toward conceptualizing the class structure of advanced capitalist economies in an empirically useful manner have been made by Erickson and Goldthorpe (1992) and Wright (1997). Also, an impressive body of literature has emerged that relates class structure to inequality. Wright and Perrone (1977) estimated regression models for the United States in 1969 with annual income as the dependent variable and education, age, Duncan’s Socio-Economic Index of occupational prestige, and class as independent variables. Their comparisons of alternative specifications showed that class categories accounted for a larger proportion

of the explained variance in income than occupational prestige. Similarly, research based on the Goldthorpe-Erickson class schema challenged the “liberal” notion that disparities in educational attainment among social classes tend to decline in advanced capitalist nations. Based on the estimates from logistic regression models using early 1970s data for men in age group 30–65 from nine European nations, Müller and Karle (1993) showed that the probability of transition from the lower to higher levels of educational attainment was higher for those higher in the class hierarchy.

While the class schemas mentioned above have proved useful in empirical research, they are inadequate in their specification of the capitalist class. We propose a schema that attempts to overcome this deficiency. Further, the relationship between class structure and economic inequality has not received due attention. The few available studies (Wright and Perrone 1977; Robinson and Kelley 1979; Schooler and Schoenbach 1994) focus on estimating the (conditional) effects of class categories on income. We adopt an alternative strategy, based on the decomposition of the Gini coefficient, to highlight the relationship between overall inequality and stratification along class lines. We also analyze the contributions made by different sources of income to overall income inequality. Another distinctive feature of our approach is that, unlike most studies that use gross money income or earnings as the income measure, we use a post-tax, post-transfer, wealth-adjusted measure of income that better reflects economic well-being.

We focus on the United States, the country that currently occupies the position of the world’s leading capitalist economy. We chose two benchmark years, 1989 and 2000, because these two years can be considered as the terminal years of the last two upswings of economic growth in the United States during the twentieth century. The U.S. macroeconomic performance during the intervening period between the benchmark years was exceptional among the developed capitalist nations.

2. OPERATIONALIZING CLASS

The primary distinction in Marxist theory regarding class is between those who own and do not own means of production. While direct ownership dominated at an earlier stage of capitalism, major assets in private hands are held under corporate ownership in modern capitalism. As Marx and Engels noted in Volume 3 of *Capital*, the separation of ownership and control in production activities had become a powerful tendency in the second half of the nineteenth century (Marx 1991). They also noted that the separation leads to the formation of a managerial class, entrusted with the charge of “other people’s capital,” and a financial capitalist or rentier class.¹

In spite of this fundamental transformation in capitalism, empirical studies in the Marxist tradition tend to identify the capitalist class as a subset of the self-employed. Essentially, a capitalist is defined as a self-employed person who employs some minimum number of employees. The minimum is specified differently across studies. Thus, Wright and Perrone (1977) and Western and Wright (1994) defined the required minimum as one employee. Wright (1997) defined the capitalists as self-employed persons who employ ten or more workers. Hogan (2005) used three employees as the required minimum, while Schooler and Schoenbach (1994) defined “employers” as self-employed persons who employ at least four nonfamily employees.

The principle rationale behind this criterion is that the hallmark of those who belong to the capitalist class is their employment of others for the purpose of making profits. There are a few problems with this rationale. First of all, it can be hard to separate the net income of a self-employed individual into wages and profits.² Second, if the self-

¹ In his Supplement to Volume 3 of *Capital*, Engels noted that the rapid pace of capitalist accumulation in the 1870s and 1880s led to “a growth in the number of rentiers, people who have tired of routine exertion in business and who simply want to amuse themselves or pursue only a light occupation as directors of companies” (Marx 1991).

² This problem is also encountered in estimating aggregate wages or variable capital (e.g., Shaikh and Tonak 1994). Typically, an arbitrary assumption is made to split the net income of the self-employed into wages and profits (e.g., estimating an imputed wage by assigning the average wage of employees to the self-employed and then subtracting the resulting total wages from net income to obtain imputed profits).

employed serve in effect as subcontractors for large corporations then the social relation between them and their employees will be more of a supervisory relation than a capitalist-worker relation. Most importantly, this approach neglects three important facts about the modern U.S. economy: (i) the overwhelming majority of private-sector employees work for corporations; (ii) corporations own the vast majority of private-sector nonresidential fixed assets; and (iii) corporations account for the bulk of business receipts. Thus, corporations rather than individual business owners dominate production for private profit. Using the criterion can at best identify small business owners.³

An alternative approach, therefore, would be to identify those who control the corporations as the capitalist class. This was the approach taken by Michael Zweig, which has its roots in the sociological tradition of studying the elites (Domhoff 1998). Zweig argued that the capitalist class is made up of the owners and top management of big business (defined as enterprises with more than 20 employees). He estimated that they constituted 2 percent of the labor force in 1995. This estimate was apparently constructed on the basis of the average number of directors on the board of big business enterprise and the total number of big businesses (Zweig 2000). Thus, while Zweig's concept of the capitalist class includes the owners and the top management, his estimate of it appears to consist only of the board of directors.

Either criterion—the number of employees under a self-employed person or membership in a corporation's board of directors—is insufficient to include the financial aristocracy among the ranks of the capitalist class. Wright did recognize this limitation of his criterion, but argued that including them would have only a negligible impact on the estimated size of the capitalist class (Wright 1997). Given the relatively small number of households that make up the financial aristocracy, Wright is indeed correct. Yet, admittedly, estimating the distribution of households or individuals across class locations is only a step in most research; the interesting and often more difficult issues pertain to the relationship between class structure and other characteristics of individuals, such as race, income, or educational attainment.

³ Wright and Perrone recognized this limitation, but attributed it to the limitation of their particular sample rather than to a structural feature of modern capitalism (Wright and Perrone 1977).

In this study, we identify the capitalist class on the basis of nonhome wealth. Nonhome assets included in this definition include real estate and businesses (business equity), liquid assets, financial assets (stocks, bonds, etc.), and retirement assets (excluding the value of future benefits from public or private pensions). Nonhome wealth is calculated by subtracting all debt (excluding mortgage debt) from the value of all nonhome assets. A household is considered to be a capitalist household if it has nonhome wealth of at least \$4 million or business equity worth at least \$2 million (dollar amounts are in 2000 dollars). While the thresholds are arbitrary, they would be, under normal circumstances, sufficient to yield a property income that can provide a household with a standard of living that is beyond the reach of the majority of households.⁴ In effect, members of capitalist households may be considered as being free from the economic compulsion to engage in wage labor by virtue of their exceptionally large amounts of wealth. Moreover, our definition includes the so-called “rentier” class—those who can live off the mere ownership of their wealth.⁵

For wage or salary-earning individuals in noncapitalist households, their position in the social labor process is the determinant of class location. Previous research has delineated positions in the labor process using the authority dimension and the skills/credentials dimension (Goldthorpe 2000; Wright 1997). The complex approach to operationalizing these dimensions is to classify individuals on the basis of responses to a battery of questions regarding the actual content of their jobs, the number of subordinates and superiors they have, etc. The simpler approach classifies individuals based on their occupational titles. Comparison of results based on the two approaches suggests that the simpler method performs quite well in capturing the main features of the class structure.⁶

⁴ Assuming a modest 4 percent rate of return, the thresholds imply that the potential property income will be \$160,000 (for nonhome wealth) or \$80,000 (for business equity). In contrast, median household income in 2000 was \$42,000. An income of \$80,000 would have placed the household in the top 20 percent of the income distribution and that of \$160,000 in the top 5 percent.

⁵ In more dated terminology, these individuals would have been referred to as “coupon clippers.”

⁶ The comparison found that the biggest problem was with the category of “managers,” where occupational title did not always reflect the actual job content. On the basis of the more complex operationalization, a third of those with the occupational title of managers had to be reclassified as supervisors or nonmanagerial employees (Wright 1997)

We used the Census Bureau's detailed occupational codes (499 in 1989 and 494 for 2000) to group employees into six class locations: managers, supervisors, professionals, white-collar skilled workers, blue-collar skilled workers, and nonskilled workers. In this typology, we distinguish workers both by their supervisory relationship and by the skill content of their work. A comparison between our schema on the one hand and the Goldthorpe and Wright schemas on the other is shown in Table 1.

Our main difference with the Wright schema is that we do not make distinctions within the managerial and supervisory groups according to skills or expertise level. Their principle task is to manage the labor process for profit and it is the "skill" in performing this task that defines the social relation between them and others (the owners above them and the employees under them).⁷ Our distinctions among the nonmanagerial and nonsupervisory employees may be viewed as falling somewhere between the other two schemas in terms of detail. The central consideration behind the groupings for us is the degree to which the worker can maintain some control over the labor process. Wright, on the other hand, viewed the skills and expertise dimension in terms of the ability to command wages over and above the cost of labor power (Wright 1997). For Goldthorpe, the crucial factor is the differences in the employment contract (explicit or implicit) faced by different categories of employees (Goldthorpe 2000). Admittedly, while the different rationales are conceptually important, it is quite unlikely that they will lead to drastic differences in the resulting empirical class schemas (Therborn 2002).

Individuals in noncapitalist households who are self-employed are treated as a distinct group separate from employees. We could call this group the "petty bourgeoisie," but because it can include individuals enmeshed in qualitatively different sets of social relations, we designate them simply as "self-employed." This group consists of owners of

⁷ "Just as at first the capitalist is relieved from actual labor as soon as his capital has reached the minimum amount with which capitalist production, properly speaking, first begins, so now he hands over the work of direct and constant supervision of the individual worker and groups of workers to a special kind of wage laborer. An industrial army of workers under the command of a capitalist requires, like a real army, officers (managers) and N.C.O.s (foremen, overseers), who command during the labor process in the name of capital. The work of supervision becomes their established and exclusive function." (Marx 1977).

small enterprises, as well as professionals (doctors, lawyers, consultants, etc.) and skilled craftspeople (plumbers, electricians, etc.).

Occupational codes in our data are available only for those in the civilian labor force who worked for pay or those who were self-employed during the previous year of the survey (earners). Our schema (like the Wright and Goldthorpe schemas) leaves individuals who did not engage in market work without any class location. There have been extensive debates about the class character of unpaid household labor (for a review, see Mutari 2001); there is also a substantial literature on whether employable adults out of the labor force constitute a reserve army of labor or an underclass with a separate class identity (e.g., Marshall, Roberts, and Burgoyne 1996). Since there is hardly a consensus on these issues, we follow the standard procedure of not assigning these individuals a class location directly. However, since our basic unit of analysis is the household (see the next section), the class location of earner households is determined by the class location of a single earner in the household (“reference person”). As a result, other earners and nonearners in such households are indirectly assigned a class location.⁸

Our basic data is drawn from the public-use files of the Census Bureau’s Annual Demographic Supplement (ADS). However, the ADS does not have any information on household wealth, the crucial variable for identifying capitalist households. We therefore statistically matched the ADS with the Survey of Consumer Finances (SCF), conducted by the Federal Reserve in 1989 and 2001. The idea behind the matching algorithm is to find, for each household record in the ADS a household record in the SCF that matches it closely in terms of key characteristics, such as race and age of the householder,

⁸ Individuals left out of our schema can be subdivided into two types of (noncapitalist) households: households with only individuals 65 years or older (elderly households) and nonearner households with at least one working-age adult. It could be argued that the elderly households should be assigned a class location based on their class location before retirement; however, no such information is available in the data. As for the other type, it turns out that the vast majority of prime-age adults in such households are military personnel (82 percent in 2000). In the survey, military employment is coded as a separate occupation in itself and cannot therefore be included in our class schema.

household income, etc.⁹ The total number of capitalist and noncapitalist households in the sample were 47,139 in 1989 and 64,594 in 2000.

3. CLASS STRUCTURE

3.1. Unit of Analysis

Our unit of analysis is the household. This choice of the unit of analysis requires the designation of a particular individual in the household as the “reference person.” The class location of the household is considered as equivalent to the class location of the reference person. Following the convention, we have picked the person designated as the “householder” by the Census Bureau as the reference person for capitalist households and households in which the householder is an earner (i.e., either an employee or self-employed). For noncapitalist households in which the householder is not an earner, we designated the person with the highest earnings as the reference person. Our approach to determining the household’s class position can be described as a combination of the conventional approach that uses the position of the household head and the dominance approach of Erikson that uses the position of the earner with the dominant occupational position (Erikson 1984; Sørensen 1994).¹⁰

An alternative to the above approach would be to choose the individual (with an assigned class location) as the unit of analysis, i.e., to expand the sample to include all individuals with class locations, rather than just the reference persons. This could potentially change the picture regarding the overall class structure. But, in our data, estimates showed that the class structure was pretty much invariant to the choice of the unit of analysis: the percentage distribution of class locations was largely the same for both units.

⁹ Details on the matching algorithm are available from the authors upon request.

¹⁰ It should be noted that the Census Bureau’s definition of the householder is different from the traditional definition of the household head. The householder is the person in whose name the housing unit is owned or rented. In cases of joint ownership or lease, the Bureau assigns the householder status randomly.

The substantive question, however, is whether one or the other unit of analysis could be more suitable for examining the relationships between class structure and economic inequality. The answer to this question depends on the measure of economic status that is to be used for analysis. For example, it seems natural to choose the individual as the unit of analysis if the objective is to examine the relationship between class structure and earnings inequality. Our interest here is the inequality in the potential command over commodities among persons living in the capitalist and earner households.¹¹ Hence, it is reasonable to adopt the household as the unit of analysis and determine its class location by means of the reference person's class location.

3.2. Estimates for 1989 and 2000

The percentage breakdown of households classified by our typology in 1989 and 2000 is shown in Table 2, Panel A. Worker households—households in which the reference person was a skilled or nonskilled worker—constituted the majority of households in both years (57 and 55 percent, respectively, in 1989 and 2000). Manager households and professional households—households in which the reference persons were, respectively, a manager and a professional—were similar in their total number, which grew relatively faster than the number of worker households. In contrast, supervisor households and self-employed households declined as a proportion of total households. The smallest group was the capitalist households, which constituted 2 percent of all households in 2000, sharply up from 1.1 percent in 1989. This change reflected the large increase in household wealth over this period.

A “working-class majority” (the title of Michael Zweig’s book) is also evident if we consider the distribution of class locations among all earners, instead of just reference persons (Table 2, Panel B). Skilled and nonskilled workers made up 60 percent of all earners in 2000, down somewhat from 64 percent in 1989. Interestingly, the proportion of supervisors in the total number of earners actually increased slightly in contrast to their notable decline in the total number of reference persons. The relatively faster growth in

¹¹ An earner household is defined as a noncapitalist household in which at least one individual has a class location (i.e., either a wage earner or self-employed).

the number of managerial and supervisory employees over the period perhaps lends support to the arguments made by David Gordon regarding the fattening of the bureaucracy wielding the stick in the American workplace (Gordon 1996).

The demographic composition¹² of the groups within the earner households is portrayed in Figures 1 through 4. In both 1989 and 2000, a higher share of managers, supervisors, professionals, skilled white-collar workers, and self-employed were white¹³ compared to overall (Figure 1). In contrast, nonwhites made up a larger share of nonskilled workers in both years than overall and about the same percentage of skilled blue-collar workers as overall. The higher echelons of the class structure were thus “more white” than the overall class structure. However, the share of whites in all classes declined between 1989 and 2000, though at about the same rate as overall.

Women increased as a share of every group between 1989 and 2000, much in line with their increase overall (Figure 2).¹⁴ The highest share of female reference persons was found in the nonskilled worker group in the two years. In 2000, they constituted the majority (52 percent) of nonskilled workers, well above their overall share (41 percent). Women were also over represented among professionals, while their share of managers was in line with their overall share. They are under represented among the self-employed and, not surprisingly, only a small share of the skilled blue-collar group was composed of women.

The age composition of the seven earner groups in 2000 was pretty much in line with the overall age composition, with the notable exception of self-employed workers (Figure 3). The highest proportion of young workers (under age 35) was in the nonskilled worker group (33 percent) and the lowest share in the self-employed class (only 13 percent). The highest share of prime-age workers (age group 35 to 50) was found in the supervisory class and the lowest share in the nonskilled worker group. The highest percentage of older workers (age 51 and over) was in the self-employed class (45 percent), compared to 31 percent overall.

¹² The demographic characteristics of households are based on the reference person. We do not present the demographic breakdown of the capitalist households due to their rather small sample size.

¹³ “White” refers to non-Hispanic whites alone. “Nonwhite” includes everyone else.

¹⁴ Their increase overall reflects the large growth in the number of female workers over this period.

College graduates made up 39 percent of all reference persons overall but, as one would expect, 86 percent of the professional group, 61 percent of the managerial group, and 53 percent of the white-collar skilled group in 2000 (Figure 4). Household heads with less than a high school education (the lowest educational group in our categorization) comprised 11 percent of all household heads, but 18 percent of blue-collar skilled workers and 19 percent of nonskilled workers.

4. CLASS DISPARITIES IN INCOME AND INCOME COMPOSITION

4.1. Income Measure

The most widely used income measure in studies of inequality is gross household money income. This measure has been subjected to a number of criticisms for failing to adequately reflect the household's command over commodities (Canberra Group 2001; Wolff, Zacharias, and Caner 2004). From our standpoint, there are three principle shortcomings. First, it neglects the reduction in the command over commodities imposed by taxes. Second, by including only cash transfers in the income measure, it excludes the increase in the command over commodities that are obtained by means of noncash government transfers. Finally, property income (the sum of dividends, interest, and rent) that is included in money income is a poor measure of income from wealth.

We address these deficiencies by constructing an alternative measure that we call "comprehensive income" (Table 3). The single most important difference between our measure and the standard income measures is the treatment of the income from wealth. Current property income does not fully capture the "stock" dimension of the advantages from the ownership of nonhome wealth and completely neglects the disadvantage from the burden of nonhome debt (Wolff and Zacharias 2006). If the ability to approximate potential consumption over a given period of time is a desirable characteristic of a measure of economic well-being, then it seems appropriate to take wealth into account in a more comprehensive manner. Our definition includes income from home wealth and income from nonhome wealth separately. Income from home wealth is estimated as the difference between the gross imputed rent on owner-occupied housing and the annutized

value of mortgage debt.¹⁵ Income from nonhome wealth is calculated as the difference between the imputed lifetime annuity on nonhome assets and the annutized value of nonhome debt.

The most common alternative to the lifetime annuity method is the bond-coupon method (a fixed return, say 3 percent, on nonhome wealth). Our approach better reflects the resources available to the wealth holder on a sustainable basis over the expected lifetime.¹⁶ We also used asset-specific, historical rates of total return (ranging from 14 to 40 years) in calculating the annuity value in order to account for the differences in portfolio composition across households.¹⁷ In contrast, the bond-coupon method assumes away the differences in individual household overall rates of return caused by differences in household portfolios (Wolff and Zacharias 2006).

4.2. Income Levels and Composition

The capitalist households were far ahead of other groups in median income and the nonskilled workers ranked at the bottom (Table 4). Manager households occupied a distant second place, followed by the professionals and, behind them, the white-collar skilled workers. Supervisor households enjoyed a higher median household income than the self-employed in 1989, but they were in a virtual tie for the fifth place in 2000. Blue-collar skilled workers occupied the rung just above nonskilled workers in 2000, though they had roughly same level of median income as the self-employed in 1989.¹⁸

¹⁵ An alternative to our approach to measuring the income from home wealth is to value the benefit from owner-occupied housing as a return on home equity. This approach, in effect, treats homes like a financial asset. We consider housing to be a universal need and hence value the benefit in the form of a replacement cost, i.e., rental equivalent.

¹⁶ Information on life expectancy by sex and race was from the life tables published by the U.S. National Center for Health Statistics. In the case of households with multiple adults, life expectancy is the maximum of the life expectancies of the adults.

¹⁷ We use the rates of return reported in Wolff and Zacharias (2006).

¹⁸ These rankings are robust to equivalence scale adjustment, with the exception of professionals and managers. With equivalent incomes, the two groups had almost identical median income. We used the equivalence scales currently used in the official experimental poverty measures. For single parents, the

While the income gap between the capitalist households and the rest can only be described as massive, it should also be noted that the nonskilled workers are substantially behind the other groups of earner households. The least amount of differential was between them and the blue-collar, skilled workers who had a median income that was 21 percent higher in 2000. Managers, on the other hand, had an income that was 61 percent larger than that of nonskilled workers.¹⁹ The relative income of nonskilled workers improved or remained stable vis-à-vis other employee groups between 1989 and 2000, but the gaps between them and the other two groups, capitalist and self-employed, widened.

Income composition of households in various class locations is shown in Table 5. In 2000, fully 84.3 percent of the income received by the capitalist class was income from nonhome wealth, compared to 29.9 percent overall. Only self-employed workers had a share of income from this source over 20 percent (23.4 percent in 2000). Moreover, only 18.2 percent of total income for the capitalist class came from base income. For all other groups, the share was over 92 percent (over 100 percent excluding nonskilled workers). Transfers made up 7.0 percent of income overall, but 14.7 percent for nonskilled workers and only 1.1 percent for capitalists. The share of taxes in income was 27.7 percent in 2000, but only 7.4 percent for capitalists and over 28 percent for all other groups except nonskilled workers.

Between 1989 and 2000 the most notable change in the composition of income overall was a huge increase in the share of income from nonhome wealth, from 19.2 to 29.9 percent. This change largely reflects the big increase in household wealth over this period, which in turn reflects the stock market boom of the late 1990s. The share of base income correspondingly declined from 95.5 to 86.4 percent overall over the period. For the capitalist class, income from nonhome wealth rose from 82.8 to 84.3 percent of total income over the period, whereas base income declined from 20.5 to 17.7 percent. Another notable change is that the average tax burden of the capitalist class actually fell

scale is $(A + 0.8 + 0.5(C - 1))^{0.7}$, while for all other households, it is $(A + 0.5C)^{0.7}$, where A is the number of adults and C is the number of children.

¹⁹ The relative income of these groups was almost unchanged, even after the equivalence scale adjustment.

over the period, from 9.8 to 7.6 percent. In contrast, the share of taxes in total income rose for all other groups except the self-employed (for whom it was largely unchanged).

5. INEQUALITY

We now turn to address the relationship between class divisions and overall inequality in CI. We first examine the contribution of inter-class and intra-class components to overall inequality, as well as the extent to which the distribution of CI within each class is different. Then we turn to how different sources of income contribute to overall inequality.

The Gini coefficient is our preferred measure of overall inequality. It is the most-widely understood measure. The Gini is especially suited for decomposition by class because, unlike other measures of inequality, it can be associated with an index of stratification (Yitzhaki and Lerman 1991). Stratification refers to the extent to which each class, as compared to other classes, occupies a distinct segment of the income distribution.

5.1. Inter-class and Intra-class Inequality

Let G be the Gini coefficient of the CI distribution among all households. The Yitzhaki decomposition separates the total amount of inequality into inter-class inequality (I_b) and a remainder (I_r) that can be interpreted as intra-class inequality (Yitzhaki 1994):

$$G = I_b + I_r \quad (1)$$

The amount of inter-class inequality is computed as:

$$I_b = \frac{2 \text{cov}(\mu_i, \overline{F_{oi}}(y))}{\mu}, \quad (2)$$

where y is income (CI), μ is mean income for all households, μ_i is mean income for class i , and $\overline{F_{oi}}(y)$ is the mean rank of class i , i.e., the average position of the members

of a class in the overall income distribution.²⁰ Thus, the amount of inter-class inequality is twice the covariance between the mean incomes and mean ranks of classes divided by the mean income for all households.²¹

The remainder term is calculated as:

$$I_r = \sum_{i=1}^8 s_i G_i O_i, \quad (3)$$

where s_i is the share of class i in aggregate income, G_i is the Gini coefficient of the income distribution within class i , and O_i is the overlapping index for class i . The Yitzhaki decomposition thus provides group-specific measures of overlapping. The index of overlapping proposed by Yitzhaki is a measure of the degree to which the range of income in each group overlaps with the range of income for all households. Overlapping can thus be seen as the opposite of stratification: the higher the amount of overlap between a class and the population, the less stratified they are as a class in terms of income (Yitzhaki 1994).

Formally, the amount to which class i overlaps with the overall distribution is defined as:

$$O_i = \frac{\text{cov}_i(y, F_{oi}(y))}{\text{cov}_i(y, F_i(y))}, \quad (4)$$

where $F_{oi}(y)$ is the function that assigns to the members of class i their ranks in the overall distribution, F_i is the function that assigns to the members of class i their ranks in the income distribution within that class, and cov_i indicates that the covariance is

²⁰ For example, if the mean rank is 0.25 for nonskilled workers, then the average worker's position in the income distribution for all households is at the 25th percentile.

²¹ In contrast, in the standard decomposition the between-group component is equal to twice the covariance between the mean income of each group and the rank of each group's mean income divided by overall mean income. The Yitzhaki decomposition takes into account the ranking of each household within each class in the overall distribution.

according to the distribution within class i .²² The minimum value of O_i is given by the share of class i in the total number of households and its maximum value is equal to 2. When the index equals the minimum possible value, it suggests that the class in question is a perfect stratum, i.e., it occupies an exclusive segment of the overall income distribution. If a particular class has a range of income that coincides with the range of income of all households then the index will be equal to 1. Finally, if the index is close to 2, the distribution of income within the class is much more polarized than in the overall distribution. This can happen if the members of the class constitute two strata, one that has higher and the other that has lower incomes than μ , the average income of all households in all classes (Milanovic and Yitzhaki 2002).

The index of overlapping defined in equation (4) is constructed from indexes that indicate the amount by which a class overlaps with each of the other classes:

$$O_i = p_i + \sum_{j \neq i} p_j O_{ji} \quad (5)$$

where p_i is the share of class i in the total number of households and O_{ji} is the index of overlapping of class j by class i . Since the overlapping of a group by itself is equal to 1 by definition, its contribution to O_i is equal to its relative size. The index of overlapping of the overall distribution by a class is shown in equation (5) as the weighted sum of the overlapping of each of the other classes by that class, with the relative size of each class serving as the weights.

In turn, the class-by-class overlapping indexes are calculated as:

$$O_{ji} = \frac{\text{cov}_i(y, F_{ji}(y))}{\text{cov}_i(y, F_i(y))}, \quad (6)$$

where F_{ji} is the function that assigns members of class i their ranks in the income distribution of class j . The index O_{ji} indicates the extent to which the incomes of households in class j falls in the range of incomes of households in class i ; the higher

²² In theory, the functions are actually cumulative distribution functions. However, when working with actual samples, the cumulative distribution function is estimated by the rank of the observation and hence our description of the functions as rank-assigning functions (Yitzhaki 1994).

the fraction of class j that falls in the range of class i , the higher will be the value of O_{ji} ; and, for a given fraction of class j that falls in the range of class i , the closer the incomes of the households in that fraction are to the mean income of class i , the higher will be the value of O_{ji} . The index can take values between 0 (no overlap) and 2. Perfect overlap occurs when the index equals 1, indicating that the rankings of members of class i produced by F_i and F_{ji} are identical (Yitzhaki 1994).

We now turn to the results of the Yitzhaki decomposition for our data (Table 6, Panel A).²³ The most striking result is that the increase in overall inequality between 1989 and 2000 was solely due to an increase in inter-class inequality. The remainder term or intra-class inequality [I_r in equation (3)] contributed the same amount to overall inequality in both years and its share in overall inequality declined considerably from 70 to 58 percent. Class divisions among households thus accounted for a substantial amount of overall inequality, reflecting primarily the huge gap in income between the capitalist class and everyone else.

The results from decomposing the remainder term are shown in Table 6, Panel B.²⁴ The product of the components of the remainder for each class and the sum of the products across classes are shown in column 5. Looking first at the column of overlapping indexes reveals that, unsurprisingly, the capitalist households showed the lowest amount of overlapping and constituted a near-perfect stratum. In comparison, other classes showed a much higher degree of overlapping, although there are notable difference among them, especially when the values of the index are compared against the population shares, since the latter is the minimum value that the index can take [see equation (5)]. If we interpret the ratio of the overlapping index to the population share as an alternative measure of overlapping, it becomes quite clear that, among the earner groups, the nonskilled worker had the lowest amount of overlapping (2.43) while the supervisory group had the highest amount (15.55).

²³ Calculations in this section were performed using Ex Ovlap software. The authors are grateful to Shlomo Yitzhaki for providing us with this program.

²⁴ We present only the results for 2000 because the 1989 results are very much similar.

Within-class inequality is the highest among the capitalist and self-employed households, yet their indexes of overlapping are drastically different. The high degree of inequality among the capitalist households is the inequality between the very rich and the extremely rich. In contrast, the inequality among the self-employed reflects their more heterogeneous character, ranging from prosperous small business owners to loss-making ones, and from highly paid professionals to those in modestly paid nonskilled occupations. As a result, the capitalist households are concentrated at the very high end of the overall distribution with very little overlap, while the self-employed are more spread out over the distribution with a great deal of overlap.

Among the employee groups, blue-collar workers showed the lowest amount of within-class inequality, while managers showed the highest, with the other four groups falling in between. The relatively lower inequality among blue-collar workers was probably a reflection of their higher degree of unionization and relatively lower degree of occupational heterogeneity, which limits the pay range. Collective bargaining is rare among occupational groups included under the broad category of “managers.” Additionally, the occupational groups included in this category are quite heterogeneous, encompassing the CEO of IBM, as well as an assistant manager of a small-town McDonald’s. Both these factors probably contributed to the relatively high inequality within the managerial class.

In terms of their respective contributions to the remainder term, the contribution of the capitalist households was the lowest at 1 percent, while the contribution of the nonskilled workers was the largest at 31 percent (Table 7, Panel B, Column 6). The low contribution of the former reflected primarily their very low amount of overlapping. This suggests that the contribution of the capitalist class to overall inequality is not via its contribution to the remainder (or within-class) term, but via its contribution to inter-class inequality.

Further details are presented in Table 7 that show the overlapping matrix for 2000. The reference group (the class represented by the subscript i in the overlapping index O_{ji}) is shown in the rows of the table; other groups are shown in the columns (the classes represented by the subscript j). As we would expect, the overlapping of other

classes by the capitalists is extremely small. In contrast, the overlapping of capitalists by each of the other classes is much larger, as indicated in the column labeled “Capitalists.”

The mechanism can be illustrated by considering the overlapping between capitalists and nonskilled workers. The overlapping of nonskilled workers by capitalists is quite negligible at 0.01. This reflects the fact there are very few worker households in the capitalist income range. As a result, the ranks of capitalist households, when each of them are considered as belonging to the income distribution of worker households, will not differ much from each other and this renders the covariance in the numerator of equation (6) rather small. On the other hand, the overlapping of capitalists by nonskilled workers is somewhat larger at 0.06, reflecting the fact that there are relatively more capitalist households in the worker income range.²⁵

If we exclude the row and column labeled “capitalist” from consideration, then the table shows a great deal of overlapping between the classes. The lowest number in this submatrix—0.76—occurs at the intersection of the “manager” row and the “nonskilled worker” column. In general, the overlapping of nonskilled workers by other employee groups is relatively smaller.

The index of overlapping depends on the ranks and incomes of households in each class. It is therefore susceptible to bias from extreme values. Hence, an examination of the ranking of one class in terms of another is instructive. This provides the answer to the following type of question: what will be the position of an average worker household in the income distribution of managers? The average rank of each class in the distribution of other classes is shown in the matrix of ranks (Table 8). Numbers along the row labeled “Capitalist,” for example, indicate the average rank of the households in that class in the distribution of income within each of the other classes. It should be noted that, by

²⁵ Consider the following hypothetical example. Suppose that there is one worker household that has an income equal to the minimum income of the capitalist class. Further suppose that this minimum turns out to be the income of five capitalist households. Then the proportion of worker households falling in the range of capitalist income will be lower than the proportion of capitalist households falling in the range of worker income. Note, however, that the value of the overlapping index is not merely a function of the proportion of households in one class that is included in the income range of the other class (see the discussion following equation 6).

definition, the average rank of a class in its own ranking is equal to 0.5, and hence, the numbers on the diagonal are all equal to 0.5. An average rank exceeding 0.5 would indicate that, on average, households in that class have a rank that is higher than in their own distribution and the converse holds for an average rank falling below 0.5.

Consider first the most numerous of the classes, nonskilled worker households. Numbers reported along their row indicate that they were, on the average, at the very bottom of the capitalist distribution, and at the third or the fourth decile in the distribution of other classes. The least numerous class, capitalist households, was at the very top or in the top 1 percentile of the distribution of other classes. Managers and professionals had a similar standing, on average, in each other's distribution as they had in their own (i.e., very close to the 50th percentile) and definitely belonged to the upper portions of the distributions of all other earner groups.

5.2. Inequality and Sources of Income

As we saw previously, the capitalist households received about 20 percent of aggregate income in 2000. This was nearly *twice* as much as the share of income they had in 1989 (Table 9). The managerial class and the white-collar professionals maintained their shares in CI (roughly 13 to 14 percent), while the other five groups suffered losses in their income shares. Thus, the increase in the share of the capitalist class between 1989 and 2000 was accompanied by the shrinking shares of supervisors, blue-collar and white-collar skilled workers, nonskilled workers, and self-employed.

The latter groups, with the exception of white-collar skilled workers whose share remained constant, also suffered losses in their share of base income, which consist primarily of earnings. On the other hand, capitalists, managers, and professionals saw their share of base income increase between 1989 and 2000. Over the same period, income from wealth became much more concentrated in the hands of the capitalist households. The capitalist class, constituting fewer than 2 percent of all households, accounted for 35 and 52 percent of income from wealth in 1989 and 2000, respectively. In short, the big jump in the share of the capitalist class in the aggregate economic pie came from greater income from wealth. The growth in the share of the capitalist class in aggregate income and income from wealth and the growing share of the more well off

segments of earners (i.e., managers and professionals) in base income contributed to the increase in inequality between 1989 and 2000.

We next examine how much the different sources of income contributed to inequality using the so-called “natural decomposition” method (Lerman 1999). The Gini coefficient can be expressed as a sum of the contributions (k_i) made by the various sources of income (base income, income from wealth, etc.),

$$G = \sum_{i=1}^n k_i \quad (7)$$

The contribution made by each source is the product of its concentration coefficients (c_i)²⁶ and share (b_i) in aggregate income (Yao 1999):

$$k_i = b_i c_i \quad (8)$$

The results from the decomposition analysis shown in Gini points (100 times the coefficient) are shown in Figure 5. Base income was the biggest contributor to inequality in both years and its contribution was the same in both years. Income from nonhome wealth was the second largest contributor to inequality in both years but, unlike base income, its contribution to inequality jumped considerably between the two years. This source of income, which accrues disproportionately to the capitalist households, was the principle factor behind the increase in inequality over the 1990s. The contribution of taxes toward decreasing inequality rose slightly between 1989 and 2000.²⁷

²⁶ The concentration coefficient is similar to the Gini coefficient. The Gini coefficient is the area between the Lorenz curve and the 45-degree line multiplied by 2, while the concentration coefficient is the area between the concentration curve and the 45-degree line multiplied by 2. The Lorenz curve plots the cumulative proportion of income on the vertical axis and the cumulative proportion of households on the horizontal axis, with the cumulative proportions calculated after ordering households according to income (starting from the lowest and ending with the highest). Suppose we plot the cumulative proportion of a component of income (e.g., wages), keeping the same ordering of households on the horizontal axis. The curve connecting all points plotted is the concentration curve for wages.

6. CONCLUSION

Class divisions among households constitute an essential aspect of economic inequality in the United States. The income gap between the capitalist class and earner households is massive: the median income of capitalist households was 12 times the median income of nonskilled worker households (the least well-off group) in 2000. Even relative to managers, the most well-off group among earner households, the median income of capitalist households was 9.3 times larger in 2000. While the elevated levels in 2000 partly reflected the buoyant stock market of that year, the income gaps in 1989 themselves were quite large.

Almost 85 percent of the income of the capitalist class was made up of income from nonhome wealth in 2000. For all other groups, the share of income from nonhome wealth was under 24 percent (under 18 percent excluding the self-employed) and their major source of income, unsurprisingly, was base income that consists primarily of earnings. Decomposition of the Gini coefficient by income source shows that the major factor behind the increase in inequality between 1989 and 2000 was rising income from nonhome wealth, a type of income that accrues disproportionately to the capitalist class.

Decomposition of the Gini coefficient by class shows that inter-class inequality accounted for a substantial portion of overall inequality and its share in 2000 was higher than in 1989 (42 versus 30 percent). Indeed, the entire increase in inequality between 1989 and 2000 is attributable to the increase in inter-class inequality. Of obvious importance here is the huge advantage of the capitalist class. In 2000, capitalist households accounted for a mere 2 percent of total households and a disproportionately large 20 percent of aggregate income. On the other extreme, nonskilled worker households made up 40 percent of all households but commanded only 25 percent of aggregate income. The Yitzhaki index of overlapping showed that the capitalist households occupy an almost exclusive space of economic status, while other classes display a considerable degree of overlapping with each other.

Some caveats are necessary regarding the concepts and methods used in the study. The class schema adopted for our empirical analysis need not be suitable for other studies of class structure. Our definition of the capitalist class was meant to include the financial

aristocracy, in addition to wealthy business owners, within the confines of a nationally representative household survey. This definition need not encompass the board of directors of big businesses, but the latter is impossible to identify in the type of surveys used in the study. A limitation, common to all studies based on occupational classification, is that occupational titles need not reflect the actual position occupied by employees in the labor process. Employees engaged in supervisory or managerial functions within professional or white-collar occupations are often not given the occupational title of supervisors or managers. On the other hand, spurious “supervisors” are often created by businesses to reduce the extent of collective bargaining.

An additional set of issues pertains to the choice of the household as the unit of analysis and the related need to pick a reference person to represent the class location of the household. Such a procedure is questionable in cases where there are individuals with different class locations in the same household. One approach here might be to treat the class locations of such households as a mixed location (manager-professional, professional-nonskilled worker, etc.). The analytical cost of such a schema is greater complexity—our current eight-group schema could potentially become a 64-group schema under this approach. Additionally, suitable criteria have to be developed for designating a particular household as a cross-class household to avoid specious cases, which will inescapably involve some arbitrariness. These and other issues related to class and inequality need to be explored in further studies.

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Table 1. Alternative Class Schemas

	Wright		Goldthorpe	This study
	Scheme I	Scheme II		
1	Expert managers	Expert managers	Professionals, administrators and managers, higher-grade	Managers
2	Nonskilled managers	Skilled managers	Professionals, administrators and managers, lower-grade, and higher-grade technicians	Supervisors
3	Expert workers	Nonskilled managers	Routine nonmanual employees, higher grade	Professionals
4	Nonskilled workers	Expert supervisors	Routine nonmanual employees, lower grade	White-collar skilled workers
5		Skilled supervisors	Lower-grade technicians and supervisors of manual workers	Blue-collar skilled workers
6		Nonskilled supervisors	Skilled manual workers	Nonskilled workers
7		Expert workers	Nonskilled manual workers	
8		Skilled workers		
9		Nonskilled workers		

Table 2. Class Structure
A. Households

GROUP	1989	2000
Capitalist	1.1	2.0
Manager	11.5	13.0
Supervisor	6.5	5.8
Professional	11.5	13.7
White-collar, skilled worker	6.1	6.1
Blue-collar, skilled worker	10.5	8.7
Nonskilled Worker	40.2	40.0
Self-Employed	12.6	10.6
<i>All</i>	<i>100</i>	<i>100</i>

B. Earners

GROUP	1989	2000
Manager	9.8	12.0
Supervisor	5.2	5.4
Professional	11.1	13.4
White-collar, skilled worker	5.6	5.8
Blue-collar, skilled worker	8.1	7.9
Nonskilled Worker	49.9	46.3
Self-Employed	10.2	9.2
<i>All</i>	<i>100.0</i>	<i>100.0</i>

Notes:

The class location of a household is determined by its wealth and the class location of its reference person. A “capitalist” household had a nonhome net worth of either \$4 million or business equity worth \$2 million (in 2000 dollars). For noncapitalist households, the reference person is the householder, if that person is an earner; otherwise, it is the person with the highest labor income. Note that the householder is the person who owns or rents the housing unit. If the ownership or lease is joint, then the Census Bureau randomly designates one person as the householder.

Table 3. Derivation of Comprehensive Income

Money income (MI) ¹
<i>Less:</i> Property income and Government cash transfers ¹
<i>Plus:</i> Employer contributions for health insurance ¹
<i>Equals:</i> Base income ¹
<i>Less:</i>
Income taxes ²
Payroll taxes ²
Property taxes ²
Consumption taxes ³
<i>Plus:</i>
Annuity from nonhome wealth ³
Imputed rent on owner-occupied housing ³
<i>Plus:</i> Cash transfers ²
<i>Plus:</i> Noncash transfers ^{2,4}
<i>Equals:</i> Comprehensive Income (CI) ³

Notes:

1. Items available in the public-use file.
2. The amounts estimated by the Census Bureau are modified to make the aggregates consistent with the NIPA estimates.
3. Our estimates.
4. The government-cost approach is used. The Census Bureau uses the fungible value method for valuing Medicare and Medicaid. The main difference between the two methods is that, while the fungible value method assigns an income value for a benefit according to the recipient's level of income, the government cost approach assigns an insurance value that is independent of the recipient's income.

Table 4. Economic Well-Being by Class (Median Values in 2005 dollars)

Group	1989	2000	Percent Change
Capitalist	425,245	511,715	20.3
Manager	65,632	69,021	5.2
Supervisor	56,772	57,850	1.9
Professional	62,478	66,313	6.1
White-Collar, skilled worker	59,047	61,465	4.1
Bleu-collar, skilled Worker	50,545	51,771	2.4
Nonskilled Worker	39,929	42,749	7.1
Self-Employed	50,191	57,305	14.2
<i>All</i>	<i>50,066</i>	<i>53,945</i>	<i>7.7</i>

Table 5. Composition of Comprehensive Income by Class

Group	Base income	Income from home wealth	Income from nonhome wealth	Transfers	Taxes	Total	Mean income (2005 \$)
1989							
Capitalist	20.9	4.6	82.8	1.5	-9.8	100.0	586,502
Manager	111.2	7.1	13.7	3.3	-35.2	100.0	76,036
Supervisor	109.3	6.3	9.4	4.6	-29.5	100.0	64,533
Professional	108.1	6.3	13.8	3.9	-32.2	100.0	72,763
White-collar, skilled worker	109.5	6.4	12.0	4.3	-32.2	100.0	67,948
Blue-collar, skilled worker	104.7	5.8	9.1	6.2	-25.8	100.0	55,292
Nonskilled Worker	95.4	5.7	9.1	12.6	-22.8	100.0	46,744
Self-Employed	106.5	8.4	18.1	7.2	-40.2	100.0	63,063
All	95.5	6.3	19.2	6.8	-27.8	100.0	64,633
2000							
Capitalist	18.2	4.0	84.3	1.1	-7.6	100.0	825,822
Manager	112.7	4.7	17.0	4.3	-38.7	100.0	88,904
Supervisor	109.0	4.4	13.3	5.7	-32.5	100.0	69,552
Professional	111.1	4.7	16.9	4.4	-37.1	100.0	83,083
White-collar, skilled worker	110.4	4.7	15.9	5.5	-36.5	100.0	77,233
Blue-collar, skilled worker	103.1	4.3	13.6	7.4	-28.4	100.0	60,063
Nonskilled Worker	92.2	4.0	13.6	14.8	-24.6	100.0	52,123
Self-Employed	103.6	5.2	23.1	8.2	-40.1	100.0	80,983
All	86.4	4.4	29.9	7.0	-27.7	100.0	83,233

Table 6. Results from the Yitzhaki Decomposition, 1989 and 2000

A. Decomposition of the Gini into Inter-Class and Intra-Class Inequality, 1989 and 2000

	1989		2000	
	Gini	Share	Gini	Share
Total	0.408	100%	0.492	100%
Inter-class	0.124	30%	0.207	42%
Intra-class	0.284	70%	0.284	58%

B. Decomposition of Intra-class Inequality, 2000

	(1)	(2)	(3)	(4)	(5)
Class	Population share (p_i)	Income share (s_i)	Overlap index (O_i)	Gini (G_i)	Contribution to the remainder ($s_i O_i G_i$)
Capitalist	0.02	0.20	0.037	0.456	0.003
Manager	0.13	0.14	0.858	0.383	0.046
Supervisor	0.06	0.05	0.908	0.346	0.015
Professional	0.14	0.14	0.878	0.374	0.045
White-collar, skilled worker	0.06	0.06	0.912	0.371	0.019
Blue-collar, skilled worker	0.09	0.06	0.901	0.322	0.018
Nonskilled worker	0.40	0.25	0.975	0.365	0.089
Self-employed	0.11	0.10	1.021	0.458	0.048
Total	1.00	1.00	0.5	0.492	0.284

Table 7. Overlapping between Households in Various Classes, 2000

	Capitalist	Manager	Supervisor	Professional	White-collar, skilled worker	Blue-collar, skilled worker	Nonskilled worker	Self-employed
Capitalist	1.00	0.03	0.01	0.03	0.02	0.01	0.01	0.04
Manager	0.17	1.00	0.95	0.99	0.96	0.90	0.76	0.85
Supervisor	0.08	0.99	1.00	1.00	0.98	0.99	0.86	0.87
Professional	0.16	1.00	0.97	1.00	0.97	0.93	0.80	0.86
White-collar, skilled worker	0.11	1.02	1.01	1.02	1.00	0.98	0.85	0.88
Blue-collar, skilled worker	0.05	0.94	0.98	0.95	0.95	1.00	0.89	0.84
Nonskilled worker	0.06	0.97	1.04	0.99	1.00	1.08	1.00	0.90
Self-employed	0.18	1.13	1.11	1.13	1.11	1.08	0.96	1.00

Table 8. Average Rank of a Class in the Distribution of Other Classes, 2000

	Capitalist	Manager	Supervisor	Professional	White-collar, skilled worker	Blue-collar, skilled worker	Nonskilled worker	Self-employed
Capitalist	0.50	0.99	1.00	0.99	0.99	1.00	1.00	0.99
Manager	0.01	0.50	0.58	0.52	0.55	0.64	0.71	0.57
Supervisor	0.00	0.42	0.50	0.44	0.47	0.56	0.63	0.50
Professional	0.01	0.48	0.56	0.50	0.53	0.62	0.69	0.55
White-collar, skilled worker	0.01	0.45	0.53	0.47	0.50	0.59	0.66	0.53
Blue-collar, skilled worker	0.00	0.36	0.44	0.38	0.41	0.50	0.59	0.45
Nonskilled worker	0.00	0.29	0.37	0.31	0.34	0.41	0.50	0.38
Self-employed	0.01	0.43	0.50	0.45	0.47	0.55	0.62	0.50

Figure 1. Racial/Ethnic Composition, 1989 and 2000 (Percent of Non-Hispanic Whites in Each Group)

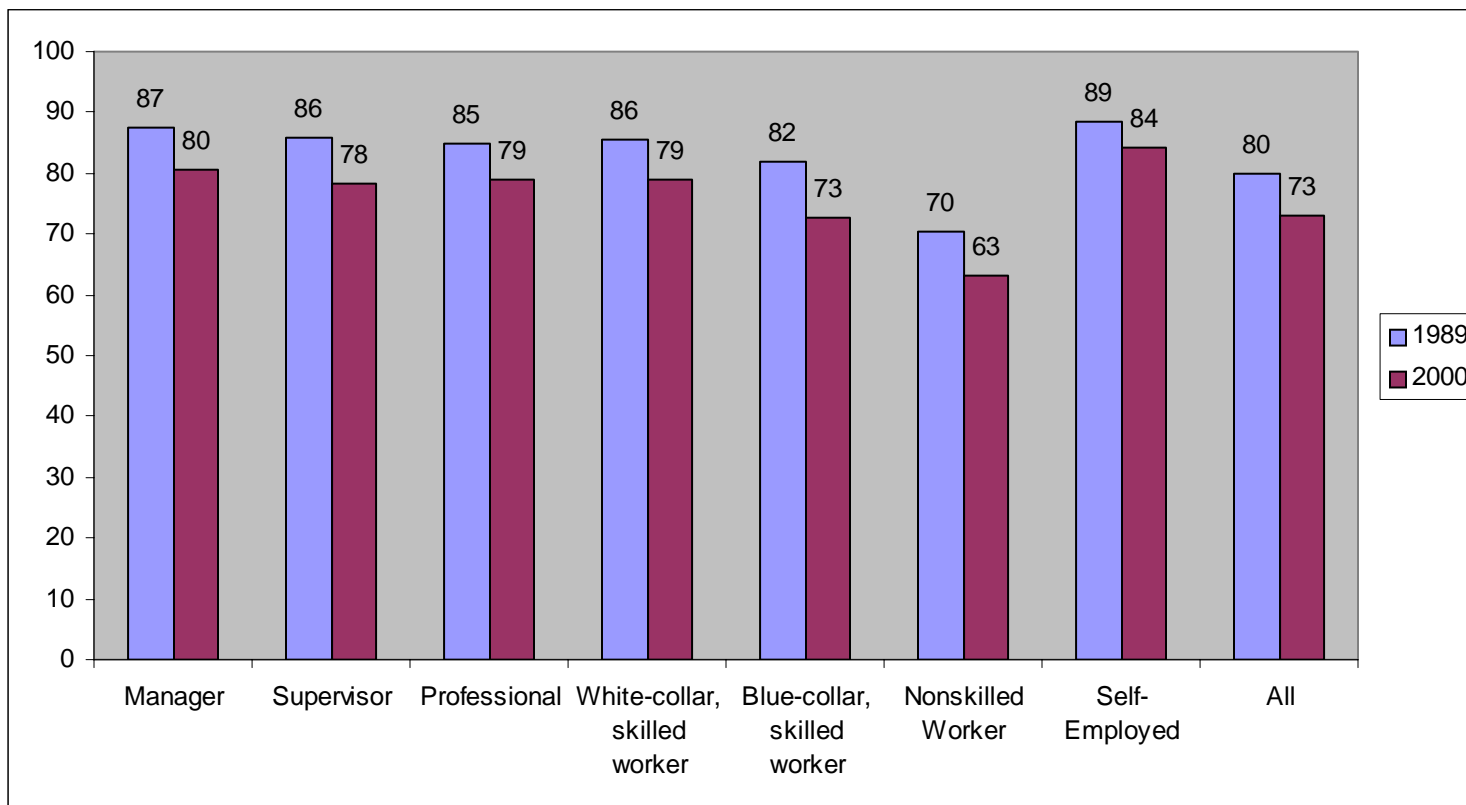


Figure 2. Gender Composition, 1989 and 2000 (Percent of Women in Each Group)

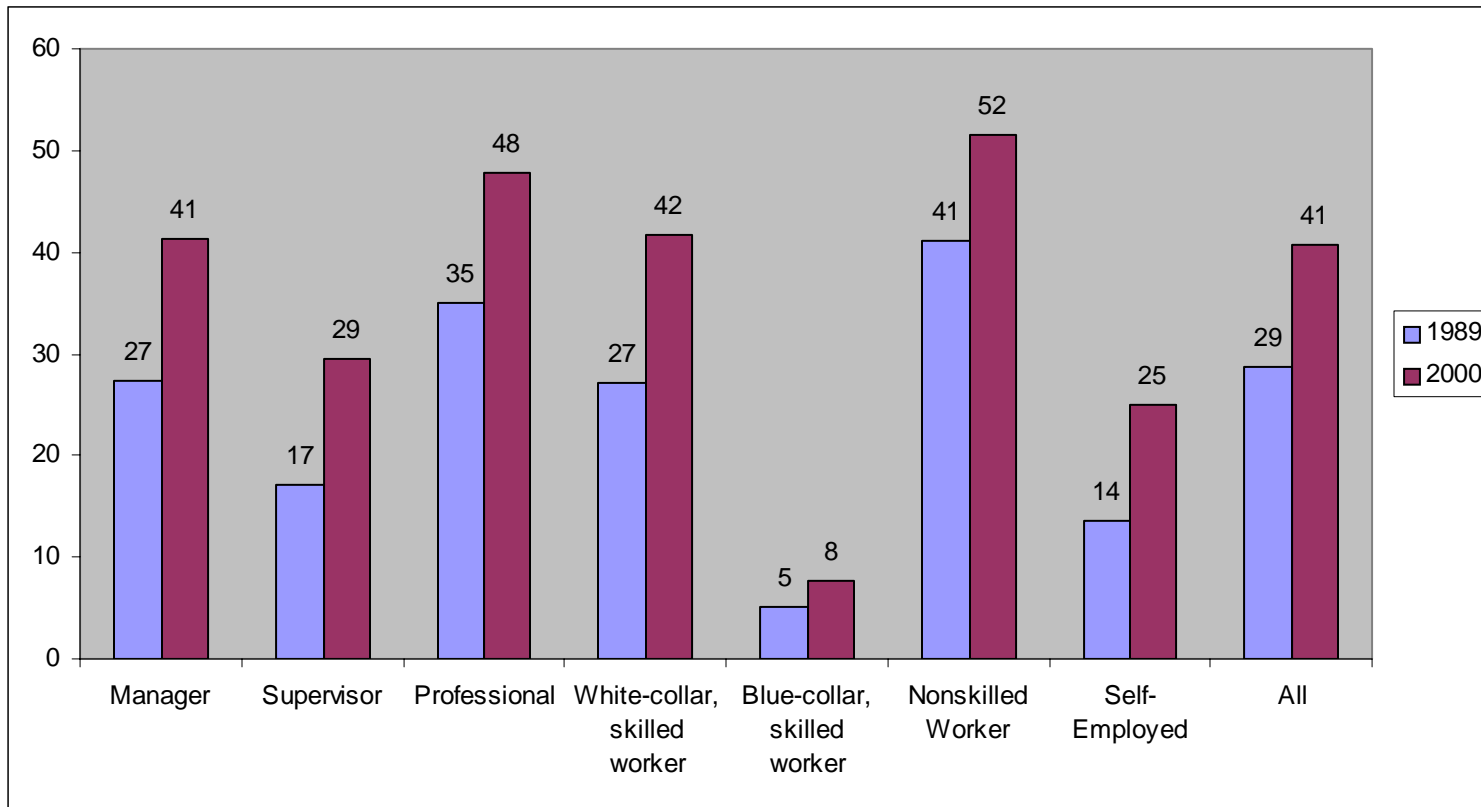


Figure 3. Age Composition, 2000 (Percent of Each Age Group within Each Class)

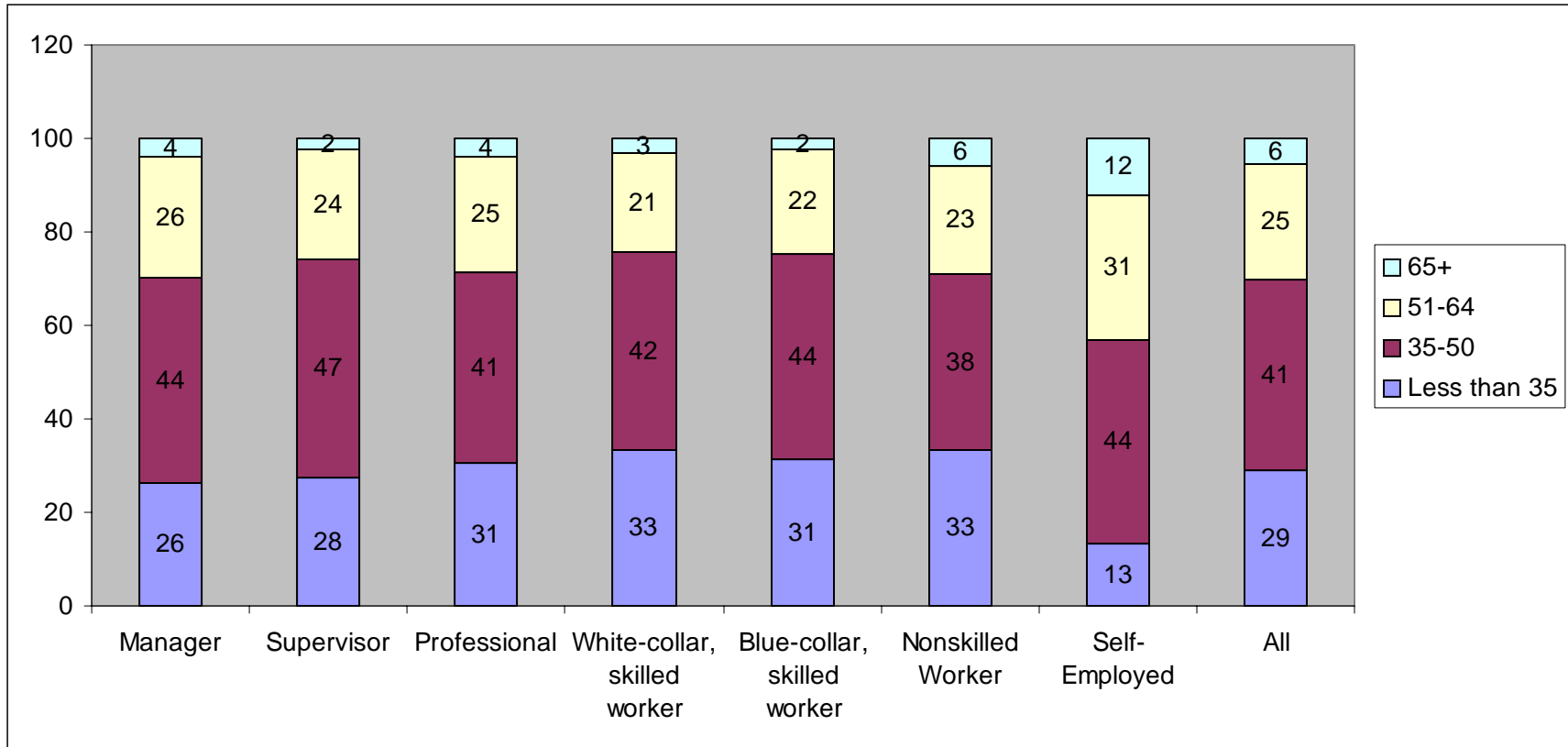


Figure 4. Educational Attainment by Class, 2000 (Percent with a Given Education Level within Each Group)

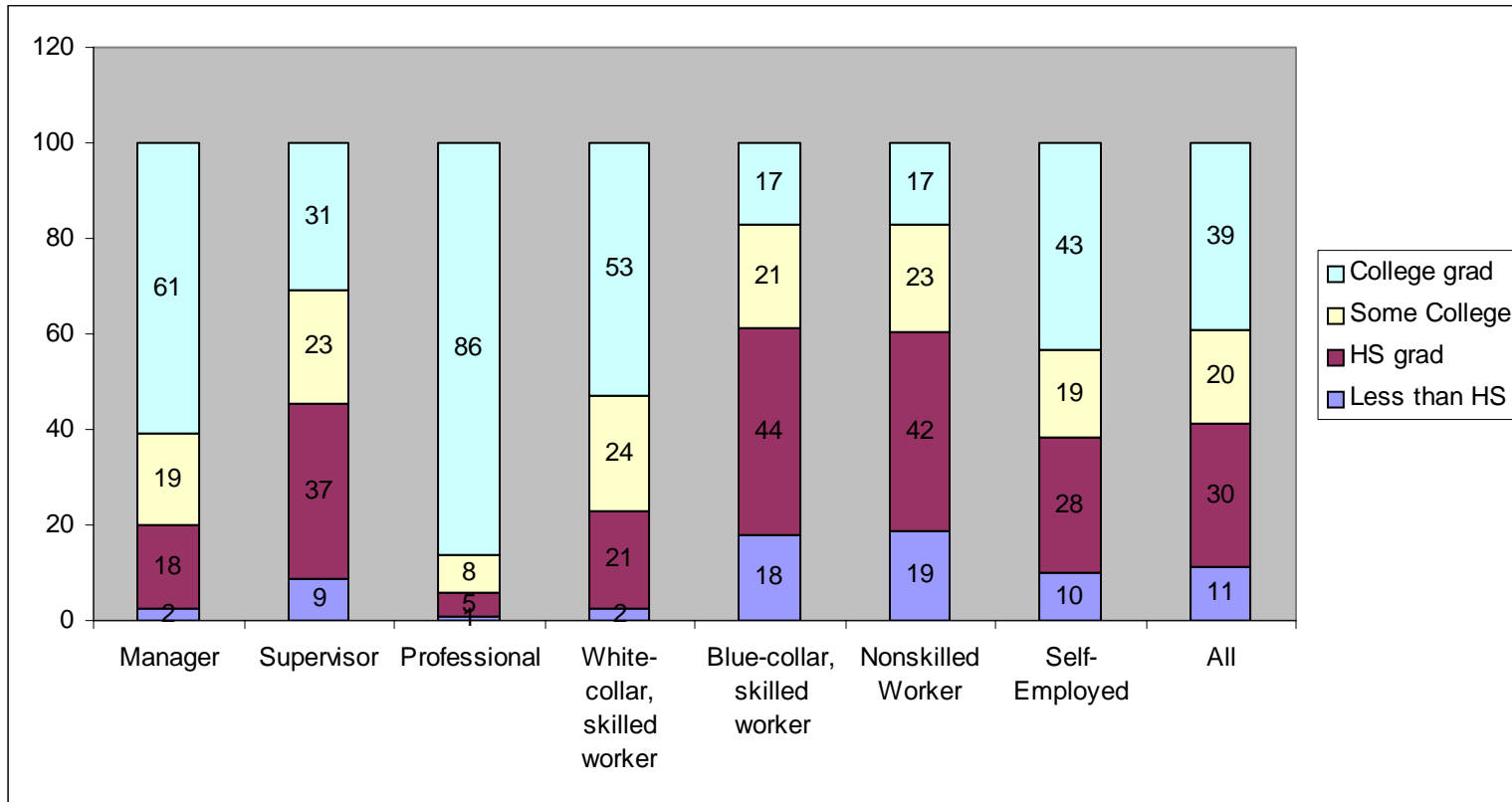


Figure 5. Contribution by Income Sources to Overall Inequality (Gini points)

