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Antecedents of Income Differences: Complementary Hypotheses from Conflicting Theories?

Archibald O. Haller

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University of Wisconsin

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This paper is a part of a larger project on Processes of Social Stratification: Influences of Economic Development, supported by the National Science Foundation, Grant No. SES-7807414; by the University of Wisconsin (UW), the College of Agricultural and Life Sciences and Graduate School; and by The Inter-American Foundation, Grant No. US-107. The generous technical support of the Instituto Brasileiro de Geografia e Estatistica (IBGE) has been and continues to be of inestimable value. Individuals who have made especially significant contributions to this paper and the larger project from which it is drawn include: Drs. David B. Bills (UM), Speridião Faissol (IBGE), Jonathan Kelley (Australian National University), Izaac Kerstentzky (IBGE), and José Pastore (University of São Paulo), and research assistants Darames S. Godfrey, Hary B. Olson, Rochelle Reimer, Mary Schil, and Manoel M. Tourinho. Recently it has become feasible for researchers to concentrate efforts on what may be called "income differences (grouping together a number of alightly different variables, etc.). Accordingly, sociologists expressing various theoretical traditions have begun to test hypotheses about the determinants of income which flow from their several thought systems. The present phase of such research appears to be a bit polemical, as if hypotheses from different theories were in competition with one another. Research presented herein, and indeed reflection upon the evidence sizeady 'published, suggests that an empirically powerful explanation of income might be built upon hypotheses and variables from several of the presumably competing thought systems.

This paper presents a view of the situation within which empirical research ou income has grown up within the field of social stratification. After this, reflections on the current state of research on the antecedents of income differences are offered. This leads to a specification of several lines of thought suggesting a variety of hypotheses and the variables attendant to them. It is then suggested that some of the apparently conflicting hypotheses may be usefully employed by viewing certain of the presumed antecedents as exerting indirect influences on income, and viewing others as exerting simultaneous direct effects on income. Data taken from research on the Brazilian social stratification system are used to illustrate the point-that a rather powerful multivariate explanatory system may be constructed in this way. The resulting empirical explanation is clearly incomplete, despite its effectiveness. This suggests that a more complete explanatory system may soon be devised by one or snother of the research groups now working on the problem.

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The Emerging Structure of Research on Social Stratification. Few phenomena have seemed so easy, yet proven so difficult, to understand as those pertaining to social stratification. Speculative thinkers, both current and classical, have employed unsystematic evidence in the research for concepts precise enough to specify the basic phenomena and the relations among them. Profound and insightful as speculative thought may sometimes be, it is severly limited by the quality of available data. So in the end it is not surprising that down to today stratification theorists---Marx, Weber, Sorokin, Shils, Dahrendorf, Lenski, etc.--have written as if each may have a different partial view of what may well be the same basic phenomena. For quite some time now this situation has been slowly changing, as a research apparatus appropriate for measuring stratification phenomena and testing hypotheses about them has come into being. 1 The main elements of such an apparatus are quite complex. Only within the last two decades have all of them begun to fall into place, though some have been building up for more than a century. Some involve elaborate statistical theory; others required innovations in computation equipment; others, a refinement of social research practices; and still others, an elaboration of concepts of social stratification itself. A bit more specifically, they include: 1) potentially measureable concepts purporting to describe the systems that are stratified, the units that are stratified within these systems, and the variables describing the orders among the latter; 2) a messurement technology sufficient to determine which of the hypothetical variables are

in fact measureable and of determining the operating characteristics of each; 3) interviewing and data collation systems capable of eliciting appropriate information from and about individuals and of ordering it for analysis; 4) a theory by which to estimate population parameters from sample statistics; 5) a theory of statistical relationships capable of summarizing the interplay of sets of variables; 6) practical procedures for sampling human populations, such that data taken from human samples may in fact yield probabilistically accurate estimates of appropriate parameters when formal sampling theory is applied to them; and 7) computers which can translate millions of items of data into appropriate numerical statements of atuitatical relationships.

This research apparatus is now developed well enough so that it has become possible to subject stratification hypotheses to systematic empirical tests to an extent that perhaps no one could imagine 25 years ago, and that many may not have grasped even today. This, coupled with a profound worldwide concern with inequality, has lead to a flood of research publications on the topic. Most of the infrastructure upon which stratification researchers draw was developed for other purposes. Indeed much of the data are collected for other purposes. Were it not for this, modern stratification research would be prohibitively expensive. As it is, the costs in infrastructure, time and expertise are large enough so that only a few centers have the resources to carry out such research.

Among theorists, disagreements about the fundamental criteria of stratification appear to concern which among a limited set of hypothetical dimensions are most basic. Yet there seems to be no doubt but that the phenomena described by the words "power," "privilege," and "prestige" are

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at the heart of the matter, or that such variables as occupational status, education and class position are at least partial expressions of the presumebly more basic dimensions. It is at the level of the latter variables where most theoretically directed empirical research has been conducted --- where, that is, that the bulk of the research employing today's stratification apparatus has been directed. The work of Goldthorpe and Hope (1974), Treiman (1977), Featherman and Hauser (1978), and many others provides detailled information concerning hierarchies of occupations. Researchers such as Blau and Duncan (1967). Featherman and Hauser (1978), and Sevell and Hauser (1980), and many others, have formulated statistical models of educational and occupational status attainment which have gained wide acceptance among stratification thinkers. The research efforts from which such results have flowed have been carried out over long periods of time. Every advance in theoretical specification or generalization was made at considerable cost. Occupational status measurement began about 60 years ago. Aside from the application of structural equation models to them, most if not all of the basic concepts now employed in social psychological models of educational and occupational status attainment were first conceived at least 25 years ago (Haller, 1981).

Research on occupational status and educational attainment quite obviously makes inroads on at least some concerns of a number of speculative stratification theorists. However, it does not begin to treat power differentials or those of economic status in a serious way. It seems eafe to say that research of a precision and comprehensiveness comparable to the foregoing, but dealing with power or political influence differentials, has really not yet begun. When researchers lears how to measure its key variables we may well see the emergence of a new line of research, lasting perhaps until scientifically acceptable models of the origins and consequences of variation in the variable have been mapped under a variety of societal conditions.

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Regarding economic status, just such a new line of stratification research is now in full swing. Its present focus is income, or some presumebly near relative, such as earnings or wages. As of this writing, no model single widely-accepted of income differentials has yet emerged.

<u>Hypotheses About Sources of Income Differences</u>. The literature on income differences is extraordinarily scattered, and is to be found in publications of various fields, notably economics and more recently sociology. Not surprisingly, it also has a long history. An exhaustive review of this vast literature on theories, hypotheses, and variables pertaining to the antecedents of income differences would be far beyond the scope of this paper. Here we shall merely call attention to several which are more or less current and then offer a set of variables stemming from various positions, some presumed to be in competition with each other, and examine them together as possible contributors to the explanation of income differences. These will be limited to variables for which we have data. From these we shall then present a partially developed multiple-hypothesis model of income differences.

Several conceptual positions may be identified. Most could reasonably be called "theortes." Each suggests that one or more specific variables would have substantial effects on income. The ways these sets of variables might fit together are rather involved, for at least two reasons. The first is that the same variable may fit more than one position-education, for example, which is central to human capital thinking and which figures in

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sociological functionalism. The second--itself twofold--has to do with causal sequences. One aspect of the causal sequence concerns the role of "outside" variables. It is not entirely clear whether supporters of a given theory believe its variables not only explain income differences but also explain among the apparent effects of variables from other theories. Some partisans may think so. But the sets of variables presented by recent researchers show clearly that the latter do not assume exclusive effects for the variables they advocate. For when testing their own they carefully control for the effects of others. Still, such a strategy has pitfalls. It may obscure the effects of variables stemming from some positions. As is well known, this happens when the effects of variables lie in antecedentimtervening-consequent relationship to each other. Here the indirect effects of the antecedents would not be detected in a compathasalytic regression smalysis. The obvious solution is to array the variables and measure their effects according to causal sequences that are consistent with the several theories that dictate them. But even this strategy has its subtlies. The second problem in disentangling the causal order of the variables from different theories is that when different positions suggest the same variable, they do not necessarily locate it at the same point in the causal sequence. Characteristics of a worker's job can be considered as proximal causes of his income while characteristics of his labor market might be distal causes. Orea's having a job in the "formal" sector might be thought of as a consequence of "segmented labor warket theory" and therefore a variable to be iocated distally. But the same variable might be seen as an immediate descriptor of one's job and therefore a variable to be located proximally, along with other job characteristics. This paper does not presume to remolve such problems in any final way, only to raise them and to provide sore or less reasonable possible solutions.

Some of the key hypotheses and their sources have received considerable systematic attention in the literature. For others, attention has been apotty and/or unsystematic. Class analytic hypotheses, whether Marxist (e.g., Wright and Perrone, 1977), or Dahrendorfian (e.g. Robinson and Kelley, 1979) make much the same prediction: that, net of other variables. those who control and/or own the means of production will have higher income than those who contribute only their labor, under the control of others, to the productive process. This has been demonstrated several times (Wright and Perrone, 1977; Robinson and Kelley, 1979; Kalleberg and Griffin, 1980). Furthermore, as the latter note, research on the antecedents of class position is needed. By now it seems clear that a dichotomous variable, properly formulated, serves well to measure this variable. Human capital hypotheses (Becker, 1965; Hincer, 1974) are regularly employed in research on income. Few if any contemporary researchers would deny that their effects are substantial, though specifications of conditions under which their efforts vary are not uncommon (Stolzenberg. 1975; Wright and Perrone, 1977; Beck, Horan, and Tolbert, 1978; Wilson and Portes, 1980). Sociological functionalist hypotheses, for the most part, seem to have been modified or pared down since they first appeared (Sorokin, 1927; Davis, 1942), perhaps partly because some are so close to human capital theory or to classical economics. It seems clear that at least one of its variables, occupational status, survives as a concept thought (e.g. Horan, 1978) to be uniquely tied to the functionalist position, evidently because it may be at least a reasonable reflection of the skill/ knowledge requirements of occupations. Social inheritance hypotheses may or may not have identifiable theoretic bases. One would suppose that intergenerational transmission of class position might be congenial to Marxist

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theory. The observation that occupational status is partially transmitted between separations may be a result of empirical generalization rather than theoretical derivation, although it is certainly well-documented (e.g., Slau and Duncan, 1967; Featherman and Hauser, 1978; Sevell and Hauser. 1975, etc.). Segmented labor market hypothemes have been partially reviewed by Beck, Horan, and Tolbert (1978), and by Wilson and Portes (1980), among others. At least for the United States, it is claimed by the former writers that the basic breakdown is between the "core" and the "periphery." Wilson and Portes (1980) add a third, the immigrant enclave. That this breakdown makes some difference is apparent in each of these analyses. It is much less clear whether the difference is very big (Hauser, 1980;711). At any rate the variable must be taken seriously. Economista writing on less developed nations tend to employ somewhat different segmentation concepts, at times more complex than the above (Kannappan, 1977). Scoville (1977) proposes a model for multiple-sector labor markets, explicitly leaving room for segmentation by social variables such as race and ethnicity. Taira (1977) discusses a theory of internal labor marketsjob-filling from within the firm. Standing (1977) subdivides economies and labor markets into core and peripheral formal sectors, an informal sector and an irregular sector. Standings's core and periphery bear at least some resemblance to the core and periphery of Beck, Horan, and Tolbert (1978). The core is massively structured and generates new capital. The informal sector he sees as highly structured, consisting of firms employing mostly family labor, and having the potential of accumulating capital. The irregular sector, endemic to all industrializing societies, is unstructured, mon-productive, and has no potential for capital accumulation. Paraphrasing Marx (1961), he says it includes the unemployed, the partly employed, those

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with obsolete skills, surplus farm workers, the "stagnant" sector, paupers, the aged, and "victims of industry," Hypotheses concerning segments of economies are obviously tied quite closely to those concerning labor market segmentation. Indeed it is questionable whether, for purposes of understanding income differences, the two sets may be distinguished from each other. We shall treat them together in this analysis.

Hypotheses concerning the worker's job situation. Doubtless, a number of aspects of the job itself could influence earnings, though these variables do not obviously derive from any particular theoretic position. Many such characteristics are bound up in occupational differences; the income effects of occupation and of the job may not always be separable, especially when occupations (and therefore jobs) are arrayed by prestige or socioeconomic status. But some may be. The portion of time a person works is one such. Doubtless long considered by economists, it has been treated by sociologists as a factor in income at least since Stolzenburg (1974) and Treiman and Terrill (1975). Another that might be considered as a job variable, and which may not be wholly bound up in occupational status, is the worker's eligibility or ineligibility for legally specified job benefits. This variable has been seen in market segmentation (Pastore, 1981), distinguishing between "formal" ("protected") and "informal" (or "unprotected") labor markets.

<u>A block model of income antecedents from several theories</u>. It vill be recalled that a given variable may be appropriate for more than one theory and that it might be causally located differently by one theory than by another. It is also the case that variables from the same theory way lie at different points in a causal sequence or may have ambiguous locations.

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Two variables, each from a different theory, may have the same position in a causal sequence. These caveats notwithstanding, causal modelling would seem to offer a method by which to determine which, if any, thought systems yield variables which may explain income differences. Block Disgram 1

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(Diagram 1 About Here)

presents an attempt to formulate such an ordering.

Variables. The variables employed herein are listed (but not operationally defined) and classified theoretically at this point so that the block model may be discussed. The listing is in the order of proximity to income, the dependent variable. Jub situation variables, hours worked "last week" (Hours worked) and what we shall call "tob security" (Job security) are first in this order. Characteristics of the person's Occupation are next. The two used here are Class and Occupational Socioeconomic Status (Occupational SES). These are ordered a step back from job structure because jobs are special cases of occupations: job changes may be made within an occupation but occupational changes cannot be made within a job. Class and occupational status are treated at the same level of proximity, just prior to job structure variables. Education is treated as immediately prior to class and occupational status. This is for the usual reason that people are sorted into their occupations and the class and status level to which each belongs according to the education they have obtained. The next steps back from education have a much more ambiguous causal order. They are treated here as if they were simultaneously perating exogenous variables, although it will be evident that not all of hese may be unambiguously ordered for each individual with respect to those wre proximal to income. Four Locational structure variables are used; the

person's Drban/rural residence (U/R Res), the socioeconomic status of the microregion--Hicroregion SES (MR SES) -- in which he lives (and, no doubt, works); whether he had migrated to his present region (the developed South, the underdeveloped Northeast, or the undeveloped Frontier) from one of the other two, called Migrant; and the degree of income inequality of the state or region where he lives-Regional inequality (Reg Ineq). Two variables describing social structural origins (SES origin). Two ways of conceiving of the individual's age are also used. They are included because they occur regularly in the human capital literature. Age is a "proxy" for the concept of experience in the labor force. Age-squared is used for the same purpose. This seems reasonable if the age-income curve is monotonically curvilinear. (It would appear to be illogical to treat the downturn of a concavity as an effect of experience, however, because this implies that experience would have negative effects on income among older workers. In other words, it is not unreasonable to expect declining positive income effects of experience. But negative effects would be absurd within this theory.)

The following are the theoretical positions to which a given variable is assumed to apply. <u>Class analytic</u> theories and their variables are simply labled as such. Segmented labor market theory is called <u>Seg. Labor Harket</u>. Sociological functionalism is called Functionalism. <u>Human capital</u> theory is so labled. (As we shall see, a few useful variables have no obvious theoretic origins.)

Neither of the two job situation variables is treated as theoretic, although it would be unwise to exclude them. They are labled as nontheoretic in the Diagram. Still, what we have called Job security is a set

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of workers' rights required by Brazilian law to be provided to personnel of most jobs in government and in the core industries of the private sector. Pestore (1981) has argued that this variable may be considered as the worker's participation in one of two segments of the Brazilian labor market, the formal in which the worker is protected, or the informal in which he is not. When one has a "protected" job he may actually participate in a sort of internal labor market. In this sense, Job security might be defended as a labor market variable. It seems more reasonable on the whole to class it with those job characteristics which are not incorporated in the measurement of Occupational SES. The two variables called Occupation have their origins in different theories. Some forms of Occupational SES may predate functional theory in stratification (Haller and Bills, 1979). Still, the ides that individual differences in rewards are a consequence of the differences among occupations in functional importance--presumably measured by occupational SES and/or occupational prestige-provides a high degree of compatibility between functionalism and occupational SES. Indeed, occupational SES may be the only surviving variable left from functionalism's original repertoire that has not been treated more systematically by, or displaced by, other theories. Class follows clearly from Marxist theory, whether or not as modified by Dahrendorf. In regression analyses, we have found it useful to treat this as self-employed employers versus employees and self-employed nonemployers. Education is central to Human capital theory and it fits well with the older Sociological functionalism.

Three of the four <u>locational structure</u> variables used here are intended to classify one's location hypothetically influential labor market segments. They are <u>Urban/rural</u> residence, Hicroregion SES, and Regional inequality.

The theoretical relevancy of the fourth, Interregional migration (Migrant), is not clear. (It was included to determine whether migration might be responsible for the apparent influence, if any, of other locational variables.) The general point is that writers on labor market segmentation in less developed countries may well be correct when they point to regionally based concepts as defining variations in labor markets and thus the income that workers may earn. In Brazil, whose people numbered 93 million in 1970, the populous and relatively developed South is the location of most of the nation's manufacturing-in 1970, 58 percent of the population and 85 percent of the capital investment in firms of over five persons. The underdeveloped Northeast had 32 percent of the nation's population but only 11 percent of its capital investment in manufacturing. The remainder, nine percent of the people and three percent of the capital investment in manufacturing are in the undeveloped Frontier-mostly in the South's immediate periphery. Furthermore many of Brazil's populous rural areas are devoted to a style of multifamily farming that combines subsistence agriculture for the bulk of the population---the workers and small operators--with commercial production for the owners. This is especially characteristic of the Northeast. In the South, there are many capital intensive farms, so guite a few agricultural microregions are quite well-to-do. The urban areas are the main seats of manufacturing and commerce, of course, and they too are centers of affluence. In 1970 there were 22 cities of over 100,000 people. five over one million. Urban/rural residence thus defines one segmentation of labor markets. Microregion SES defines another. Officially, continental Brazil is divided into 360 homogeneous microregions. Practically all manufacturing is concentrated in 15 of these. Income inequality varies

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greatly from region to region within Brazil. This variable, too, offers a possible segmentation of labor markets.

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The Social structural origin variables are two, father's occupational SES and father's class position. Neither has a particularly clear theoretical origin. The latter, class origing, probably comes closest, certainly Harxist theory would find class origins congenial. We therefore attribute it to Class analytic theory, though with reservations. Its effects on income may not have been tested in prior research, although some of its consequences have been explored in the project from which this paper is taken (David B. Bills, et al., 1979). The other is less secure theoretically, But since 'time out of mind' a continuity of status and status origins has been observed, and it would be surprising indeed if occupational SES origina had no effect on income in modern Brazil. Obviously, age and age-squared flow from the human capital thought system. Both are considered mostly as "proxies" for labor force experience, but obviously they do not merely measure experience. It could be argued that because experience normally occurs subsequent to education, age and age-squared should follow education in a block model of path relations. But in Brazil age and education are negatively correlated due to its fast rise of high school and college education in recent years. Age, in other words, acts as if it were a determinant of education even if experience, were it to be measured directly. would not. We have already noted a potential problem with age-squared; a positive but decelerating curve of the income effects of experience would make theoretical sense. That is, a monotonic quadratic term would fit within human capital theory. The downturn part of a nonmonoconic concave curve would be contrary to this theory, however. We have included an

orthogonal quadratic term to capture all the curvilinear effects of experience on income even though it would overestimate them to the extent that older age results in lower income.

Testing for complimentary effects of variables from ostensibly competing thought systems: the block model. The schematic diagram (Diagram 1) illustrates an arrangement of sets of variables which would appear to make it possible to determine which if any of the various conceptual schemes or theories yield variables that exert direct. Indirect, or overriding effects on income. An analysis based upon the disgram is used herein for this purpose. In performing it we shall follow the spirit of path analysis if not its letter. Specifically, we shall introduce the regressions of income on each successive block of variables in the order in which they are numbered in the block diagram, beginning with 1, the locational variables. The effects of variables from each theoretic or conceptual position may be followed from the theoretic identifications of each variable in a given block. A given theory can be considered to be valid to the extent that its variables have direct or indirect effects on income which are consistent with the theory, whether or not variables of another position have any effect on income. If variables from several theories each have theoretically meaningful effects which are not attributable to others, this would mean that as regards income the several theoretic positions were complimentary.

Data. The data used herein were taken from the Brazilian National Household Sample Survey of 1973 (Pesquiza National por Amostragen Domiciliar: PNAD 73). This is a multistage probability sample of households. When weighted by regional sampling proportions it may be used to estimate national parameters. (Although allowance must be made for the fact that for the state of Amazonas and Para, no effort was made to identify households in

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the vast unpopulated jungle backlands outside the cities of Manaus and Belem.) Sampling and interviewing were conducted by the regular teams of the Brazilian census service (Instituto Brasileiro de Geografia e Estatistica: 1862). This paper uses a subset of the total, defined as all men 15 years of age or more for whom complete data are available on the 13 variables of present concern. A total of 91,106 men fit the basic definition. Of these complete data are available for 63,092, or 69 percent. (The missing cases are largely due to nonresponses to the question regarding one's father's occupation at the time he took his first job.)

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<u>Variables</u>. The variables are presented in the order in which they appear in Diagram 1 and in the tables. The first set consists of four <u>Locational variables</u>. 1. <u>Urban/rural</u> is a dichotomy describing the location of the house in which the individual resides. A persons is called urban if he lives in an urbanized area or in the seat of any county, rural or urban. In Brazil "rural" and "agricultural" are practically synonymous and most of the rural people live in poverty. But this is not always the case: among them, rural <u>municipios</u> apan a substantial range of economic development levels, as does each and every metropolitan area. So it is reasonable to conceive of the variable Urban/rural as defining substantially different classes of labor markets—the urban having a great range of qualities of jobs, the rural having few openings outside of subsistence agriculture. In the present subsample 44 percent are defined as urban.

Variable 1.2 is <u>Microregional socioeconomic status</u>. This variable was extracted from a factor-analysis in which individual literacy and access to radio, auto, television, and refrigerator, aggregated to the microregion level, were found to be the defining variables of the only significant factor saturating a set of eight hypothetical indicators of what we expected would be economic development level. Excellent measures of level of manufacturing were included. Only 15 of the nation's 360 mainland microregions (NR) had any manufacturing worthy of the name, so items measuring level of manufacturing loadings on the factor. Nonetheless, the 15 manufacturing MRs were all rather high, as were many farming MRs. We prefer to call this variable MR Socioeconomic Status to distinguish it from industrial development in the sense of manufacturing (though by a broader definition which would include high technology agriculture, the term "industrial development" would be appropriate). This variable ranges from zero to 100, with a mean of 65 and an s.d. of 25.7 (see the Appendix Table). Clearly, this is a reasonable indicator of variation in labor markets. In the analysis, the individual was assigned the score describing the microregion in which he resided.

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Variable 1.3, <u>Interregional migrant</u>, is a dichotomy. A man is called a "migrant" if in 1973 he resided in a different one of the macroregions than he was born in. By our definitions there are three such macroregions in Brazil: the developed South, the underdeveloped Northeast and the undeveloped Frontier. Host migration is from the Northeast to the South.

Variable 1.4, <u>Regional inequality</u>, is Langoni's (1973) measure of "grand regional" inequality. He divides the nation into 12 sets of states and measures inequality as the log variance of income (1970 census data). Presumably, the greater the inequality the tighter the labor market.

The second set consists of two social <u>origin variables</u>. Variable 2.1, <u>Class origins</u>, is a dichotomy, sons of self-employed employers versus sons of all others. Those who own businesses and employ others are thought by class analysts to be in a position to appropriate surpluses for themselves.

This should give them higher incomes than others. The high score in this simple dichotomy would include all big—and many small---manufacturers, all large farmers, all owners of big business as well as some of the small shopkeepers. The percent who were sons of self-employed employers was 8,46,

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Variable 2.2 is the person's <u>Yather's occupational socioeconomic status</u>. Occupational SES was measured by scoring each of 92 tategories of occupations according to the weights derived from canonically correlating the means of income and education for each category with the categories themselves, treated as dummy variables (Bills and Godfrey, 1980). The scoring system was worked out on the respondent's occupations and applied to them (Variable 5.1) and to their fathers. The father's occupation was taken as of the time the individual took his own "first job." This score varies from zero to 100. Here the mean and s.d. are 8.8 and 13.6 (Appendix Table).

Each of the third set of variables, "Age," is intended to stand as a proxy for experience, in the tradition of human capital research (Mincer, 1974). .<u>Age in years</u>, Variable 3.1, is obvious. Its mean and s.d. are 34,49 and 12.9 years (Appendix Table). Variable 3.2 is an age-orthogonalized quadratic variable. Its purpose is to summarize the concave, the presumably monotonic, effects experience on income.

Variable 4, <u>Education</u>, is the estimated year-equivalent education successfully completed by the individual. The interview asked whether the person attended or completed each of four cycles of education of each of several years' duration: 5 elementary, 3 middle, 3 high acheol, 3-5 university. Those who completed a given cycle were assigned the number of years that completed cycle implied. Those who did not complete a specified cycle were assigned a score equal to the mid-point of the uncompleted cycle plus the prior number of years it implied. A score of 4 was assigned to those who completed a university education. The mean and s.d. calculated this way for the present aubsample are 3.94 and 3.72 years, respectively (Appendix Table).

The fifth set, <u>Occupation</u>, consists of two variables. The procedures by which each was measured were described above (2.1 and 2.2), applied to the respondents instead of their fathers. For the first, <u>Occupational SES</u> (5.1), the mean and s.d. were 15.98 and 17.36, respectively (Appendix Table). Regarding <u>Class</u> (5.2) the percent who were self-employed employers was almost identical to that of their fathers—6.47.

The sixth set is <u>Job</u> <u>structure</u>. Two variables are used to summarize at least part of the log income effect of one's job beyond those already included by the occupational variables. The first of these is the number of hours the individual reported that be worked "last veek." We assume that this is an at least somewhat valid indicator of one's regular work week. The mean was 49.45 hours and the s.d. was 9.00 hours. Variable 6.2, <u>Job</u> <u>security</u> is a dichotomy. A person's job is considered secure if he worked for the government or if he was a "registered worker." By Federal legislation, such workers have rights to job tenure, hospitalization, retirement, bonuses and other benefits (Pastore, 1981?). No such mandated benefits are available to other workers. Thirty-four percent have such rights (Appendix Table).

The dependent variable is log income. This is based upon annualized reported weekly or monthly income, restated in United States dollars of 1973. This is a faithful representation, at the annual level, of the income the person reported that he made per week or per month, plus the so-called "13th month" bonus given to those who have "protected"jobs. Estimated this

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way, the mean annual income of these wen was U.S.\$1,302 and the s.d. was U.S.\$2,233, both in 1973 dollars. The mean and s.d. of log income are 6.60 and .97 (Appendix Table).

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<u>Results</u>. The sim of this paper is to determine whether variables suggested by different thought systems are conflicting or complimentary in their effects on income-here, log income. The data presented in Tables 1 through 4 present the evidence. The present discussion is mostly restricted

[Tables 1 through 4 About Here]

to Table 4, dealing with log income. Here we look at the beta (β) weights and the coefficients of determination (R^2) as the most crucial data. Given the present subsample size, $\beta \ge .01$ is "statistically significant," so we are concerned with the absolute sizes, not the fact that practically everything, no matter how trivial, is "significant."

The results are examined according to the theory or theories suggesting specific regressors. Three variables are conceived as ways of describing <u>labor market segments</u>. Where these and interregional migrant status (1.1, 1.2, 1.3, and 1.4) are taken without others (Table 4, Column 1) it would appear that the segments formed by Urban/rural (β -.161) residence and by Microregional SES (β -.391) are rather powerful. The effects of the other ... two are small. Regional inequality appears to reduce income a bit (β -.064). Interregional migration seems to have an equal, but positive effect (β -.060). Altogether, these four variables yield R²-.254. When measured net of all other variables, Microregional SES is still seen to have a substantial effect (β -.241, Table 4, last column). It would appear that various other regressors--Social structural origins, Age, Education, and Occupation either account for or transmit a large part of the effects of Urban/rural residence (down to β -.022 when all are taken into account simultaneously). The originally small effects of Regional inequality sppear to be persistent $(\beta - ..., 0.48$, with the full set of regressors).

The variables describing Social structural origins are numbered V 2.1 Class origins, and V 2.2 Occupational SES origins. Net only of each other the effects of these variables on log income are β -.114 and β -.362, respectively. The coefficient of determination is \mathbb{R}^2 -.161. Practically all of the effects of these variables is mediated, by when their effects are examined net of all other regressors, they are reduced to β -.031 and β -.039, respectively. The largest effects of Class origins appear to be mediated by Class (Table 3, β -.235) and those of Occupational SES origins by Education (Table 2, β -.440 net of all other education regressors), and by Occupational SES (Table 3, β -.513). The latter is itself strongly influenced by Education (Table 2, β -.725).

Variables 3.1 Age, 3.2 Age-squared, and 4. Education, treated together here because they constitute the <u>Human capital set</u>, all show substantial effects when originally introduced into the log income equations—Age: β =.217, Age-squared: β =..248, and Education: β =.575. These remain strong when all other variables are controlled—Age: β =.246, Age-squared: β =-.173, and Education: β =.287. Some of the effect of Education is apparently transmitted indirectly through <u>Occupational SES</u>—the net effect of Education on Occupational SES is: β =.602 (Table 2, last column) and the net effect of Occupational SES on log income is: β =.207. The indirect effect of education through Occupational SES is .607 x .207 = .126.

The main Class analytic variable is 5.2, <u>Class</u>—whether or not one is a self-employed employer. The direct net effect of <u>Class</u> on log income is β =.194. Indeed, very little of its effect is mediated: net only of

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Occupational SES its effect is β =.226. Ones <u>Class origins</u>, or fathers' class, is perhaps also a class analysis variable. Its apparent effect net only of SES origins is modest, at β =.114, and net of all others, drops to β =.031. Much of this variable's effect may be transmitted through Education and the Occupational variables.

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The final thought system considered here is <u>sociological functionalism</u>. As far as can be readily determined, no other theory lays claim to Occupational Socioeconomic Status. In a few words, this position holds that occupations are ranked by requirements and rewards as a mechanism for attracting the best qualified persons to fill the more strategic and demanding roles in society. Hence it predicts that individuals who are in higher status occupations will earn more than others. Indeed, Occupational SES has an original apparent effect of 8-.558. While much lower, its net effect is 8-.207.

Let us now look at the net effects of each of the regressors on log income, by examining the data in the last column of Table 4. First, at R^2 -.592, the coefficient of determination is fairly large, comparable to those moted in the more powerful systems for explaining educational and occupational attainment, and considerably above those usually observed in sociological research on income and related variables, which range downward from about R^2 -.40. (Much of this is due to the use of log income instead of income: with unlogged income, this same set of regressors yields R^2 -.365.)

Hore to the point, the 13 regressors fall into two distinct groups when classed by 8 values. One group, seven variables, has small net effects ranging downward from β =.082 to β =.020. These include some with substantial initial effects, such as Urban/rural residence, Class origins, and Occupational SES origins. Presumably their effects are largely transmitted through other regressors such as Education, Class, and Occupational SES. The others had rather small β values to begin with. They are Interregional migration, Regional inequality, Hours worked, and Job security.

The other group ranges from β =.287 down to β =.173. It includes Education (β =.287), Age (β =.246), Microregion SES (β =.241), Occupational SES (β =.207), Class (β =.194), and Age-squared (β =-.173). Clearly most of these are rather strong regressors. The most pertinent fact about them is that they represent the whole set of theoretical positions that are now in competition as explicators of income differences. The highest, <u>Education</u>, is a human capital variable. It also fits sociological functionalism, though it is neither central to the latter nor unique to it. The second, <u>Age</u>, is also a human capital variable. The third, <u>Microregional SES</u>, is a segmented labor market variable. The fourth, <u>Occupational SES</u>, is from class enalysis theory, and the last, <u>Age-squared</u> is a human capital variable.

<u>Conclusion</u>. The rhetoric of at least some of theoretical positions suggests that they are in competition with one another. Sociological functionalism has been attacked for years. Human capital thinking has been viewed skeptically by some. Against these positions, the main competitors today appear to be class analytic theory and segmented labor market thinking. Still, if present data are a reasonable guide, it would appear that each of the four positions considered here suggests one or more variables which are effective partial explicators of a dependent variable that is relevant

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to them all--log income. The clear conclusion is that a durable and effective theory of sources of income differences may draw upon variables suggested by a variety of positions now thought to be in competition. It would appear that as regards income differences each of the several theories are partial and complimentary.

Tomorrow's more complete theory may well draw upon these and other partial theories, perhaps as yet unstated. It is possible, too, that those working within the more recently emerging empirical traditions, such as class analysis and segmented labor market theory, may still be groping for the proper variables by which to express their positions and for better ways to measure them. It would seem, for example, that there is still considerable confusion as to the proper ways to conceive of labor markets. It may be that much of the current debate is a bit off the point. The central question of segmented (dual, triple, internal, etc.) labor markets is that the density of opportunities for well-paying jobs varies from region to region. "Core" industries, peripheral industries, enclaves, etc. are partial determinants of labor markets but they do not constitute such markets. Present experience with Microregional SES suggests that more direct measures of labor markets than those in common use today may be feasible. Also, while the present operationalization of class seems quite effective, it is only a dichotomy. There must be more precise ways to think of class distinctions. In other words, some theories may yet turn out to be more powerful than they now seem to be.

Others may turn out to be less powerful than they now seem. Sociological functionalism may be one such. We have just seen that the one variable, Occupational SES, which is unique to this theory seems to have survived the present analysis rather well. But despite the research compunity's long experience with it, it seems possible that this variable might not remain theoretically viable much longer. There is evidence that occupational power accounts for all of the apparent effects of occupational prestige on income and more (Wilson, 1978; Pastore, Haller, and Comer-B, 1975). Perhaps even some parts of human capital theory may soon fade. Age is not experience, though for some purposes it may be an acceptable proxy. The basic problem is that there are various forms of experience, and the relations among them have not yet been explicated: experiential knowledge of the routines of a <u>certain</u> job or those of a <u>certain</u> company, experiential understanding of the discipline required by <u>most</u> jobs and <u>most</u> firms ("work experience"), etc. Each of these seems to have different effects on wages (Pastore, Haller, and Gomez-B, 1975).

The above reflections notwithstanding, it would appear that at least some of the four positions considered here, and perhaps others, remain aufficiently viable to suggest effective new income regressors and new ways to measure them. It should not be too long before stratification researchers gain an understanding of individual income variations which at least equals their knowledge of variations in education and occupational status. One would guess that power-related concepts may be developed as a part of this effort. If so, while learning more about income differentials, stratification researchers may simultaneously be improving knowledge regarding the field's most difficult research domain--power differentials.

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	REGRESSORS	THEORETIC ORIGINS	4	ъ	в	ъ	ß	ъ	8	ъ
1.	Locational Structure 1.1 Urban/Rural 1.2 Hicroregional SES 1.3 Interregional Migrant 1.4 Regional Inequality	Seg. Labor Market Seg. Labor Market None? Seg. Labor Market	.24 .29 05 04	1.80 .04 58 -1.54	-		· · ·		.116 .231 017 038	.87 .03 20 -1.45
2.	Social Structural Origins 2.1 Class Origins (father self-employed employer)	Class Analysis			.08	1.07			.102	1. 37
	2.2 SES Origina (father's occupational SES)	None? (Empirical Generalization?)			. 55	.13			, 440	, 12
3.	Age 3.1 Age 3.2 Age-Squared	Human Cepital Human Capital					15 04	05 00	104	03 00
2 ²				207		26				

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TABLE 2.	RECRESSIONS OF	OCCUPATIONAL	SOCIOECONOMIC	(SZ3),	57	THEORETIC	ORICI ₂₅	07	REGRESSORS

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	REGRESSORS	THEORETIC ORIGINS	B	ъ	1	ъ	ŧ	5	8	۵	6	ъ	3	Ъ
1.	Locational Structure 1.1 Urban/Aural 1.2 Hicroregional SZS 1.3 Interregional Kigrant 1.4 Regional Inequality	Seg. Labor Market Seg. Labor Market Hone? Seg. Labor Market	.324 .132 003 016	11.36 .12 16 -2.81					.217 .125 .018 ~.015	7.58 .08 .99 -2.62			.147 014 .029 .008	5.14 01 1.55 1.45
2.	Social Structural Origins 2.1 Class Origins (father self-asployed employer) 2.2 SES Origins (father's occupational SES)	Class Analysia Nona† (Empirical Generalization?)			.042 .513	2.64			.052 .411	3.26			-,009 ,147	58 ,19
3.	Age 3.1 Age 3.2 Age-Squared	Human Capital Numan Gapital					-,022	03 01	,027 -,074	.04 01			.090 038	.12 01
4.	Iducation	Ruman Capital (Social Punc- tionalism)						<u></u>			.725	3.38	. 602	2.61
R ²			.19	9	.2	74	.01	U		64	.5	26	.5	23

	RECRESSORS	THEORETIC ORIGINS	3	8	4	•	ŀ	•	1	•	ß	ъ		•
1.	Lecational Structures 1.1 Urbam/Aural 1.2 Microregional SES 1.3 Interregional Migraat 1.4 Aegional Inequality	Seg. Labor Merket Seg. Labor Merket None? Seg. Labor Market	040 ~.010 .010 ~.014	02 00 .03 04					033 012 .019 014	03 00 .02 94	· · ·		064 033 .020 011	04 00 .02 01
2.	Social Structural Origina 2.1 Class Origina (father self-semployed employer) 2.7 SES Origina (father's occupational SES)	Class Assigns Hons† (Empirical Generalization†)			.235	.24 .00			. 221	.22			, 217 , 003	.21 .00
3.	Age 3.1 Age 3.2 Age-Squared	Human Capital Human Capital					,154 -,070	.00 00	.140 067	.00 ~.00	•		.150	.00 ~.00
٩.	Ziucation	Human Capital (Social Func- tionalism)									. 079	.01	.392	.01
12	······································		.00	3	.05	7	. 92	3	. 00	51	.00	6	.0,	16

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119085	THEORETIC ORIGINS		•	•	•		٠	•	2	F	•		5	•		•	•	•		٠
nciara 1 11 SES 181 Migrons Nequality	Seg. Labor Harket Seg. Labor Harket Hene? Seg. Labor Harket	.141 .391 .040 .044	. 32 .01 .14 .43			-		.044 .334 .034 043	.19 .D1 .16 62			.044 .2 % .041	.10 .01 .19		. 074 . 266 . 051 044	.04 .01 .14 43			.027 .242 .047 048	.04 .01 .14 47
ral Origine Na (Closs Analysis Honet (Empirical Conoralizaticat)	-		,114 ,342	.40 .43			.113				,968 ,968	. 24 . 00		.751 .034	.11 .00			.011 110.	.13 .69
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1.	Locational Structure 1.1 Cross/Rural 1.2 Ricroregional SES 1.3 Licturegional Migroms 1.4 Regional Requeilty	Seg. Labor Harket Seg. Labor Herket Heme? Seg. Labor Harket +	,141 ,391 ,040 ,044 -	.32 .01 .14			-	-	.949 .334 .034 043	.19 .D1 .16 62			.044 .2% .045 .045	.10 .01 .19			. 074 . 266 . 053 064	.04 .01 .16 43			.023 .242 .047 048	.04 .01 .14 47	_
1.	Secial Structural Origins 7.1 Class Origina (father asif-memplayed employer) 2.3 SIS Origina (father's eccupational SIS)	Close Analysis Henet (Empirical Concretessicant)	-		,114 ,342	.40 .83			.113				,968 ,968	. 24 .00			.931 .036	.11			.011 110.	.1) .69	-29-
л. 1.	Age 3-3 Age 3-2 Age-Squared	Summe Capital Summe Capital					.217 743	.09	.267	.02			. 211	. 02 00			.263	.02 60			.244	.02	•
4.	Závencion 🔪	Numen Capital [Sected Yung= LiseAlion]									. 173	.23	.431	. 11			. 2115	.01			.287	.04	
3.	Dzevyallen 5.2 Dreupeljani 825 5.2 Clevs (self-empleyed ampleyer)	Sacial. Putrijanalian Class Analysia													. 534	.03 .79	. 715 .185	.01 .43			. 787 - 394	.0t .61	
۰.	Job Schneturg 6-3 Houro Method 6-2 Job Security	Bons Rone (Seg. Labar Herket)							_		•								.104 .111	.91 .33	.042	.01 .13	
e ²	· · · · · · · · · · · · · · · · · · ·		. 254		. 241		.04	\$.43	2	. 330		. 52	•	. 34	1	. я	1	,01	17	. 1	11	•

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DIACRAM 1. SLOCE MIDEL OF LOG INCOME BECKESSORS, AT THEORETIC ORIGINS



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SLA SECTERTED LANCE MARET TRADET GLASS ANALYTIC TREORT HE REPAR CAPITAL TREORT SE SOCIOLOGICAL FIRETIONALISE

_	YARJARLES	KUAN	STARDARD DETLATION	CASES
1.	Locational Structure			
	1.1 Urkan/Pural (Dichotomy)	. 6363	.4777	43093
	2.2 Nicroregional Solideconumic Status (Beals) - F(THOT 0-100)	43.0063	25.7447	63097
	1.) Interregional Higrant (Dicharowy)	.1156	, \$200	\$3092
	1.4 Argional Inspusity (Scale: Income Log Variance)"	.8030	. 09.84	63092
z.	Sotial Structural Origina			
	2.2 Class Origins (Dichotopy: Pather & Self-Employed Employer)	.0544	. 2783	63092
	2.3 Socioeconosic Status Origins (Scale: Jother's 225; See 5.1)	8.7678	13.5728	63092
з.	λ κ *			
	3.1 Apr (Stait: 1ears-Experience Proav)	34.4372	12.3404	÷3042
	3.2 Age-Squared (Scale: Orthogeneliked)	-1126,9241	144.7733	43092
4.	Lawa at i pa			
	4.1 Iducation (Beale: Year-Equivalents)	3.9342 yrs.	3,7220 yrs.	\$3092
5.	Occupation			
	5.1 Occupational Sociesconomic Status (Scale) Conumical NGT 0-100)	13.9767	17.3589	63091
	5.2 Class (Dichotowy: Self-Employed Employer)	.0447	. 2784	43092
٤.	job Structure			
	6.1 House Worked "Loss Wesk" (Scale)	48.4316	8.9439	43092
	6.2 Job Security (Dichotomy: Job Provides Social Bonefics)	. 3440	.4750	\$ 309Z

6.\$037 D\$\$1302.5434

.9714 V\$\$2232.9367

63092 63092

APPRODIT TABLE. DESCRIPTION OF VARIABLES

7. Log IAcome 7.2 Log Income (Scale: Logerithm of 7.4) [7.4 Income (Scale: Annualized Reported Periodic Income)]

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*Olson, Seiler, and Kelley, unpublished (1980)

*Langest (1973)

Callie and Goofrey (1980)

*PRALOFE (19812)

FCOTNOTES

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- It is of course impossible to assign a precise date to the origins of any emergent. Still, it seems convenient to mark the beginning of systematic quantitative research in social stratification at about 1921---sixty years ago. That was the year the results were published of the first analysis of mass statistical data to determine a hierarchy of occupations (National Academy of Science, 1921).
- 2. Hypotheses of other kinds are also available. Particularly important are those concerning occupational power (including authority and other types of influence) have appeared recently (Allen, 1981; Fastore, Haller, and Gomez B., 1975; Wilson, 1978), as well as the hypothesis that age-income curves of individuals' earnings rise and fall with the set of factors that control the age-income trajectories of the occupations in which they find themselves (Stolzenberg, 1974; Haller and Snenuer, 1977).
- 3. Cross-sectional data from the United States census of 1970 show decreasing total incomes after about age 45 or 50 for each of the 335 occupations for which such curves can be constructed (Haller, Perrone, ..., and Hiller, 1975; Haller and Spenner, 1977). This is at least partly an artifact of cross-sectional data. When income curves are estimated for individual careers, however, it would appear that the downturn of income is less pronounced (Eckaus, 1973). I doubt that it would disappear altogether, however, especially among those in highly-paid occupations where the cross-sectional data yields a picture of acute concavity. Any degree of negative income effects of age and/or experience would be interesting theoretically.

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