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INCOME AND EDUCATION: BRAZIL, 1982

Archibald O. Haller
and
Helcio U. Saraiva

University of Wisconsin-Madison

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Few research areas on the interstices between economic and sociological analysis have received as much attention in recent years as has the question of the income returns to education. For economic theorists, the topic offers interesting possibilities for pitting various economic thought systems against one another. For sociologists, it offers new chances to expand scientific understanding of important processes of stratification, especially the classical issues of wealth and power. For policy makers, the results promise new ways to anticipate economic consequences of investment in education.

Two decades ago leading economists were convinced that education, along with experience, yielded monetary and non-monetary benefits to the individual and to the society and that these were about the only variables affecting individual productivity (Miller, 1960; Schultz, 1961, 1963; Becker, 1962, 1964; and, Mincer, 1962). This line of thought argues that worker's abilities may be enhanced by private or social investment in education, training and experience, and that individual and social productivity rises as a result. Over the ensuing years, attacks have been upon this conclusion from a number of theoretical perspectives. Some, from a neo-Marxist position, have argued that the supposed effects of education are merely another expression of the power of the ruling class (Bowles, 1972a, 1972b; Bowles and Gintis, 1975). At bottom, this position holds that education is a mechanism by which the ruling classes pass their power on to their offspring and maintain their control and exploitation of the rest. From another equally skeptical position, the "credentialists" hold that educational documents offer evidence of a worker's trainability and personal suitability, but hold that education itself is irrelevant to productivity and to earnings (Berg, 1970; Lazear, 1977). Another critical position asserts that the major role of education is to screen individuals according to their pre-acquired qualities and traits. Thus, instead of increasing productivity, education provides a signal to the market so that appropriate matches between jobs and the candidates for them may be made. (Arrow, 1973; Taubman and Wales, 1973). On another line of attack, the "segmentalists" focus on the quality of the markets in which workers offer themselves for employment. There are several varieties of this line, but most posit dualistic labor markets--a primary or core market, composed of big unionized companies with well-developed internal advancement procedures ("internal labor markets"), as opposed to secondary or peripheral markets composed of small nonunionized and often precarious firms. Human capital theory, these writers hold, works well only in the primary sector (Beck, 1980; Beck, Horan and Tolbert, 1978; Gordon, 1975).

Actually, the evidence regarding each of these positions is mixed, and it would appear that each of them may have at least a little merit. Furthermore, it has become increasingly clear that variables from still other lines of thought have roles to play in explaining the income returns to education. Perhaps one day these theoretical discrepancies might be worked logically into one of the existing theories or even into a new theoretic synthesis. But for the present, Blaug's observations seem cogent:

"...The earnings streams we observe to be associated with education are not all attributable to education: native ability, achievement drive, age, race, sex, social class origins, regional location, and on-the-job training all influence an individual's earning capacity" (Blaug, 1978:37).

And again,

If we now add the vital socialization factors of schools, the screening hypothesis ...and... the phenomenon of internal labor markets we arrive at a picture of the economic value of schooling that is simply miles removed from the old-fashioned belief that education makes workers more productive and that employers pay them more because they are more productive" (Blaug, 1985:25).

Yet, as Cohen puts it, "The truth of the matter is that no one really knows what proportion of the observed education-income relationship is strictly due to education" (Cohen, 1979: 47).

Not only would this relationship be affected when examined under the control of the variables derived from diverse theoretical perspectives, but it is also expected that it will vary according to different levels of socioeconomic development across societies. Psacharopoulos (1973, 1975, 1980, 1985) has shown that returns to education are higher in developing countries relative to the corresponding returns in developed countries. Such an assertion needs to be tested with samples comparable to those of more developed countries. The returns to education in developing countries may be overestimated since their samples usually contain only wage earners whereas they clearly have a vast number of workers who are self-employed (Chiswick, 1976).

The rate of the development of any specific society is also expected to influence the relationship between education and income, since the market would operate differently under conditions of rapid growth with large job expansion than under conditions of economic crises with lower job expansion or large rates of unemployment.

Purpose of this Paper

The aim of this paper is 1) to estimate the private income returns to education in a newly developing capitalist country, Brazil; 2) to model the processes by which such returns are generated and expressed; and, 3) to show how the estimates and models vary--if they do--across different levels of socioeconomic development of the nation's macroregions (SED). The estimates and models are being performed on income earners who are heads of households or spouses, with separate analyses for women and men.

So far as we know, such an analysis has never before been attempted on quite this scale or with this degree of precision. There are the obvious problems of obtaining appropriate data on samples of workers collected so as to permit generalizations for each sex and for each of the SED macroregions of large nations.

The lacuna between theory and evidence, noted so clearly by Blaug in the above quotations, sets another range of subtle but fascinating challenges. By now, it is obvious that there is no one theory that may be used alone with confidence to generate hypotheses fully explaining the effects of increments of education on increments of income or the antecedents of this process.

Indeed, there are four different thought systems (all with varying degrees of credibility) posing as theories, which purport to explain or to explain away the substantial apparent effects of education on income. Following Haller (1981; also see Bills, *et al.*, 1985 and Haller and Pastore, 1983) they have been called "human capital theory", "segmented labor market theory", "Marxist class analytic theory", and "sociological functionalism." The variables suggested by these lines of thought repeat and go beyond those mentioned by Blaug in the quotations highlighted above. Naturally, some variables are suggested by more than one position.

In any case, it is clear that education and experience are central to human capital thinking. In contrast, segmentalists point to sets of particular variables thought to describe variations among the labor markets that are open to different categories of job applicants. These include dual and multiple labor market segments, based on size of firm, location, organization of the labor force, or the industrial sector, as well as the quality of the regional labor market, race, and sex. Some scholars add another, overlapping with some of the above: the formal or protected sectors vs. the informal or unprotected sectors (see Haller and Pastore, 1982). Class analytic writers (Wright and Perrone, 1977; Robinson and Kelley, 1979) add concepts based on the dichotomy between those who own the means of production vs. those who have only their labor to offer. This is thought by some to be a major explanation of income variations. At the individual level, class would influence income returns to education to the extent that it mediates the effect of education on income. Class origins, however, might influence both education and income. This brings us to sociological functionalism. Two causal variables are emphasized in this literature--occupational status and education. There is a long tradition of research using occupational status either as a dependent variable in stratification research or as an intervening variable in research on income differentials (Sewell and Hauser, 1975; Haller and Spenner, 1977; Featherman and Hauser, 1978; *inter alia*). The variable appears in several forms, especially occupational prestige (e.g. Treiman, 1977) and occupational socioeconomic status (SEI: Duncan, 1961; Featherman and Stevens, 1982). It came into prominence many years ago along with the so-called "functionalist" position in the sociological literature. If it operates at all on the expression of the effects of education on income it would be as another mediator variable, moving workers into their occupational earnings trajectories. There is, however, a more prominent use of occupational status by sociologists. That is as a status origin variable--one's parents' occupational status being believed to exert an influence on many other aspects of one's life, including one's education and income. One strategy for modeling the antecedents of the income effects of education would be to incorporate measures of one's occupational status origin and one's class origins. Similarly both one's class and one's occupational status might function as transmitters of the effect of education on income. For a final point, the so-called "sociological functionalists", like the human capitalists, have long considered education to be a determinant of income differences.

The data presented herein provide assessments of the relationships between income and education, giving special attention to the net effect of education on income, controlling for the effects of main variables suggested by each of the foregoing lines of thought.

Why Brazil?

Brazil provides an excellent test site for hypotheses regarding the relationship between education and income. Though still classed as a "developing nation," it is large, populous and productive. At 8.5 million square kilometers, it has the fifth most extensive national territory. At 119 million people in 1980, it has the sixth largest population. At about 2.3 percent of the world's gross national product, it has the tenth greatest economy. There are special reasons, too, for selecting Brazil.

1. Brazil's location separates it from other nations more markedly than almost any other non-island society in the world. Basically, it is surrounded by the Atlantic Ocean on the east and near-uninhabited tropical and subtropical rain forests on the north, west and most of the south. Only at its borders --less than ten percent of its circumference--with southern Paraguay, northern Argentina and northern Uruguay does it touch more or less populous foreign regions. So it approximates the ideal type of closed societal system perhaps more closely than most nations.

2. Its culture and language are relatively uniform. Ethnic, regional and racial subcultures exist. But Brazil's basically European culture --mixed with Indian and African elements, to be sure--is rather homogeneous in comparison to many developing nations, with their culturally and linguistically distinct ethnic groups. Brazil's cultural uniformity makes it unlikely that unmeasured ethnic factors might, unknown to the researchers, lie at the root of stratification variations that might be spuriously associated with economic development differentials.

3. The wide variations in levels of socioeconomic development among the nation's macroregions make it possible to learn whether such differences affect the impact of education on income and whether they affect the parameters in models purporting to explain variations in income, the effect of education on income and the influence of education on income through occupational status and class. The first of these is important because of two seemingly contradictory conjectures concerning an influence of education on income: a) the better educated the area's population, the lower the effect of education on income; b) the higher the level of development, the greater the economy's need for an educated population, thus the higher the educational level of the population and the higher the pay off for each additional year of education.

4. Finally, the excellence and size of Brazil's National Household Samples (PNAD) make it possible to measure the needed variables and to infer generalizations for gender and macroregional sectors of the population.

Data and Methods

Data from the 1982 PNAD are presented here because of the data set's special emphasis on education. The crucial parameters are regression coefficients (b) weighted ($e^b - 1$, the antilog of b , minus 1) so as to yield estimates of the percentage increase in income and other dependent variables as these are affected by unit increases in education and other independent variables. More specifically, data from the PNAD of 1982 were chosen because they offer the richest information on the education of individuals, and because they include effective measures of the required variables.

The data set was used to draw inferences at the level of the nation's socioeconomic development (SED) macroregions as determined by Haller (1982, 1983). This regionalization uses 1970 aggregate data to provide a score describing the SED of the population of each official microregion (IBGE, 1970). It groups the 360 continental microregions of the nation into five macroregions: the Developed South, the South's Developing Periphery, the Undeveloped Amazonian Frontier, the Unevenly Developed Outer (or "Old") Northeast, and the Underdeveloped Inner (or "New") Northeast. Since the 1982 PNAD does not identify microregions, this paper uses Haller's second, less precise, definition where microregions are delineated by state boundaries (1982:462). In it, divided states are assigned to macroregions according to the SED levels of their most populous microregions (see Map 1). The macroregions are defined here as follows (median SED scores are in parentheses).^{1/}

- I. The Developed South (SED=78): Rio de Janeiro, São Paulo, Paraná, Santa Catarina, Rio Grande do Sul, Minas Gerais.
- II. South's Developing Periphery (SED=54): Espírito Santo, Distrito Federal, Rondonia, Acre, Mato Grosso do Sul, Goiás.
- III. Undeveloped Amazon Frontier (SED=32.5): Amazonas, Roraima, Pará, Amapá, Mato Grosso.
- IV. Unevenly Developed Northeast (SED=31): Ceará, Rio Grande do Norte, Paraíba, Pernambuco, Alagoas, Sergipe, Bahia.
- V. Underdeveloped Inner Northeast (SED=13): Maranhão, Piauí.

A set of the 1982 PNAD was selected for analysis. It includes only those who were heads of households or spouses, of 65 years of age or less, who reported receiving their own individual incomes. This definition maximizes the number of individuals with complete data. Unlike most of the studies on returns of education, that take wages per unit of time as the measurement of income, we are interested in the total income of the individual, regardless of its sources. This definition of the set allows the analysis of income earners whether salaried or not, whether self-employed business men or women, and whether they lived only on investment income or pensions.

The set was divided by region and by gender, and weighted by State according to the calculations presented in Appendix 1.

Variables. The variables employed in this analysis are summarized in Table 1, which also presents the means and standard deviations for each variable.

INCOME: For 1982, this variable is given in units of minimum wages (mw), taken from the reported monthly income and divided by the current legal minimum wage in effect at the time of the interview. The mw cannot be precisely stated in dollars, but it is about \$58.00/month in recent years.

LOG-INCOME: This is the variable actually employed in the analysis. The antilog of unstandardized regressions of the natural logarithm of income, minus one, is an unbiased estimate of the percentage increment in income due to a unit increase in the regressor.

OCCUPATIONAL STATUS: A discriminant function analysis using income and education as criterion variables (following the strategy used by Bills, Godfrey and Haller, 1984) was performed on the more refined PNAD 1982 occupational codes. The "centroid" value of each code was taken as an indicator of that specific occupation's social status and then transformed into a scale that varies from 0 to 100.

CLASS: Recent Marxist sociological writings on income in capitalist countries employ basically dichotomous concepts of class which stress--not gradations of power, money or status--but owner-worker relations of production (Wright and Perrone, 1977; Robinson and Kelley, 1979). This variable may be most sharply defined by the dichotomy consisting of those who are "self employed employers" versus those in any other type of employment. We note that this also appears to be the cutting point used by Marxist countries, as for example, in the definition of the Kulaks. In socialist theory and practice, when one employs another who is paid a wage or salary the first is acting as a capitalist and the latter as a worker. A person who is self-employed but does not employ others is not to be considered a capitalist. The definition represents one's ability to appropriate "surplus-value" from the labor of others, regardless of how large or small his operation is. This definition does not exhaust the various class components presented by neo-Marxists concerned with modern capitalist societies. Nevertheless it has remained at the core of class distinctions ever since 19th century industrialization gave birth to today's more complex structures of capitalistic production. Moreover it is embedded in Soviet Socialist law.

EDUCATION: Respondents reported their "last grade and educational level" completed. This information was transformed by IBGE into numbers of years of schooling completed.

EXPERIENCE: This is the difference in years between one's age and the age one started to work.

AGE² This variable was included to encompass the linear and nonlinear effects of longevity on income. It is well known that, on the average, income increases more or less linearly with age up to about age 45 or 50, after which it plateaus or declines. This variable should capture all nonseniority ("experience") effects of longevity.

RURAL-URBAN SECTOR: "Rural" and "urban" include IBGE's categories of "rural" and "rural conglomerates", and of "urban" and "urban conglomerates", respectively, as place of residence. This is one of several segmentation variables describing the quality of the labor market in which the worker participates. It is known to have powerful effects on income, net of the other variables used herein (Haller and Pastore, 1983).

FATHER'S OCCUPATIONAL STATUS: These are the 1982 occupational scores applied to the respondent's father's occupation code.

The descriptive statistics of the variables warrant a few comments on peculiarities of the sets.

1. By choosing only heads of households and spouses, the average age of the subsets (≈ 40 years) turned out to be much older than the mean of the population. This has at least two important consequences: 1) It makes this

study less comparable with others, which usually include the whole age range of the labor force. 2) It may have magnified the negative correlation between experience and education.

2. For two reasons, there is a bias toward over-representation of urban respondents, especially for females. First, the phenomenon of independent income earning female heads or spouses is essentially urban. Second, there appears to be a tendency in the original PNAD to over-sample urban areas.

3. In general, the means of occupational status are much higher for the respondents than of the means for their fathers. This reflects net intergenerational upward mobility (Pastore, 1982) but may also reflect the urban bias of the sample as well as the ages of those in the subset we are studying. Women have higher occupational status averages than men, as well as more years of education. And possibly because they stay longer in school they tend to show, on the average, less experience in the labor market.

4. With the exception of Region 5, which is the most underdeveloped of all, the distribution of the respondents on the CLASS variable shows that four to eight percent of the men and two percent of the women were self-employed employers. In Region V the figures are three percent and 0.2 percent, respectively.

5. On the average, women tend to gain 50 to 60 percent less income than men, and both income distributions are highly skewed.

Statistics. The statistical analyses of the data are based mainly on multiple regression equations. A causal model was formulated which assigns each variable to one of four stages in a causal chain. The most distal set of independent variables including ascribed characteristics and other factors dependent on the accident of birth are: father's occupational status (FAOCC), SECTOR, and AGE². Second, years of education completed (EDUC), and years of experience in the labor market (EXPER). Third, the status of the occupation of the respondent (OCCST), and the CLASS component variable (CLASS). Fourth, the dependent variable: The natural logarithm of income, measured in units of minimum wages (mw) for 1982 (LNINC).

Unstandardized regression coefficients (b) were used for systematic comparisons of relationship of the same two variables between subsets are made (Cohen, 1983). For comparison within sets, both standardized and unstandardized coefficients are used, together with coefficients of determination.

The anti-log form of the natural logarithm of the unstandardized regression coefficient of (b) minus 1.0 ($e^b - 1$) of LNINC from any independent variable is taken as the unbiased estimation of the percentage change caused in INCOME by a change in a unit of the independent variable.

Standardized regression coefficients (β) are used to compute the direct, indirect, and total effects (path coefficients) to any intervening or dependent variable from previous intervening or independent variables (Alwin and Hauser, 1975). The path coefficients were used to compare effects within sets. Such comparisons are especially tentative because the coefficients sometimes yield misleading results. Fortunately, such potential error can be rectified with evidence from the unstandardized coefficients.

Tests of the statistical significance of differences were not applied. Because of the large sizes of the samples, almost any difference, however trivial, registers as "significant" when such tests are used. So in this case they would be less than useless; they would yield misleading results.

Partial correlation coefficients are presented to describe the measured interdependences among endogenous variables assumed to be causally simultaneous.

RESULTS

Preliminary Comparisons

More or less as expected, there are marked differences among the macroregions regarding the means and standard deviations of both men and women. The details need not be discussed here. (See Table 1). In general the women had completed more years of school and had higher status jobs than the men. Their fathers, too, were of higher socioeconomic status. On the other hand, everywhere men reported higher income--nearly double the number of women's minimum wages in each region. They were also much more likely to be self-employed employers ("capitalists") than were women. Also, everywhere the women who were included in the set analyzed here were more likely than men to be urban. The men, however, had been employed longer than the women. The sharpest regional distinctions are between those of the two Northeast and all others. As is well known, Northeasterners are relatively deprived.

But this is not all. Among men, the status hierarchy variables (income, log income, occupational status, education, father's occupational status and class) follow a more or less similar pattern. The Developed South usually has the highest scores, with the Undeveloped Amazonian Frontier nearly equal to it. The South's Developing Periphery is usually just a little lower. The Unevenly Developed Old Northeast is quite a lot lower than the Periphery. And the Underdeveloped New Northeast is much lower yet. Of course, the incidence of urban residence is much higher outside than inside the two Northeast.

Among women, the trends for most of the status hierarchy variables follow the same pattern as those of men. But there are with differences, too. Women's mean income is highest in the Periphery, with the South, the Frontier, the new and Old and New Northeast following in succession. For log income, the South is highest, the Frontier next, followed by the Periphery and the two Northeast. Occupational status is flat across the South, its Periphery and the Frontier, sagging much lower in the two Northeast. This level pattern holds for women's education, too. Note that almost everywhere, only two percent of the women can be called "capitalists." In the Underdeveloped Northeast, only two-tenths of a percent qualify. The occupational status origins of the women are slightly higher than those of the men, but are still modest. The highest means are in the South and the Frontier, with the Periphery a little lower, and (again) the two Northeast sagging according to their SED levels.

The two most highly developed regions, the South and its Periphery, thus tend to be higher on most hierarchical status variables, with the Unevenly Developed and Underdeveloped Northeast quite a bit lower. The Undeveloped Frontier is usually about the same as the more developed regions. This is no

doubt because of the special nature of frontiers. We see them as sparsely populated areas in the first stages of heavy investment by large organizations. Their populations are concentrated in a few widely separated cities and consist largely of recent immigrants attracted there by the rewarding wage structures provided by the organizations. (Of course, IBGE doesn't sample in the vast and empty jungle, either. But since hardly anyone lives outside the region's few cities, the urban over-sampling is probably negligible.) So the main patterns are intelligible; the crescent development of the South and its periphery and the induced development of the Frontier are expressed in higher average positions on variables describing income, education, occupational status and class. And their populations tend to reside in cities. These facts are in sharp contrast to the Unevenly Developed and Underdeveloped Northeast, whose (heavily rural) have been ignored by development agencies despite the existence of such famed programs as SUDENE (the Superintendency for the Development of the Northeast) and the immense Carajas mining project.

The Models. The direct effects of key regressors on log income presented in the path diagrams (Diagrams 1.1-1.10) show rather uniform patterns, with a few exceptions. Men and women differ from each other only in major ways: for men in some regions, experience counts; for women, it does not. Specifically, longer numbers of years of work experience improve income ($\beta = .135$ to $.173$), but only for men in the long-settled and densely populated macroregions: the South, its Developing Periphery and the "Old" Northeast. They add nothing to the income of women anywhere or of men in the two remote macroregions. On the other hand, for both men and women, education and occupational status both have large effects in all regions (except that occupational status has little effect among women in the Underdeveloped "New" Northeast). The apparent direct effects of class and of father's occupational status are mostly positive, but always small. The apparent direct effects of urban-rural sector on income are always small, with urban paying a bit more. The direct effects of age-squared on LNINC are negligible. But age-squared (unsurprisingly) has a very large effect on experience among those in all ten sets. Yet appearances are not always faithful to reality. Despite this small path coefficients, CLASS and SECTOR do indeed have large effects on income increments. These are shown by their unstandardized regression values and by the income increment percentages calculated from the latter. Our guarded conclusion is that the model seems to be fairly effective everywhere and for both genders, with two important provisos. First, it performs a bit differently in the Underdeveloped New Northeast. Probably, the model's variant performance in this case is due to the abysmally low socioeconomic level of the region's people, which shows itself here in low means and standard deviations of each hierarchical socioeconomic status variable. Second, the effects of its skewed dichotomous variables are seriously underestimated. Despite these comments, it appears that the model works fairly well in each region. Its parameters are quite similar everywhere and for both genders, except in the Underdeveloped New Northeast where several key direct effect parameters seem to be different from those of the other regions. And though the model's parameters do not vary much, the means and standard deviations vary just about as they should with the level of development of the macroregions.

Relationships between Independent and Intervening Variables

CLASS. The dichotomy composed of those who were self-employed employers (capitalists) vs. all other employed persons proved to be a highly significant variable in the model, as was shown earlier (Haller and Pastore, 1983). Although moderately correlated with occupational status, higher for males than for females, class is not much affected by the other variables in the model, except for education and experience. For these variables the effects are quite modest, even among men whose positive values exceed those of women in all regions. (See Tables 2.1 and 3.1-3.5). Only two percent to four percent of the total variance of class is explained by variables in the model. This important component of a marxist definition of class is conceptually and empirically independent of the other variables, and, as it will be seen, has a powerful independent effect on the income of individuals.

OCCUPATIONAL STATUS. The most determinant factor affecting one's occupational status is his or her educational level. In Brazil's highly credentialist labor market, in which regulations require specific legally defensible educational attainments for each of a large variety of occupations, such a finding is not surprising. However, two related findings are worth mentioning. The first is that the path to occupational status (OCCST) from education (EDUC) is much larger for females in all regions. The second is the small, and in some regions, negligible direct path to OCCST from father's occupational status (FAOCC) in any given set. In fact, Table 4 shows that EDUC mediates most of the total effect of FAOCC on OCCST (about 70 percent) across all regions and both genders. However, the OCCST of females is more dependent than that of males on the mediating effect of EDUC. Moreover, the direct effect of FAOCC on OCCST is low, but the indirect effect of FAOCC on OCCST through education is quite large. Education is clearly a status transmission device, rather than an indicator of achievement as such. In Brazil, education screens or selects people such that their own eventual statuses tend to reflect those of their fathers. This is illustrated by the very large path to EDUC from FAOCC. The indirect effect of father's status through education is greater for women than for men: the effect of FAOCC on EDUC is greater and so is the effect of EDUC on OCCST. We assume this means that male attainment processes are a bit less constrained, a bit more open to "success" for those of low origin and to "failure" among those of higher origins.^{2/}

The second important effect on OCCST comes from SECTOR. This represents the fact that rural occupations have much lower status than urban, and there is a greater variety of higher occupations in the urban areas. Again, there is a substantial difference between males and females regarding the effect SECTOR has on OCCST. As a proportion of the total effect, the direct path to OCCST from SECTOR is much higher for men (about 55 percent) than for women (about 25 percent). This is no doubt because contractually defined rural employment is usually closed to women. Wives of farm field workers do in fact work in the fields. But their contributions (and those of the children) are considered to be part of the husband's contractual obligation: they both work for the farm, but he gets the pay, and the job contract is between him and the employer. Women's low status rural work is simply not counted so it does not enter the calculations.

WORK EXPERIENCE. Probably the most surprising result in this analysis relates to the parameters of experience in the model. Brazilians take their first regular jobs at an early age--15 years for men, and 16 or 17 for women. As is shown in the correlation matrices, the relationship is negative for both sexes in all five regions. This is not a consequence of complex relationships with age. Age squared, too, is either negatively related to LnINC or unrelated to it. When the effects of age are controlled, the only major relationship that survives is a small negative collinearity with education. When age is controlled, experience is a partial function of how soon one drops out of school. Thus, it receives a small, but negative influence from FAOCC: the higher the status of the father, the longer one stays in school and the later one starts to work. It is also related to SECTOR, for rural people drop out earlier from school and start to work earlier. It has a negative, though small, effect on OCCST: the lower the EXPER, the longer one is in the labor market and the lower the occupational status. Finally, it has analogous relations with CLASS, for much the same reason.

Experience is highly determined by AGE². About 80 percent of the variance in EXPER is due to AGE². Thus, one might suppose that any possible effect of experience, could have been wiped out by AGE². A closer look into the effects of AGE² shows that this is not the case. An examination of the direct paths from AGE² to the other variables shows very low, even negligible, effects. These suggest that "experience in the labor market" could be dropped from the model for Brazil without major changes. For Brazil, as a whole, it is not an independent concept and does not help to explain the income determination process.^{3/}

EDUCATION. The previous comments shows the importance of the variable EDUC in mediating antecedent variables, FAOCC and SECTOR, and its large effect on OCCST. It also takes the explanation of what would be an effect of experience, since the last is largely a function of the length of time one stays in school. As it was seen, it is highly determined by FAOCC and SECTOR.

The following sections will concentrate on the effects of EDUC on LNINC.

The Income Determination Process

As shown in Tables 2.1 and 2.2, the model explains almost exactly 55 percent of the total variance in men's LNINC in Regions 1, 2, and 3, and 46 and 39 percent in Regions 4 and 5. It explains slightly less among women--.49, .56, .46, .45, .26 percent, respectively. On the whole, the less developed the region, the less the model explains.

CLASS on LNINC: Although the percentage of capitalists (self-employed employers) is quite small (Table 1), having such a position markedly increases one's income. (Table 2.1 and 2.2). This effect, it will be recalled, is a residual, net of one's education, rural-urban residence, occupational status, etc. This is a spare definition of the capitalist class because it allows the importance of the capitalist to be absorbed in occupational status and because it excludes stock ownership, etc. Also, the definition of "worker" includes not only employees of government and private companies at all levels of authority and pay but also all self-employed persons who do not have employees. The main objection to this definition would, we suppose, be that it is too narrow. But in reality this is its virtue. It is an extremely

spare definition parsimonious a fitting Marx's own tightest definition that it functions so powerfully is a tribute to Marx's genius. But it is not the sole determinant of income.

There is a curvilinear relation between the level of regional development and the size of the path to LNINC from CLASS for both males and females. Among men, being a self-employed employer raises one's income--by about 55 percent in Region 1, 92 percent in Region 2, 90 percent in Region 3, 98 percent in Region 4, and 27 percent in Region 5. Among women, it raises income by 75 percent in Region 1, 175 percent in Region 2, 157 percent in Region 3, 138 percent in Region 4, and 53 percent in Region 5. The figures for females are much higher than for males. It is worth repeating that these figures represent the net effect of CLASS when all other variables in the model are controlled.

The magnitude of these values supports observations stemming from an analysis of the 1973 Brazilian data (Bills *et al.*, 1985; Haller and Pastore, 1983) that models intended to explain the process of individual income determination in capitalist societies run the risk of serious miss specification if class is ignored. Also, this powerful effect would not be noted if the analyst were to look only at the zero-order correlation coefficients ($.33 > r > .10$) or at the standardized (path) coefficients ($p > .19 > .01$). (From Tables 3 and 6.)

FATHER'S OCCUPATION, OCCUPATIONAL STATUS and EDUCATION. An increase in a unit of OCCST leads to a 1.5 percent increase in income of 1.4 to 2.3 percent (except among Region 5's women, where its effect is negligible). Considering that OCCST is a scale of 0-100, this percentage is, in fact, large. A ten point increase in OCCST would raise a person from (say) butcher to electrician or from typist to teacher, raising income (net of all else) by 14 to 23 percent (except for Region 5's women). However, part of the role of OCCST in the model is to mediate portions of the effects of EDUC and of FAOCC (Table 4). The net direct effects of FAOCC on LNINC are negligible. The total standardized effects are quite substantial, due first to the mediation of EDUC, and second, to the path through EDUC and OCCST, and third through OCCST. EDUCATION and, to a degree, OCCUPATIONAL STATUS are thus mechanisms for the transmission of status of Origin to income. About 70 percent of the total effect to LNINC from FAOCC is through the paths going through EDUC and thru EDUC and OCCST (Table 4). Education "screens" according to status of origin, allocates into higher status positions, which leads to higher income returns. The paths to LNINC from OCCST are substantially high.

Education, besides mediating the effects of antecedent variables, shows a powerful role in the income determination process. Among all samples, it shares with OCCST the largest direct paths to LNINC.

Earlier it was noted that there the effect of education on income should vary by level of development. But it is a question as to whether the underlying factor is the absolute scarcity or relative scarcity of education--assuming that the value of education varies with supply and demand. If absolute scarcity is the factor, then the higher the level of development of the region, the lower the income returns to education. But if relative scarcity is the factor, no secure hypothesis may be generated from available information because we have no way to measure relative scarcity.

What do the data show? Precisely the mixed results that the above theoretical quandary might suggest. For men the percentage increments vary from 8.2 percent in Region 3 to 5.9 percent in Region 5. They are lowest in the Northeast. For women they vary from 10.3 to 6.2 percent, with no apparent pattern at all. These data therefore say nothing about the impact of regional level of socioeconomic development on the income returns to education.

Regarding gender differences, note that in the percentage terms (of the total path) the direct path to LNINC from EDUC is higher for men than for women (Table 4). For women, a higher proportion of the effect of education is expressed through occupational status, except for Region 5, where practically all the effect of education for women is direct.

Each year of education one's income is about eight percent (Tables 2.1 and 2.2), net of all the other variables in the model. This is quite a substantial independent effect by the main variable (among those in the model). It is large enough to warrant manipulation through policy and government action. Even so this over-controlled model might not reflect the full extent of the influence of education. In order to measure the effect of education incorporating all its antecedent influences, a new four-variable model was analyzed. It takes EDUC as the antecedent variable, and OCCST and CLASS as intervening variables. Table 5 shows the unstandardized regression coefficients of this reduced model and compares them with the full model. First, it can be seen that the reduced model explains about the same variance in LNINC (only about two percent less across all regions on both genders), confirming the fact that the major effects of the antecedent variables are mediated by EDUC and OCCST. Second, the effect of EDUC on LNINC remains essentially the same in both models. Thus the average increment in income due to each additional year of education is about eight percent per month at minimum.

But this figure is based upon direct effects, ignoring the impact of education that is controlled indirectly by its effect on occupational status and class and through the latter to income increments. We know of no sure way to estimate this total effect of education. But one possible way is to use the percentages of the total effect of education. If the direct effect of a year's increment of education is to raise income by eight percent, and if this direct effect is 60 percent of the total effect, then the total impact of a year's increment of education would be 13.3 percent (the percentages of total effects are given in Table 4 and the percent income increments are given in Table 2). Estimated this way the total income increments due to each additional year of education would be as follows, with percentages given for men, then women, by Region: Region 1 - 13.2 and 13.8; Region 2 - 11.25 and 14.7; Region 3 - 12.2 and 14.2; Region 4 - 13.0 and 13.0; Region 5 - 12.0 and 10.7. Thus, if we assume that policies raising education do not have feedback effects on income, and if this method is valid, it appears that policies that raise an individual's education by one year will raise a man's income between 12.0 and 13.2 percent and a woman's between 10.7 and 14.7 percent, depending upon one's region of residence.

The same pattern of regional similarity is found for the effects of LNINC from OCCST. However, there are some significant increases on the coefficients to LNINC from CLASS. The major one, Region 5 - females, may be explained by the only sizeable correlation of CLASS with any antecedent variable ($r = .303$) FAOCC.

The foregoing analyses shows that 1) macroregional differences are very small in the income determination process. 2) The antecedent variables are important to demonstrate the importance of education and occupational status in mediating their effect, but in general, they do not independently add to the explanation of the variance in LnINC. 3) Experience in the labor force did not show the importance attributed to it by the human-capital theorists. 4) The class variable, although distinguishing a very small proportion of the society, has a strong effect on raising the income of individuals, and its effect is more pronounced among females than males. 5) There are patterned, recurrent differences between genders on the process income determination. Women are more educated, start to work later, and receive on the average, less than 50 percent of the income of men. Given the occupational status of their fathers, they are more dependent on their educational attainment to achieve higher status and higher income, and given their level of education, they are more dependent on their status origins and on their occupational statuses to attain higher income. Moreover, for women, being urban does not contribute much to the enhancement of status and income, since they are also more dependent on their educational attainment.

The results also suggest that a more economical analysis would drop the macroregional distinction for defining subsets, in favor of a more parsimonious categorization such as Rural vs. Urban.

CONCLUSIONS

Three types of conclusions seem warranted by this analysis. The first concerns the theoretical sources of variables by which to measure and explain the income effects of education. The second concerns the processes by which income differentials are generated in Brazil's developing capitalist society. The third concerns the estimates of the average effect of a year's increment of education on percentage increments of income.

Sources of Variables. The model incorporated hypotheses drawn from diverse theoretical lines. By so doing it rejected the assumption that they are mutually exclusive in their statements about the relations between education and income. On the contrary, following Haller (1981), the model treats each theory as a partial representation of a complex reality, involving not only the causal relations between education and income at the individual level, but also assumptions about the educational system, how the market operates in hiring and setting wages, the class structure of the society, and how these relationships may differ between societies in different levels of development. The model suggests that each specific theory is not only representing a partial view, but also that each of them may be addressing specific paths in a more general causal model. We have shown this to be the case.

Generating Income Differentials in Brazil. The empirical results of this analysis help explain the individual processes of income stratification in Brazil. Let us review. First, we have seen that father's occupational status has powerful indirect effects on one's own occupational status and income, which are transmitted by education. Second, education is a powerful determinant of income. Third being a capitalist has a powerful effect on income. Fourth, rural residence depresses income for men. Fifth, the income of women is much lower than that of men. Sixth women's statuses are ever more rigidly determined by those of their fathers than are statuses of men.

Clearly, we are viewing a relatively rigid stratification system in which intergenerational mobility is comparatively low, which is dominated by males and in which status is confirmed and transmitted through education. It is also a society in which capitalist ventures pay handsomely. All in all, education and class are the key more or less proximal determinants of income. Well educated male capitalists tend to be well paid. But not many become capitalists. If a man is not a capitalist, it still helps much to be well educated. The problem is that high educational attainment is not readily available to the sons of low status fathers. Well educated women capitalists also do very well, but less so than men. But women capitalists are rare. Again, it still helps a great deal to be well-educated even if a woman is not a capitalist. High educational attainment is essentially impossible for women whose fathers were of low status. In general, positions of high status, whether of occupation or of income, are transmitted from parent to to offspring through high educational attainment. Age and experience have little to do with income. Those who claim that success in capitalist society is a matter of status origin, class and gender find strong support in the experience of Brazil's people.

The Impact of Education on Income. We have seen that on the average each additional year of education yields a minimum of about eight percent more income and a maximum of between about 11 and 14 percent, depending upon region. State policies raising the average educational level by a year or two thus might well improve family income considerably. In a nation when perhaps a fifth of the population are in deepest poverty, such policies might reap great benefits.

We have seen that "ascriptive" characteristics such as gender, occupational status origins and rural-urban origins have a great deal to do with the occupational and income statuses of Brazilians. So also does class in the Marxian sense. Education has a very large impact on both occupational status and income. The educational system acts largely as a transmission device by which the ascriptive characteristics are expressed in occupational status and income.

Nevertheless, nothing in this analysis suggests that education is a meaningless frill. On the contrary we suspect that one of the reasons high level education pays so well is that a great many highly educated people do in fact have superior understanding of the ways to make societies and their organizations work effectively. They may even have a monopoly on such knowledge. This suggests that to raise an individual's income, educational policies must in fact provide much more than mere credentials attesting that the person has spent a certain amount of time in something called a school. It must provide the kinds of information that enhance one's ability to cope effectively with the conditions of life in the competitive industrialized forms of society that are emerging in Brazil.

FOOTNOTES

¹ The ordering of macroregions used herein is slightly different from that presented by Haller (1982). The roman numerals for the Undeveloped Amazonian Frontier and the Unevenly Developed "Old" Northeast, now III and IV respectively, have been reversed since 1982. Experience has shown that the sharpest contrasts in most individual-level socioeconomic variables are between the two Northeast as compared to the rest of the nation. Also, the mean SED level of (today's) Region III is slightly higher than that of Region IV.

² The role of status inheritance through education appears to be quite different in developing Brazil than in the United States, at least as may be tenuously inferred from a comparison of path coefficients. In American work (e.g., Blau and Duncan, 1967), direct inheritance has been measured at .115. For men and women in Brazil's macroregions, the corresponding figures ranged from .037 to .112. For the United States, the indirect effect through education was .088 (.274 x .394). For Brazil's men and women in the five macroregions, the corresponding figures ranged from .250 to .407. Much more than in the United States, education appears to be Brazil's main mechanism of status inheritance.

Note, too, that within Brazil the effect of education on later status is much greater for women than for men (.732 to .823 as compared with .606 to .675).

³ Specialized personnel in developed Sao Paulo do not follow this pattern. Earlier research on the top six percent of the labor force of Sao Paulo's larger manufacturing firms showed that age had large effects on remuneration. Seniority with the firm also generally had positive, nontrivial effects on remuneration. But even among this influential sector of the labor force, time on the job had a low negative effect on earnings (Pastore, Haller and Buendia, 1975, 1977).

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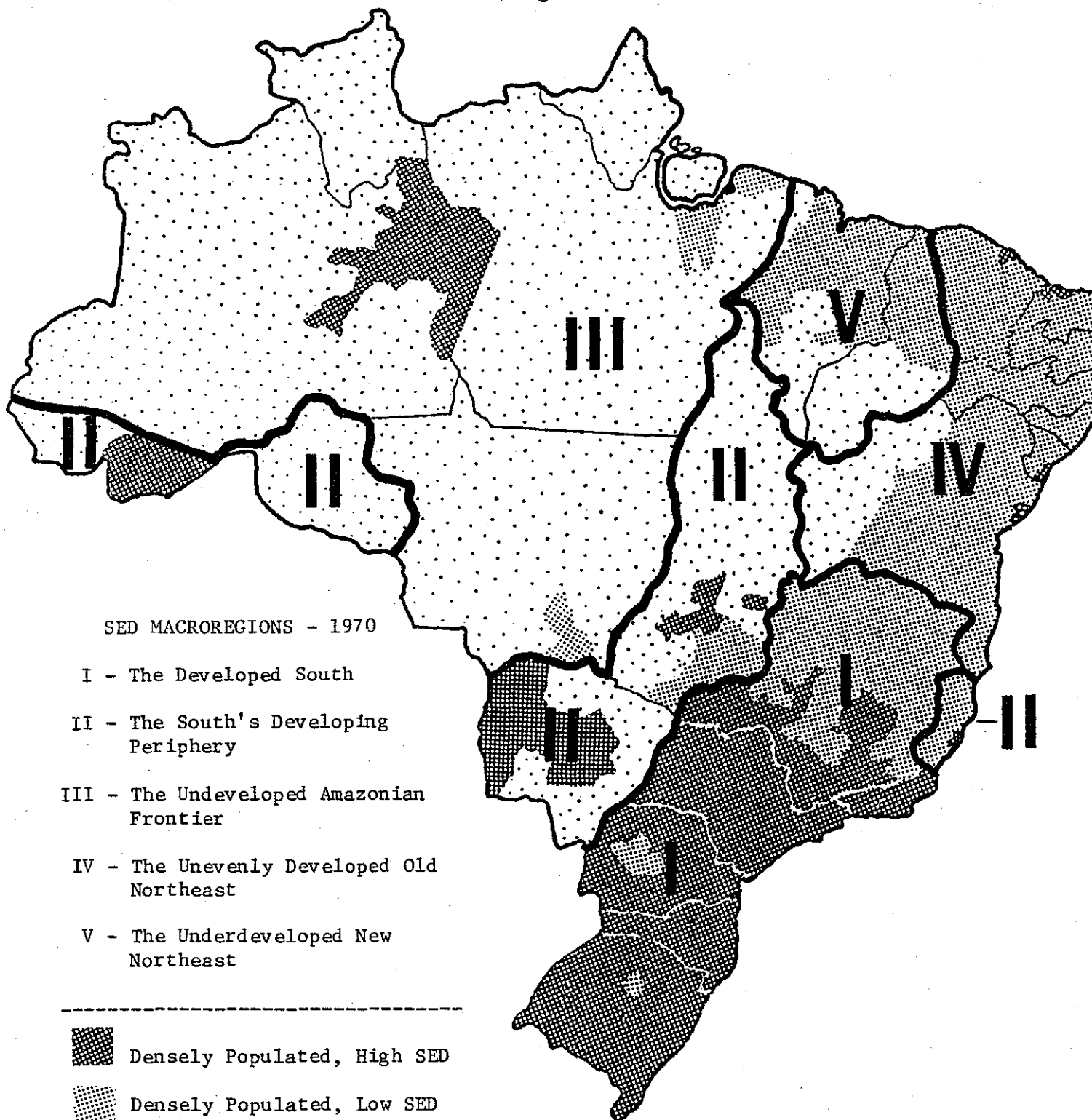
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


MAP 1

Brazil's Socioeconomic Development (SED)
Macroregions^{1/}



SED MACROREGIONS - 1970

- I - The Developed South
- II - The South's Developing Periphery
- III - The Undeveloped Amazonian Frontier
- IV - The Unevenly Developed Old Northeast
- V - The Underdeveloped New Northeast

-
-  Densely Populated, High SED
 -  Densely Populated, Low SED
 -  Sparsely Populated, Low SED

^{1/}As delineated by state boundries. See Haller, 1982.

Table 1

PNAD 82: Means and Standard Deviations, by Region and by Gender, Household Heads and Spouses Reporting Income.

REGION ^{1/} and GENDER											
Variables ^{2/}	1. Developed South		2. South's Develop- ing Periphery		3. Undeveloped Amazonian Frontier		4. Unevenly Develop- ed Old Northeast		5. Underdeveloped New Northeast		
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
INCOME:	\bar{x}	4.32	2.13	4.40	2.64	3.82	1.96	2.69	1.43	1.37	.76
	σ	6.83	3.19	6.92	3.85	5.08	2.66	4.50	2.41	2.30	1.45
LnINC:	\bar{x}	.96	.24	.77	.14	.88	.22	.35	-.38	-.17	-.95
	σ	.95	1.07	.96	1.12	.88	1.00	.95	1.17	.85	.98
OCCST:	\bar{x}	26.22	27.92	22.56	28.54	24.74	28.10	18.71	22.66	12.84	13.42
	σ	19.88	20.02	19.82	21.35	18.76	20.05	17.30	19.48	13.04	17.50
CLASS:	\bar{x}	.07	.02	.08	.02	.06	.02	.04	.02	.03	.002
	σ	.26	.15	.27	.14	.23	.13	.20	.12	.18	.04
EDUC:	\bar{x}	5.07	5.88	4.28	5.91	4.82	5.82	3.00	4.22	1.80	2.44
	σ	4.32	4.78	4.39	5.04	4.18	4.56	3.98	4.72	3.04	3.67
EXPER:	\bar{x}	26.49	22.36	26.15	21.07	25.29	20.77	27.23	24.08	27.20	23.98
	σ	11.97	12.01	11.95	11.78	11.88	11.80	12.39	12.08	12.99	12.15
FAOCC	\bar{x}	15.57	18.12	13.17	15.78	16.16	17.81	12.26	13.74	8.14	8.49
	σ	16.46	18.45	14.84	17.23	15.25	16.58	13.39	15.06	9.52	10.60
SECTOR	\bar{x}	.79	.91	.70	.89	.88	.96	.60	.73	.33	.36
	σ	.40	.28	.46	.31	.32	.18	.49	.44	.47	.48
AGE ²	\bar{x}	1620.7	1479.1	1568.0	1405.3	1571.7	1416.2	1704.5	1627.9	1669.7	1511.16
	σ	909.7	822.3	901.6	763.3	901.7	774.1	963.0	895.6	974.1	891.4
# of cases		34,213	12,097	5,477	1,575	3,011	1,067	14,258	5,037	3,261	1,341

^{1/}See text for states comprising each region.

^{2/}INCOME: Number of minimum wages per month ($MW \approx \$58$). LnINC: Logarithm to the base n of minimum wages. OCCST: Canonical occupational status score (0-100). CLASS: Capitalist (self-employed employer = 1; non-capitalist = 0). EDUC: Education in years completed. EXPER: Age minus age at start of first job. FAOCC: Father's occupational status as scaled for respondents. SECTOR: Urban = 1, Rural = 0. AGE²: Quadratic term for age.

Table 2.1

PNAD 82: Unstandardized Regression Coefficients (b) and Income Increments in Percent Gain Due to One Point Increment in the Regressor (e^{b-1}), by Region for Males.

Variables ^{1/}		1. Developed South			2. South's Developing Periphery			3. Undeveloped Amazonian Frontier			4. Unevenly Developed Old Northeast			5. Underdeveloped New Northeast		
Dependent	Independent	b	R ²	(e^{b-1}) Percent	b	R ²	(e^{b-1}) Percent	b	R ²	(e^{b-1}) Percent	b	R ²	(e^{b-1}) Percent	b	R ²	(e^{b-1}) Percent
LnINC	OCCST	.016		1.6	.014		1.4	.012		1.2	.015		1.5	.023		2.3
	CLASS	.436		54.6	.653		92.1	.685		98.4	.644		90.4	.240		27.1
	EDUC	.075		7.8	.078		8.1	.074		7.7	.079		8.2	.058		5.9
	EXPER	.014		1.4	.011		1.1	.013		1.3	.000		0	-.002		0
	FAOCC	.003		0	.006		0	.005		0	.006		0	.004		0
	SECTOR	.283		32.7	.170		18.5	.176		19.2	.257		29.3	.208		23.1
	AGE ²	.000		0	.000		0	.000		0	.000		0	.000		0
			.545			.556			.456			.546			.390	
CLASS	EDUC	.009			.007			.008			.006			.007		
	EXPER	.004			.004			.002			.001			.002		
	FAOCC	.001			.002			.000			.000			.002		
	SECTOR	-.006			-.013			-.021			-.008			-.018		
	AGE ²	.000			.000			.000			.000			.000		
			.043			.036			.024			.028			.034	
OCCST	EDUC	2.874			2.962			3.021			2.799			2.605		
	EXPER	-.108			-.135			-.042			-.065			-.078		
	FAOCC	.138			.133			.116			.133			.138		
	SECTOR	9.249			7.933			5.940			6.440			5.430		
	AGE ²	.003			.003			.002			.002			.001		
			.602			.604			.556			.637			.584	
EXPER	FAOCC	-.092			-.086			-.071			-.088			-.103		
	SECTOR	-.958			-.891			-1.360			-1.040			-.049		
	AGE ²	.012			.012			.012			.012			.012		
			.904			.909			.902			.914			.922	
EDUC	FAOCC	.135			.136			.114			.139			.142		
	SECTOR	1.950			2.178			2.140			2.214			1.860		
	AGE ²	.000			.000			.000			.000			.000		
			.376			.369			.275			.392			.370	

^{1/}LnINC: logarithm to the base n of minimum wages. OCCST: Canonical occupational status score (0-100). CLASS: Capitalist (self-employed employer = 1; non-capitalist = 0). EDUC: Education in years completed. EXPER: Age minus age at start of first job. FAOCC: Father's occupational status as scaled for respondents. SECTOR: Urban = 1, Rural = 0. AGE²: Quadratic term for age.

Table 2.2

PNAD 82: Unstandardized Regression Coefficients (b) and Income Increments in Percent Gain Due to One Point Increment in the Regressor (e^b-1), by Region for Females.

Variables ^{1/}		1. Developed South			2. South's Developing Periphery			3. Undeveloped Amazonian Frontier			4. Unevenly Developed Old Northeast			5. Underdeveloped New Northeast		
Dependent	Independent	b	R ²	(e^b-1) Percent	b	R ²	(e^b-1) Percent	b	R ²	(e^b-1) Percent	b	R ²	(e^b-1) Percent	b	R ²	(e^b-1) Percent
LnINC	OCCST	.022		2.2	.017		1.7	.017		1.9	.014		1.4	.001		0
	CLASS	.560		75.1	1.013		175.4	.870		138.7	.944		157.0	.422		52.5
	EDUC	.060		6.2	.082		8.5	.063		6.5	.087		9.1	.098		10.3
	EXPER	.002		0	-.001		0	.005		0	.000		0	-.003		0
	FAOCC	.002		0	.007		.1	.007		.1	.007		.1	.007		.1
	SECTOR	.384		46.8	.273		31.4	.286		33.1	.359		43.2	.296		34.4
	AGE ²	.000		0	.000		0	.000		0	.000		0	.000		0
			.492			.562			.445			.462			.258	
CLASS	EDUC	.002			.000			.002			.002			.000		
	EXPER	.000			-.001			.000			.000			.000		
	FAOCC	.000			.000			.000			.000			.001		
	SECTOR	.000			-.018			-.007			.005			.000		
	AGE ²	.000			.000			.000			.000			.000		
			.015			.025			.002			.015			.089	
OCCST	EDUC	3.181			3.487			3.485			3.305			3.491		
	EXPER	-.115			-.134			-.044			-.136			-.245		
	FAOCC	.099			.087			.097			.054			.061		
	SECTOR	2.357			(**)			(**)			(**)			4.220		
	AGE ²	.002			.003			.001			.002			.003		
			.685			.738			.679			.710			.694	
EXPER	FAOCC	-.107			-.099			-.013			-.114			-.103		
	SECTOR	-1.302			(**)			(**)			-1.850			-1.830		
	AGE ²	.012			.013			.013			.012			.012		
			.804			.754			.761			.805			.866	
EDUC	FAOCC	.139			.140			.116			.051			.118		
	SECTOR	1.760			2.180			(**)			2.190			2.750		
	AGE ²	-.001			-.002			-.001			-.001			.000		
			.376			.364			.285			.400			.332	

^{1/}LnINC: Logarithm to the base n of minimum wages. OCCST: Canonical occupational status score (0-100). CLASS: Capitalist (self-employed employer = 1; non-capitalist = 0). EDUC: Education in years completed. EXPER: Age minus age at start of first job. FAOCC: Father's occupational status as scaled for respondents. SECTOR: Urban = 1, Rural = 0. AGE²: Quadratic term for age.

^{2/}(**) Unstable coefficient; (large SE of b).

Table 3.1

PNAD 82 : Region 1 - Developed South - Path coefficients.

Females, N = 12,097

Males, N = 34,213

FROM:	THRU:	TO:									
		LnINC		OCCST		CLASS		EDUC		EXPER	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
OCCST ^{1/}	(direct)	.345	.416	---	---	---	---	---	---	---	---
CLASS	(direct)	.119	.076	---	---	---	---	---	---	---	---
EDUC	(total)	.575	.587	---	---	---	---	---	---	---	---
EDUC	(direct)	.342	.266	.624	.760	.149	.055	---	---	---	---
EDUC	OCCST	.215	.316	---	---	---	---	---	---	---	---
EDUC	CLASS	.018	.004	---	---	---	---	---	---	---	---
EXPER	(total)	.172	-.018	---	---	---	---	---	---	---	---
EXPER	(direct)	.172	.026	-.065	-.096	.193	-.052	---	---	---	---
EXPER	OCCST	-.022	-.040	---	---	---	---	---	---	---	---
EXPER	CLASS	.023	-.004	---	---	---	---	---	---	---	---
FAOCC	(total)	.386	.397	.445	.514	.151	.105	---	---	---	---
FAOCC	(direct)	.060	.037	.114	.091	.099	.067	.516	.536	-.127	-.164
FAOCC	EDUC	.177	.143	.322	.407	.077	.029	---	---	---	---
FAOCC	EXPER	-.022	-.004	.008	.016	-.025	.009	---	---	---	---
FAOCC	OCCST	.039	.038	---	---	---	---	---	---	---	---
FAOCC	CLASS	.012	.005	---	---	---	---	---	---	---	---
SECTOR	(total)	.285	.176	.303	.115	.031	.007	---	---	---	---
SECTOR	(direct)	.120	.101	.188	.033	.010	-.001	.182	.104	-.032	-.031
SECTOR	EDUC	.062	.028	.114	.079	.027	.006	---	---	---	---
SECTOR	EXPER	-.006	-.001	.002	.003	-.006	.002	---	---	---	---
SECTOR	OCCST	.065	.014	---	---	---	---	---	---	---	---
SECTOR	CLASS	.001	.000	---	---	---	---	---	---	---	---
AGE ²	(total)	.051	-.033	-.023	-.128	.088	.043	---	---	---	---
AGE ²	(direct)	-.063	.048	.126	.106	-.070	.099	-.143	-.199	.930	.864
AGE ²	EDUC	-.049	-.053	-.089	-.151	-.021	-.011	---	---	---	---
AGE ²	EXPER	.160	.023	-.061	-.083	.179	-.045	---	---	---	---
AGE ²	OCCST	.044	.044	---	---	---	---	---	---	---	---
AGE ²	CLASS	-.008	.008	---	---	---	---	---	---	---	---

^{1/}LnINC: Logarithm to the base n of minimum wages. OCCST: Canonical occupational status score (0-100).
 CLASS: Capitalist (self-employed employer = 1; non-capitalist = 0. EDUC: Education in years completed.
 EXPER: Age minus age at start of first job. FAOCC: Father's occupational status as scaled for
 respondents. SECTOR: Urban = 1, Rural = 0. AGE²: Quadratic term for age.

Table 3.2

PNAD 82: Region 2 - South's Developing Periphery - Path coefficients.

Females, N = 1,575

Males, N = 5,477

FROM:	THRU:	TO:									
		LnINC		OCCST		CLASS		EDUC		EXPER	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
OCCST ^{1/}	(direct)	.184	.320	---	---	---	---	---	---	---	---
CLASS	(direct)	.127	.127	---	---	---	---	---	---	---	---
EDUC	(total)	.493	.632	---	---	---	---	---	---	---	---
EDUC	(direct)	.357	.370	.656	.823	.125	-.012	---	---	---	---
EDUC	OCCST	.121	.263	---	---	---	---	---	---	---	---
EDUC	CLASS	.016	-.001	---	---	---	---	---	---	---	---
EXPER	(total)	.145	-.051	---	---	---	---	---	---	---	---
EXPER	(direct)	.135	-.011	-.081	-.074	.200	-.131	---	---	---	---
EXPER	OCCST	-.015	-.024	---	---	---	---	---	---	---	---
EXPER	CLASS	.026	-.017	---	---	---	---	---	---	---	---
FAOCC	(total)	.344	.451	.411	.475	.129	.097	---	---	---	---
FAOCC	(direct)	.102	.107	.100	.070	.093	.084	.460	.479	-.107	-.145
FAOCC	EDUC	.164	.177	.302	.394	.057	-.006	---	---	---	---
FAOCC	EXPER	-.014	.002	.009	.011	-.022	.019	---	---	---	---
FAOCC	OCCST	.018	.022	---	---	---	---	---	---	---	---
FAOCC	CLASS	.012	.011	---	---	---	---	---	---	---	---
SECTOR	(total)	.219	.152	.335	.096	-.001	-.038	---	---	---	---
SECTOR	(direct)	.081	.076	.183	-.017	-.023	-.041	.227	.135	-.034	-.030
SECTOR	EDUC	.081	.050	.149	.111	.028	-.002	---	---	---	---
SECTOR	EXPER	-.005	.000	.003	.002	-.007	.004	---	---	---	---
SECTOR	OCCST	.034	-.005	---	---	---	---	---	---	---	---
SECTOR	CLASS	-.003	-.005	---	---	---	---	---	---	---	---
AGE ²	(total)	.061	-.040	-.004	-.161	.111	.132	---	---	---	---
AGE ²	(direct)	-.004	.096	.155	.105	-.053	.238	-.188	-.248	.936	.834
AGE ²	EDUC	-.067	-.092	-.123	-.204	-.023	.003	---	---	---	---
AGE ²	EXPER	.126	-.009	-.076	-.062	.188	-.109	---	---	---	---
AGE ²	OCCST	.028	.034	---	---	---	---	---	---	---	---
AGE ²	CLASS	-.007	.030	---	---	---	---	---	---	---	---

^{1/}LnINC: Logarithm to the base n of minimum wages. OCCST: Canonical occupational status score (0-100).
 CLASS: Capitalist (self-employed employer = 1; non-capitalist = 0. EDUC: Education in years completed.
 EXPER: Age minus age at start of first job. FAOCC: Father's occupational status as scaled for respondents. SECTOR: Urban = 1, Rural = 0. AGE²: Quadratic term for age.

Table 3.3

PNAD 82: Region 3 - Undeveloped Amazonian Frontier - Path coefficients.
Females, N = 1,067
Males, N = 3,011

FROM:	THRU:	TO:									
		LnINC		OCCST		CLASS		EDUC		EXPER	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
OCCST ^{1/}	(direct)	.268	.348	----	----	----	----	----	----	----	----
CLASS	(direct)	.182	.118	----	----	----	----	----	----	----	----
EDUC	(total)	.561	.570	----	----	----	----	----	----	----	----
EDUC	(direct)	.352	.286	.673	.793	.153	.064	----	----	----	----
EDUC	OCCST	.180	.276	----	----	----	----	----	----	----	----
EDUC	CLASS	.028	.008	----	----	----	----	----	----	----	----
EXPER	(total)	.184	.064	----	----	----	----	----	----	----	----
EXPER	(direct)	.173	.066	-.026	-.026	.102	.054	----	----	----	----
EXPER	OCCST	-.007	-.009	----	----	----	----	----	----	----	----
EXPER	CLASS	.019	.006	----	----	----	----	----	----	----	----
FAOCC	(total)	.329	.377	.378	.419	.082	.060	----	----	----	----
FAOCC	(direct)	.081	.112	.094	.080	.027	.040	.418	.423	-.091	-.135
FAOCC	EDUC	.147	.121	.281	.335	.064	.027	----	----	----	----
FAOCC	EXPER	-.016	-.009	.002	.003	-.009	-.007	----	----	----	----
FAOCC	OCCST	.025	.028	----	----	----	----	----	----	----	----
FAOCC	CLASS	.005	.005	----	----	----	----	----	----	----	----
SECTOR	(total)	.175	.066	.218	-.003	-.007	-.005	----	----	----	----
SECTOR	(direct)	.065	.051	.104	-.048	-.029	-.009	.168	.057	-.037	-.001
SECTOR	EDUC	.059	.016	.113	.046	.026	.004	----	----	----	----
SECTOR	EXPER	-.006	.000	.001	.000	-.004	.000	----	----	----	----
SECTOR	OCCST	.028	-.017	----	----	----	----	----	----	----	----
SECTOR	CLASS	-.005	-.001	----	----	----	----	----	----	----	----
AGE ²	(total)	.060	-.083	-.061	-.185	.063	.040	----	----	----	----
AGE ²	(direct)	-.028	-.001	.097	.053	-.002	.011	-.198	-.273	.939	.846
AGE ²	EDUC	-.070	-.078	-.133	-.216	-.030	-.018	----	----	----	----
AGE ²	EXPER	.162	.056	-.025	-.022	.096	.046	----	----	----	----
AGE ²	OCCST	.026	.018	----	----	----	----	----	----	----	----
AGE ²	CLASS	.000	.001	----	----	----	----	----	----	----	----

^{1/}LnINC: Logarithm to the base n of minimum wages. OCCST: Canonical occupational status score (0-100).
CLASS: Capitalist (self-employed employer = 1; non-capitalist = 0. EDUC: Education in years completed.
EXPER: Age minus age at start of first job. FAOCC: Father's occupational status as scaled for
respondents. SECTOR: Urban = 1, Rural = 0. AGE²: Quadratic term for age.

Table 3.4

PNAD 82: Region 4 - Unevenly Developed Old Northeast - Path coefficients.
 Females, N = 5,037
 Males, N = 14,258

FROM:	THRU:	TO:									
		LnINC		OCCST		CLASS		EDUC		EXPER	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
OCCST ^{1/}	(direct)	.282	.233	----	----	----	----	----	----	----	----
CLASS	(direct)	.134	.097	----	----	----	----	----	----	----	----
EDUC	(total)	.533	.544	----	----	----	----	----	----	----	----
EDUC	(direct)	.334	.348	.643	.801	.133	.092	----	----	----	----
EDUC	OCCST	.181	.187	----	----	----	----	----	----	----	----
EDUC	CLASS	.018	.009	----	----	----	----	----	----	----	----
EXPER	(total)	-.002	-.025	----	----	----	----	----	----	----	----
EXPER	(direct)	-.002	-.005	-.047	-.090	.097	.009	----	----	----	----
EXPER	OCCST	-.013	-.021	----	----	----	----	----	----	----	----
EXPER	CLASS	.013	.001	----	----	----	----	----	----	----	----
FAOCC	(total)	.380	.376	.409	.439	.112	.089	----	----	----	----
FAOCC	(direct)	.093	.097	.103	.041	.059	.046	.469	.482	-.095	-.133
FAOCC	EDUC	.157	.168	.302	.386	.062	.045	----	----	----	----
FAOCC	EXPER	.000	.001	.004	.012	-.009	-.001	----	----	----	----
FAOCC	OCCST	.029	.010	----	----	----	----	----	----	----	----
FAOCC	CLASS	.008	.004	----	----	----	----	----	----	----	----
SECTOR	(total)	.327	.250	.360	.174	.012	.039	----	----	----	----
SECTOR	(direct)	.133	.135	.182	.015	-.020	.019	.273	.205	-.041	.064
SECTOR	EDUC	.091	.071	.175	.165	.036	.019	----	----	----	----
SECTOR	EXPER	.000	.000	.002	-.006	-.004	.001	----	----	----	----
SECTOR	OCCST	.051	.003	----	----	----	----	----	----	----	----
SECTOR	CLASS	-.003	.002	----	----	----	----	----	----	----	----
AGE ²	(total)	.056	-.003	-.015	-.134	.086	.045	----	----	----	----
AGE ²	(direct)	.086	.097	.099	.102	.010	.056	-.110	-.198	.938	.857
AGE ²	EDUC	-.037	-.069	-.070	-.158	-.015	-.018	----	----	----	----
AGE ²	EXPER	-.001	-.004	-.044	-.077	.091	.008	----	----	----	----
AGE ²	OCCST	.028	.024	----	----	----	----	----	----	----	----
AGE ²	CLASS	.001	.005	----	----	----	----	----	----	----	----

^{1/}LnINC: Logarithm to the base n of minimum wages. OCCST: Canonical occupational status score (0-100).
 CLASS: Capitalist (self-employed employer = 1; non-capitalist = 0. EDUC: Education in years completed.
 EXPER: Age minus age at start of first job. FAOCC: Father's occupational status as scaled for respondents. SECTOR: Urban = 1, Rural = 0. AGE²: Quadratic term for age.

Table 3.5

PNAD 82: Region 5 - Underdeveloped New Northeast - Path coefficients.

Females, N = 1,341

Males, N = 3,261

FROM:	THRU:	TO:									
		LnINC		OCCST		CLASS		EDUC		EXPER	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
OCCST ^{1/}	(direct)	.351	.020	---	---	---	---	---	---	---	---
CLASS	(direct)	.051	.019	---	---	---	---	---	---	---	---
EDUC	(total)	.428	.383	---	---	---	---	---	---	---	---
EDUC	(direct)	.210	.368	.606	.732	.114	.016	---	---	---	---
EDUC	OCCST	.213	.014	---	---	---	---	---	---	---	---
EDUC	CLASS	.006	.000	---	---	---	---	---	---	---	---
EXPER	(total)	-.048	-.042	---	---	---	---	---	---	---	---
EXPER	(direct)	-.030	-.040	-.073	-.170	.149	.042	---	---	---	---
EXPER	OCCST	-.026	-.003	---	---	---	---	---	---	---	---
EXPER	CLASS	.008	.001	---	---	---	---	---	---	---	---
FAOCC	(total)	.286	.222	.377	.302	.158	.303	---	---	---	---
FAOCC	(direct)	.049	.081	.101	.037	.119	.301	.446	.341	-.081	-.090
FAOCC	EDUC	.093	.126	.270	.250	.051	.005	---	---	---	---
FAOCC	EXPER	.002	.004	.006	.015	-.012	-.004	---	---	---	---
FAOCC	OCCST	.035	.001	---	---	---	---	---	---	---	---
FAOCC	CLASS	.006	.006	---	---	---	---	---	---	---	---
SECTOR	(total)	.306	.289	.372	.392	-.018	-.006	---	---	---	---
SECTOR	(direct)	.116	.145	.196	.116	-.048	-.009	.289	.361	-.019	-.072
SECTOR	EDUC	.061	.133	.175	.264	.033	.006	---	---	---	---
SECTOR	EXPER	.001	.003	.001	.012	-.003	-.003	---	---	---	---
SECTOR	OCCST	.069	.002	---	---	---	---	---	---	---	---
SECTOR	CLASS	-.002	.000	---	---	---	---	---	---	---	---
AGE ²	(total)	.015	-.004	-.050	-.128	.067	-.019	---	---	---	---
AGE ²	(direct)	-.090	.110	.111	.176	-.057	-.054	-.151	-.202	.951	.924
AGE ²	EDUC	-.032	-.074	-.091	-.148	-.017	-.003	---	---	---	---
AGE ²	EXPER	-.029	-.037	-.070	-.157	.142	.038	---	---	---	---
AGE ²	OCCST	.039	.003	---	---	---	---	---	---	---	---
AGE ²	CLASS	-.003	-.001	---	---	---	---	---	---	---	---

^{1/}LnINC: Logarithm to the base n of minimum wages. OCCST: Canonical occupational status score (0-100).
 CLASS: Capitalist (self-employed employer = 1; non-capitalist = 0. EDUC: Education in years completed.
 EXPER: Age minus age at start of first job. FAOCC: Father's occupational status as scaled for respondents. SECTOR: Urban = 1, Rural = 0. AGE²: Quadratic term for age.

Table 4

PNAD 82: Percentages of Total Effects Reflecting the Direct and Indirect Effects of Independent and Intervening Variables to LnINC, CLASS and OCCST, by Region and by Gender.^{1/}

REGION AND GENDER										
TO: LnINC ^{2/} FROM: THRU:	1. Developed South		2. South's Developing Periphery		3. Undeveloped Amazonian Frontier		4. Unevenly Developed Old Northeast		5. Underde-veloped New Northeast	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
EDUC (direct)	59	45	72	58	63	50	63	64	49	96
CLASS	3	0	4	0	5	2	3	1	1	0
OCCST	37	54	24	42	32	48	34	34	50	4
Path total:	(.57)	(.59)	(.49)	(.63)	(.56)	(.57)	(.53)	(.54)	(.43)	(.38)
FAOCC (direct)	15	10	30	24	25	30	24	26	17	36
CLASS	0	0	3	2	0	0	2	1	2	3
OCCST	10	10	5	5	7	7	8	3	12	0
EDUC	46	35	31	39	45	32	41	45	32	57
EXPER	-	0	0	0	0	0	0	0	0	2
EDUC & CLASS	0	0	0	0	0	0	2	1	1	0
EDUC & OCCST	29	42	16	28	23	31	22	24	33	2
EXPER & CLASS	0	0	0	0	0	0	0	0	0	0
EXPER & OCCST	0	0	0	0	0	0	0	0	0	0
Path total:	(.38)	(.40)	(.34)	(.45)	(.33)	(.38)	(.38)	(.37)	(.29)	(.22)
SECTOR (direct)	42	59	37	47	36	—	41	54	38	50
CLASS	0	0	0	0	0	—	0	0	0	0
OCCST	23	6	15	0	15	—	15	1	22	0
EDUC	22	18	37	33	32	—	28	28	20	46
EXPER	0	0	0	0	0	—	0	0	0	1
EDUC & CLASS	0	0	0	0	0	—	0	0	0	0
EDUC & OCCST	14	17	12	20	16	—	15	15	20	2
EXPER & CLASS	0	0	0	0	0	—	0	0	0	0
EXPER & OCCST	0	0	0	0	0	—	0	0	0	0
Path total:	(.28)	(.17)	(.22)	(.15)	(.17)	(.06)	(.33)	(.25)	(.30)	(.29)
TO: CLASS FROM: THRU:										
FAOCC (direct)	—	70	—	80	29	—	49	50	70	99
EDUC	—	30	—	0	71	—	51	50	30	1
EXPER	—	0	—	20	0	—	0	0	—	0
Path total:	(.15)	(.10)	(.13)	(.10)	(.08)	(.06)	(.11)	(.09)	(.16)	(.30)
TO: OCCST FROM: THRU:										
FAOCC (direct)	25	17	24	15	25	19	25	9	27	12
EDUC	72	78	73	83	74	80	74	88	72	83
EXPER	0	4	3	2	1	1	1	3	1	5
Path total:	(.44)	(.51)	(.41)	(.47)	(.38)	(.42)	(.41)	(.44)	(.38)	(.30)
SECTOR (direct)	62	27	55	—	48	—	50	6	53	29
EDUC	38	73	44	—	52	—	49	94	47	67
EXPER	0	0	1	—	—	1	0	0	0	3
Path total:	(.30)	(.12)	(.33)	(.10)	(.22)	(.00)	(.36)	(.17)	(.37)	(.39)

^{1/}Percentages were computed when all path coefficients (direct and indirect) were positive or when the negative ones were negligible ($0 > \text{path} > -.01$). Percentages may not add to 100.0 due to rounding or to dropping out small negative coefficients.

^{2/}LnINC: Logarithm to the base n of minimum wages. OCCST: Canonical occupational status score (0-100). CLASS: Capitalist (self-employed employer = 1; non-capitalist = 0. EDUC: Education in years completed. EXPER: Age minus age at start of first job. FAOCC: Father's occupational status as scaled for respondents. SECTOR: Urban = 1, Rural = 0. AGE²: Quadratic term for age.

Table 5

PNAD 82: Comparison of Unstandardized Regression Coefficients and Percent Income Increments Due to a One-Point Increase in the Regressor. Between Full (8 Variables) and Reduced (4 Variables) Model.

		MALES						FEMALES					
		FULL MODEL			REDUCED MODEL			FULL MODEL			REDUCED MODEL		
FROM	TO	b	(e ^b -1)	R ²	b	(e ^b -1)	R ²	b	(e ^b -1)	R ²	b	(e ^b -1)	R ²
REGION 1 - Developed South:													
EDUC ^{1/}	LnINC	.075	7.8		.070	7.2		.060	6.2		.059	6.1	
OCCST	LnINC	.016	1.6		.019	1.9		.022	2.2		.024	2.4	
CLASS	LnINC	.436	54.6		.454	57.4		.560	75.1		.570	76.8	
EDUC	OCCST	2.87	---		3.42	---		3.18	---		3.44	---	
EDUC	CLASS	.009	---		.009	---		.002	---		.090	---	
				.545			.521			.492			.477
REGION 2 - South's Developing Periphery:													
EDUC	LnINC	.078	8.1		.074	7.7		.082	8.5		.088	9.2	
OCCST	LnINC	.014	1.4		.018	1.8		.017	1.7		.018	1.8	
CLASS	LnINC	.653	92.1		.693	100.0		1.01	175.4		1.13	208.6	
EDUC	OCCST	2.96	---		3.46	---		3.49	---		3.62	---	
EDUC	CLASS	.007	---		.006	---		.000	---		.000	---	
				.556			.530			.562			.541
REGION 3 - Undeveloped Amazonian Frontier:													
EDUC	LnINC	.074	7.7		.067	6.9		.063	6.5		.066	6.8	
OCCST	LnINC	.012	1.2		.015	1.5		.017	1.7		.018	1.8	
CLASS	LnINC	.685	98.4		.715	104.4		.870	138.7		.947	157.8	
EDUC	OCCST	3.02	---		3.27	---		3.48	---		3.60	---	
EDUC	CLASS	.008	---		.007	---		.002	---		.053	---	
				.456			.428			.445			.431
REGION 4 - Unevenly Developed Old Northeast:													
EDUC	LnINC	.079	8.2		.087	9.1		.087	9.1		.099	10.4	
OCCST	LnINC	.015	1.5		.020	2.0		.014	1.4		.015	1.5	
CLASS	LnINC	.644	90.4		.631	87.9		.944	157.0		1.04	182.1	
EDUC	OCCST	2.80	---		3.36	---		3.30	---		3.47	---	
EDUC	CLASS	.006	---		.006	---		.002	.0000		.003	---	
				.546			.519			.462			.431
REGION 5 - Underdeveloped New Northeast:													
EDUC	LnINC	.058	5.9		.063	6.5		.098	10.3		.106	11.2	
OCCST	LnINC	.023	2.3		.026	2.6		.001	0.0		.005	0.0	
CLASS	LnINC	.240	27.1		.213	23.7		.442	52.5		.963	161.9	
EDUC	OCCST	2.60	---		3.15	---		3.49	---		3.92	---	
EDUC	CLASS	.007	---		.007	---		.000	---		.001	---	
				.390			.374			.258			.228

^{1/}LnINC: Logarithm to the base n of minimum wages. OCCST: Canonical occupational status score (0-100). CLASS: Capitalist (self-employed employer = 1; non-capitalist = 0). EDUC: Education in years completed.

Table 6.1

Region 1 - Developed South

Zero-Order Correlations Between Variables in the Model

Males, upper right (N = 34,213)

Females, lower left (N = 12,097)

	FAOCC	AGE ²	SECTOR	EDUC	EXPER	OCCST	CLASS	LNINC
FAOCC ^{1/}		-.067	.227	.567	-.196	.515	.148	.446
AGE ²	-.091		-.063	-.189	.941	-.072	.077	.007
SECTOR	.161	-.046		.308	-.120	.406	.040	.367
EDUC	.571	-.253	.199		-.317	.743	.154	.645
EXPER	-.248	.880	-.096	-.423		-.189	.061	-.080
OCCST	.538	-.156	.201	.821	-.323		.256	.681
CLASS	.103	.033	.022	.090	-.005	.159		.279
LNINC	.426	-.067	.241	.633	-.198	.671	.174	

^{1/}LnINC: Logarithm to the base n of minimum wages. OCCST: Canonical occupational status score (0-100). CLASS: Capitalist (self-employed employer = 1; non-capitalist = 0. EDUC: Education in years completed. EXPER: Age minus age at start of first job. FAOCC: Father's occupational status as scaled for respondents. SECTOR: Urban = 1, Rural = 0. AGE²: Quadratic term for age.

Table 6.2

Region 2 - South's Developing Periphery

Zero-Order Correlations Between Variables in the Model

Males, upper right (N = 5,477)

Females, lower left (N = 1,575)

	FAOCC	AGE ²	SECTOR	EDUC	EXPER	OCCST	CLASS	LNINC
FAOCC ^{1/}		-.068	.253	.531	-.179	.498	.121	.459
AGE ²	-.133		-.071	-.235	.946	-.096	.103	.017
SECTOR	.150	-.081		.357	-.128	.442	.023	.354
EDUC	.532	-.323	.227		-.349	.766	.108	.643
EXPER	-.261	.856	-.119	-.447		-.205	.093	-.067
OCCST	.511	-.232	.180	.855	-.368		.245	.677
CLASS	.073	.122	-.035	.005	.061	.104		.322
LNINC	.479	-.112	.223	.693	-.241	.700	.179	

^{1/}LnINC: Logarithm to the base n of minimum wages. OCCST: Canonical occupational status score (0-100). CLASS: Capitalist (self-employed employer = 1; non-capitalist = 0). EDUC: Education in years completed. EXPER: Age minus age at start of first job. FAOCC: Father's occupational status as scaled for respondents. SECTOR: Urban = 1, Rural = 0. AGE²: Quadratic term for age.

Table 6.3

Region 3 - Undeveloped Amazonian Frontier

Zero-Order Correlations Between Variables in the Model

Males, upper right (N = 3,011)

Females, lower left (N = 1,067)

	FAOCC	AGE ²	SECTOR	EDUC	EXPER	OCCST	CLASS	LNINC
FAOCC ^{1/}		-.048	.181	.458	-.143	.420	.078	.358
AGE ²	-.118		-.003	-.219	.944	-.080	.059	.043
SECTOR	.096	.051		.244	-.056	.286	.007	.235
EDUC	.461	-.320	.084		-.334	.729	.125	.572
EXPER	-.235	.862	.029	-.455		-.179	.046	-.026
OCCST	.441	-.235	.028	.820	-.361		.264	.597
CLASS	.054	.033	.002	.053	.025	.149		.310
LNINC	.393	-.124	.098	.604	-.213	.627	.193	

^{1/}LnINC: Logarithm to the base n of minimum wages. OCCST: Canonical occupational status score (0-100). CLASS: Capitalist (self-employed employer = 1; non-capitalist = 0). EDUC: Education in years completed. EXPER: Age minus age at start of first job. FAOCC: Father's occupational status as scaled for respondents. SECTOR: Urban = 1, Rural = 0. AGE²: Quadratic term for age.

Table 6.4

Region 4 - Unevenly Developed Old Northeast

Zero-Order Correlations Between Variables in the Model
 Males, upper right (N = 14,258)
 Females, lower left (N = 5,037)

	FAOCC	AGE ²	SECTOR	EDUC	EXPER	OCCST	CLASS	LNINC
FAOCC ^{1/}		-.088	.282	.555	-.189	.512	.108	.467
AGE ²	-.146		-.086	-.174	.950	-.082	.075	-.006
SECTOR	.257	-.107		.414	-.149	.476	.037	.429
EDUC	.563	-.290	.350		-.292	.773	.127	.661
EXPER	-.275	.883	-.190	-.447		-.187	.059	-.099
OCCST	.506	-.218	.312	.841	-.373		.226	.674
CLASS	.092	.028	.056	.105	.001	.153		.261
LNINC	.441	-.085	.350	.630	-.214	.612	.188	

^{1/}LNINC: Logarithm to the base n of minimum wages. OCCST: Canonical occupational status score (0-100). CLASS: Capitalist (self-employed employer = 1; non-capitalist = 0. EDUC: Education in years completed. EXPER: Age minus age at start of first job. FAOCC: Father's occupational status as scaled for respondents. SECTOR: Urban = 1, Rural = 0. AGE²: Quadratic term for age.

Table 6.5

Region 5 - Underdeveloped New Northeast

Zero-Order Correlations Between Variables in the Model

Males, upper right (N = 3,261)

Females, lower left (N = 1,341)

	FAOCC	AGE ²	SECTOR	EDUC	EXPER	OCCST	CLASS	LNINC
FAOCC ^{1/}		-.063	.224	.520	-.145	.463	.150	.353
AGE ²	-.052		-.002	-.180	.956	-.074	.057	-.003
SECTOR	.217	.095		.389	-.039	.457	.018	.370
EDUC	.430	-.185	.416		-.268	.734	.128	.536
EXPER	-.154	.922	-.004	-.351		-.151	.048	-.063
OCCST	.394	-.106	.445	.823	-.270		.273	.592
CLASS	.303	-.036	.058	.137	-.060	.104		.187
LNINC	.285	.012	.337	.476	-.087	.420	.103	

^{1/}LNINC: Logarithm to the base n of minimum wages. OCCST: Canonical occupational status score (0-100). CLASS: Capitalist (self-employed employer = 1; non-capitalist = 0). EDUC: Education in years completed. EXPER: Age minus age at start of first job. FAOCC: Father's occupational status as scaled for respondents. SECTOR: Urban = 1, Rural = 0. AGE²: Quadratic term for age.

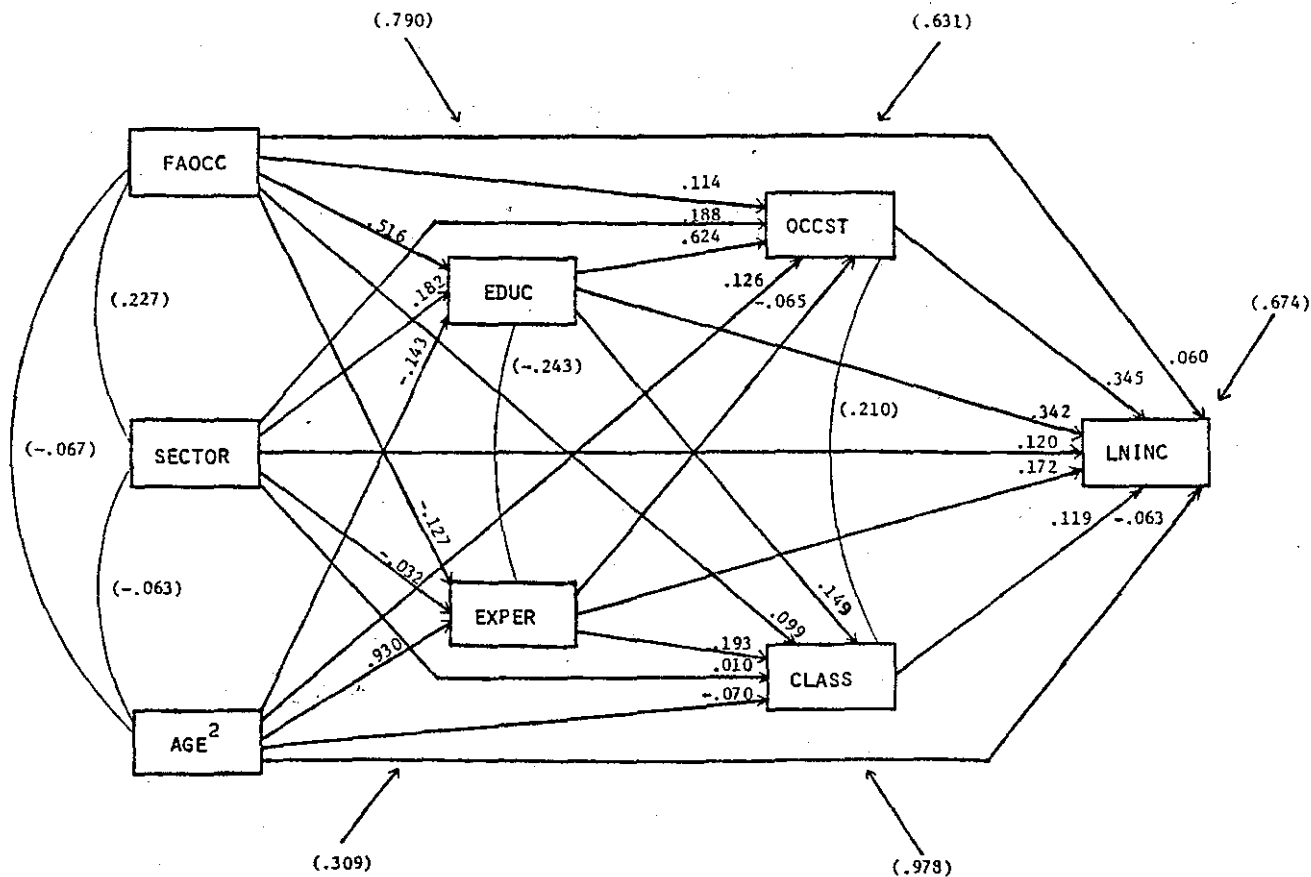


Diagram 1.1: PNAD 82: Path Diagram for Region 1 (Males, N = 34,113)

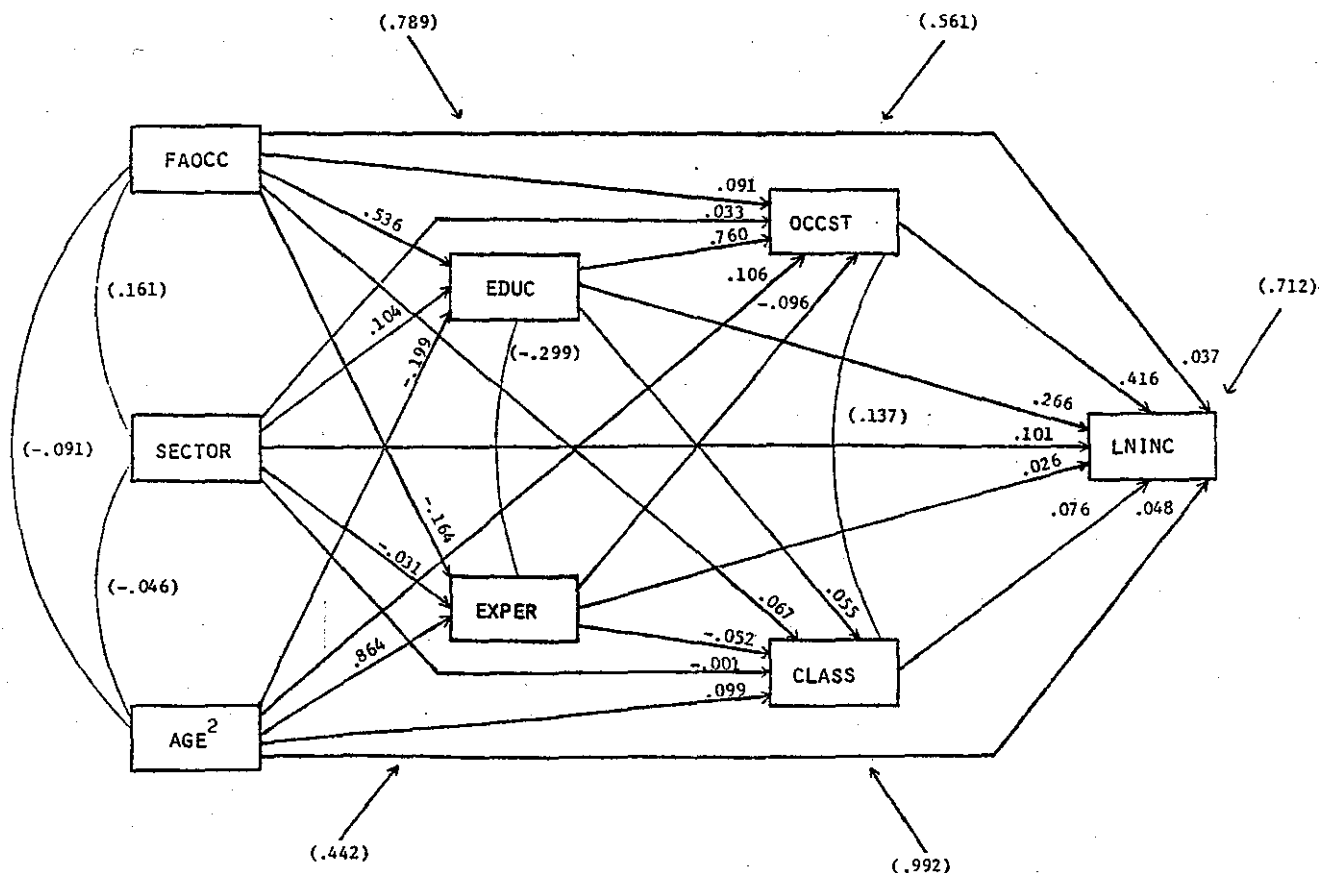


Diagram 1.2: PNAD 82: Path Diagram for Region 1 (Females, N = 12,097)

FAOCC: Father's occupational status as scaled for respondents. SECTOR: Urban = 1, Rural = 0. AGE²: Quadratic term for age. EDUC: Education in years completed. EXPER: Age minus age at start of first job. OCCST: Canonical occupational status score (0-100). CLASS: Capitalist (self-employed employer = 1; non-capitalist = 0). LNINC: Logarithm to the base n of minimum wages.

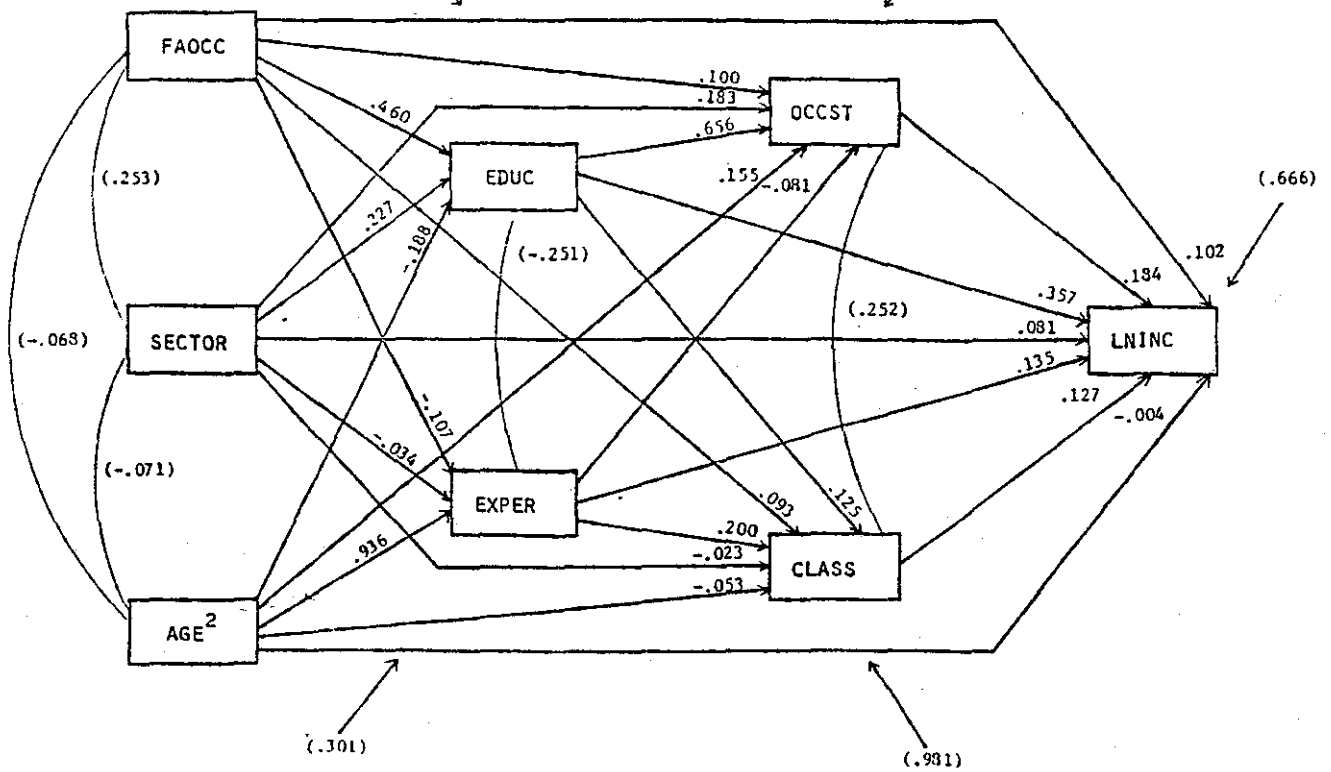


Diagram 1.3: PNAD 92: Path Diagram for Region 2 (Males, N = 5,477)

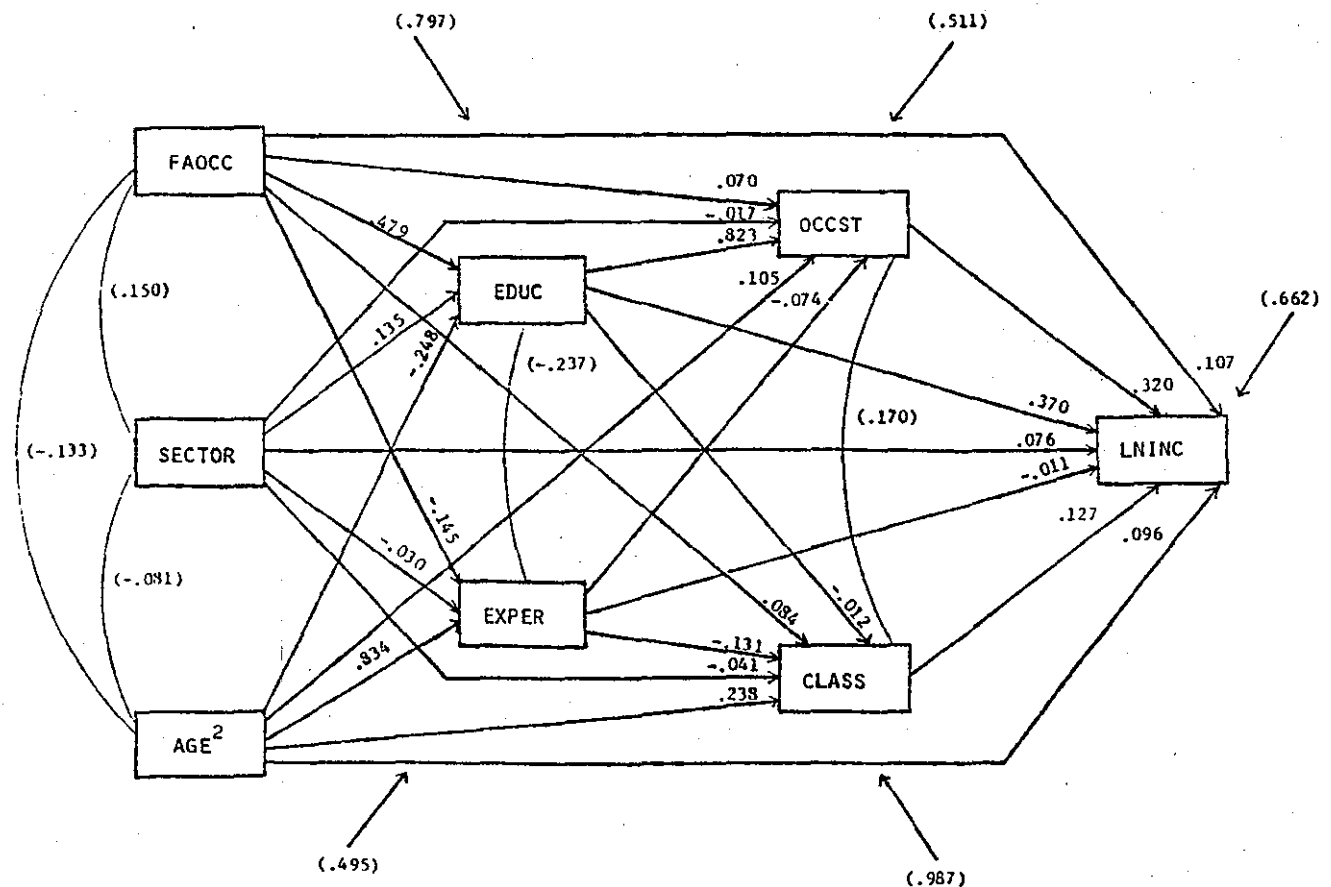


Diagram 1.4: PNAD 92: Path Diagram for Region 2 (Females, N = 1,575)

FAOCC: Father's occupational status as scaled for respondents. SECTOR: Urban = 1, Rural = 0. AGE²: Quadratic term for age. EDUC: Education in years completed. EXPER: Age minus age at start of first job. OCCST: Canonical occupational status score (0-100). CLASS: Capitalist (self-employed employer = 1; non-capitalist = 0). LNINC: Logarithm to the base n of minimum wages.

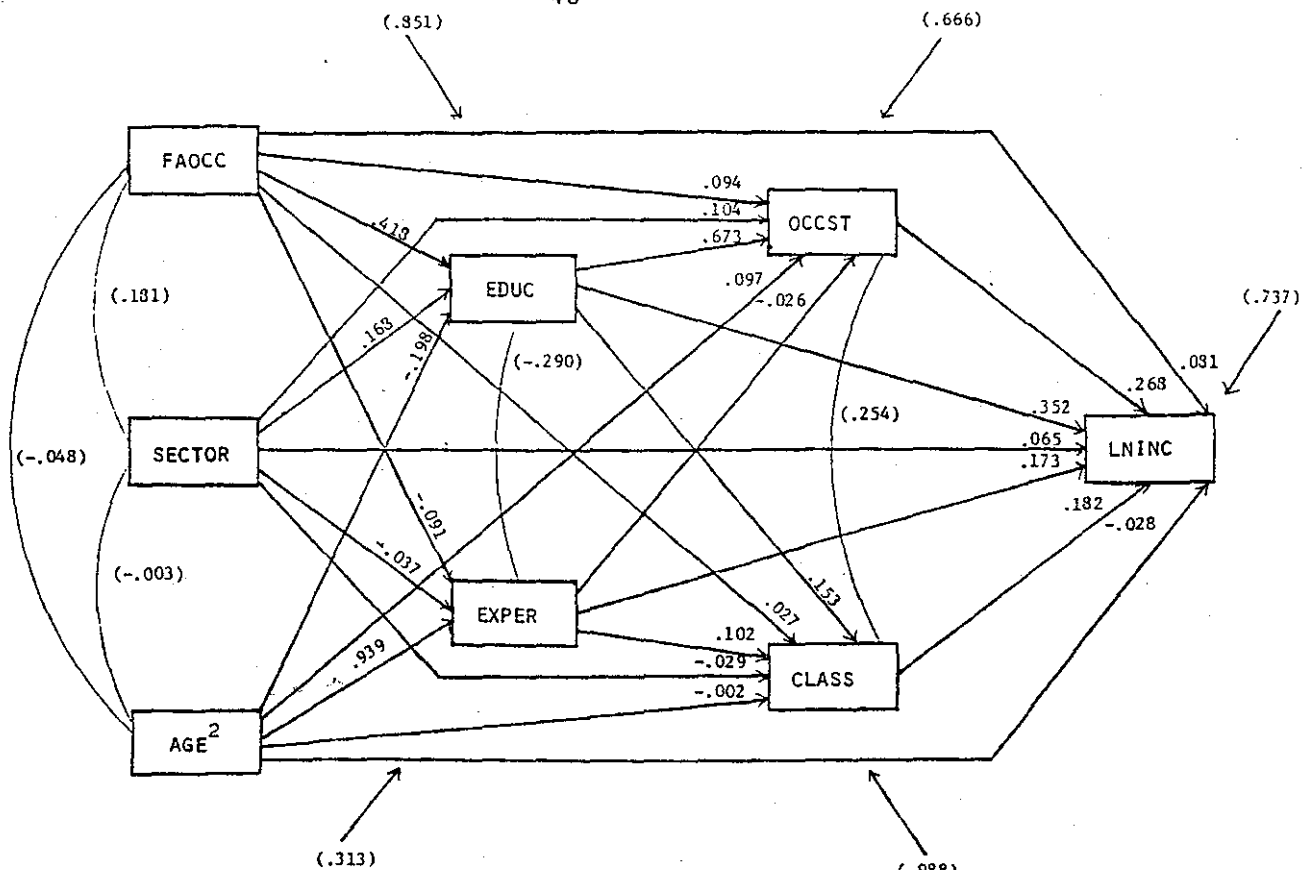


Diagram 1.5: PNAD 82: Path Diagram for Region 3 (Males, N = 3,011)

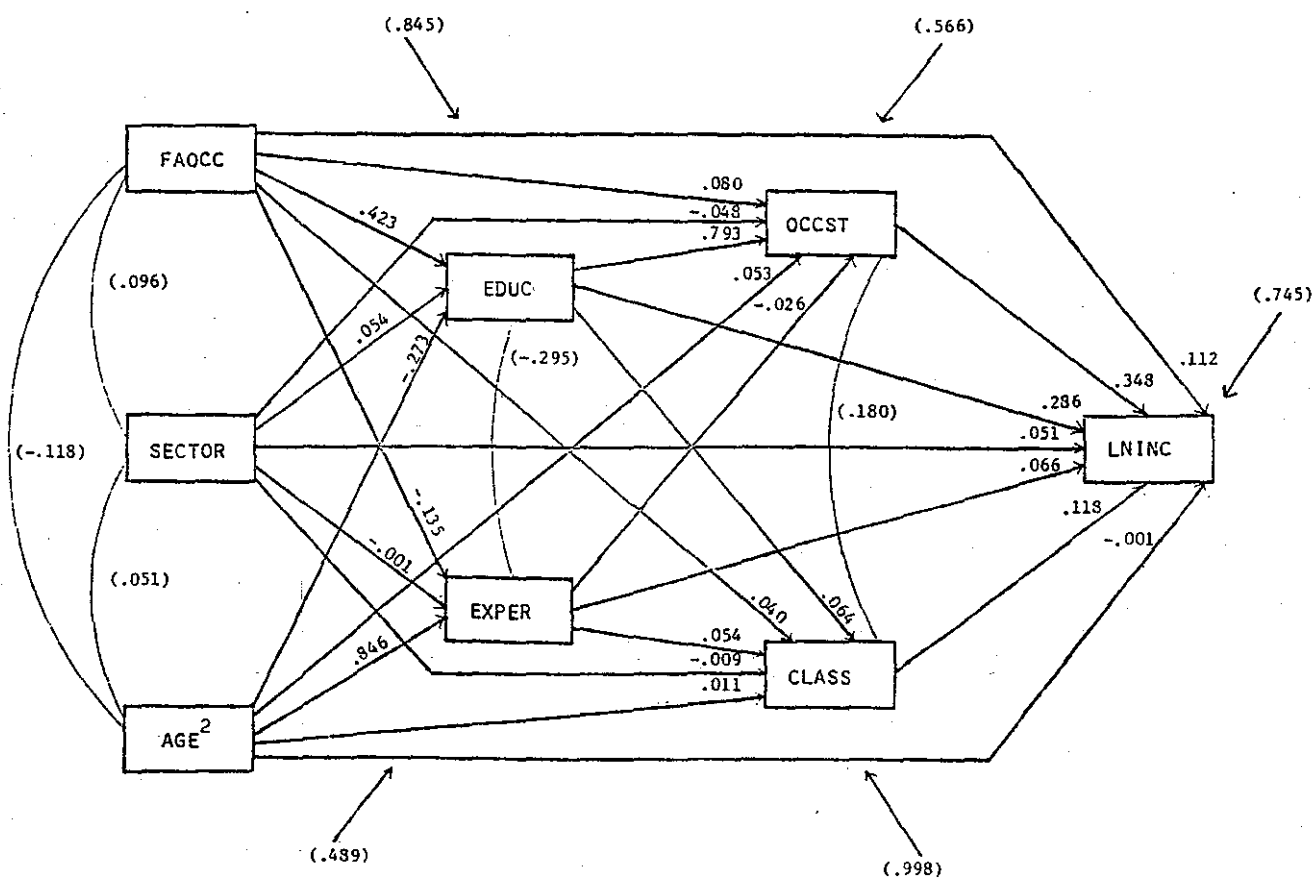


Diagram 1.6: PNAD 82: Path Diagram for Region 3 (Females, N = 1,067)

FAOCC: Father's occupational status as scaled for respondents. SECTOR: Urban = 1, Rural = 0. AGE²: Quadratic term for age. EDUC: Education in years completed. EXPER: Age minus age at start of first job. OCCST: Canonical occupational status score (0-100). CLASS: Capitalist (self-employed employer = 1; non-capitalist = 0). LNINC: Logarithm to the base n of minimum wages.

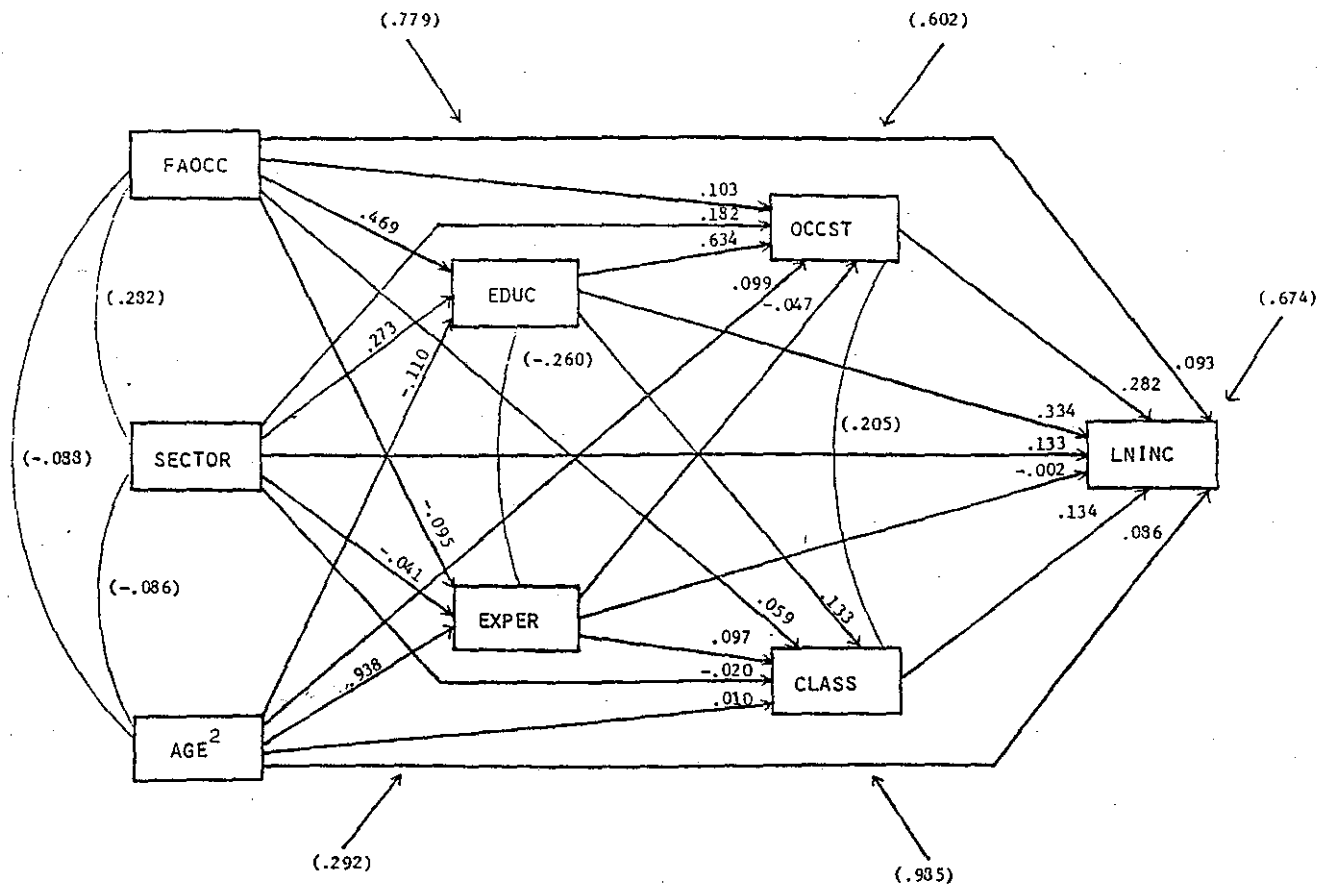


Diagram 1.7: PNAD 82: Path Diagram for Region 4 (Males, N = 14,258)

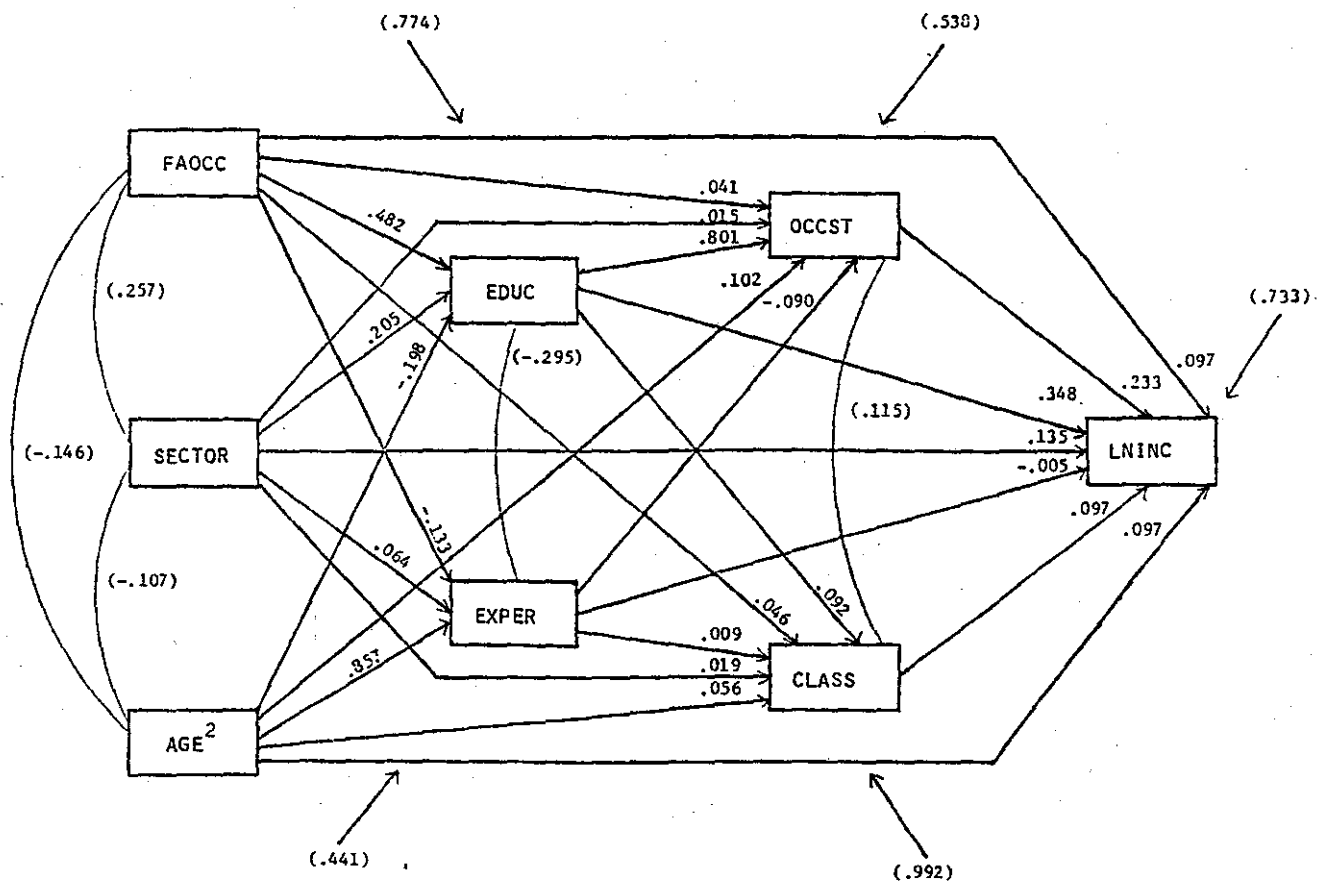


Diagram 1.8: PNAD 82: Path Diagram for Region 4 (Females, N = 5,037)

FAOCC: Father's occupational status as scaled for respondents. SECTOR: Urban = 1, Rural = 0. AGE²: Quadratic term for age. EDUC: Education in years completed. EXPER: Age minus age at start of first job. OCCST: Canonical occupational status score (0-100). CLASS: Capitalist (self-employed employer = 1; non-capitalist = 0). LNINC: Logarithm to the base n of minimum wages.

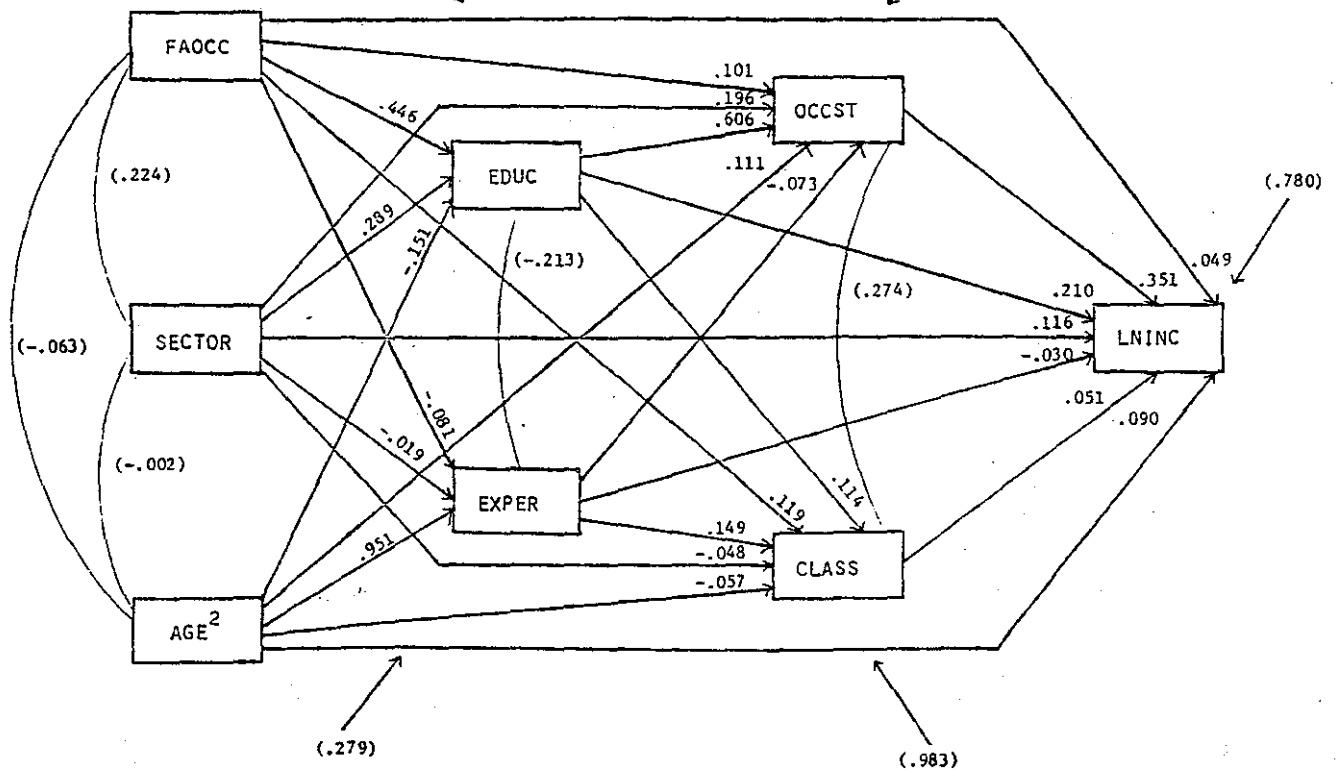


Diagram 1.9: PNAD 82: Path Diagram for Region 5 (Males, N = 3,261)

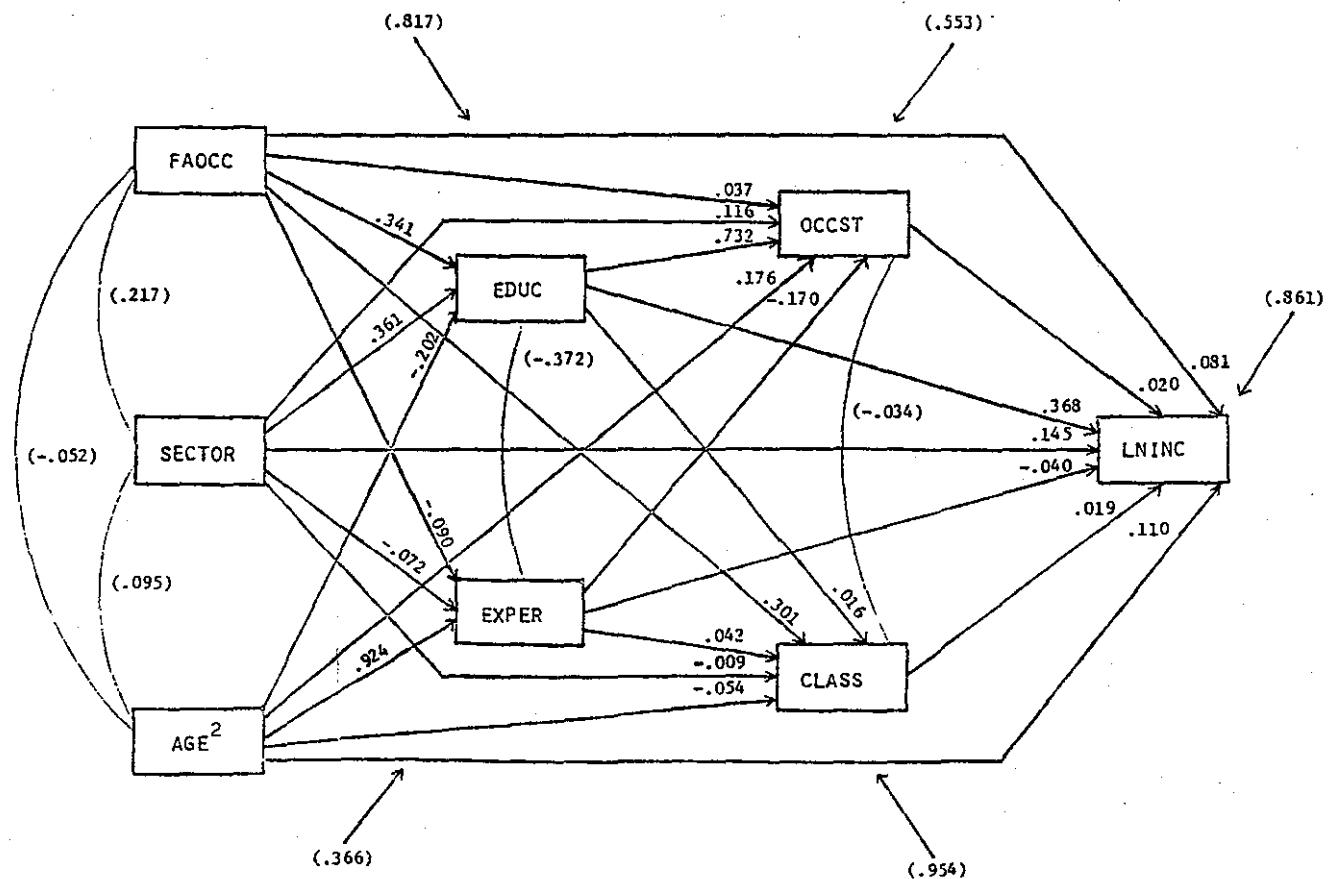


Diagram 1.10: PNAD 82: Path Diagram for Region 5 (Females, N = 1,341)

FAOCC: Father's occupational status as scaled for respondents. SECTOR: Urban = 1, Rural = 0. AGE²: Quadratic term for age. EDUC: Education in years completed. EXPER: Age minus age at start of first job. OCCST: Canonical occupational status score (0-100). CLASS: Capitalist (self-employed employer = 1; non-capitalist = 0). LNINC: Logarithm to the base n of minimum wages.

APPENDIX 1

STATE SAMPLING WEIGHTS (BY REGION) FOR PNAD 82

<u>STATE</u>	<u>WEIGHT</u>
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Region 1:

Rio de Janeiro	1.247
Sao Paulo	1.625
Parana	0.977
Santa Catarina	1.417
Rio Grande do Sul	0.791
Minas Gerais	0.924

Region 2:

Espirito Santo	1.338
Brasilia	0.199
Rondonia	0.758
Acre	0.846
Mato Grosso Sul	0.670
Goiás	0.646

Region 3:

Ceara	0.798
Rio Grande do Norte	1.354
Paraiba	1.292
Pernambuco	0.738
Alagoas	1.343
Sergipe	1.459
Bahia	1.026

Region 4:

Amazonas	0.647
Roraima	0.846
Para	0.566
Amapa	0.859
Mato Grosso	0.592

Region 5:

Maranhao	1.329
Piaui	1.193