SOCIAL FORSKNINGS INSTITUTTET

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11:2006 WORKING PAPER

SOCIAL CLASS, FAMILY BACKGROUND, AND INTERGENERATIONAL MOBILITY

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October 25, 2006

Abstract

This research examines the various approaches taken by economists and sociologists for analyzing intergenerational mobility. Social mobility models based on social classes arising from an occupational classification scheme are analyzed. A test for the statistical validity of classification schemes is proposed and tested using Danish sample survey data that was first collected in 1976 and augmented in 2000. This is referred to as a homogeneity test and is a likelihood ratio test of a set of linear restrictions which define social classes. For Denmark it is shown that this test fails for an Erikson-Goldthorpe classification system, raising doubts about the statistical validity of occupational classification systems in general. We also estimate regression models of occupational earnings, household earnings, and educational attainment using family background variables as covariates controlling for unobservables, measurement error, and simultaneous equation bias. In these models homogeneity tests are also rejected. We conclude from these results that it is the respondent's family background that has a small but significant impact on lifetime chances, whereas the social class of the respondent's parents does not.

Keywords: Social Class. Family Background, and Intergenerational Mobility.

JEL Classifications: I3, J3, J6.

1 Introduction

By intergenerational social mobility, social scientists mean several things. Contemporary European sociologists like Erikson and Goldthorpe (1992, 2002) think of mobility in terms of social classes. From their perspective an individual's social class depends on the social class of his or her parents. On the other hand, some economists starting with Atkinson *et al* (1983) and continuing with Björklund and Jantti (1997), Solon (1999), and Mazumder (2005) avoid the notion of class altogether and focus instead on the intergenerational correlation between father's and son's incomes**.** Other economists like Mayer (1997) and Bowles and Gintis (2002), Bowles, Gintis and Groves (2005) focus on a broad range of variables that describe the respondent's childhood environment and relate these to achievement.[1]

Thus, there are two conflicting views of intergenerational mobility. Are lifetime chances are determined by the broad structural characteristics of labour markets and in this sense are socially determined? Or, alternatively, are they determined by the features of the households in which the individual grew up? For policy evaluation these are important distinctions. If mobility is all about parental class origins then it is unlikely that policies like unemployment insurance, welfare assistance to disadvantaged families, or even expanding the educational system will do much to improve the prospects of the children from the families who are the targets of these policies. On the other hand, if life time chances are really determined at the level of the household then policies which try to help deprived households could be effective.

In this paper we attempt to evaluate these two competing hypotheses. In the process we also investigate whether the notions of class that the sociologists have proposed can be tested empirically. To do this we examine intergenerational mobility using living conditions survey data obtained from a representative sample of Danish households. Our purpose is to look at this issue for Denmark since there is relatively little information on how much the 'socioeconomic achievements'[2] of one generation depend on the generation that preceded it and which mechanisms actually operate in Denmark. We estimate social mobility models in the Erikson-Goldthorpe tradition as well as regression models for earnings and occupational status following the early American sociological traditions of Blau and Duncan (1967) and Featherman and Hauser (1978). For the sociologists' social mobility models we propose simple tests to determine whether the restrictions generated by the social classification scheme for occupations are satisfied by the data. For Denmark they are not! This raises the possibility that the social classification schemes based on

[1] See Piketty(2000) for an overview of some of the differences between economist's and sociologist's approaches to intergenerational mobility.

[2] This term comes from Featherman and Hauser (1978) who mean completed years of schooling, occupational status, and income.

the grouping of occupations are generally not statistically robust and since none of the proponents of these schemes has carried out the tests that we propose there is considerable doubt about the reliability of this type of research.

The paper has the following format. The next section contains a brief literature review of the various approaches that have been used to examine intergenerational mobility. The issues involve class, inequality, income and earnings determination, cognitive skills, and labour markets; consequently, our review will be selective. Providing an adequate well-digested summary of the all of the relevant literature here is a substantial undertaking and would take us beyond the basic objectives of our research.

In section 4 we estimate social mobility models based on the Erikson-Goldthorpe occupational classification scheme using a sample survey in which respondents were first interviewed in 1976 and reinterviewed again in 2000 to pick up information which was not available in 1976. We find that the parameter restrictions which are implied by the classification scheme are not satisfied by the data. The alternative characterization of intergenerational mobility in terms of the dependence of respondent's earnings, educational, and occupational success on the social and economic characteristics of the households in which they resided as children and adolescents is examined in regression framework. Two models are estimated here. Both recognize the interdependence of education and earnings by estimating a simultaneous equation regression model where the two endogenous variables are either household income or occupational status, as measured by the average income of the occupation, together with a linear probability equation for an educational attainment dummy.

2 Mobility Studies

Social scientists have considered the issue of intergenerational mobility from several points of view. Sociologists like Featherman and Hauser (1978), Erikson and Goldthorpe (1992 and 2002), and more recently Breen and Goldthorpe (2001) considered this in the context of social mobility tables whose row and column entries consist of cross tabulations of social classes which are defined as aggregations of occupational categories.[3]

Alternatively, both sociologists and economists have characterized mobility in terms of the dependence of earnings, educational attainment, or occupation on the characteristics of the respondent's parents and other social background variables. There are many contributions and the various approaches followed by researchers interested in intergenerational mobility have been considered as complimentary and investigators have usually

[3]See Breen and Jonsson (2005) for the most recent sociological literature.

been free to do what pleased them in terms of what they thought was important or interesting. At the same time there has been considerable debate and controversy over questions involving class based mobility models, as noted by Breen and Rottman (1995: 155-157).

Theories of social stratification in sociology invariably involve occupations. Where an individual fits into society is largely determined by what that person does for a living. But sociologist divide on how to deal with the large number of occupations. Here there are two choices available to researchers. Occupations can be classified according some criterion and then the classes which arise from applying this criterion can be subjected to various types of analysis. Alternatively, occupations can be assigned a score which depends on the characteristics of the occupation. Mobility issues are then defined in terms of how the current generation's occupational score relates to the occupational scores of the previous generation. Both procedures have long traditions in empirical sociology. We discuss classification systems first and then deal with procedures which have been used to provide numerical representations of occupations.

Employment relations are at the centre of the Erikson-Goldthorpe (1992: 36-45) classification scheme. The basic criterion underlying their scheme is the relation the worker has to his or her work place in terms of whether the worker is an employer, self-employed, or an employee.[4] Their classification scheme has several forms. The seven class version is unordered but they claim that the three class version outlined above "could be more-or-less equally well taken as an ordering of class positions in terms of their prestige, socioeconomic status, or 'general desirability' ".

The Erikson-Goldthorpe scheme, in particular, and more generally concepts like 'class' or 'status' that are the foundations of social mobility analysis have been discussed critically within sociology by Blackburn and Prandy(1997), Munk (1999), Grusky and Sørensen (1998), and Goldthorpe (2000 and 2002).

For Kelley (1990: 325), unordered class models raise serious methodological problems.[5] We share this concern but this is only part of the problem with class based theories of mobility. Large numbers of classes are required to generate within class homogeneity[6] a requirement that prevents an ordering of the classes, thus, compromising their

[4] On page 37 they write "The aim of the class schema is to differentiate positions within *labour markets* and *production units* or, more specifically, to differentiate such positions in terms of the *employment relations* that they entail[9]" The 9 refers to a footnote at the bottom of page 37.

[5] He writes: "we study social mobility in order to understand stratification, hierarchy and their links across generations. So a ranking of occupations from high status to low is essential: the fundamental social conflicts over who gets good jobs, with high pay and good working conditions that go with them, and who gets poor ones with the accompanying poverty, dirt and toil. ...Not to know who wins and who loses the competition is to miss the main point."

[6] With respect to Erikson-Goldthorpe, Bergmann and Joye,(2003: 17) note "For instance, if we con-

relevance. But reducing the number of classes to the point where they can be socially ordered destroys their homogeneity which may, in turn, invalidate any of the empirical results if the procedure for aggregating the occupations into classes is not consistent with the data.

Numerical representations of occupations avoid the problems that arise in classification systems. Duncan (1961) constructed an index of occupations by taking the rankings of occupations in terms of social prestige from National Opinion Research Center (NORC) surveys and regressing them on the educational attainments (years of schooling) and the average earned income of the occupations which were ranked. The index is a linear combination of these two variables. Thus, the index is certainly social in the sense that it reflects society's opinion of the status or social value of the occupation but it is also an economic index since it is based on two performance measures one of which is purely economic in nature. It is, naturally, referred to as a socioeconomic index with the abbreviation, SEI. Blau and Duncan (1967) used this to construct occupational categories, sixteen in all, which Featherman and Hauser (1978) later utilized as a basis for their intergenerational mobility tables, father's occupation vs. son's occupation. As a result the groups are ordered with respect to the social prestige of the occupation. Because of this Featherman and Hauser quite reasonably refer to changes from one occupational class to another as 'upward or downward mobility'.

Turning now to the literature on economic mobility, education, occupation and earnings have been analyzed by both economists and sociologists. Featherman and Hauser (1978: 235), in addition to looking at class mobility tables, also ran regressions of completed years of schooling, current occupational prestige, as measured by the Duncan scale, and annual earnings on a set of family background variables including father's occupation and education, number of siblings, race, whether the respondent came from a broken home, and geographical location. More recently, Korenman and Winship (2000), Mayer (1997), and Bowles and Gintis (2002) among many others have attempted to see how sensitive an individual's earnings are to a more comprehensive set of family background variables. A recent classic in this tradition is the contribution by Cameron and Heckman (1998) who examined the dependence of educational outcomes on family background variables.

A different approach is followed by Atkinson *et al* (1983), Björklund and Jantti (1997), Dearden *et al* (1997), Solon (1999), and Corak and Heisz (1998) in which the relation between son's income and father's (permanent) income is examined. While this yields a simple index of mobility, namely the regression coefficient attached to the natural logarithm of the father's permanent income, these models are not very informative about

sider the seven class schema, which Goldthorpe seems to prefer we find that supreme court judges and the shift supervisors of fast food restaurants occupy the same class but hold very different positions on various hierarchies(e.g. prestige, income, cultural capital, authority, etc.)"

the mechanism underlying the process whereby one generation depends on the one which preceded it. Much of the literature on intergenerational mobility finds that variables which describe the social and economic circumstances in which children grew up are important in determining later success both in the educational system and in labour markets. As result we shall have to wait until there are studies that add information on fathers permanent income to a list of other family background variables to see exactly what role father's permanent income plays in the determination of the success of the father's offspring.

Finally, for Denmark there have been both classical mobility studies and those involving intergenerational income mobility. Early studies include Svalastoga (1959) and Hansen (1978, 1984). More recent work by Munk (1999, 2003) deals with current Danish social mobility. Björklund *et al* (2002) and Bonke *et al* (2005) deal with intergenerational income mobility issues.

3 The Data Set

The Danish National Institute of Social Research commissioned a living standards survey on a random sample of adult Danes in 1976 and resurveyed them again in 2000. The details are in Hjorth Andersen (2003). The coverage was fairly general and focused on both the respondent's year 2000 position as well as a selection of family background variables. A summary of the data employed here is contained in Table 1.

The educational variable is a dummy variable indication educational qualifications past grade 9. This particular representation was chosen for its simplicity and to make it consistent with parental education variables. Household incomes before taxes are measured in thousands of Danish Kroner for the year 2000. Age is age in 2000 and father's education is a dummy variable which takes the value one if the individual proceeded past grade 9. In this survey the fathers were born on average around 1925. At this time most of the differentiation in educational attainments was at lower levels of education. We did not find these to be particularly informative about respondent outcomes and used a variable which indicated some education past grade 9 instead. Mother's education is measured the same way.

There are 16 occupational categories for both fathers and mothers. None of the occupational data for the respondent's mother was significant in any of the models so it is not included. These are listed in Table 2. Social classes are defined in the notes to this table.

In the original survey interviewed 5166 respondents in 1976, of which 2755 were rein-

terviewed in 2000. Their occupations, educational attainments, and household incomes were obtained in 2000. The decline in the sample size is due to mortality and other non-specified forms of non-response. 1267 died or moved abroad so that much of the attrition in the sample can be assigned to the category 'missing at random'. In this sample there are missing observations on many variables so that there are only 2041 respondents for which there is 2000 social class data and 2255 for which there is income data. Respondents older than 65 were also excluded. This leaves 1521 respondents.

4 Probability And Regression Models

4.1 Probability Models

In the first part of this section we will turn our attention to the estimation of social mobility based on probability models which explain the respondent's social classes which are defined by aggregating occupations as of the year 2000. Sociologists usually attempt to model the entries or cells in the mobility table which is just a two way origin-destination table where the origin is the father's social class and the destination is the respondent's social class. However, this is not generally a good idea since the estimates of the parameters of the covariates which define these cell probabilities are quite sensitive to omitted variable bias. Instead we explain the probabilities of the destination outcomes using dummy variables to represent the class status of the respondent's father.

The classification scheme that aggregates our occupational categories into classes is the five category classification scheme used by Erikson and Goldthorpe (1992) so that there are five rows and columns in the table. In what follows we refer to occupational categories simply as occupations. The original classification system that was used on this data base has its origins in the work of Noordhoek (1969) and Hansen (1984) who in reaction to the social status measurements of Svalastoga (1959) developed a classification scheme with five social groups which, while emphasizing the hierarchical nature of employment relations in terms of the amount of responsibility the respondent had, is similar to the Erikson-Goldthorpe system. While this may be more suitable for Denmark than the Erikson-Goldthorpe scheme, we thought it was more appropriate for comparative purposes to use the original five class Erikson-Goldthorpe system. The way occupations are assigned to social classes is described in Table 2.

The Erikson-Goldthorpe scheme can be characterized by a set of parameter restrictions whose validity can be tested. Our procedure for estimating the individual destination probabilities is to apply an unordered (nominal) logit model to the five alternative destination social outcomes using a set of covariates which include the age and gender

of the respondent, the educational attainment of the respondent's father and a set of dummy variables indicating the social class to which the respondent's father belonged. The probability of respondent i being in social class j is

$$p_{ij} = \frac{\exp(X_i\beta^j)}{1 + \sum \exp(X_i\beta^j)} \quad j = I, II, II, IV \tag{1}$$

where X_i is a vector of family background variables including father's and mother's education, fifteen father's occupation dummies as well as a gender dummy and the logarithm of the respondent's age.

Because there are five origin categories there are four origin social class parameters to be estimated, $(\alpha^j_I, \alpha^j_{II}, \alpha^j_{III}, \alpha^j_{IV})$, for each $j = I, II, II, IV$. We treat the fifth social class as the reference class. However, the occupation of the respondent's father is also available so it is possible to test the hypothesis the restrictions defining the classification scheme are satisfied by the data. If the classification scheme is correct then this means that in a model where the occupations are used there can be no significant differences across the occupation parameters for the constituent occupations in the social class. In other words, the classes have to be homogenous with respect to occupation. If these parameters are represented by the vector $(\alpha^j_1, \alpha^j{}_2, ..., \alpha^j_{16})$ it is clear from Table 2 that the scheme will be consistent with the data only if the hypothesis that $\alpha^j_{1,}\alpha^j_8, \alpha^j_9, \alpha^j_{10}, \alpha^j_{11}, \alpha^j_{12}, \alpha^j_{15}$ and α^j_{16} are all equal to α^j_I and $\alpha^j_2, \alpha^j_3, \alpha^j_{13}$ and α^j_{14} are equal to α^j_{II} etc. is satisfied by the data. In practice, this means that as long as the constituent parameter estimates are not too unequal the hypothesis will not be rejected. This set of restrictions is easily tested by running both models and comparing the ln-likelihood functions using a classical likelihood ratio test. We refer to this test as a homogeneity test.

The results of this test appear in the first row of Table 3 labelled the Unordered Logit Model. The actual chi-square value for 48 degrees of freedom is 112.02. The p-value for this statistic is 0.001 so the hypothesis that the parameter restrictions which define the classification scheme are rejected. Here degrees of freedom are determined by the number of parameter restrictions that are required to aggregate the occupations into social classes. It is also important to note that many of the coefficients associated with the father's social class dummies were not significant.

Although followers of the Erikson-Goldthgorpe tradition argue that social classes are unordered they could be. Because of that possibility ordered probability models were estimated and they also fail the homogeneity test.

The logit model based on the social classes is rejected in favour of the logit model containing the occupations, themselves. There are significant differences in the occupation coefficients within some of the social classes, especially class II, so the classification

scheme can not be used to summarize the effects of the respondent's father's occupation on the respondent's social class. There is information in the father's occupations themselves that is missing from the social classes and suppressing this information can lead to incorrect inferences concerning the effect of parent occupation and other variables on respondent's social class. Social classes, as a statistical phenomenon, are not supported by the data!

The fact that parent's origin occupations can not be aggregated into statistically valid social classes raises questions about the validity of the destination social classification as well. It would be desirable to run a logit model on the destination occupations and compare the results with the destination social classes but there are too many occupations for this to be done given the sample size.

The analysis so far has neglected the effects of the respondents own education on destination social class probabilities. Although the classes are not globally ordered there are some classes where it would appear that better educational credentials would improve the chances of class membership. Class I is an obvious example. But the respondent's education is an outcome variable; it could be as much affected by the respondent' social background as occupation or earnings are. There are, however, serious statistical problems that arise when education is included as a covariate in social class probability models. First, our education variable is categorical so it is not clear how it should be included as a regressor in an unordered probability model. Secondly, it is an endogenous or outcome variable so its inclusion is likely to lead to simultaneity biases for which there is no obvious remedy in the context of unordered models.

On the other hand, leaving it out leads to a different type of problem, that of omitted variable bias. As it happens, leaving out an important covariate biases the estimates of the parameters associated with the included variables regardless of whether the omitted variable is correlated with the included variables. Of course, there are many variables, which are unobservable to the researcher, but affect both educational and occupational attainment. Examples are ability, ambition, personality, and organizational skills to name just a few as noted by Bowles, Gintis and Osborne (2001). Not being able to include these variables in the social class probability model or not accounting for unobservable effects if these variables are excluded will produce biased parameter estimates regardless of whether or not education is included as a covariate.

4.2 Regression Models

We turn now to a more family or household oriented approach. Featherman and Hauser (1978) considered the issue of social mobility by using regression models to explain in-

comes and occupations as measured by the Duncan index. Instead of using a Duncan index which has never been computed for Denmark we represent an occupation by the average household income of the respondents with that reported occupation.[7] We estimate a system of two equations

$$e_i = X_i^e \beta^e + \varepsilon_{ei} \quad (2)$$
$$z_i = \alpha e_i + X_i^z \beta^z + \varepsilon_{zi} \quad (3)$$

where e_i is a dummy variable which takes the value one if the respondent has some education past grade 9 and z_i is the natural logarithm of our occupation income index or household income. We denote these two variables as z_{oi} and z_{hi}, respectively. (X_i^e, X_i^z) are the vectors of explanatory variables in each of the two regressions. These are listed in Table 4. $(\varepsilon_e, \varepsilon_z)$ are random disturbance terms which capture unobservables like ability or ambition. Our estimation procedure, GMM, allows them to be jointly distributed and possibly heteroscedastic.[8] Homogeneity tests were also carried out on these models. For both the occupation index and household income both tests were rejected. These results appear in rows 2 and 3 of Table 3. Wald tests are used here and the degrees of freedom are the number of restrictions. Parameter estimates for these two models appear in Tables 4 and 5. As was the case for the unordered logit specification in the previous subsection, many of the father's social class dummies were not significant.

For the simultaneous regression models gender, and father's and mother's education are significant as are many of the occupation dummies, especially those associated with the higher status occupations. For the occupational income equation the parameter associated with the respondent's education is large, highly significant, and about four times larger than the ordinary least squares estimate.

5 Discussion

Our results point to the importance of the family or household in which the respondent resided as a child or adolescent as the appropriate unit for analysis. The importance of father's occupation and the two parental education variables confirms this. For Denmark classifying occupations by the respondent's type of employment along the lines suggested

[7] Naturally, it would have been more appropriate to use the respondent's income but this variable, regretably, was not included on the original questionaire.

[8] As check to ensure that there are no 'weak instrument' problems both regression models were estimated by systems maximum likelihood methods. The parameter estimates were very similar to the GMM estimates reported in Table 4.

by Erikson and Goldthorpe is actually unhelpful and makes it difficult to uncover the real mechanisms by which current generation's life chances are determined. The occupations which comprise origin social classes certainly contain additional information about an individual's life chances which are obscured when occupations are aggregated into classes.

The Erikson-Goldthorpe system fails because of the occupational heterogeneity within class I. Parameter estimates for large entrepreneurs (occupation 16) are significantly larger than those for large agricultural land holders (occupation 1) in the income equations. What is surprising is that in the two education equations the coefficients for large entrepreneurs are both negative but not significant whereas the coefficients for self employed professionals (occupation 12) is positive and highly significant.

Although the results favour a more family oriented approach they are actually quite weak. The computed R^2 values are low so that parental variables fail to explain very much of the variation in the outcome variables. In another study based on Danish sample survey data, McIntosh and Munk (2007), we found similar results. Even when other family background variables like the number of siblings and the presence of financial problems were included the ability of the model to provide an adequate explanation of the data was rather limited.

In both income models the respondent's education explains more of the variation in occupational or household income than all of the occupation variables. Since family background variables explain such a small proportion of the variation in the respondent's education it is clear that there are strong forces at work which may be associated with the respondent's family background but are not captured by the variables in our survey.

It is also possible that there are additional factors outside the household that determine the individual's success in educational and occupational choices. The current generation of Danes is much better educated than their parents. The educational system has expanded to include much larger proportions of individuals from households with parents who are poorly educated or have low status occupations.[9] Social programmes have also been expanded and have become much more accessible to disadvantaged families. Thus, it is possible that there is an important 'social dimension' to intergenerational mobility. What our results show, however, is that it is likely to be rather different from the construct of social classes obtained by grouping occupations together which are so prominent in contemporary sociology. Parent occupations make a small but significant contribution to the explanation of the respondent's success; father's social class does not.

[9] These results are based on register data and are reported in McIntosh and Munk (2006).

6 Acknowledgment

The authors wish to thank Erik Jørgen Hansen under whose direction the data used in this study was collected and for his helpful comments. We also thank Robert Blackburn, Eero Caroll, Nikolai Gospodinov, Robert Hauser, Stephen Jenkins, Stephen L. Morgan, and Panu Poutvaara for comments on an earlier version of the paper as well as John Goldthorpe for his lengthy response to an earlier version of this paper.

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TABLES

TABLE 1
Danish Living Conditions Survey
Sample Statistics

Variable	Mean
Respondent's Characteristics	
Education	0.688
Age	53.136
Gender (Male = 1)	0.529
Household Income	42.855
Social Class	
Social Class I	0.231
Social Class II	0.352
Social Class III	0.171
Social Class IV	0.168
Social Class V	0.095
Father's Characteristics	
Education	0.529
Social Class	
Social Class I	0.212
Social Class II	0.160
Social Class III	0.048
Social Class IV	0.184
Social Class V	0.380
Mother's Characteristics	
Education	0.243

TABLE 2

Social Classification of Occupations, 1976 and 2000.

No.	Name of Occupation In 1976	Erikson-Goldthorpe Social Classification	Name of Occupation In 2000
1	Large Agricultural Land Holder	Class I	
2	Small Agricultural Land Holder	Class II	Small Agricultural Land Holders
3	Self-Employed Agricultural Workers	Class II	
4	Paid Agricultural Workers	Class III	
5	Skilled Labour	Class IV	Skilled Labour
6	Unskilled Labour	Class V	Unskilled Labour
7	Low Grade Technical & Sales Workers	Class IV	Low Grade Technical & Sales Workers
8	Routine Non-Manual Workers	Class I	Routine Non-Manual Workers
9	Higher Grade Professionals	Class I	Medium Grade Professionals
10	Administrative Civil Servants	Class I	Higher Grade Professionals
11	Ordinary State Employees	Class I	
12	Self-Employed Professionals	Class I	
13	Self-Employed Craft Workers	Class II	Self-Employed Craft Workers
14	Small Entrepreneurs	Class II	Small Entrepreneurs
15	Medium Entrepreneurs	Class I	Medium Entrepreneurs
16	Large Entrepreneurs	Class I	Large Entrepreneurs

Notes. The Roman numerals indicate the social class to which an occupational category is assigned. Using the Erikson-Goldthorpe system, these classes are defined as $I = \{1, 8, 9, 10, 11, 12, 15, 16\}$, $II = \{2, 13, 14\}$, $III = \{3, 4\}$, $IV = \{5, 7\}$, and $V = \{6\}$.

TABLE 3

Likelihood Ratio and Wald Test Statistics for Various Models

Model	Test Statistic	Value	P-value
Unordered Logit Model	LR: $\chi^2_{(48)}$	101.456	0.0001
Occupational Income Model	Wald: $\chi^2_{(8)}$	31.200	0.0001
Household Income Model	Wald: $\chi^2_{(8)}$	39.513	0.0000

Notes. These tests are tests of the parameter restrictions which define social classes. The likelihood ratio test is designated by LR. The logit models were estimated by maximum likelihood so an LR test is used. The simultaneous equation models were estimated by GMM so a Wald test is used.

TABLE 4

Parameter Estimates For The Occupational Income Model

Variable	z_o	**e**
e	0.475** (0.113)	–
ln(Age)	0.018 (0.062)	-0.177† (0.107)
Sex	-0.059** (0.020)	0.148** (0.023)
Father's Education		0.081** (0.0270
Mother's Education		0.094** (0.023)
Father's Occupation In 1976		
1 Large Agricultural Land Holder	0.028 (0.022)	0.020 (0.043)
2 Small Agricultural Land Holder	0.013 (0.027)	0.033 (0.060)
3 Self-Employed Agricultural Workers	0.016 (0.046)	-0.052 (0.084)
4 Paid Agricultural Workers	0.023 (0.034)	0.001 (0.082)
5 Skilled Labour	0.004 (0.027)	0.060 (0.047)
6 Unskilled Labour	-	-
7 Low Grade Technical & Sales Workers	0.033 (0.039)	0.122† (0.053)
8 Routine Non-Manual Workers	0.043 (0.037)	0.101† (0.055)
9 Higher Grade Professionals	0.063 (0.041)	0.129* (0.055)
10 Administrative Civil Servants	0.067 (0.049)	0.186** (0.059)
11 Ordinary State Employees	0.049 (0.038)	0.105† (0.060)
12 Self-Employed Professionals	0.182** (0.044)	0.213** (0.063)
13 Self-Employed Craft Workers	0.010 (0.034)	0.101† (0.056)
14 Small Entrepreneurs	0.017 (0.038)	0.159** (0.050)
15 Medium Entrepreneurs	0.145** (0.046)	0.024 (0.086)
16 Large Entrepreneurs	0.213** (0.076)	-0.086 (0.134)
R^2	0.084	0.087
W Statistic		5.064

Notes. The symbols z_o and z_h represent the natural logarithms of the occupational and household incomes, respectively. e is a dummy variable which takes the value one if the respondent has any education past grade nine or ten. The quantities in brackets to the right of the estimate is its standard error. †,*, and ** mean significant at the 10, 5, and 1 percent levels. The W statistic is a quadratic form which can be used to test the overidentifying moment restrictions. It has a χ^2 distribution with 42 degrees of freedom.

TABLE 5

Parameter Estimates For The Household Income Model

Variable	z_h	**e**
e	0.519* (0.263)	–
ln(Age)	-1.119** (0.138)	-0.183 (0.107)
Sex	0.062 (0.045)	0.148** (0.023)
Father's Education		0.099** (0.031)
Mother's Education		0.073** (0.024)
Father's Occupation In 1976		
1 Large Agricultural Land Holder	-0.017 (0.047)	0.016 (0.043)
2 Small Agricultural Land Holder	0.023 (0.064)	0.031 (0.060)
3 Self-Employed Agricultural Workers	-0.029 (0.114)	-0.054 (0.084)
4 Paid Agricultural Workers	-0.055 (0.078)	0.005 (0.082)
5 Skilled Labour	-0.021 (0.065)	0.049 (0.048)
6 Unskilled Labour	-	-
7 Low Grade Technical & Sales Workers	-0.096 (0.124)	0.122† (0.072)
8 Routine Non-Manual Workers	0.112 (0.078)	0.095† (0.055)
9 Higher Grade Professionals	0.128 (0.090)	0.123* (0.055)
10 Administrative Civil Servants	0.000 (0.107)	0.177** (0.059)
11 Ordinary State Employees	0.120 (0.079)	0.098 (0.061)
12 Self-Employed Professionals	0.349** (0.110)	0.210** (0.062)
13 Self-Employed Craft Workers	0.090 (0.068)	0.094† (0.056)
14 Small Entrepreneurs	0.066 (0.082)	0.150** (0.050)
15 Medium Entrepreneurs	0.280** (0.086)	0.014 (0.082)
16 Large Entrepreneurs	0.530** (0.104)	-0.092 (0.136)
R^2	0.083	0.087
W Statistic		1.076

Notes. See notes for Table 4.