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Modelling Trends in Social Fluidity: The Core Model and a Measured Variable Approach

Richard Breen* Christopher T. Whelan

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* Department of Sociology and Social Policy, The Queen's University of Belfast

ABSTRACT

In this paper we employ Erikson and Goldthorpe's core model of social fluidity and a 'measured variable' approach to analyse trends in social mobility among men in the Republic of Ireland. Our analyses provides no evidence that the changes associated with industrialisation have led to the increases in social fluidity predicted by the liberal theory of industrialisation. The measured variable approach we employ consistently provides a better fit to the Irish data than the core model. The application of the former model points to a degree of importance of the hierarchy dimension which is not captured adequately by the core model. it also suggests that the well known distinctiveness of the Irish social mobility regime is open to explanation in terms of general dimensions rather than the peculiarities of the Irish case.

MODELLING TRENDS IN SOCIAL FLUIDITY: THE CORE MODEL AND A MEASURED VARIABLE APPROACH COMPARED

I. INTRODUCTION

In this paper we seek to analyze trends in social mobility among men in the Republic of Ireland between 1973 and 1987. Our interest centres on the extent and nature of change in the Irish mobility regime over this period and, in particular, on trends in the pattern of social fluidity. In order to address this issue we employ two rather different mobility models. These are Erikson and Goldthorpe's (1987a,b; 1992) 'Core Model' of social fluidity (henceforth CoSF); and a 'measured variable' approach which we term the Agriculture, Hierarchy, Property (henceforth AHP) model (Breen and Whelan 1992). Thus, the paper has both a substantive focus, in the examination of social mobility in the Republic of Ireland, and also a methodological/ theoretical focus in the comparison of the two sorts of mobility model. So far as this comparison is concerned, we are chiefly interested in two issues. The first of these concerns the role of hierarchy in explaining patterns of social fluidity: how important is vertical social fluidity along a single hierarchical continuum in accounting for patterns of class mobility? This is an issue which has long been a topic of debate between, on the one hand, mainly American sociologists (notably Hout and Hauser 1991) and, on the other, Goldthorpe and his collaborators (for example, Erikson and Goldthorpe 1992: 29-35). The second issue links the theoretical and substantive focuses of the paper: this concerns the extent to which the distinctiveness of the Irish mobility regime can be explained in terms of general dimensions derived from an explicit theory of the mobility process. The application of the CoSF model suggests that this can only be achieved to a very limited extent. We shall argue that, in contrast, the applications of the AHP model suggests that the distinctiveness of

the Irish mobility regime is open to explanation in a theoretically meaningful fashion.

In the next section of the paper we discuss the Irish mobility regime and explain why it provides a useful and interesting testing ground for the two mobility models with which we are concerned. Section three of the paper discusses the CoSF model and its application to the 1973 Irish data. A subsequent section presents the AHP model. Both models are used to analyze change over time in two ways: in a comparison of the 1973 and 1987 mobility tables, and in a simple two cohort analysis of the latter data. In all cases we find that the AHP model provides both the better fitting and theoretically more plausible model. The paper concludes with an extended comparison of what we take to be the underlying logic and rationale of the AHP and CoSF models.

The data we use in this paper come from two sources. The 1973 data are taken from the CASMIN data set. For the 1987 data we draw on the ESRI Survey of Income and Life-Style. Our analysis is based on a nationally representative sample of 2,394 men aged 20-65 who form part of the overall sample. (Callan *et al.*, 1989)

II. IRELAND AND THEORIES OF INDUSTRIALIZATION

When the Republic of Ireland gained independence from the United Kingdom it was, in the words of one commentator, 'as if Scotland had obtained self-government with Glasgow and the Clyde left out' (O'Brien 1962: 11). The reason for this was that the partition of the island of Ireland under the terms of the 1921 Anglo-Irish treaty resulted in the six north-eastern counties, in which the bulk of Irish industry was located, remaining part of the UK. The Republic of Ireland was, as a result, overwhelmingly an agricultural society: in 1926 agriculture accounted for around three-quarters of Irish exports. During the period between about 1930 and the mid-1950s, attempts were made by the state to develop indigenous

industry behind protectionist barriers, but this policy was largely unsuccessful. Even in 1961 agriculture still accounted for almost two-thirds of exports from Ireland. In the mid-1950s, however, industrial policy underwent a sea change. Protectionism was replaced by free trade, as part of a package of incentives to attract multi-national corporations to Ireland. This policy, which continues to the present, has been conspicuously more successful in industrializing Ireland. By the late 1980s for example, agriculture accounted for just under one-third of Irish exports. In its train industrialization swept a wave of change through Irish society (Breen *et al.*, 1990).

As a late industrializing, semi-peripheral nation, Ireland provides a useful test case for theories that seek to relate social change to economic development. The recency of Irish industrialization means that we have access to data relating to periods both prior and subsequent to the commencement of industrialization in the late 1950s. In this paper our concern is whether such economic changes have led to increases in social fluidity - as the 'liberal theory' of industrialism would seem to imply. Such increased social fluidity derives, according to the liberal theory, from two main sources. First, there is a composition effect as classes which own the means of production and in which inheritance of class position is of paramount importance (notably farmers, the petit-bourgeoisie and the self-employed) decline in number and the number of employees increases. Second, among employees, jobs will increasingly be acquired on the basis of achievement. This, it is argued, is a functional necessity of capitalism. In order to compete with other nations, an economy must ensure that the optimum use is made of its population's abilities: hence the acquisition of position on the grounds of anything other than merit will be sub-optimal from the point of view of the economy's competitive position. In allocating positions on the basis of achievement, educational credentials will come to play a central role. This process is sometimes termed

'expanding universalism' (see, for example, Blau and Duncan, 1967: 430).

Perhaps the most obvious critique of the liberal theory is that it neglects the means by which those who occupy positions of relative privilege can maintain them (for themselves and their family) in the face of such 'functional requirements' and the legislation which may accompany them. Thus, while the liberal theory would seem to imply greater societal openness (as measured by social fluidity), such critiques suggest that an increase in fluidity is, at best, problematic (Erikson and Goldthorpe, 1992: 368). The Irish data provide a means of adjudicating this question. In our comparison of the 1973 and 1987 mobility data the liberal theory would point towards some increase in social fluidity between the two. A similar distinction should be evident in the comparison between the older and younger cohorts in the 1987 data.

III. THE CORE MODEL APPLIED TO IRELAND

The CoSF model was developed by Erikson and Goldthorpe as an explicit alternative to social hierarchical approaches in the analysis of class mobility. Thus it is not vertical movement on some social scale that is the focus of Erikson and Goldthorpe's attention but rather mobility understood in terms of *relational* changes.

> ... within a class structural approach individual chances of mobility, whether vertical or otherwise, are unlikely to be the only issue raised. In contrast with the social groupings found at similar levels of prestige or status, classes ... can be expected to show some degree of homogeneity not just in the kinds and levels of resources that their members command, but further in their exposure to structural changes, and in turn in the range of at least potential interests that they may seek to uphold. (Erikson and Goldthorpe, 1992:31)

This approach draws attention to important types of mobility which cannot be adequately characterised in terms of movement along a single vertical dimension.

The CoSF model contains four types of effects to explain the observed pattern of

social fluidity (or relative mobility rates). These are:

- two 'hierarchial effects' parameters (labelled HI1 and HI2) with three levels distinguished;
- two 'inheritance effects' distinguishing between an overall effect for all classes (IN1) and an effect for farmers (IN2);
- a 'sector effect' (SE) capturing movement in and out of agriculture;
- and two affinity effects which are intended to 'capture additional effects on mobility which derive from particular linkages or discontinuities' between classes (Erikson and Goldthorpe, 1987a:67).

The first such affinity term (AF1) relates to the movement between the service class and that of agricultural workers and is intended to allow for factors which make exchanges between such classes particularly improbable. Thus AF1 might better be termed a 'disaffinity' term, and is sometimes referred to as a 'negative affinity' term. The second 'affinity' term (AF2) covers instances where a higher propensity for mobility is attributed than would otherwise be the case.

The model was developed to analyze the mobility data collected and made comparable in the CASMIN project. As its name suggests, the core model is advanced as

> ...an attempt to express the common, or core, fluidity that the FJH hypothesis postulates; but at the same time the model is intended to serve as a means of presenting the hypothesis so that it may receive more systematic testing than hitherto. By applying the model to comparable mobility tables for a range of industrial societies, it should be possible ... to assess the extent to which national deviations from the core pattern occur, and further to establish the nature of these deviations. (Erikson and Goldthorpe 1987b: 145)

The application of the CoSF model to the 1973 Irish data is particularly interesting because it proves to fit the data very poorly. For example, using either the dissimilarity index or $G^2(S)$ (a measure which adjusts G^2 for sample size), Ireland returns the poorest goodness of fit for the CoSF of any of the nine European nations in Erikson and Goldthorpe's study (1987b:148). Furthermore, Erikson and Goldthorpe (1987b: 160) argue that the deviations of the Irish data from the CoSF specification are not amenable to macro-sociological explanation. Thus while

the Republic of Ireland provides an instance where the pattern of social fluidity does not conform at all closely to the core model, the deviations that occur seem to be fairly specific and relate mainly to the agricultural sector. Faced with the failure of the CoSF model to fit, Erikson and Goldthorpe (1987b: 154) then modify the model as it applies to four cells of the table. The pair of cells indicating mobility between the class of farmers and the service class are included in the AF2 (positive affinity) term, as are the cells indicating mobility from farm origins into the class of agricultural workers and from unskilled non-farm origins (class VIIa) into the agricultural workers class.

According to Erikson and Goldthorpe (1987b:154-5) these modifications seem to be required because of certain features of Ireland's large agriculture sector. Of greatest importance is the wide variation in the size of farms and the tendency for relatively distinct types of farmers to emerge. The central distinction lies between, on the one hand, large farmers operating as capitalist entrepreneurs and with various affiliations - economic and socio-cultural - to urban business and professional communities; and, on the other hand, small, often, in fact, marginal farmers. Associated with this dualism in Irish farming there would appear to exist a rural working class of a rather distinctive form. It is these particular class linkages, deriving from the course of development of Irish agriculture, that provide the *raison d'etre* for the additional positive affinities.

The Irish pattern of fluidity is then seen to be idiosyncratic in several respects. First, the AF2 (positive affinity) term takes on a particular high value. This term implies that there is a relatively strong propensity for both hierarchial and sectoral barriers to mobility to be offset. As a consequence of this the areas of white collar and blue collar fluidity which are largely created in the core model by the AF2 term, become most pronounced of all in the Irish case. Secondly, hierarchy effects are weak (the HI1 term being in fact insignificant).

Thirdly, there are other parameters returned to the Irish core model that point quite unambiguously to *low* fluidity. The AF1 term is stronger for Ireland than any other nation; and, far more consequentially, all the inheritance effects are well above core expectations chiefly because the basic IN1 term is again at the extreme of the variation among nations.

The finding relating to low fluidity level is consistent with a wide range of evidence of class linked inequalities in incomes and living standards (Breen *et al.*, 1991; Callan *et al.*, 1989; Rottman *et al.*, 1982) and of the importance of personal contacts (Hout, 1989) and sharp socio-cultural differentiation between blue and white collar workers (Humpreys, 1966; Peillon, 1982). Furthermore, there exists agreement amongst a range of authors that Irish society displays unusually strong tendencies towards intergenerational immobility (Breen and Whelan, 1985; Hout, 1989; Whelan and Whelan, 1984). However, while other authors stress the importance of general hierarchial effects in shaping the Irish pattern of social fluidity, the CoSF model puts the emphasis rather on specific affinities and disafirmities.

The availability of data for 1987 allows us to test the adequacy of the CoSF model in explaining data other that which influenced its formulation. As Hout and Hauser (1991:20) argue, "it will probably be more useful to validate the (CoSF) model against fresh data than to compare any measure of its fit with that of other models of the same data" (our parentheses). We would argue that, if the CoSF model is to be considered an adequate representation of the "core" pattern of social fluidity in industrial nations, then it should provide a statistically and theoretically account not alone of the 1973 Irish data but also the 1987 data; and, furthermore, should play a similar role in the analysis of trends in social fluidity as evidence by comparisons between 1973 and 1987 and by cohort analyses of the

1987 data[1].

IV. THE CORE MODEL AND CHANGES IN THE IRISH MOBILITY REGIME

(i) Comparisons between 1973 and 1987

If we use the CSF model to compare the changes in the Irish mobility regime between 1973 and 1987, however, we are faced with a problem. A model which constrains all the social fluidity parameters to be constant across the data sets provides as adequate a fit to the data as does a model which allows all these parameters to take different values in each table. yet the latter fails, by a long way, to fit the data. Aggregating the G^2s from the CSF model applied to the 1973 and 1987 tables separately gives a total of 161.9 with 56 df. if the nature of Irish fluidity has changed between dates of the two enquiries any such change lies outside the scope of what is captured by the CoSF model.[2] Erikson and Goldthorpe's revised core model (with the changed specification of the AF2 term but retaining the non-significant HI1 parameter) gives G^2 of 38.4 for the 1973 data and 81.15 for 1987 (both with 28 df), yielding an aggregate G^2 of 119.53 with 56 df. A model in which the social fluidity parameters are held constant over the two enquiries gives G^2 of 126.34 on 64 df. In other words, although Erikson and Goldthorpe's revisions to the CoSF model results in its fitting the 1973 data it still fails, by some considerable distance, to fit the 1987 table. Furthermore, although social fluidity patterns have changed significantly over the 1973-87 period, none of the change is

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[1] As Erikson and Goldthorpe (1987a:73) note:
'Our model presents a representation of core fluidity that is stable and independent under analysis ... Although our model is obviously limited in its use to mobility data organised on the basis of our class schema, it is not tied to any particular cross-national data set, and further can be applied directly to the mobility data for single nations'.

[2] A model in which the margins are allowed to vary as between 1973 and 1987 but which constrains the social fluidity parameters to be constant yields G^2 of 167.2 df.

captured in the relevant CoSF parameters. The HI1 parameter has the identical value of -.11 for both 1973 and 1987 while the HI2 parameter increases from -.41 in 1973 to -.59 in 1987.

(ii) Cohort analysis of 1987 data

We distinguish two cohorts in the 1987 data: these are men aged 30-44 and 45-64. We exclude those under 30 years in 1987 on the grounds that they would not have reached occupational maturity. The 30-44 group will have been exposed to the full range of changes associated with industrialisation. By comparing this group to the 45-64 age group we might expect to observe trends in social fluidity which are concealed in comparisons of the overall samples.

Fitting the core model to the 30-44 cohort gives a G^2 of 72.5 with 28 degrees of freedom while for the 45-64 cohort we get a G^2 of 58.9 (see Table 1). As with our comparisons across the two years, a model which constrains the parameters to be constant across the two cohorts provides as adequate a fit to the data as does a model which allows all these parameters to take different values. The latter case yields a G^2 of 131.4 with 56 df while the former gives a G^2 of 142.5 with 64 df.[3] Once again, the application of the CoSF model does indeed point to changes in the pattern of social fluidity between the two cohorts, but fails to capture the sources and location of these changes. While no evidence is found for statistically significant changes in the parameters for the CoSF model across cohorts it is clear from Table 1 that the size of the coefficients for the hierarchy terms are greater in the older than the younger cohort.

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[3] Using the modified version of the CoSF model (again retaining the HI1 term) gives substantially the same results. The G^2 for the two cohorts are 68.5 and 57.7 respectively, each with 28 df. These yield in aggregate G^2 of 126.2 with 56 df in contrast to a model constraining fluidity to be constant which yields G^2 of 136.2 with 64 df.

V. A MEASURED VARIABLE APPROACH TO ANALYSING THE IRISH SOCIAL MOBILITY REGIME

The approach to specifying a model of social fluidity embodied in the AHP model entails an attempt to account for social fluidity in terms of a set of exogenous or measured variables. The theoretical underpinnings of the model are provided by Goldthorpe (1980:99). Under this approach the pattern of social fluidity is considered to be shaped by three factors. These are the relative desirability of different class destinations: the resources available to individuals within each origin class which help gain them access to thee more desirable destination classes; and barriers to entry to destination classes. Typically, we think of resources as 'economic, cultural and social resources' (Erikson and Goldthorpe 1987a: 64) while barriers to mobility include the necessity to own the means of production; education and other qualifications needed for entry to the occupations that compromise a class grouping.

This same orientation, of course, underlies the operationalisation of Erikson and Goldthorpe's own CoSF model. however, the AHP model differs from theirs in at least one important respect. in the CoSF model all effects are modelled as dummy variables. Thus there is no immediate relationship between social fluidity and the factors which might be said to influence these social fluidity. In the AHP model, by contrast, we seek as far as possible to explain social fluidity in terms of measured independent variables. this is made possible by the fact that the 1987 survey collected a range of information relating to the respondents' origins and their destinations.

Our operationalisation of this model has been discussed at length elsewhere (Breen and Whelan, 1992) here we give a brief summary. We employ a generalised measure of resources, which compromises the first principal component of two variables:

X1: the percentage of fathers in each origin class having only primary education;

X2: the mean score in each origin class on a scale measuring the respondent's perception of his family's relative financial deprivation when he was growing up.

Likewise, we employ a generalised measure of desirability and barriers comprising the first principal component of four measures:

Y1: the gross mean household income in each destination class;
Y2: the mean score in each destination class on a 20-item consumption scale;
Y3: the percentage of men in each destination class unemployed or permanently unable to work due to illness or disability over the term of the survey;
Y4: the percentage of men in each destination class having more than primary education.

The ownership of the means of production is both a resource for mobility among men of farming, petty bourgeois and proprietorial origins as well as a barrier to entry among those from other class origins. We measure these resources and barriers as

P1: the proportion of fathers in each origin class who are self-employed;
P2: the proportion of men in each destination class who are self-employed.

These, then, are measured variables. We also include variables which, while not measured, relate directly to our theoretical formulation. the first of these is a single parameter to reflect class inheritance applied to all cells on the main diagonal of the table. The second and third reflect the particular position of the agricultural sector: they are a parameter for inheritance by farmers, over and above the overall average level of class inheritance, and a parameter which reflects the barrier to movement into (but not out of) agriculture. Finally, we include one extra parameter which captures the propensity of men of petty bourgeois and farm origins to move into higher managerial, professional and large proprietor class.

We can write this model as

$$\log F_{ij} = \lambda + \lambda^{F} = \lambda^{S} + \lambda^{SLP} + \lambda^{INH1} + \lambda^{INH3} + \lambda^{AGB} + \alpha(XY) + \beta(P12) \qquad (1)$$

where F_{ij} is the expected value in the ijth cell of the table, alpha is the parameter of

association between X and and beta that between P1 and P2.

This model has two claims to novelty. First, although it is usual to posit a sectoral effect to capture the agricultural/non-agricultural distinction, ours is the first model which takes account of the asymmetric relation between the two in specifying the nature of the sectoral effect. There is a clear barrier with agricultural occupations but not (once we control for class inheritance) to movement out of them. Secondly, while previous studies have used variables to scale origins and destinations, they have employed measures defined on the destination classes and applied them to both destinations and origins (for example, Hauser, 1984; Hout, 1984; Hout and Hauser, 1991). In our model we apply measures defined on the origin classes and measures defined on the destination classes are applied to the destination classes only. We enter these measures into our model as two linear by linear interactions (Goodman, 1979): the first comprises the origin principal component scores derived from the X variables multiplied by the destination principal component scores (derived from the Y variables). We call this variable XY. Its coefficient we label α. The second comprises P1 multiplied by P2, which we term P12, with coefficient β. The logic behind this is, briefly, as follows. The basic aim of a model of social fluidity is, initially, to account for the observed probability or odds of a man from origin class i being found in destination class j rather than class j. Models which relate such odds to the relative desirability of the different destinations are available (for example, McFadden, 1973): however, in contrast to such models (which place the emphasis on utility maximising choices) we want to do this while keeping the destination class marginals fixed. This corresponds to the fact that positions available in each destination class are fixed in number and the relative desirability of classes can only determine the odds of entry subject to this. In other words, desirability only plays a role in shaping odds conditional on the constraints set by the column totals - but it affects odds ratios

unconditionally. By fitting the destination main effect parameters in a mobility model we fix the column marginals. But this implies that a desirability measure cannot then have the same effect on all origin classes in determining the odds of entry into one destination class rather than another. This is because such a measure lies in the span of the vectors that comprise the main effect parameters. Hence, in fitting desirability measures we must allow their effect to depend upon a particular origin class (or set of origin classes). In our model, this is achieved in the fitting of the linear by linear interaction terms which makes the effects of desirability and barriers vary according to resources for mobility possessed by each origin class. Similarly, the effect of resources varies according to the level of desirability/barriers of each destination class. This is both parsimonious and intuitively sensible.

We applied this model to the 1987 Irish data in both the 7 x 7 form (using the CASMIN 7 class categorisation) and a 14 x 14 disaggregated version. The goodness of fit statistics were, respectively, 40.19 on 30 df ($p > .05$) and 298.6 on 162 df. What was most striking was the high level of agreement in the parameter estimates derived from applying the same model to the two tables (Breen and Whelan 1992). These results suggest to us that a properly specified model employing exogenous, measured variables, can provide an account of social fluidity which is both a statistically adequate fit to the data and provides a means of explaining what shapes such fluidity.

As its name suggests, hierarchical social fluidity plays an important role in the AHP model. In a recent paper, Hout and Hauser (1991) have criticised the CoSF model for what they view as its inadequate specification of the hierarchical (or vertical) component of fluidity. Specifically they argue that the three hierarchial levels distinguished in the CoSF model are insufficient to capture the relevant distinctions among occupational categories; and that a linear by linear specification of the hierarchical component would be superior to the social

distance specification adopted by Erikson and Goldthorpe[4].

Unlike Hout and Hauser (1991), and in common with Erikson and Goldthorpe, we adopt a class structural approach. We accept that while the relationships that constitute a class structure can be seen as expressing differential social advantages and power, they do so in quite varying ways; and class positions need not therefore be ordered in any *consistent* hierarchical fashion. However, as Erikson and Goldthorpe (1992:34) recognise, the class structural and social hierarchical approaches are not entirely incompatible, and, in practice, some degree of compromise between them may be sought. Thus, using Goldthorpe's theoretical framework and employing a measured variable approach, we will seek to show that it is possible to develop a model of the Irish social mobility regime which, while remaining clearly within a class theoretical framework provides, a more satisfactory treatment of the hierarchy dimension than is afforded by the CoSF model.

V. THE AHP MODEL APPLIED TO IRISH DATA FOR 1973 AND 1987

(i) Comparisons between 1973 and 1987

As we noted earlier, the AHP model fits the 1987 Irish data with a G^2 of 40.2 with 30 df reducing the independence G^2 model by 96 per cent. However, when we come to seek to apply the AHP model to the 1973 Irish data, a problem arises in so far as we lack the kind of measured variables which we possess for 1987. However, the AHP model has a very straightforward logic underlying it, which we can make use of in an attempt to approximate the model and apply it to the earlier data.

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[4] Hout and Hauser (1992) make a number of criticisms of the CoSF model - notably that Erikson and Goldthorpe work with too few class categories, and that their model contains unnecessary asymmetries. neither of these criticisms is relevant to the concerns of this paper.

The model directs attention to a small number of factors which provide the basis for mobility analyses. These factors are: first, the pattern of mobility flows related to the ownership of the means of production; secondly, the particular position of the agricultural sector and, specifically, the barrier to movement into agricultural occupations; and thirdly, a hierarchical or vertical dimension captured by the ordering of rows and columns (and corresponding to hierarchical measures of resources, desirability and barriers). In the remainder of this paper we use a model which contains effects that relate to each of these factors: we call this the AHP proxy model. We use his model to analyse the 1973 Irish data. Now, clearly, this AHP proxy model does not use measured variables, and hence falls some way short of the ideal; but what it should enable us to do is to give a parsimonious account of social fluidity in 1973 and to indicate the broad areas in which cross-inquiry variation is significant.

The AHP proxy model contains seven parameters that model social fluidity. The effect of hierarchy is modelled using Goodman's RC2 model. This provides a scoring of rows (μ) and columns (ν) so as to maximise the association between the two, conditional on the other effects in the model. The association parameter we label γ. We also fit the single parameter for the overall level of class inheritance (INH1). The position of property owners is captured in a parameter, P, which represents movement between all origin/destination pairs of property-owning classes (i.e., cells 1,3; 1,4; 3,1; 3,4; 4,1; 4,3) and distinct inheritance parameters for the petty bourgeoisie class (INH2) and for farmers (INH3). The position of the agricultural sector is captured in the agricultural barrier parameter, AGB. We fitted a final parameter for inheritance in the technician/skilled manual class, (INH4). Applied to a 7 x 7 table this model has 19 degrees of freedom for which the critical value of chi-squared is 31.3.

$$\log F_{ij} = \lambda + \lambda^{F} + \lambda^{S} + \lambda^{P} + \lambda^{AGB} + \sum_{i=1}^{3} \lambda^{INH} + \gamma u_i v_j \qquad (2)$$

where γ is the parameter measuring association between the estimated row and column scores, u_i and v_j.

It is important to be clear on the role, within the AHP proxy model, of the very general specification of the hierarchical effect in terms of the RC2 model. Clearly, since RC2 scales the rows and columns of a table so as to maximise the association between them, then, if the proxy AHP model fits the data only poorly, we believe that it is unlikely that a model which used given scores for rows and columns in the construction of a hierarchical effect (as does the AHP model proper) would provide an adequate account of mobility. Conversely, if the proxy model fits the data then it leaves open the possibility that exogenous measured variables may also give rise to row and column rankings which, when combined as one or more non-hierarchical terms, would form part of a model which would fit the data. In addition, of course, in the case of a 7 x 7 table, we could enter 11 exogenously measured hierarchical effects without exceeding the degrees of freedom used by the RC2 specification.

When the AHP proxy is applied to the 1973 and 1987 tables it emerges that a model which posits that all the differences between these tables arise from changes in the origin and distribution effects and are in no way due to a change in social fluidity very nearly fits the data (G^2 = 97.5 with 55 df). A model which allows only two of the inheritance parameters comes even nearer to fitting (G^2 = 86.5 with 53 df).

There are, notwithstanding, a number of difficulties in interpreting the parameters of the AHP proxy because of the use of the RC2 specification. These arise from the fact that both the scorings of rows (μ) and columns (ν) and the association parameter for the two (γ), are free to vary and that, as a result, only two out of the three of these parameters are

identified. Accordingly, we extend our analysis by means of cohort analysis of the 1987 data where it is possible to apply the AHP model in its detailed measured variable form.

(ii) Cohort analysis of 1987 data

In fitting the AHP model proper to the 30-44 year old and 45-64 year old cohorts in the 1987 data we retained the same exogenously given measures of resources and desirability/ barriers across both cohorts. In the case of the column scores we follow this procedure because theoretically what we require is an overall measure of desirability for it is that which, we presume, will determine mobility aspirations rather than advantages associated with one particular point of the life-cycle. Relying on the overall scores for rows simply involves the parsimonious assumption that relative resources associated with a particular class origin do not vary significantly across the cohorts with which we are concerned. In both cohorts, the SLP term, which captures the movement from petty bourgeois and farm origins into the professional, administrative and managerial class (I+II) is not significant. Dropping this term from the model, we find goodness of fit statistics as follows: for the 30-44 cohort, $G^2 = 47.4$; for the 45-64 cohort $G^2 = 42.6$. Each of these has df= 31. The model contains one substantial residual, in that the flow between farm origins and non-farm unskilled work is significantly overestimated in the younger cohort and underestimated in the older. If we fit this cell exactly in each table then the model has df= 30 and G^2 =40.0 for the 30-44 cohort, and G^2 =33.6 for the 45-64 cohort. We refer to this extra term AF as the 'affinity term'. We write this model as:

$$\log F_{ij} = \lambda + \lambda^{F} + \lambda^{S} + \lambda^{INH1} + \lambda^{INH3} + \lambda AF + \alpha(XY) + \beta(p12) \qquad (3)$$

In comparing across the cohorts we find differences in only two areas. A model which constrains all the social fluidity parameters to be equal across cohorts return G^2 =93.2 with

66 df, while a model which allows only the affinity parameter, AF, and the property parameter, alpha, to vary returns G^2 =74.8 with 64 df. The findings of the analysis are thus very clearcut. The property effect is stronger in the older than the younger cohort, and the flow from farming origins to unskilled non-arm work is much stronger among the older than the younger cohort. The declining importance across cohorts in the size of the property parameter is open to interpretation as involving a substantive change in the underlying pattern of social fluidity or as simply reflecting the fact that the full advantages associated with a properted background are not yet fully reflected in the mobility patterns of the younger cohort. The failure to observe any significant change in the size of the property parameter between 1973 and 1987 suggests that the latter interpretation may be nearer to the truth. The change in flows from farming origins to unskilled non-farm work are consistent with the account given by Hannan and Commins (1992) of the manner in which the off-spring of farmers benefited disproportionately from Irish industrial and educational policy since the late 1950s.

VI. THE CORE MODEL AND THE AHP MODEL COMPARED

Both the CoSF and the AHP models are class structural models, and thus share a good deal in common, not least their derivation as attempts to operationalise Goldthorpe's (1980) formulation of social fluidity as resulting from the interplay of resources, desirability and barriers. Nevertheless, there are also important differences between the two.

We believe that it is important, in cross-national or intertemporal comparisons, to develop models which fit, or very nearly fit, the dat, using conventional criteria. The reason for this is that, given such a model, comparison will be rendered relatively straightforward by seeing how far, and which, parameters of the model can subsequently be constrained to

be cross-nationally equal (Breen, 1985). The alternative is to employ a model which does not fit the data and examine the residuals to determine how the mobility regime differs between countries, cohorts or inquiries. This is the strategy to which the CoSF model leads. The difficulties with this are twofold. First, the residuals from such a model will include not only systematic effects that were omitted from the model but also sampling and other errors. The model itself cannot disentangle these. Second, as our discussion of the CoSF model applied to the Irish data for 1973 and 1987 and the cohorts of the 1987 study illustrates, if the dimensions of difference between two or more mobility tables lie outside the fitted model, then the model is of no utility in telling us how - and more importantly why - the tables differ. In this respect the fact that the 'Irish variant' of the core model does little better than the original version is relevant.

The fit of the CoSF to our data can, in fact, be improved by substituting the linear by linear interaction terms of the AHP model for HI1 and HI2 terms. Thus for the 1987 data the CoSF model's G^2 falls from 93.4 with 28 df to 80.4 with 29 df when we replace HI1 and HI2 with the AHP XY term. A similar situation applies to the 1987 cohort data when the goodness of fit of the core model constraining all fluidity parameters to be equal cross cohorts improves from a G^2 of 142.5 with 64 df to 120.8 with 65 df. This finding is in direct contrast to that of Erikson and Goldthorpe (1992:137) who report that substituting a variety of interaction terms based on the Treiman, Hope-Goldthorpe and Duncan scales gives poorer fits than the CoSF model's original hierarchy specifications. This leads them to argue that the superior performance of the HI1 and HI2 hierarchy terms is based on the fact that they are not linear. Our results suggest otherwise, and leads us to agree with Hout's (1989:150) conclusion that the core model understates the importance of hierarchy in Ireland as a consequence of the fact that the hierarchy terms in the CoSF model are inadequate. Our analysis suggests that a

correctly specified hierarchy term is a very important component of Irish social fluidity and one which the CoSF model cannot incorporate.

Erikson and Goldthorpe (1992:129) argue that hierarchial effects derive from more than one vertical dimension. Thus the areas of both 'while collar' and 'blue collar' fluidity that are a feature of the core model do not result from closeness within the threefold hierarchial divisions reflecting differences in reward and entry requirements but are rather produced by countervailing effects which must be understood in *status* terms. Connected to consistent findings of differential association (Mitchell and Critchley, 1985), white and blue-collar affinities are seen as lying in the evident 'closeness' of the classes in question within the *status* structures of modern societies understood *stricto sensu* in relational rather than attributional terms. As we have noted earlier such affinities are seen to be particularly important in the Irish case. But other than to the extent to which such factors are reflected in our overall inheritance parameter, we find no need to make specific reference to such factors in our model.

The fact that the CoSF model, even with the inclusion of the AHP hierarchy term, does not provide a satisfactory fit to the 1987 data indicates that the superiority of the AHP model does not derive solely from the inclusion of this term. The availability of detailed information on the proportion self-employed in both origin and destination categories also proves crucial in facilitating a general explanation of the nature of the Irish social mobility regime. The fact that the Irish variant of the CoSF model does such a poor job in accounting for changes in Irish social fluidity over time and across cohorts suggests that this particular model could not be made to approach an adequate fit to the data, short of accumulating a large number of *ad hoc* 'affinity terms'.

Conclusions

As we noted in the introduction the focus of this paper is both substantive and methodological/theoretical. Our substantive concern has been with the evidence relating to trends in social fluidity in the Republic of ireland. The cohort analyses of the 1987 data supports our earlier conclusion based on a comparison of data for 1973 and 1987 that there is no evidence to support the argument that the changes associated with industrialisation have led to the increases in social fluidity predicted by the 'liberal theory' of industrialisation. Application of the AHP proxy model to the data for 1973 and 1987 suggests that the only parameters which vary over time relate to the strength of inheritance tendencies. Since some difficulties arise with the AHP proxy model because of the use of RC2 specification we have extended the analysis in order to apply the full model to the cohorts for 1987. Once again no tendency towards a general increase in social fluidity is observed. The hierarchy and inheritance effects remains constant across cohorts and while the property effect is weaker in the younger cohort we suspect that this may be accounted for by life-cycle factors rather than trends over time. Thus our analysis supports the sceptical position taken by Erikson and Goldthorpe, (1992: 99-101) in relation to Ganzeboom, Luijkx and Treiman's (1989) claim to have provided evidence for the existence of a trend towards increasing openness over time.

The second focus of our paper involved a comparison of the CoSF and AHP models. In order to access both the importance of hierarchy in explaining the Irish pattern of fluidity and the extent to which an explanation of this distinctive pattern is possible in terms of the general dimensions derived from an explicit theory of the mobility process. Before summarising our conclusions relating to such issues it is necessary to stress that since both models are 'class structural' models deriving from the same theoretical source, they clearly have a good deal in common. The measured variable approach however, does have significant

advantages. The evidence from our analysis consistently points to a degree of importance of the hierarchy dimension which is not captured adequately by the hierarchy terms of the CoSF model. The superiority of the AHP model is not due entirely to the measured hierarchy term. The general value of the measured variable approach is shown by the success of the AHP and AHP proxy model in providing a satisfactory account of the data for 1973 and 1987 and trends in social fluidity as evidenced by comparisons between 1973 and 1987 and by cohort analysis of the 1987 data. These findings suggest that the well known distinctiveness of the Irish social mobility regime is open to explanation in terms of the general theoretical dimensions in the AHP model rather than requiring reference to the peculiarities of the Irish case.

Table 1: *Core Model Fitted to 30-44 and 45-63 Cohorts 1987*

Parameter Estimates	30.44	45.64
HI1	0.0 (.11)	-0.37 (.20)
HI2	-0.45 (17)	-0.69 (.22)
IN_1	0.79 (.14)	0.80 (.16)
IN_2	0.80 (.25)	0.32 (.28)
IN_3	1.21 (.28)	2.17 (.55)
SE	-0.57 (.20)	-0.36 (.20)
AF1	-1.78 (.73)	-1.35 (.74)
AF2	0.29 (.10)	0.56 (.11)
G^2	72.5	58.9
DF	28	28

Table 2: *AHP Model Fitted to 30-44 and 45-64 Cohorts in 1987*
[AF Term IV_c - VII_a included]

Parameter Estimates		
Common:		
INH1	0.33 (.08)	
INH3	1.63 (.36)	
AGB	-1.27 (.28)	
α	0.73 (.06)	
Heterogenous:	*Deviation for Cohort*	
30-44	45-64	
p 0.77 (.21)	0.79 (.31)	
AF -0.61 (.23)	1.30 (.32)	
G^2 = 74.8		
df=64		

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